“This publication is made possible by the generous support of the American people through the Office of Food for Peace, United States Agency for International Development (USAID) under terms of Cooperative Agreement No. AID-FFP-A-17-00006. The contents are the responsibility of AVSI Foundation and Graduating to Resilience and do not necessarily reflect the views of USAID or the United States Government.”
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**VALUE CHAIN DICTIONARY**

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<th><strong>Organized Farm Group</strong></th>
<th><strong>Focus Group Discussion, KII, Value Chain Maps</strong></th>
<th><strong>Household and Women's Survey</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Any formal farming group that does activities together, usually including bulking and selling. Cooperatives, rural production organization, production and marketing groups, and the like can be classified as organized farm groups.</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Middlemen</strong></th>
<th><strong>Small Middleman</strong></th>
<th><strong>Large Middleman</strong></th>
<th><strong>Contracted Buyers</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Has a bicycle or motorcycle. May bulk in own store or house or may sell immediately.</td>
<td>Has a pick-up or tippie truck. May bulk in own store or sell immediately.</td>
<td>A subsection of middlemen who make prior contracts with farmers about the quantity and price of purchase.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Large-scale Traders/Exporters</strong></th>
<th><strong>Trading centers/traders</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>These traders usually have a lorry or a trailer. They buy/sell in the national market (e.g., Kampala, Mubende, Ibanda, Soroti) and the international market (Rwanda, Kenya, South Sudan, and Tanzania).</td>
<td></td>
</tr>
</tbody>
</table>

| **Processors/Large-scale Processors** | **Any entity involved in threshing/cleaning/milling activities. To our knowledge, large-scale processors conducting milling were not present in Kamwenge.** | |

| **Local Markets** | **Markets in Biguli, Bihanga, Bwizi, Nkoma, Nkoma/Katayeba TC and are usually organized once a week or twice a month. Beans and groundnuts are usually sold in sacks.** | **Referred to as “market” in survey. For obtaining inputs, we distinguished between traveling to the “main market” (assumed to be further and bigger in scale, such as Katayeba or Kamwenge Town) and the “local market” (assumed to be closest to the villages and perhaps smaller in scale such as those in Biguli).** |

| **Local Shops** | **Local shops are stores where food stuffs and household goods are sold, often referred to as dukas. Beans and groundnuts are usually sold in sacks in the shop.** | |

| **Supermarket** | **Large grocery stores, usually found in cities like Kampala and Fort Portal. Products will be found in their processed form or packaged.** | |
# LIST OF ACRONYMS

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>FEWS NET</td>
<td>Famine Early Warning System Network</td>
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<tr>
<td>FFBS</td>
<td>Farmer Field and Business School</td>
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<tr>
<td>FGD</td>
<td>Focus Group Discussion</td>
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<tr>
<td>HADS</td>
<td>Humanitarian Assistance and Development Services</td>
</tr>
<tr>
<td>KCDP</td>
<td>Kamwenge Community Development Project</td>
</tr>
<tr>
<td>KII</td>
<td>Key Informant Interview</td>
</tr>
<tr>
<td>IRB</td>
<td>Institutional Review Board</td>
</tr>
<tr>
<td>ISSD</td>
<td>Integrated Seed Sector Development Programme</td>
</tr>
<tr>
<td>LMA</td>
<td>Labor Market Assessment</td>
</tr>
<tr>
<td>LWF</td>
<td>Lutheran World Foundation</td>
</tr>
<tr>
<td>MUREC</td>
<td>Mildmay Uganda Research and Ethics Committee</td>
</tr>
<tr>
<td>NAADS</td>
<td>National Agricultural Advisory Services</td>
</tr>
<tr>
<td>NARO</td>
<td>National Agricultural Research Organization</td>
</tr>
<tr>
<td>NGO</td>
<td>Non-governmental Organization</td>
</tr>
<tr>
<td>OPM</td>
<td>Office of the Prime Minister</td>
</tr>
<tr>
<td>SACCO</td>
<td>Savings and Credit Cooperative</td>
</tr>
<tr>
<td>UGX</td>
<td>Ugandan Shillings</td>
</tr>
<tr>
<td>UNHCR</td>
<td>United Nations High Commission for Refugees</td>
</tr>
<tr>
<td>VCA</td>
<td>Value Chain Assessment</td>
</tr>
<tr>
<td>VSLA</td>
<td>Village Savings and Loans Association</td>
</tr>
<tr>
<td>WFP</td>
<td>World Food Programme</td>
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EXECUTIVE SUMMARY

The Graduating to Resilience Activity (the Activity) aims to help extremely poor refugee and Ugandan households in Kamwenge graduate from conditions of food insecurity and fragile livelihoods to self-reliance and resilience. The Activity will work methodically with 13,200 economically active but chronically poor households to gradually expand their livelihood capabilities in order to improve their overall food security, nutrition, and resilience to shocks. As part of a series of exercises launched with the goal of understanding the underlying causes and consequences of poverty and food insecurity in Kamwenge, the consortium team (comprising AVSI Foundation, IMPAQ International, and Trickle Up) launched a value chain assessment. This report describes the analysis undertaken by the team for examining the maize, beans, and groundnuts value chains, which were deemed as the most relevant value chains for fulfilling the Activity’s objectives.

To implement the assessment, we used a mixed methods approach – including quantitative and qualitative data collection and analysis – to assess the three value chains. The assessment involved several key components, such as selecting the appropriate value chains for analysis, understanding poor households’ access and profitability in the value chains, and the challenges and opportunities for poor households within the value chain. For each component, we collected qualitative data through key informant interviews (KIIs) and focus group discussions (FGDs) and triangulated the information with quantitative survey data and desk review. The quantitative data were collected through household and women’s surveys among the host and refugee households living in the Rwamwanja refugee settlement and the surrounding areas of Kamwenge. We administered household surveys to 333 Ugandan and 350 refugee households across 18 villages. The women’s survey was collected from 78 Ugandan and 82 refugee women.

The key insights from our analysis are as follows:

- Across the three value chains, households have little access to information on cultivation methods or prices. While Ugandan households reported receiving some of this information from formal sources, refugee households stated in the survey that they tend to access and utilize information obtained through informal channels, such as friends and family. Lack of information on market prices and quality expectations prevents households from selling their output and creates an atmosphere of mistrust among buyers and sellers—a highly common theme that emerged in our qualitative analysis. Other than seed, only a small share of households use agricultural inputs, such as organic herbicides, pesticides, and fertilizers.
- The three value chains are associated with varying levels of profit margins and actor presence. For maize cultivation, most value chain actors are present in the region, with the exception of large processors. For beans, however, the data showed that beans are largely produced for household consumption and bean producers may lack access to other value chain actors. Very few poor households cultivated groundnuts, which were grown primarily for consumption at home and sales to middlemen. The FGDs and KIIs revealed that groundnut production remains relatively rudimentary and farmers often do
not understand the necessary inputs required for enhanced and quality yield; furthermore, financial constraints often leave farmers unable to buy the additional inputs needed for this type of production, which varies in complexity compared to maize or beans.

- Farmers also incur significant post-harvest losses, as producers repeatedly mentioned in FGDs and interviews.
- Within agricultural households, women’s participation and roles across the three value chains are limited compared to those of their male counterparts as they primarily engage in farming (see Chapter 5. Role of Women in Value Chains for more details).
- An atmosphere exists of mistrust among all actors in the value chains. Beyond lack of information, the absence of binding standards and regulations, such as inconsistency across weighing scales, contributes to the environment of suspicion that characterizes the relationships among value chain actors.

The main recommendations that have emerged from our analyses and are of direct relevance for AVSI’s programming are as follows.

**Provide training and information to households on cultivation methods, and market-based business and technical skills.** The Activity could address issues related to limited awareness of production technologies through the FFBS approach, which already seeks to provide training and coaching to households to enhance producers’ knowledge. To build upon the FFBS method, the Activity could provide specific information on cultivating maize, beans, and groundnuts. The FFBS could also provide a conduit for farmers to engage in more training related to improving their marketing and business skills, including modules on negotiation, recordkeeping, and financial management. Such business management training has the potential for improving their economic activities as well as personal financial management. Furthermore, these FFBSs may offer a reliable source of information to farmers about agricultural prices at various sources. Separately, the coaches attached to each household could engage in more direct and personalized training to enhance the marketing abilities of individual producers and empower them to move away from their reliance on middlemen. Additionally, these coaches could deliver market information to households on a regular basis.

**Help improve access to agricultural inputs.** If the Activity could allow farmers to purchase the inputs (preferably repackaged into small quantities) at the FFBSs, then farmers may be more likely to utilize these inputs on their farms. Furthermore, these FFBSs could be linked with farmer groups for bulk purchase of inputs by these groups. Alternatively, a successful farmer group could circumvent the FFBS and directly purchase inputs from retailers if that route proves more cost effective.

**Improve linkages and diversify source of harvest sales.** For maize, the Activity should focus on creating linkages (especially to information sources) and ensuring that producers sell to actors already present in the value chain, which would allow them to earn a higher price. For groundnuts and beans, the Activity may need to help not only form the linkages, but also encourage the participation of traders, processors, traders/exporters, and international organizations like WFP to initiate buying from poor communities. As a further recommendation
to diversify sales outlets and stabilize prices received, refugees mentioned they wish to sell their maize to WFP. Farmers could join together to form “super PMGs” to bulk the quantity of maize required for purchase by WFP. Another important linkage to establish would be between farmers and formal financial institutions in the area.

**Ensure that consumption smoothing cash transfers align with pre-harvest months when farmers feel pressure to sell quickly.** The amount of the consumption smoothing cash transfers could be tied to periods close to harvest when farmers face extreme cash shortages and tend to sell their crops prematurely or at lower prices at the farm gate.

**Explore opportunities for improved post-harvest facilities and practices.** The asset transfers made to the intervention arms receiving assets could be made with nudges to purchase equipment to reduce these losses so that farmers may consider using that money for purchasing tarps and/or pooling money to construct storage facilities within their community, which would also improve their ability to bulk crops. Moreover, FFBS could train farmers in methods to reduce these losses and information on equipment needed for improved post-harvest practices. AVSI could also explore providing farmers with more individualized storage equipment, or facilities that only a few producers share in order to reduce the level of mistrust if working at the larger community level.

**Improve women’s role in value chains by ensuring that they receive training, information, and access to credit.** As the Activity is designed using the women-plus approach, it must take care to time VSLA, FFBS trainings, and coaching so that women can feasibly attend amid their many other commitments and time demands. The coaches could help to provide households with market information, and when they do so, the Activity should consider involving both women and men as frequently as possible to reduce the possibility of household tensions and gender-based violence. Moreover, through the VSLA and coaching, women could be provided information on the procedures for becoming a savings and credit cooperative organization (SACCO) or a bank member, in case the woman choses to expand beyond her VSLA.

**Explore the possibility of strengthening contractual relationships between buyers and producers.** If AVSI could work with some of the buyers to facilitate the establishment of contractual agreements with farmers or farmer groups, especially for the maize value chain, the mistrust among the actors over time could be reduced and allow for improving the functioning of the value chain, as a whole, in the region. However, such long-term relationships could be established at a later phase of implementation in the Activity when producers have acquired the status of being able to produce quality crops and plan beyond fulfilling their subsistence needs. The Activity could also foster greater interactions among non-producer value chain actors for narrowing the information gap and building linkages.
CHAPTER 1.  INTRODUCTION

1.1 Background

The Graduating to Resilience Activity (the Activity) aims to help extremely poor refugee and Ugandan households in Kamwenge graduate from conditions of food insecurity and fragile livelihoods to self-reliance and resilience. The Activity will work methodically with 13,200 economically active but chronically poor households to gradually expand their livelihood capabilities in order to improve their overall food security, nutrition, and resilience to shocks. Using a woman-plus-household graduation approach, the project aims to provide a host of interventions, including, but not limited to, training, consumption support, asset transfer, and livelihood planning.

Launched in November 2017, the Activity is being implemented for seven years, with the first year dedicated to refining content in the original proposal by initiating relationships within the community, conducting assessments and consultations, and hiring and training staff members. During the first refinement year, the AVSI consortium, comprising AVSI Foundation, IMPAQ International, and Trickle Up, aimed to design the precise nature of Activity interventions based on a systematic understanding of the cultural, sociodemographic, and economic contexts in the target area. As a part of a series of exercises launched with the goal of understanding the underlying causes and consequences of poverty and food insecurity in Kamwenge, the consortium launched a value chain assessment. The assessment aimed to help design specific interventions geared toward improving the role and participation of poor households within specific value chains. This report describes the analysis undertaken by the project team for examining the maize, beans, and groundnuts value chains, which were deemed as the most relevant value chains for fulfilling the Activity’s goal of improving the livelihoods and resilience of ultra-poor households. Specifically, the assessment aimed to fulfill the following objectives:

- Identify potential agricultural/livestock rearing value chains in Kamwenge in which the majority of extremely poor households have opportunities to improve their livelihoods.
- Map the key actors, activities, processes, and information flows in the value chains, especially the role and participation of poor Ugandan households and refugees, and women in the value chains.
- Characterize the linkages, such as strength and direction, among the value chain actors, including the institutional and governance structures.
- Conduct a profit analysis for key actors in the value chains.
- Understand the key market opportunities and constraints for improving the participation and welfare of the extremely poor households in the value chains.
- Explore the knowledge, skills, asset transfers, and support services that will allow extremely poor households greater opportunities and participation in the value chains.

The remainder of this report is organized as follows. This chapter describes the methodology, timeline of activities, and the procedures followed to select the value chains for the assessment. Chapter 2, Chapter 3, and Chapter 4 describe each value chain in greater detail, including the
various actors and linkages, profit analysis for each actor, the challenges and constraints confronting producers, and the opportunities for improving their participation in the value chain. Chapter 5 discusses female perspectives on their involvement in the value chains, drawing largely from focus group discussions (FGDs) and key informant interviews (KII). In Chapter 6, we explore non-producers’ opinions on their role within the value chains; this section incorporates notes from KIIIs with livelihood participants, large-scale market traders, large-scale farmers, input dealers, middlemen, and processors in addition to representatives from cooperatives, the World Food Programme (WFP), and the SACCO in the region. Chapter 7 then dives into some relevant ancillary information on land distribution and rentals. Finally, Chapter 8 concludes the technical analysis of this report with recommendations and strategies for designing the Activity interventions. Two Annexes at the end highlight our value chain decision making and provide in full the qualitative instruments used to collect data.

1.2 Methodology

We used a mixed-methods approach—including quantitative and qualitative data collection and analysis—to assess the maize, beans, and groundnut value chains. The assessment involved several key components, such as selecting the appropriate value chains for analysis, understanding poor households’ access to and participation in the value chains, profitability of the actors, and the challenges and opportunities for poor households within the value chain. For each component, we collected qualitative data through KIIIs and FGDs and triangulated the information with quantitative survey data and desk review to fulfill the assessment objectives. We implemented the following steps for implementing the value chain assessment.

1.2.1 Understand Different Value Chains Operating in Kamwenge

As a first step in selecting the value chains for assessment, the team understood the key agricultural and livestock value chains present in Kamwenge. Before launching the assessment, the team conducted a planning trip and conducted key informant interviews with representatives from the following groups:

- Office of the Prime Minister (OPM), United Nations High Commissioner for Refugees (UNHCR)
- District production and commercial officers
- Non-governmental Organizations (NGOs) such as the Samaritan Purse and the Lutheran World Federation (LWF)

Along with these KIIIs, the team also conducted three FGDs with Ugandan and refugee women and men for the value chain assessment (VCA). The purpose of these KIIIs and FGDs was threefold. First, they were used to understand the primary livelihoods of the households living in the program implementation area and obtain a broad overview of the challenges and opportunities in each value chain. This information was used to populate the decision matrix used

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1However, the report and the data presented within the VCA also draw from FGDs conducted in April 2018 as part of the Labor Market Assessment (LMA). Please see Section 1.2.4 Qualitative Data Collection, for more information on the details of the FGDs conducted as part of the LMA.
for selecting value chains described in the next section. Second, the information was also used to understand the landscape of key actors operating in agricultural and livestock value chains in the region. Third, they were used for designing and fine tuning the household and women’s survey instruments to be implemented at a later time.

1.2.2 Quantitative Data Collection

To gather information on poor households’ and women’s access and participation in different value chains, we administered a household and women’s survey among the host and refugee households living in the Rwamwanja refugee settlement and the surrounding areas of Kamwenge District. We administered household surveys from 333 Ugandan and 350 refugee households across 18 villages. The women’s survey was collected from 78 Ugandan and 82 refugee women. Both data sets were selected using purposive sampling. Specifically, in each village, we selected about 3 households, on average. The selected households were primarily poor and ultra-poor households. We also selected a few non-poor households in each village to elicit information on higher-value agricultural crops, which are seldom grown by poor households.

The household survey elicited the following dimensions of agricultural value chains:

- Access to and use of agricultural inputs
- Access to other actors in the value chain
- Access to markets for selling produce
- Sources of agricultural and market information
- Sources of credit
- Cultivation cost and revenue

The women’s survey was designed to elicit information on market access and sources of information and credit in order to understand key gender differences in these value chains.

1.2.3 Finalization of Value Chains

Using the cost and revenue data, we constructed preliminary profit margins for agricultural producers for maize, beans, groundnuts, goats, and pigs to decide on three value chains for analysis that would prove to be most relevant for AVSI’s programming. The details of the profit analysis are discussed in Section 1.3 of this chapter. Upon discussion with the AVSI consortium, the assessment team narrowed the choice of value chains to maize, beans, and groundnuts to ensure that the crops chosen covered food security, nutrition, and profitability dimensions – aspects deemed critical for AVSI’s programming.

1.2.4 Qualitative Data Collection

For this assessment, the AVSI consortium collected qualitative information from two different types of FGDs: mixed-gender FGDs and separate gender FGDs with farmers and extremely poor households in the host community and refugee population, and mixed-gender FGDs with community members (including producers and middlemen) actively engaged in at least one of the three value chains. Additionally, KIIIs with critical key stakeholders (e.g., large-scale traders and input dealers) provided data on profit margins of each actor and revealed strategies for improving
access of poor households to significant actors in each of these value chains. (See Annex II. Qualitative Data Collection Instruments for documentation of the qualitative instruments employed in the KII and FGDs conducted for the VCA.) This report also references FGDs that occurred as part of an earlier labor market assessment (LMA); therefore, see that report for those FGD protocols.

In preparation for the mixed-gender FGDs conducted for the VCA, the project team ensured adherence to all procedures required for institutional review board (IRB) clearance. First, before collecting data, the project team submitted protocol documents to Mildmay Uganda Research and Ethics Committee (MUREC) on August 20, 2018; the AVSI consortium received permission to begin the research in October 2018. The Uganda National Council for Science and Technology later approved these protocols as well. IRB approval is necessary to ensure that proposed evaluations comply with local and international rules and procedures for ethically sound research that safeguards the rights, safety, and well-being of participants, especially vulnerable populations. Additionally, data collectors received training on research ethics and how to use the study tools, understand their purpose, and undertake proper data collection practices. All participants in FGDs and KII held as part of the value chain assessment signed informed consent forms before partaking in the study.

**FGDs.** As mentioned, the assessment presented in this report draws upon two different types of FGDs. The first, conducted as part of the LMA, involved participants from extremely poor households in the host community as well as within the refugee population. Nine focus groups occurred with participants from the refugee population, and seven with the host community. Although these FGDs aimed for 10 participants each, some of them contained more people because logistics required holding these FGDs in public spaces, which attracted a higher number of participants despite attempts to narrow down the group number.

For a more specific examination of three value chains (maize, beans, and groundnuts), the AVSI consortium undertook a VCA in October 2018. As part of this research, mixed-gender FGDs were held with local participants specifically involved in the three value chains to validate the value chain mapping, understand the role of each relevant actor across the chain, and discuss and strategize how to strengthen poor households’ position. Altogether, the team conducted three focus groups for the VCA, with 1) host community farmers involved in the three value chains; 2) refugee farmers and middlemen in the maize value chain; and 3) refugee farmers and middlemen in the beans and groundnuts value chains.

Exhibit 1 summarizes the total number of FGD participants across the 19 focus groups (16 done for the LMA and 3 for the VCA) to inform the VCA.
### Exhibit 1. Number of Participants in FGDs with Refugee and Host Community Households

<table>
<thead>
<tr>
<th>Number of Focus Groups</th>
<th>Number of Participants</th>
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<tbody>
<tr>
<td><strong>Host Community</strong></td>
<td></td>
</tr>
<tr>
<td>LMA</td>
<td></td>
</tr>
<tr>
<td>Kampala B – 13 men</td>
<td></td>
</tr>
<tr>
<td>Kampala B – 14 women</td>
<td></td>
</tr>
<tr>
<td>Kakinga – 32 mixed gender</td>
<td></td>
</tr>
<tr>
<td>Rubwona – 10 mixed gender</td>
<td></td>
</tr>
<tr>
<td>Mukururu – 10 mixed gender</td>
<td></td>
</tr>
<tr>
<td>Nsononsya – 18 mixed gender</td>
<td></td>
</tr>
<tr>
<td>Kamusenene – 9 mixed gender</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL PARTICIPANTS</strong></td>
</tr>
<tr>
<td></td>
<td><strong>16</strong></td>
</tr>
<tr>
<td><strong>Refugee Community</strong></td>
<td></td>
</tr>
<tr>
<td>Ntenungi A – 26 men</td>
<td></td>
</tr>
<tr>
<td>Ntenungi A – 40 women</td>
<td></td>
</tr>
<tr>
<td>Biguta – 10 men</td>
<td></td>
</tr>
<tr>
<td>Biguta – 10 women</td>
<td></td>
</tr>
<tr>
<td>Nkoma – 10 mixed gender</td>
<td></td>
</tr>
<tr>
<td>Base Camp 2 – 11 mixed gender</td>
<td></td>
</tr>
<tr>
<td>Muhega 1A – 10 mixed gender</td>
<td></td>
</tr>
<tr>
<td>Mahani A – 10 mixed gender</td>
<td></td>
</tr>
<tr>
<td>Kibwera – 10 mixed gender</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL PARTICIPANTS</strong></td>
</tr>
<tr>
<td></td>
<td><strong>243</strong></td>
</tr>
</tbody>
</table>

| **VCA**                |                        |
| Host Community         | 1 (maize, beans, groundnuts) |
| Nkoma – 32 mixed gender |                        |
| Refugee Community      | 1 (maize)               |
| Nkoma C – 23 mixed gender |                    |
| 1 (beans and groundnuts) | Nkoma C – 15 mixed gender |
|                        | **TOTAL PARTICIPANTS** |
|                        | **3**                  |
| **TOTAL PARTICIPANTS** | **16**                 |

**KII.** In addition to the FGDs, the team conducted KIIAs as part of the VCA with a selection of key critical stakeholders. Exhibit 2 summarizes the type of respondents and the number of FGDs conducted.

### Exhibit 2. Descriptive Summary of KII Respondents

<table>
<thead>
<tr>
<th>Type of Respondent</th>
<th>Commodity</th>
<th>Community</th>
<th>Number of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Livelihood participant</td>
<td>Maize</td>
<td>Host</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Refugee</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Beans</td>
<td>Host</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Refugee</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Groundnuts</td>
<td>Host</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Refugee</td>
<td>2</td>
</tr>
<tr>
<td>Medium-scale farmers</td>
<td>Maize</td>
<td>Host</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Beans</td>
<td>Host</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Groundnuts</td>
<td>Host</td>
<td>2</td>
</tr>
<tr>
<td>Cooperative representatives</td>
<td>Maize</td>
<td>Host</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Beans</td>
<td>Host</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Groundnuts</td>
<td>Host</td>
<td>1</td>
</tr>
<tr>
<td>Large middlemen</td>
<td>Maize</td>
<td>Host</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Beans</td>
<td>Host</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Groundnuts</td>
<td>Host</td>
<td>2</td>
</tr>
<tr>
<td>Small middlemen</td>
<td>Maize</td>
<td>Host</td>
<td>6</td>
</tr>
<tr>
<td>Type of Respondent</td>
<td>Commodity</td>
<td>Community</td>
<td>Number of Respondents</td>
</tr>
<tr>
<td>----------------------------</td>
<td>-----------</td>
<td>-----------</td>
<td>-----------------------</td>
</tr>
<tr>
<td></td>
<td>Beans</td>
<td>Refugee</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Host</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Refugee</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Groundnuts</td>
<td>Host</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Refugee</td>
<td>2</td>
</tr>
<tr>
<td>Processors</td>
<td>Maize</td>
<td>Host</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Groundnuts</td>
<td>Host</td>
<td>1</td>
</tr>
<tr>
<td>SACCO representatives</td>
<td>All</td>
<td>Host</td>
<td>1</td>
</tr>
<tr>
<td>WFP representatives</td>
<td>All</td>
<td>N/A</td>
<td>1</td>
</tr>
<tr>
<td>Input dealers</td>
<td>All</td>
<td>Host</td>
<td>2</td>
</tr>
</tbody>
</table>

Note: The number of respondents does not equate to the total number of KIIIs, as some people interviewed were involved across value chains.

1.2.5 Timeline

Exhibit 3 depicts the timeline of value chain assessment activities. The pre-planning activities were launched in February 2018 and the last set of data collection activities occurred in October 2018.

Exhibit 3. Timeline of Value Chain Assessment Activities
1.3 Selection of Value Chains for AVSI’s Programming

The value chains for AVSI’s programming were selected in two phases. In the first phase, our team shortlisted the scope of value chains to five options based on the most commonly pursued values chains by households and the value chains deemed most suitable for their future livelihoods: maize, beans, groundnuts, goats, and pigs. These five value chains were chosen before the launch of quantitative data collection and after discussions with the AVSI team. Annex I shows the decision matrix used for weighting all crops using the following criteria:

- Number of extremely poor households (Ugandans, refugees, and women) involved in the value chain
- Potential for improving incomes for extremely poor households
- Low barriers to entry in value chain
- Potential for closing information gaps and providing training
- Potential for scale economies within the value chain
- Potential for asset transfers within the value chain

By assigning a score to each value based on the extent to which it met the aforementioned criteria and putting a weight to each criterion based on relevance to the Activity’s objectives, the team narrowed the scope of analysis to three agricultural and two livestock value chains.

The second phase of value chain selection was implemented after the quantitative data collection. Using the input-use costs and output values, we estimated the profit margins for the five value chains selected in the first phase. Profit margins from maize and beans were calculated using sale prices obtained from accessing different markets and the cost of using a mix of inputs. Inputs included seeds, chemicals (fertilizer and herbicides), and labor. All crop profits were calculated for one acre of land per crop season. Although transportation costs were calculated, most respondents reported buyers coming to the farm gate to collect crops, and therefore transportation costs were not included in the models that follow. Exhibit 4 and 5 show the input costs and value obtained for selling maize, beans, groundnuts, goats, and pigs at the local market for Ugandans and refugees, respectively. For maize and beans, these two exhibits show the input costs incurred in the scenario where:

- Households do not buy or rent land
- Seeds are purchased
- Inorganic fertilizer is used

We also show the scenario of input costs for maize and beans if households were to use their friends’ paid labor. For groundnuts, we show the input costs of only purchasing seed and not using any other input such as fertilizer or labor. For goats and pigs, we show the scenario in which feed and animals are purchased from the market and then sold after 12 months. The relative size of each value chain point depicts the number of households who were interested in pursuing this livelihood in the quantitative survey data. The input costs for groundnuts should be interpreted with caution, as the groundnut input costs did not include all the costs that were included for maize and beans owing to lack of survey data.
Exhibit 4. Maize, Beans, Groundnuts, Goats, and Pigs for Ugandans

Exhibit 5. Maize, Beans, Groundnuts, Goats, and Pigs for Refugees
Based on the profit margins, the AVSI team decided to pursue maize, beans, and groundnuts for AVSI's future programming efforts for the following reasons: 1) The three crops yield relatively higher market value even though their input costs are relatively higher than those of pigs and goats. Groundnuts were especially selected because they allow households to earn a high market value, and AVSI could also help train households in cultivating the crop. 2) More households wanted to pursue these crops for future livelihood improvement as compared with the livestock value chains, as shown by the relative size of each value chain data point. 3) The three crops were also deemed significant from a food security (maize) nutrition perspective (beans and groundnuts), which are significant objectives of the Activity.
CHAPTER 2. MAIZE VALUE CHAIN

This chapter describes the key actors, interactions, profit margins, challenges, and opportunities within the maize value chain in Kamwenge. The analysis and information presented here cater especially to the information needs for designing the Activity’s interventions. As mentioned in the value chain dictionary, we use some names of different actors interchangeably as the level of linkages and market access were measured during quantitative data collection, whereas the value chain maps were constructed and validated during qualitative data collection, using slightly different terminology.

2.1 Background and Value Chain Actors

In 2009, total maize production in Kamwenge was 21,279 metric tons, and accounted for 11 percent of all the crops grown in Kamwenge. Among poor and extremely poor households, maize is one of the most important crops.\(^2\)\(^3\) Among our household survey sample, about 92 percent of Ugandan and 96 percent of refugee households cultivate maize. The crop is grown in both cropping seasons: one from February to August and the other from September to January.\(^4\)\(^5\)

Further, the key value chain actors at the input supply, production, aggregation, and consumption stage are shown in Exhibit 6.\(^6\) This exhibit also highlights the linkages among these disparate actors. Of particular note regarding the maize value chain are the following:

1. The maize value chain involves many different large and small players at every value-added stage. For example, private input suppliers, international organizations such as UNHCR, OPM, and NGOs such as LWF may all supply inputs to maize producers.
2. Some value chain actors may cater to refugee households more as compared to Ugandan households—that is, these linkages exist uniquely for refugee households. For example, UNHCR supplies inputs only to refugees. In addition, during the dry season, refugee households buy maize from the middlemen in the host community to whom they sell their produce during harvest times.
3. The maize value chain concludes locally with the consumption of processed or unprocessed maize by households and in school meals, as well as the use of maize bran by pig/chicken farmers, whereas the value chain continues further in the international markets.
4. All key value chain actors from input to consumption are present and actively operating in Kamwenge except large processors, although poor households may lack linkages to the actors and there is a lack of information among the actors.

\(^4\) Beans and groundnuts also follow a similar cropping pattern and could be grown in both cropping seasons in the country.
\(^6\) In terms of the national market, Kampala and Karamoja sub-region are the main markets. The crop is exported to Kenya through Busia, Democratic Republic of Congo through Mpondwe, South Sudan through Bibia, Tanzania through Mutukula, and Rwanda through Gatuna. (Information obtained from Famine Early Warning Systems Network report titled “Staple Food Market Fundamentals,” which was published in 2017).
Exhibit 6. Illustrative Map of Key Maize Value Chain Actors

Inputs: UNHCR, Loans from VSLA or microfinance like Akola Farmers, Input shop, Own seeds, Other farmers, Ugandan Government (NAGDS), NGOs (UNH, Samaritans Purse), Seed Companies

Producers: Small Farmers, Organized Farmer Groups

Value Chain Continues: Large Middlemen, National Market, International Market

Value Chain Ends: Local Processors, Local Shops, Household, Piggy/Chicken Farmers, Supermarkets, Schools, WFP

Processed: Farmers take to processors and may return with product for their own consumption

Refugees only: Movement of goods, but not selling usually simply bulking
2.2 Access to Key Maize Value Chain Actors

This section describes the level of access and linkages of maize producers with other value chain actors using data from the household survey. Access to Inputs

As shown in Exhibit 7 (constructed using a sample of 297 Ugandan and 288 refugee households), a small share of the sample used pesticides or fertilizer. Seed represents the highest share of inputs used in maize cultivation, including both purchased and own seeds. About 60 percent of households (both Ugandans and refugees) used purchased seeds. In addition to using own and purchased seeds, an extremely small share of households also obtained seeds from governments and NGOs (Exhibit 8). Among households purchasing seed, the most frequent source of seed purchase for Ugandan households was reported to be agro-input dealer shops in the main market and the local market, while the primary sources of seed purchase for refugee households were agro-input dealer stores in local markets and other farmers (Exhibit 9).

Exhibit 7. Inputs Used by Households for Maize Cultivation (Ugandan N=297; Refugee N=288)

Exhibit 8. Source of Inputs Obtained for Maize
Both Ugandans and refugees using pesticides largely purchased them from the market, although a smaller, yet significant, share of Ugandan households also obtained pesticides through government assistance or from other farmers. Pesticide purchase through government assistance or farmer support was mostly absent for refugees. In the case of pesticide purchases, both Ugandan and refugee households primarily obtained this input from the agro-input dealers in the local market. Similarly, whereas organic and inorganic fertilizers were also purchased by Ugandan and refugee households, a greater share of households produced organic fertilizer on their farms only, as could be expected. Among those purchasing organic and inorganic fertilizer, Ugandan households purchased inorganic fertilizer primarily from the local agro-input dealers, while refugee households bought these fertilizers from agro-input dealers in both main and local market and traders. Ugandan households seldom purchased fertilizer from traders.

In addition to these inputs, we also asked households whether they used tools, spraying machines, carts/wheelbarrows, plows, and/or pumps for maize cultivation. Almost none of the households reported using wheelbarrows, plows, or pumps – reflecting a very low use of simple agricultural machines (Exhibit 10). About 10 percent of the households used a spraying machine and about 80 percent or more of them reported using simple tools, such as a hoe or panga, in maize cultivation. Among households that used these tools, Ugandans largely purchased them, whereas refugees also tended to obtain them through government assistance (Exhibit 11). As with other inputs, the exact location of these agro-input dealers was not recorded during survey data collection. However, for the key informant interviews, the team interviewed two dealers located in the Biguli Town Center.

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7 The exact location of these agro-input dealers was not recorded during survey data collection. However, for the key informant interviews, the team interviewed two dealers located in the Biguli Town Center.

8 As mentioned in the value chain dictionary, the quantitative data do not make a distinction between markets into local, main, or supermarkets.
inputs, those households purchasing tools primarily bought them at agro-input dealers (in the local and main market) and from traders (Exhibit 12).

**Exhibit 10. Assets Used for Maize Cultivation**

**Exhibit 11. Source of Assets Obtained for Maize Cultivation**
2.2.1 Access to Information and Credit

Both Ugandans and refugees reported having little or no access to extension services from the government or NGOs, as depicted in Exhibit 13. Forty percent of Ugandan households obtained their information from television or radio stations, and 10 percent of the Ugandan household sample received information from neighbors. In contrast, more than 50 percent of refugee households obtained information on maize cultivation from their neighbors. About 30 percent of Ugandan and refugee households reported having no access to any information, revealing the relative isolation of extremely poor and poor households.

Exhibit 13. Source of Information on Maize Farming Methods
To obtain market information, such as price data, Ugandans most often sought information from buyers and media (radio/television), although the share of those obtaining market information this way is still low (Exhibit 14). Refugee households sought market information from their neighbors and buyers. The fact that refugees lacked access to any formal sources (such as radio, television, or governmental extension workers) of information on farming methods and markets also indicates the relative isolation refugees may face in cultivating crops and selling them compared to Ugandan communities. Lack of formal information channels may also create mistrust among various actors, a sentiment that emerged intensively during our qualitative data collection and interactions with various maize value chain actors.

Exhibit 14. Source of Information on Maize Market

In terms of access to credit for agricultural input purchase, Ugandan and refugee households accessed different sources (Exhibit 15). About 50 percent of the Ugandan household sample was part of the VSLAs and 10 percent borrowed from other farmers’ groups. Meanwhile, about 20 percent borrowed from banks and 10 percent of the sampled households sought loans from the SACCO in the area. In contrast, refugee households accessed mostly informal sources of credit for agricultural input use. About 40 percent of refugee households reported borrowing from money lenders, and about 35 percent of the sample borrowed from their social networks, including friends, relatives, or neighbors. A little over 20 percent of the refugee household sample was also part of a VSLA. Like informal access to information, refugee households also have disproportionate access to informal sources of credit compared to their Ugandan counterparts.

Exhibit 15. Source of Borrowing to Obtain Agricultural Inputs for Maize
2.2.2 Output Use and Sales

As Exhibit 16 suggests, Ugandan and refugee households varied in how they used maize after cultivation. For Ugandans, the top four uses were (in order of proportion of households reporting): 1) sales to middlemen; 2) sales to market; 3) own household consumption; and 4) sales to other households. As for refugees, they cited: 1) sales to middlemen, 2) own household consumption, 3) sales to other households, and 4) sales in the market (less than 5 percent of sampled households sold in the market).

In terms of quantity, as Exhibit 17 shows, the percentage of households selling at each source is also closely tied to the proportion of quantity sold. Ugandans sold about 38 percent of the total maize output to middlemen and 14 percent at the local market and kept about 18 percent of the output for their own consumption. In contrast, refugees sold about 63 percent of their output to middlemen and kept about 26 percent for household consumption. The quantities sold at the rest of the sources were small.

Exhibit 16. Output Use for Household Maize Production

Exhibit 17. Percentage of Maize Allocated to Various Output Uses

<table>
<thead>
<tr>
<th></th>
<th>HH Consumption</th>
<th>Other HH</th>
<th>Local Market</th>
<th>Trading Center</th>
<th>Contracted Buyer</th>
<th>Middlemen</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ugandan</td>
<td>18.88</td>
<td>6.08</td>
<td>14.44</td>
<td>8.19</td>
<td>1.29</td>
<td>37.97</td>
<td>13.14</td>
</tr>
<tr>
<td>Refugee</td>
<td>25.91</td>
<td>6.80</td>
<td>0.85</td>
<td>0.22</td>
<td>0.76</td>
<td>63.12</td>
<td>2.34</td>
</tr>
</tbody>
</table>

The prices obtained for selling the crop to various actors also differed (Exhibit 18). On average, selling to international humanitarian organizations, like WFP, and/or to traders/exporters earned households the highest price per kilogram of maize sold. Selling to contract buyers and other households earned them a lower price as compared to these formal sources. Selling at markets and to middlemen earned them the lowest price. However, judging from the data that are available, refugees earned a higher price when they sold at the market rather than selling to other households. They also received a better price at the market than when they sold to the contract buyers.
Exhibit 18. Value of Household Sales of Maize, Average Price per Kilogram

<table>
<thead>
<tr>
<th></th>
<th>Overall (UGX)</th>
<th>Ugandan (UGX)</th>
<th>Refugee (UGX)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sold to other households</td>
<td>621</td>
<td>605</td>
<td>634</td>
</tr>
<tr>
<td>Market</td>
<td>531</td>
<td>507</td>
<td>733</td>
</tr>
<tr>
<td>Trading</td>
<td>640</td>
<td>486</td>
<td>N/A</td>
</tr>
<tr>
<td>Contract buyer</td>
<td>600</td>
<td>733</td>
<td>467</td>
</tr>
<tr>
<td>Middlemen</td>
<td>300</td>
<td>350</td>
<td>250</td>
</tr>
<tr>
<td>NGO/WFP</td>
<td>1000</td>
<td>1000</td>
<td>N/A</td>
</tr>
</tbody>
</table>

2.3 Profitability Analysis of Maize Producers

This section presents a detailed profitability analysis for maize production under different scenarios for Ugandans and refugee households. All scenarios assume that sampled households own their land. Based on different input use and market access assumptions, we calculated input costs and profit earned for cultivating maize on one acre of land (see Exhibit 19). Although we accounted for transportation in our calculations, most respondents reported buyers coming to the farm gate to collect crops, and therefore Exhibit 19 excludes such costs.

Exhibit 19. Input Costs and Profits Earned for Maize Cultivation

<table>
<thead>
<tr>
<th></th>
<th>Input Costs (UGX)</th>
<th>Other HH in Village (UGX)</th>
<th>Local Market (UGX)</th>
<th>Middleman (UGX)</th>
<th>Trading Centers (UGX)</th>
<th>Contracted Buyer (UGX)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assumption 1: Land is owned by household, no transportation costs, seeds are purchased, no chemicals are used, and no hired labor</td>
<td><strong>Ugandan:</strong> 10,000</td>
<td>470,645</td>
<td>475,500</td>
<td>329,850</td>
<td>475,500</td>
<td>811,700</td>
</tr>
<tr>
<td></td>
<td><strong>Refugee:</strong> 7,000</td>
<td>510,543</td>
<td>702,734</td>
<td>235,750</td>
<td>Not Available</td>
<td>478,500</td>
</tr>
<tr>
<td>Assumption 2: Land is owned by household, no transportation costs, seeds and fertilizer are purchased, and no hired labor</td>
<td><strong>Ugandan:</strong> 91,000</td>
<td>583,835</td>
<td>590,500</td>
<td>390,550</td>
<td>574,500</td>
<td>1,108,700</td>
</tr>
<tr>
<td></td>
<td><strong>Refugee:</strong> 75,000</td>
<td>612,818</td>
<td>858,100</td>
<td>258,250</td>
<td>Not Available</td>
<td>591,500</td>
</tr>
<tr>
<td>Assumption 3: Land is owned by household, no transportation, seeds and pesticides are purchased, and friend labor is hired</td>
<td><strong>Ugandan:</strong> 208,122</td>
<td>451,713</td>
<td>458,378</td>
<td>258,428</td>
<td>458,378</td>
<td>991,578</td>
</tr>
<tr>
<td></td>
<td><strong>Refugee:</strong> 215,196</td>
<td>495,292</td>
<td>717,903</td>
<td>118,053</td>
<td>Not Available</td>
<td>451,303</td>
</tr>
<tr>
<td>Assumption 4: land is owned by household, no transportation,</td>
<td><strong>Ugandan:</strong> 211,000</td>
<td>448,835</td>
<td>455,500</td>
<td>255,550</td>
<td>455,500</td>
<td>988,700</td>
</tr>
</tbody>
</table>
seeds and pesticides are purchased, and contracted labor is hired

<table>
<thead>
<tr>
<th></th>
<th>Refugee: 225,000</th>
<th>485,489</th>
<th>708,100</th>
<th>108,250</th>
<th>Not Available</th>
<th>441,500</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assumption 5: half an acre of land is rented, seeds and pesticides are purchased, and contracted labor is hired</td>
<td>Ugandan: 316,122</td>
<td>343,713</td>
<td>350,378</td>
<td>150,428</td>
<td>350,378</td>
<td>883,578</td>
</tr>
<tr>
<td></td>
<td>Refugee: 313,196</td>
<td>397,292</td>
<td>619,904</td>
<td>20,053</td>
<td>Not Available</td>
<td>353,303</td>
</tr>
</tbody>
</table>

Several key insights emerge from the profit analysis. First, under all assumptions, refugees earn less than Ugandan households for cultivating maize when they sell their produce to middlemen or to contracted buyers. However, the lower profits do not seem to be driven by input costs, as there does not appear to be a significant difference in cost of cultivation between Ugandan and refugee households. It is driven largely by the difference in output price obtained by Ugandans and refugees. Second, assuming all else is the same, Ugandans and refugee households earn higher profits from maize cultivation when they use fertilizer as compared with other scenarios, which is presumably linked to higher yields obtained after fertilizer application. Third, on average, households earn the lowest profit when they sell to middlemen. Ugandan households earn roughly the same average profit from selling to other households in the village or at the local market. Households earn the highest profit when they sell to contracted buyers.

### 2.3.1 Land Thresholds for Cultivating Maize

In addition to the profitability analysis, we also present the minimum land thresholds for profitable maize cultivation. The profit margins constructed in Exhibit 20 and Exhibit 21 are calculated under the assumption that the entire quantity produced is sold to the five outlets shown: 1) other households in the village, 2) local market, 3) middlemen, 4) trading centers, and 5) contracted buyers. Whereas the land threshold depends on the entity to which households sell and the price they receive, cultivating maize is profitable for households even on very small plots of land, such as between 0.25 to 0.5 acres, if they do not sell to middlemen. However, if households sell to middlemen, the crop is profitable to grow for Ugandan households with more than 0.25 acres of land and for refugee households with more than 0.5 acres of land. Therefore, if the land in the Rwamwanja refugee settlement undergoes greater fragmentation, maize may still be profitable to grow for households with small plots of land if they can access the appropriate sales outlet.
2.4 Challenges, Constraints, and Opportunities of Maize Producers

This section describes the challenges and opportunities for maize producers within the value chain. The analysis uses the qualitative information gathered from FGDs and KIs conducted in October 2018 as part of the current VCA, as well as FGDs from March to April 2018 completed as part of the LMA. For a more detailed description of the qualitative data collection process, please refer to Section 1.2.4.

2.4.1 Challenges and Constraints

Maize farmers consistently reiterated across focus groups and interviews four overarching and often interrelated challenges that affect their ability to obtain higher earnings: 1) lack of capital; 2) lack of knowledge regarding good agricultural practices to enhance production, given land size and soil fertility; 3) reliance on traders and middlemen who, according to farmers, engage in
deceptive practices; and 4) inability to keep ahead of fluctuating market prices and conditions. The following paragraphs discuss each of these constraints in further detail.

**Lack of capital.** Across focus groups and interviews with maize farmers, respondents consistently pointed to difficulties in obtaining the requisite capital for bountiful production and profitable sales. In particular, respondents often stated that they need support accessing improved seed varieties, fertilizer, herbicides, and farming equipment so that they can produce high volumes of quality maize grain. Low levels of capital also inhibit producers from investing in storage infrastructures that allow them to retain maize for long periods of time. The lack of capital also prevents producers from accessing transportation to bulking centers, forcing them to sell at lower prices at the farm gate. Respondents in one focus group of refugee farmers noted that they simply store the maize in their own homes, which can lead to mold and black insect infestations, particularly in the settlement where wind can frequently blow tarp roofs off houses, which, during heavy rain, leaves homes susceptible to water damage. As such, the relatively rudimentary storage accessible to farmers prevents them from holding their maize until the market becomes more opportune.

When questioned about their eagerness to step into non-farming roles along the maize value chain, all respondents expressed interest in doing so, but reported that capital restricts them from undertaking such an endeavor. Producers cannot earn enough from their sales for reasons expanded upon in the paragraphs that follow, and therefore fail to acquire sufficient capital to transition into either small or large middlemen. For example, as discussed in Chapter 6, almost all small and large middlemen in the host community own at least some kind of vehicle to transport their maize as well some kind of facility to store the maize, even if for a short duration. Even middlemen in the settlement have enough capital to hire transport, such as boda bodas (motorcycles).

Both farmers and middlemen report remaining trapped in a cycle where low prices prevent expanding either production or trading opportunities. If a producer, the low prices result in a lack of household income, which in turn prevents investment in key inputs (e.g., farming inputs, storage, and agricultural equipment). If a middleman, as discussed further in Chapter 6, the low prices make it difficult to earn a profit and either force the buyers to return to production or prevent middlemen from scaling their business to more lucrative levels.

A primary contributor to these low levels of capital remains inadequate production yields and that poor-quality maize grain. Thus, as the next few paragraphs detail, farmers often cited insufficient knowledge of how to enhance their maize growing practices to yield better and larger quantities.

**Knowledge of good agricultural practices.** Despite the sometimes decades of maize farming experience among producers surveyed, respondents explained that they often operate at a loss because they continue to struggle with the limited land size and the soil quality. According to one focus group in Mukururu, maize producers require at least two acres of land to make a profit, and participants in other focus groups echoed this complaint that limited land availability constrains cultivation of significant volumes of maize to generate a sizable profit. One woman in
a focus group in Kampala B said she manages to harvest only two sacks of maize on three acres of land. Cultivation on small plots of land is an especially challenging problem among refugee farmers. For example, one male refugee farmer stated that OPM provides only enough land for 100 kilograms of maize per season, which is insufficient for conducting business. (See Section 2.3 in this chapter for a more detailed profitability analysis of maize.)

Consequently, farmers reiterated that they want training on how best to cultivate maize given adverse soil conditions and limited land sizes. Generally, these farmers have learned maize farming techniques primarily through word of mouth from neighbors in their community; respondents in focus groups and interviews stated that they rarely have the opportunity to connect with an extension worker or certified trainer to acquire more advanced agronomic techniques. Although farmers said that training on all aspects of production, from planting to fertilizer application, would be appreciated, most of them specifically singled out advancing their post-harvest handling skills. Specifically, beyond addressing storage constraints, as discussed, farmers said they would like to learn techniques to prevent insect infestation and rot, such as how to adequately apply pesticides and herbicides to preserve their crops for longer periods of time.

Of note, some middlemen interviewed mentioned reducing the quantity of maize purchased by a few kilograms if they received poor-quality grain. They did not necessarily state definitively that they would offer farmers higher prices if this quality improved. However, improving the cultivation and post-harvest handling practices could still benefit actors in the maize value chain at many levels. For one, middlemen did report that they desire greater volumes of maize at consistent periods of time. By improving agricultural practices, farmers would be able to better meet this demand. Secondly, if farmers can improve the quality and the quantity of their maize, they could reduce their reliance on middlemen and potentially connect directly to a greater diversity of sales outlets, such as larger middlemen, exporters, Kamwenge Community Development Project (KCDP), Aponye Uganda Ltd., and Maganjo Grain Millers. As explained in the next few paragraphs, this dependence on middlemen has obstructed farmers from receiving greater profits in many ways.

**Reliance on middlemen.** Farmers reported that they tend to sell maize to middlemen who pass by their homes because poor road conditions as well as their own lack of capital to provide for transportation disconnect them from directly traveling to bulking centers or to larger traders/exporters. In one FGD, participants noted awareness that the middlemen take their maize to Kampala for onward processing, but more commonly, these farmers do not necessarily understand the extent of the value chain beyond trading to middlemen. Across all farmers, they complained about the low prices that middlemen offer to them. When asked if forming a cooperative group may improve their bargaining power, participants differed in their perspectives on the effectiveness of such collective efforts.

Such a reliance on intermediaries to buy their maize has, according to some farmers, resulted in them being cheated of higher prices. More specifically, respondents in several focus groups noted problems with middlemen using illegitimate scales, which means that they receive lower prices for their grain. This usage may lead to particular tensions when refugees engage with Ugandan middlemen and suspect that these middlemen may be rigging the price for their own benefit; such
sentiments may negatively affect social cohesion. Across all groups, farmers consistently reported that when selling maize they remain at a disadvantage in relation to the buyer and often do not feel powerful enough to negotiate, even if they feel that traders and middlemen have been dishonest. Given the prevalence of poverty among farmers interviewed, the farmers explained that they often must sell maize quickly to meet basic household needs and therefore cannot afford to bargain with traders and middlemen. Several respondents said they have insufficient business and marketing skills.

Often, lack of market knowledge contributes to this unbalanced relationship between middlemen and farmers. As explained next, both host and refugee farmers noted asymmetric price information as a contributing factor to the depreciated prices quoted to them for their maize.

**Fluctuating maize market prices and conditions.** Farmers obtain information on the maize market and the scope of the value chain primarily through communication with neighbors and middlemen rather than through any formal channel. Consequently, farmers who are not as well connected have more limited awareness of prevailing prices. In one focus group, respondents said that reaching out to extension workers presents its own hurdles because they cannot provide the necessary transport so that these agents can reach them.

Throughout interviews and FGDs, farmers consistently complained about price fluctuations and being unable to stay updated on these changes. Although the radio offers value chain knowledge and market information to some respondents, this mode of information dissemination, according to some farmers, does not always consistently keep up with the constant price fluctuations. Thus, farmers often end up as price takers when dealing with middlemen and being subject to any prices quoted because they do not have a strong grasp of the market. The limited market information translates to lower profits as they lack the knowledge of fair market value to charge traders for their maize, thus reducing their negotiating power. Furthermore, a scant understanding of market conditions means that farmers cannot position themselves well in anticipation of upticks or downturns in prices.

The interviews and FGDs with farmers did not reveal the reason for such price changes and whether it might stem from general market volatility or variations in the sales outlets to which they sell their maize. A November 2019 price bulletin from the Famine Early Warning System Network (FEWS NET) showing nominal retail prices of maize in Kampala indicates that in 2017 the maize market prices did fluctuate, especially between February and July, but the nominal retail prices in 2018 have remained fairly steady (see Exhibit 22). Therefore, potentially, farmers were reflecting on their business in 2017 when interviewed, or their experience of erratic price fluctuations may be due to various actors in the value chain receiving inconsistent prices across different sellers and buyers.
2.4.2 Opportunities

To add value, participants in refugee FGDs frequently said they would like greater involvement in the milling process. In one focus group, farmers stated that they could sell flour at 1,500 shillings per kilo. However, these participants also reported some challenges in starting a milling business, such as significant upfront capital and limited awareness of how to operate and maintain the milling machines. Given the cost of opening a mill and the learning curve associated with operating the equipment, participants in three refugee focus groups relayed willingness and eagerness to work with a group so as to collect their maize together in one central location for milling. According to one focus group, when milling occurs at a local level, consumers in the area can buy flour at a lower price because there are no additional costs incurred for packaging and transport. Additionally, participants in this same focus group noted that they can save more maize for their family because of increased profits from selling flour.

Regarding participation at different steps along the maize value chain, the host community and the refugees preferred cutting out small middlemen; however, transportation constraints resulting from lack of capital have thwarted any attempts to do so. FGDs with host community farmers also revealed that they would like to eliminate middlemen and bulk their own maize for onward sale to millers, but refugees expressed a larger desire to mill their own maize.
CHAPTER 3. BEANS VALUE CHAIN

This chapter describes the beans value chain analysis, including the value chain linkages, profitability analysis of bean producers, and the challenges and opportunities of bean producers operating in Kamwenge.

3.1 Background and Value Chain Actors

Beans have been a focal point of agricultural investments in the District because of their high potential for food security and contribution to farm income. Overall, as of 2009, bean yields in Kamwenge totaled 7,581 metric tons. The Western Region, more broadly, accounts for 44 percent of Uganda’s supply of beans. Among our sample of Ugandan and refugee households, however, beans were the second most commonly grown crop after maize: 72 percent of Ugandan and 87 percent of refugee households grew beans. Because our sample consists primarily of poor and extremely poor households, poor households presumably are more likely to cultivate maize and beans for ensuring adequate food security.

Exhibit 23 shows the landscape of the beans value chain in Kamwenge. In comparison to the maize value chain, the beans value chain is marked by a few differences and similarities. First, because beans do not require processing before consumption, the product has fewer actors as compared with the maize value chain. Unlike maize, animal farmers do not purchase beans in bulk quantities, and the crop is used primarily for household consumption. Second, similar to the maize value chain, backward linkages from middlemen to small farmers also exist in the value chain among refugee households. In addition to buying the crop, the middlemen may also supply beans to small farmers for their household consumption during the dry seasons. Third, given that the crop does not need to be processed before consumption, producers have greater opportunities for selling the crop directly to shops, markets, and traders/exporters, in addition to middlemen.

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10 Ibid.
11 Mathys, E. 2016. Opportunities to Provide Refugees and Ugandans with Alternative Livelihood Activities in Uganda’s Kamwenge District. FHI360/FANTA.
12 Kampala is the main market in the country connecting all regions of the country both with respect to transit and consumption of beans. The crop is primarily exported through Busia to Kenya and South Sudan. (Information obtained from Famine Early Warning Systems Network report titled “Staple Food Market Fundamentals,” which was published in 2017).
Exhibit 23. Illustrative Map of Key Beans Value Chain Actors

Inputs: Producers

Value Chain Continues: Small Farmers, Organized Farmer Groups, Large Middlemen, Small Middlemen, National Market, International Market

Value Chain Ends: Farmers take to processors and may return with product for their own consumption, Refugees only, Movement of goods, but not selling usually simply bulking

UNHCR, Loans from VSLA or microfinance like Akilode Farmers, Input shop, Own seeds, Other farmers, Ugandan Government (NAADS, NADP), NGOs (HADS, ISSD)

Local Shops, Local Markets, WFP, Supermarkets

Farmers take to processors and may return with product for their own consumption, Refugees only, Movement of goods, but not selling usually simply bulking
3.2 Access to Key Beans Value Chain Actors

This section elucidates bean producers’ access to other value chain actors, sources of information and credit, and production use and sales.

3.2.1 Access to Inputs

As with maize, use of seeds (both purchased and owned) was the most common input used by refugee and Ugandan households in bean cultivation, as shown in Exhibit 24. About 20 percent of households used pesticides and herbicides. Most inputs that were used by households in bean cultivation were purchased by the households themselves rather than being given by an NGO or the GOU (Exhibit 25). As Exhibit 26 shows, households that used and purchased inputs (seeds, pesticides, and fertilizer) commonly sourced them from agro-input dealers and traders. Farmers also purchased seeds from other farmers.

Exhibit 24. Inputs Used by Households for Bean Cultivation (Ugandan N=280; Refugee N=262)

Exhibit 25. Source of Inputs Obtained for Beans
Agricultural tools, such as hoes or axes, were the most commonly used equipment in the cultivation of beans (Exhibit 27). Although households mostly purchased these tools, as depicted in Exhibit 28, refugee households tended to also obtain these inputs through government and NGO support. Among those using carts, refugee households obtained them from other farmers. When households purchased these inputs, they obtained agricultural tools and equipment primarily from agro-input dealers, and carts and pumps from traders (Exhibit 29).
3.2.2 Access to Information and Credit

Exhibit 30 suggests that about 30 percent of households had no access to information about bean cultivation methods. The only formal source of information for Ugandan households was through radio or television. Access to such formal sources of information was largely absent for refugee households, albeit a very small proportion of the households. For refugee households, their neighbors, friends, and family were the most commonly cited source of information. In terms of market information (see Exhibit 31), Ugandans reported three main sources: 1) media channels
such as television and radio, 2) buyers, and 3) neighbors. For refugees, only informal sources—neighbors and middlemen—were sought for obtaining market information, such as prices.

**Exhibit 30. Source of Information on Beans Farming Methods**

The sources of credit for households that cultivated beans were also similar to those for households that grew maize and differed for refugee and Ugandan households (Exhibit 32). Ugandan households cultivating beans sought loans from banks, SACCOs, and VSLAs. A very small portion of the households were also a part of farmer groups. Meanwhile, refugee households growing beans only accessed informal sources of credit, such as money lenders, friends, and family, in addition to a small proportion of households accessing the VSLAs.
3.2.3 Output Use and Sales

According to Exhibit 33, bean harvests appear to be used differently by households as compared to maize. Whereas maize was produced for both household consumption and sale, about 40 percent of Ugandans and over 70 percent of the refugee sample reported using the harvested beans for household consumption. In terms of selling the crop, about 30 percent of the Ugandan households reported selling to middlemen, and a little over 10 percent of households sold directly in the market. Approximately 15 percent of refugee households sold to middlemen, with very few to no households selling to other actors. The quantity sold is also reflective of this heterogeneity. Although a large proportion of households use the beans produced for household consumption, the quantity kept for household consumption is lower than the quantity supplied to middlemen. Ugandan and refugee households consumed approximately 24 and 38 percent, respectively, of the total amount of beans produced. Refugees sell about 57 percent of their total beans output to middlemen. Ugandans sell about 31 percent to middlemen and 28 percent at the market (Exhibit 34).

Exhibit 33. Output Use for Household Bean Production
Exhibit 34. Percentage of Beans Allocated to Various Output Uses

<table>
<thead>
<tr>
<th></th>
<th>HH Consumption</th>
<th>Other HH</th>
<th>Local Market</th>
<th>Trading Center</th>
<th>Contracted Buyer</th>
<th>Middlemen</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ugandan</td>
<td>24.00</td>
<td>12.36</td>
<td>28.18</td>
<td>4.89</td>
<td>0.00</td>
<td>30.57</td>
<td>0.00</td>
</tr>
<tr>
<td>Refugee</td>
<td>38.09</td>
<td>1.52</td>
<td>0.55</td>
<td>0.05</td>
<td>0.22</td>
<td>57.08</td>
<td>2.49</td>
</tr>
</tbody>
</table>

Exhibit 35 shows the price per kilogram for beans. When compared to the prices obtained from selling maize to different entities (Exhibit 18), the price per kilogram of beans is higher. The selling price of beans is also almost two or three times the price obtained for selling maize, depending on the sales outlet.

Despite a few differences in prices of beans obtained in selling to different sources by refugee and Ugandan households, the ranking of prices for selling to different sources remained the same. Households obtained the lowest price for beans when they sold to the middlemen and obtained a slightly higher price when they sold into the market (about 1,000 UGX per kilogram). The average price of selling to other households was higher, with the price of selling to the traders/exporters being the highest (approximately 1,800 UGX per kilogram). On average, households obtained roughly double the price when they sold to traders/exporters as compared to when they sold to middlemen.

Exhibit 35. Value of Household Sales of Beans, Average Price per Kilogram

<table>
<thead>
<tr>
<th></th>
<th>Overall (UGX)</th>
<th>Ugandan (UGX)</th>
<th>Refugee (UGX)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sold to other HH</td>
<td>1209</td>
<td>1146</td>
<td>1317</td>
</tr>
<tr>
<td>Market</td>
<td>981</td>
<td>959</td>
<td>1107</td>
</tr>
<tr>
<td>Trading</td>
<td>1803</td>
<td>1791</td>
<td>2000</td>
</tr>
<tr>
<td>Middlemen</td>
<td>875</td>
<td>900</td>
<td>850</td>
</tr>
</tbody>
</table>

3.3 Profitability Analysis of Beans Producers

This section provides the profitability analysis for producing beans for Ugandans and refugee households. The profit margins associated with cultivating beans per acre of land under different input-use and market access assumptions are shown in Exhibit 36. A few insights emerge about bean production in Kamwenge from this analysis:

- Per acre, the cultivation of beans does not appear to be profitable when hired labor is used.
- As previously mentioned in the sale price discussion, households earn the highest profit under any assumption when they sell to traders/exporters as compared to other actors.
- Unlike maize, the profit margins obtained from beans production do not vary significantly for Ugandan and refugee households except for when they hire their friends’ labor, although those profit margins should be interpreted with caution because of significant
variation in the wage rates paid to friends and neighbors.\textsuperscript{13} This lack of variation is presumably due to little difference in sale price of the crop obtained by refugees and Ugandans.

- The overall profit margins earned for selling beans to various outlets are lower than those obtained from maize. This difference is partly a result of the high cultivation costs of beans. Whereas for a few assumptions, the cultivation costs for beans and maize are comparable, bean cultivation costs are higher compared with maize for assumptions in which outside labor (friends or casual) is hired.

\textbf{Exhibit 36. Input Costs and Profits Earned for Bean Cultivation}

<table>
<thead>
<tr>
<th>Assumption</th>
<th>Input Costs (UGX)</th>
<th>Other HH in Village (UGX)</th>
<th>Local Market (UGX)</th>
<th>Middlemen (UGX)</th>
<th>Trading Centers (UGX)</th>
<th>Contracted Buyer (UGX)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assumption 1: Land is owned by households, no transportation, no seeds and no fertilizer is purchased, and no hired labor</td>
<td><strong>Ugandan</strong>: 10,000</td>
<td><strong>200,000</strong></td>
<td><strong>230,000</strong></td>
<td><strong>160,000</strong></td>
<td><strong>297,600</strong></td>
<td>Not available</td>
</tr>
<tr>
<td></td>
<td><strong>Refugee</strong>: 7,000</td>
<td><strong>226,200</strong></td>
<td><strong>173,000</strong></td>
<td><strong>163,000</strong></td>
<td><strong>293,000</strong></td>
<td><strong>193,000</strong></td>
</tr>
<tr>
<td>Assumption 2: Land is owned by households, no transportation, seeds are purchased, and no hired labor</td>
<td><strong>Ugandan</strong>: 66,000</td>
<td><strong>144,000</strong></td>
<td><strong>174,000</strong></td>
<td><strong>104,000</strong></td>
<td><strong>241,600</strong></td>
<td>Not available</td>
</tr>
<tr>
<td></td>
<td><strong>Refugee</strong>: 63,000</td>
<td><strong>170,200</strong></td>
<td><strong>117,000</strong></td>
<td><strong>107,000</strong></td>
<td><strong>237,000</strong></td>
<td><strong>137,000</strong></td>
</tr>
<tr>
<td>Assumption 3: Land is owned by households, no transportation, seeds and fertilizer are purchased, and no hired labor</td>
<td><strong>Ugandan</strong>: 83,000</td>
<td><strong>137,500</strong></td>
<td><strong>169,000</strong></td>
<td><strong>95,500</strong></td>
<td><strong>239,980</strong></td>
<td>Not available</td>
</tr>
<tr>
<td></td>
<td><strong>Refugee</strong>: 80,000</td>
<td><strong>164,860</strong></td>
<td><strong>109,000</strong></td>
<td><strong>98,500</strong></td>
<td><strong>235,000</strong></td>
<td><strong>130,000</strong></td>
</tr>
<tr>
<td>Assumption 4: Land is owned by households, no transportation, seeds are purchased, fertilizer is used, and friend labor is hired</td>
<td><strong>Ugandan</strong>: 148,273</td>
<td><strong>75,227</strong></td>
<td><strong>106,727</strong></td>
<td><strong>33,227</strong></td>
<td><strong>177,707</strong></td>
<td>Not available</td>
</tr>
<tr>
<td></td>
<td><strong>Refugee</strong>: 215,366</td>
<td><strong>29,494</strong></td>
<td><strong>-26,366</strong></td>
<td><strong>-36,866</strong></td>
<td><strong>99,634</strong></td>
<td><strong>-5,366</strong></td>
</tr>
<tr>
<td>Assumption 5: Land is owned by</td>
<td><strong>Ugandan</strong>: 395,000</td>
<td><strong>-154,500</strong></td>
<td><strong>-123,000</strong></td>
<td><strong>-196,500</strong></td>
<td><strong>-52,020</strong></td>
<td>Not available</td>
</tr>
</tbody>
</table>

\textsuperscript{13} Wages paid to friends and family may be different from the market wage rate of hired casual labor because friends and family may offer non-cash benefits, such as offering labor or production share, for offering farm labor.
3.3.1 Land Thresholds for Cultivating Beans

The minimum land size needed for cultivating beans profitably varies significantly for Ugandans and refugees, and as well based on where they choose to sell their harvest. Similar to the data for maize, Exhibit 37 and Exhibit 38 assume that all quantities produced are sold at the source depicted. For Ugandans, beans are also profitable to produce on very small plots of land below an acre. However, because of labor requirements (and high hired labor cost for refugees), beans are profitable to produce over about 0.5 acres of land if the produce is sold to other households in the village, which is often not the most common scenario.

Exhibit 37. Land Threshold When Beans Are Cultivated by Ugandan Households
Despite some varying characteristics between the refugee and host community producers, they reported a few common challenges. Chief among these shared constraints, they cited 1) lack of knowledge regarding appropriate techniques and application of inputs to enhance production and post-harvest handling practices, 2) imbalanced bargaining power because of asymmetric information, and 3) although both the refugee and host community farmers sometimes relied on hired labor, the host community commonly complained more about the reliability of workers employed. The following paragraphs discuss these obstacles in further detail.

3.4.1 Challenges and Constraints

Poor production and post-harvest practices. Most farmers interviewed tend to intercrop beans with other commodities, such as maize, groundnuts, bananas, coffee, and cassava. Importantly, bean farmers from the host community reported owning their land, and all stated they had been farming for at least 10 years. For refugee farmers, the size of landholdings varied, from some refugees owning no land to others owning an acre, and everything in between. Depending on the number of incoming households and how OPM divides the plots, the size of these landholdings could drastically decrease.

Host community and refugee farmers stated in FGDs that they lack knowledge and sufficient capital to access inputs to maximize bean yields on low-quality land. For example, obtaining the requisite fertilizer to increase production of beans necessitates capital that these households often do not possess. One farmer said she receives free fertilizer from a local NGO, she would not be able to purchase this input otherwise. Further, she said she cannot afford high-quality seed and instead relies on her own supply from previous growing seasons; for other inputs, she takes loans from her VSLA group. Refugee farmers echoed this frustration, as well as not having enough capital to purchase high-quality seed; in particular, respondents in one FGD noted the higher cost of seed for beans, which necessitates that they either take out loans or use their consumption-smoothing money from WFP.
In addition to capital to purchase the requisite inputs, farmers noted that they need more training on best practices to grow beans. Currently, these producers explained that they tend to learn from neighbors and their community, but, despite some of their long tenures growing beans, they have not been able to develop a deep knowledge of good agricultural practices, such as fertilizer use or post-harvest handling, and, in particular, how to confront adverse and ever-changing environmental conditions. Respondents in a FGD with refugee farmers explained that sometimes they fail to get even one plant from 10 kilograms of seeds.

As for post-harvest, participants in one FGD with the refugee population in Kibwera noted that after harvesting beans they tend to store them in their homes for about two months. This practice extends to the host community as well; most farmers interviewed said they do not have the finances to invest in proper storage facilities for their beans. One farmer cited specifically not having the means to purchase drying equipment, such as tarps, which he believes would increase the value of his beans. Another female farmer, when asked about the type of support needed, said she would want more training on appropriate post-harvest handling techniques to improve the quality of her beans.

**Limited bargaining power.** Farmers stated that they have a limited understanding of prevailing market prices, and they often feel at a disadvantage when negotiating with the middlemen who pass through their communities. As with selling maize, farmers mentioned feeling cheated by the middlemen, and one female farmer noted, similar to complaints from maize farmers, that these middlemen tamper with the scales, stating there are fewer kilos than the actual weight. In addition to alleged issues with the scales, farmers also stated that middlemen offer low prices for the product. Understanding that middlemen may provide bad quotes, some of the farmers interviewed have come up with their own tactics to overcome this hurdle. One farmer sometimes takes his supply directly to Kampala, whereas others call fellow producers or listen to the radio so they can compare prices. However, one farmer said that he does not necessarily always trust the information presented via the media.

Even the few farmers who have some knowledge of the market often sell as individuals and have little bargaining power. Some farmers do hold memberships in cooperatives and can better access loans, community bulking and storage, and information exchanges, but even so, members in these organizations face challenges reaching buyers and obtaining high market prices. Generally, farmers tend to remain at the mercy of the buyers, and, given the fluctuations in their harvests because of poor production and little access to other buyers, they remain price takers and sell indiscriminately to whoever will take their supply. One female farmer said she will sell even to neighbors at low prices in times of scarcity.

**Unreliable hired labor.** Several producers interviewed from the host community said that they often rely on casual laborers, especially during peak harvest and growing seasons. However, hiring, managing, and paying these daily workers can be frustrating because most of these farmers, given their financial constraints, cannot afford to selectively negotiate and bring on the most efficient laborers. Furthermore, a few farmers reported that even after contracting these laborers, some of them simply do not show up or work for a time and then leave. Consequently,
producers must supplement these missing workers with other laborers, who may or may not show up consistently for the duration agreed upon.

One farmer said that he cannot fire inefficient hired labor because of limited supply – specifically, according to him, only temporary workers struggling with alcoholism agree to the kind of labor needed on their farms. Although no other farmers echoed this rationale, they did report a dependency on any available labor, which means that they cannot adequately vet people requesting work. Additionally, during peak times, farmers find themselves competing with other farmers in the area for day laborers, and they must then increase wages and/or provide meals for the workers, which poses a significant financial burden.

To ensure adequate numbers of laborers, one farmer said he requires his hired labor to commit and stay on the farm for the entire season; however, not all farmers reported having the capacity to retain these workers for an extended time period. Moreover, this same farmer, who retains a consistent staff throughout one growing season, said he cannot trust his workers, and that they often steal his tools and crops. Refugee farmers did not raise the issue of reliable casual workers, even though they also do hire additional help on occasion.

3.4.2 Opportunities

Although the bean yield for farmers remains low, producers said that they like growing beans because the short season (typically three months) allows them to more quickly cover small household costs and meet their daily needs. None of the farmers interviewed said that they wish to stop growing beans, but, rather, they would like to improve their productivity. One female farmer said that higher yields could increase the rate of return. Farmers mostly cited easier accumulation of inputs such as fertilizer, better seeds, and pesticides as especially valuable to their production. Given that they currently often acquire such items through loans from savings groups or private creditors, some farmers said that they would welcome a greater diversity of financing options, which will be provided by the Activity interventions either through VSLAs or the asset transfers. In general, bean farmers across both the host and refugee communities explained the lack of capital as a significant constraint to expansion of their farming business as well as their movement into other areas of the value chain, such as selling and trading beans.
CHAPTER 4. GROUNDNUTS VALUE CHAIN

4.1 Background of Groundnuts Production in Kamwenge

Groundnuts account for a small share of the harvested area in Kamwenge (2.4 percent).\textsuperscript{14} Across Uganda, annual production of this crop in 2013 was an estimated 295,000 metric tons.\textsuperscript{15} Despite the smaller volumes of groundnuts produced as compared with other crops, groundnuts still remain an important legume for many Ugandans.\textsuperscript{16} Most farmers produce groundnuts for home consumption and sell the surplus on the local market, although some shelled groundnuts reach neighboring countries, such as Kenya.\textsuperscript{17} In 2010, the daily per capita consumption of groundnuts among women and children was 65 and 37 grams, respectively.\textsuperscript{18} The highest volumes of groundnut production occur not in the western region but more so in the northern, eastern, and southern parts of the country, with the bulk coming from the Eastern part.\textsuperscript{19} Among our sample households, a very small share of Ugandan households and almost no refugee households grew groundnuts: 9 percent of Ugandan and 2 percent of refugee households grew groundnuts.

Exhibit 39 shows the groundnut value chain actors operating in Kamwenge. The groundnut value chain is marked by a few differences as compared with maize and beans. First, because of the low overall production of the crop, groundnuts imported from other countries also flow into the district for household consumption. The imported crop may be brought to the village by middlemen, who would then sell the crop to agricultural producers. Second, similar to maize, groundnuts could also be sold to local processors for processing, thereby providing multiple avenues for producers to sell the crop. Third, unlike maize and beans, although all the primary value chain actors are present and the linkages exist, the overall population of the actors—for example, groundnut processors—is relatively lower compared with that of maize.

\textsuperscript{19} Ibid.
Exhibit 39. Illustrative Map of Key Groundnuts Value Chain Actors

Value Chain Continues:
- Inputs: UNHCR, Loans from VSLA or microfinance like Andiko, Farmers, Input shop, Own seeds, Other farmers, Ugandan Government (NAADS, NARD), NGOs (HADS)
- Producers: Small Farmers, Local Processors
- Aggregation: Local Markets, Organized Farmers Groups
- Value Chain Ends: Farmers take to processors and may return with product for their own consumption, Refugees only, Imports

Movement of goods, but not selling usually simply bulking

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Movement of goods, but not selling usually simply bulking
4.2 Access to Key Groundnuts Value Chain Actors

This section describes the level of access and linkages of groundnut cultivators to other value chain actors.

4.2.1 Access to Inputs

As depicted in Exhibit 40, households cultivating groundnuts used purchased seeds and chemicals as the most common inputs. In maize and beans cultivation, fewer households used chemicals. Refugees cultivating groundnuts also used organic fertilizer in similar proportions as chemicals. A very small share of Ugandan households used fertilizer for cultivation. As with maize and beans, those using seeds and chemicals mostly purchased these inputs, as shown in Exhibit 41. For purchasing seeds, both Ugandan and refugee households procured them from middlemen, and for buying pesticides, households primarily used agro-input local dealers (Exhibit 42). The source of purchasing seeds for groundnuts differs from that maize and beans, which were purchased primarily through agro-input dealers.

Exhibit 40. Inputs Used by Households for Groundnut Cultivation (Ugandan N=29; Refugee N=7)

Exhibit 41. Inputs Obtained for Groundnut Cultivation
Exhibit 42. Purchased Inputs Obtained for Groundnut Cultivation

As with maize and beans cultivation, households used mostly small agricultural tools for groundnut cultivation. About 30 percent of the households (both Ugandans and refugees) also used a spraying machine for cultivation (Exhibit 43). Whereas the spraying machines were almost always purchased by households, as depicted in Exhibit 44, a small share of refugee households also received small tools from government and NGO assistance.

More than 85 percent of Ugandan households purchased the tools they used for groundnut cultivation. Both Ugandans and refugees purchased the tools and sprayers from middlemen and agro-input dealers, whereas the Ugandans relied primarily on purchasing equipment from the local dealers and refugee households purchased these inputs from the dealers in the main markets such as Katalyeba (Exhibit 45).

Exhibit 43. Assets Used for Groundnut Cultivation
4.2.2 Access to Information and Credit

The patterns of access to information and credit, as shown in Exhibits 46-48, are very similar to those for maize and beans cultivation. Most refugee households receive information about cultivation practices and market information such as prices from their social networks such as friends, relatives, and neighbors. Ugandan households’ primary sources of information are mass media communication channels such as television and radio. For market information about prices, a small share of refugee and Ugandan households also received information from their buyers. Ugandan households had access to formal channels of credit such as the VSLAs, banks, and farmer groups. In contrast, refugee households cultivating groundnuts accessed informal channels such as the money lender and friends or relatives.
4.2.3 Output Use and Sales

Almost all groundnuts cultivated by households were either consumed by households or sold to middlemen, as depicted in Exhibit 49. Less than 10 percent of the Ugandan household sample that
cultivated groundnuts sold them at the market. More than 50 percent of the Ugandan and 40 percent of the refugee households reported consuming the groundnuts at home. The proportions were flipped for households selling to middlemen – that is, more than 50 percent of the refugee households and about 40 percent of the Ugandan households sold to middlemen. The fact that households do not sell directly to processing units or at the market depicts a lack of linkages and a lower position of these households within the value chain. Strengthening their position in the value chain would then imply a greater share of households selling in the local markets or to processors and larger middle or exporters/traders, instead of at the farm gate or at home.

The quantities of groundnuts sold to different entities varies from maize and beans sales (see Exhibit 50). Ugandans reported selling most of their harvest to middlemen (about 45 percent) and keeping about 43 percent for their own consumption. Refugees keep a higher proportion of the quantity produced for their own consumption (51 percent) and sell about 36 percent to middlemen. Refugee households also sell about 13 percent of the total production to trading centers, whereas Ugandans supply a smaller proportion, about 7 percent.

Exhibit 49. Output Use for Household Groundnut Production

Exhibit 50. Percentage of Groundnuts Allocated to Various Output Uses

<table>
<thead>
<tr>
<th></th>
<th>HH Consumption</th>
<th>Other HH</th>
<th>Local Market</th>
<th>Trading Center</th>
<th>Contracted Buyer</th>
<th>Middlenen</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ugandan</td>
<td>43.06</td>
<td>1.85</td>
<td>2.31</td>
<td>7.41</td>
<td>0.00</td>
<td>45.37</td>
<td>0.00</td>
</tr>
<tr>
<td>Refugee</td>
<td>51.24</td>
<td>0.00</td>
<td>0.00</td>
<td>12.73</td>
<td>0.00</td>
<td>36.10</td>
<td>0.00</td>
</tr>
</tbody>
</table>

Exhibit 51 shows the price data available on the value of household sales of unshelled groundnuts to middlemen, the local market, and trading centers. Households obtained the lowest price for groundnuts when they sold to middlemen and obtained higher prices when they sold to local market and trading centers. Refugees reported receiving better prices when they sold to trading centers compared to Ugandans.
4.3 Profitability Analysis of Groundnuts Producers

We estimated profits for cultivating unshelled groundnuts under only two scenarios because of the low number of households in our survey data that reported growing groundnuts. Our data allowed us to gather information on prices obtained for selling in local markets, in trading centers, and to middlemen. The cost of purchasing seed was also reported by households. A key distinguishing factor between groundnuts and maize and beans cultivation is the intensive use of labor. As shown in Exhibit 52, the input costs significantly rise in the scenario when labor is hired for cultivation (a more probable scenario for groundnut cultivation). However, the profits earned if households sell at the market or at the trading center are higher in magnitude as compared to those for maize and beans. Because of the low sale price obtained from selling to middlemen, when labor is used, the profits may just allow the groundnuts producers to break even.

4.3.1 Land Thresholds for Cultivating Groundnuts

Exhibit 53 and Exhibit 54 show the minimum size required to cultivate groundnuts. Although it is profitable for Ugandan and refugee households to grow groundnuts if they sell the entire quantity...
to the market, it may not be profitable to produce on small plots of land (less than 1 acre) if the households sell to middlemen. Therefore, the crop may not be a viable option to pursue for refugee households in the scenario of land fragmentation in the settlement.

**Exhibit 53. Land Threshold When Groundnuts Are Cultivated by Ugandan Households**

![Graph showing land thresholds for Ugandan households]

**Exhibit 54. Land Threshold When Groundnuts Are Cultivated by Refugee Households**

![Graph showing land thresholds for refugee households]

*Note: The land thresholds for the local market and the trading center are the same; thus we only show land threshold for the trading center.*

### 4.4 Challenges, Constraints, and Opportunities of Groundnut Producers

As with producers in the beans value chain, farmers tend to produce groundnuts to supplement profits from maize and other crops. Given that groundnuts remain a relatively newer commodity, fewer farmers indicated involvement in this value chain; however, participants across FGDs in both the host and refugee communities noted an interest in growing groundnuts if they had the capital and knowledge to do so. Current groundnut producers and those eager to enter the value
chain face similar constraints as with beans and maize, but to a much greater extent, as the cost of production runs higher for groundnuts because farmers have more limited agronomic knowledge and experience with this crop. The following paragraphs highlight the particular challenges reiterated across interviews and focus groups with groundnut producers.

4.4.1 Challenges and Constraints

Despite the potential lucrative market for groundnuts, producers said they cannot cultivate enough quantity to generate significant profits from their yield. As with maize and beans, the capital required for successful groundnut production remains prohibitive for many farmers. More specifically, farmers in host and refugee communities concurred on a few challenges of note: 1) lack of sufficient knowledge regarding groundnut production to improve quality and quantity of output; 2) lack of sufficient and experienced hired labor to assist with farming; and 3) poor marketing, given inadequate storage facilities and limited price information.

Knowledge of groundnut production. The farmers interviewed who do have the land to grow groundnuts typically do so on no more than 1 acre of their land, which they view as mostly infertile. The farmers who currently grow groundnuts said that they learned from their families or neighbors in their community, but they have never received any official training from an extension worker or similar type of actor. One of these farmers explained that she would like more information on where to access better-quality seeds rather than recycling her own from one season to the next or borrowing from neighbors. Although some refugee farmers said that they know where to obtain the inputs needed to enhance groundnut production (e.g., seed, fertilizer, pesticides), their financial status constrains their ability to accumulate significant quantities of such materials. Two medium-scale farmers stated that they use no other inputs besides seed for their groundnuts.

Even groundnut farmers who are able to acquire the inputs for groundnut production said they do not completely understand how best to grow the crop for maximum yield. Farmers stated that they come across problems with pests, flooding, and inconsistent cultivation. As such, groundnut farmers repeated in interviews and focus groups that they would like to know the best agricultural practices to combat these problems and to ensure that their crops can withstand adverse weather conditions.

Sufficient and experienced hired labor. Farmers stated that unlike the other crops they grow, groundnuts require significant labor because of more intensive and careful attention to detail when harvesting. One farmer said that if uprooting the plant does not occur properly, then the plants can be consumed by ants and birds. Among the farmers in the interviews and FGDs who grow groundnuts, many of them already report struggling to find reliable casual laborers for their other crops; therefore, the additional task of increasing their already limited farm support so as to enhance groundnut production poses a difficult hurdle.

Poor marketing. Farmers reported that they usually sell to middlemen who visit their gardens but have little power and market knowledge to negotiate with these buyers. They explained their disadvantaged position as stemming from: 1) a lack of facilities to store their groundnuts, which
requires that they turn over their inventory quickly and sell to the first middleman, and 2) limited knowledge of prevailing market prices and conditions.

Refugee farmers in one FGD said they have “a serious problem” with marketing groundnuts. According to them, buyers often impose low prices, knowing that farmers cannot negotiate financially because they must deplete their supply quickly to obtain sufficient household income for their daily needs. Furthermore, these farmers and others in the host community stated, as happens in the maize and beans value chains, that middlemen also cheat them by tampering with scales when weighing the groundnuts. Generally, the farmers, similar to those in the maize and beans value chains, had little knowledge of the value chain beyond the middlemen who visit their farms to collect the groundnuts.

4.4.2 Opportunities

Although host community farmers did not note the size of land as a constraint to their operations, in one focus group refugees stated that expanding groundnut production for them would require more sizable landholdings. Across both communities, no matter the land size, producers in FGDs and interviews explained that they would like further training on different techniques and tools to maximize their yield and the quality of groundnuts.

Along with improved knowledge of best agronomic practices, producers said that they require an infusion of capital to truly advance their involvement in the groundnut value chain. In particular, they noted, given that most groundnut producers simultaneously work in other crops such as maize and beans, if profits increased across these other value chains then they would have more financial freedom to pursue groundnuts. Additionally, an asset transfer would be beneficial either because it would help to alleviate their immediate cash burdens so they can focus more on groundnut production or they could funnel this extra income into the purchase of higher-quality inputs and equipment so they could more adequately farm groundnuts. As well, non-groundnut producers with this asset transfer would be able to better access the inputs necessary to enter the value chain for this more lucrative crop.

Despite the capital required for groundnut production and the necessity of better agronomic knowledge, all producers confirmed that involvement in this value chain yields some profits and believe that they could maximize on these profits with adequate support. Among groundnut producers in one focus group, they explained that they actually have a bit more bargaining power in the market because the supply of groundnuts remains limited; therefore, middlemen tend to acquiesce more to farmers’ demands to acquire this product. However, groundnut farmers in this FGD and others noted that they still lack greater access to market information to leverage their advantage as suppliers of an uncommon commodity. Consequently, a few farmers reported that they remain compelled to sell their groundnuts to whomever comes by their homes instead of waiting to determine the best price based on market value.
CHAPTER 5. ROLE OF WOMEN IN VALUE CHAINS

Although the value chain assessment did not necessarily aim to undertake a detailed gender analysis, the data did reveal some interesting perspectives from producers and non-producers regarding the role of women across the maize, beans, and groundnuts value chains. Of note, the AVSI consortium conducted mostly mixed-gender focus groups, and in these discussions, as well as in the KII, the questions regarding female involvement remained fairly surface-level, given the intention of the assessment. For a more considered and thorough treatment of women’s participation in the value chains, a separate gender analysis is being conducted by the team.

Generally, as reported in focus groups and interviews, female participation in the three value chains tends to remain in the production realm, as they help with all aspects of cultivation, from digging holes to weeding and harvesting. In one focus group, women said they wanted separate gardens for themselves because men do not share, although men disagreed and said that digging should always be a family activity. Given the primacy of women and not men in cultivation, often the men do not thoroughly understand the value of the crop when selling, which can lead to poor negotiations and lower prices.

One input dealer did report that wives commonly assist their husbands in running the business, especially when the husbands are away from home; additionally, the AVSI consortium also spoke to a few female middlemen. Furthermore, a few medium-scale farmers interviewed reported that they hire Ugandan and refugee women as casual laborers; in certain instances, the number of female workers even exceeds the number of men employed. More commonly, though, men sell and buy maize while women remain at home and are more actively involved with growing the crops.

Despite the low prevalence of women in these value chains beyond farming and selling in local shops, respondents failed to identify specific barriers that explicitly obstruct the entrance of women into other value chain activities. In speaking with two farming cooperatives, the gender composition of their groups seemed about equal, and in the smaller organization the number of female farmers exceeded the number of males (436 females and 472 males in one group, and 17 females and 10 males in another). Moreover, when farmers do hire women for daily labor, they reported offering them the same rate of pay as for men. Some respondents suggested that possibly because women are involved in many domestic activities related to taking care of the household, they simply do not have the additional energy to expend on becoming more involved in the value chains as middlemen or millers. Furthermore, the necessity to stay close to home may also exclude women from value chain activities, such as offering casual labor or trading crops, which could take them further distances.

When looking at the gender composition of the SACCO, the number of males (409) greatly exceeds the number of females (178). Thus, despite women having access to small loans through their farming and VSLA groups, the opportunity for higher amounts of capital could possibly be more restricted. One woman noted in an FGD with all female participants that she feels that she cannot disclose to her husband all the income that she has generated from selling beans because he will just take the money for his own purposes instead of using it for household needs. Other
women in this focus group explained that they do not necessarily know how their husbands spend the income earned; a few women across FGDs and interviews noted that they believe irresponsible men use their money for alcohol.

Further, as small and large middlemen reported, much of their business relies on establishing relationships with different actors; for women, doing so comes with its own complications, especially in a primarily male-dominated market. For example, one large middleman reported that he prefers not to deal with female sellers because he has experienced problems with women selling to him without conferring with their husbands.

Thus, the interviews and FGDs conducted with different genders did not reveal one single commonly cited constraint prohibiting women from either producing or trading maize, beans, and/or groundnuts. However, from respondents’ answers regarding the nature of operations within these value chains, it appears that female involvement tends to remain within the production realm, and for those women involved as middlemen they face the same challenges in their business as men in their positions—lack of market information, difficulties with transport, and so on. Therefore, although women may be heavily involved in farming, they may not necessarily reap the benefits of what they sow given that their husbands or other males within the household engage more so in selling the crops.

The consortium team also elicited information about women’s access to various input and output markets and services using survey data collected from 78 Ugandan and 82 refugee women. Exhibit 55 shows the level of access by Ugandan and refugee women. Barring a few markets and services, refugee and Ugandan women have the same level of access to services. Ugandan women have significantly greater access to livestock markets and equipment markets. However, both Ugandan and refugee women have low access to fertilizer markets, agricultural extension, and avenues for selling products to international markets. The low level of access to markets and services corroborates discussions in the FGDs about women being predominantly involved in production activities on farms and lack involvement in input procurement and output sales.

Exhibit 55. Market Access by Women in Kamwenge (Ugandan N=78; Refugee N=82)
As Exhibit 56 shows, when women accessed these services, they differed in how and where they obtained this support. For example, they received agricultural inputs, such as seeds and fertilizer, often from markets, traders, friends, and family (only for seed). As for agricultural extension and credit, women relied primarily on their social networks such as friends and family. Women also obtained credit in a group setting as well.

For those women unable to access these services, Exhibit 57 shows some of the prevailing reasons, such as:

- Both Ugandan and refugee women reported not using seeds primarily because of lack of availability or being too costly, although the overall proportion of women reporting these reasons was low.
- Ugandan women’s primary reasons for not using chemicals or fertilizers was because of the high costs, whereas refugee women reported not needing chemicals or fertilizers.
- For lack of credit access, Uganda women reported the cost of lending to be high, whereas refugee women cited not needing it. The overall proportion of both reasons is low.
- For agricultural extension, a disproportionately high number of women reported not having access because of a lack of availability.
- About 60 percent of Ugandan women and 35 percent of refugee women reported not having access to crop markets in their area.
Exhibit 56. Avenues Where Women Access Services and Markets

Sample size for seed access includes 48 Ugandan and 56 refugee women, 21 Ugandan and 23 refugee women for pesticides, 41 Ugandan and 44 refugee women for credit, and 13 Ugandan and 24 refugee women for accessing agricultural extension.
Exhibit 57. Reasons Women Cannot Access Services and Markets

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22 Sample size used for constructing the Exhibit are as follows: 30 Ugandan and 26 refugee women for seeds; 57 Ugandan and 59 refugee women for pesticides; 37 Ugandan and 38 refugee women for credit; 65 Ugandan and 58 refugee women for agricultural extension; and 23 Ugandan and 36 refugee women for crop markets.
CHAPTER 6. NON-PRODUCERS IN VALUE CHAIN

To understand the obstacles confronting actors other than producers in each of the three value chains and how they might affect producers, the AVSI consortium interviewed input dealers, large middlemen, small middlemen, and processors to gauge their unique perspectives. The following paragraphs summarize reflections from these non-producer stakeholders regarding challenges and constraints to their participation in each of the value chains, as well as any opinions regarding greater participation and opportunities to maximize profit. This chapter concludes with a discussion of any themes that emerged from speaking to input dealers who cover all three value chains.

6.1 Maize

6.1.1 Challenges and Constraints

Non-producers shared similar obstacles as farmers in running their operations, such as lack of capital and staying ahead of price fluctuations. Regarding the capital constraint, processors explained that they have insufficient income for machine repairs or updated equipment. Even though all have some type of transportation available (whether hired or owned), large and small middlemen still face difficulties with transport such as costs of traveling long distances, difficulties traveling on poor roads, or dangers traveling on boda bodas. Furthermore, the limited income of these middlemen means that they must often take loans to continue running their businesses.

As for inconsistent prices, large and small middlemen said that the volatility hurts their ability to garner any profits because they often end up buying maize at a higher price than the ultimate sale amount because they cannot anticipate how the market may swing. Potential reasons for this may include fluctuating or declining demand by traditional consumers, undefined markets largely owing to lack of reliable market information, unstructured trading because of undeveloped financing and marketing mechanisms, and acute lack of standardized storage infrastructure.

In addition to the fluctuating market, a sense of mistrust permeates relationships and partnerships between actors in the maize value chain. This sentiment affects: 1) how and where actors source maize, 2) the interactions between actors, and 3) social cohesion within the settlement and between the settlement and the host community.

First, although traders and middlemen typically have pre-established relationships with various actors when selling and buying, they will travel if needed to secure adequate volumes of maize and to find sales outlets, which increases their transportation costs. Typically, when supply is plentiful, these large and small middlemen travel no more than 1 kilometer and rely on their networks to identify farmers in the surrounding areas. The KIIIs also revealed that most large middlemen report selling to other traders in Kampala, Kenya, Rwanda, and other national markets; often, they relied on these connections and friendships for market information and linkages to other sellers. Thus, personal relationships between various actors in the value chain, especially for middlemen, often affect their trading sources.

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23 All actors other than farmers are referred to as non-producers.
Despite these partnerships, large middlemen complained that they cannot always rely on personal networks because of price fluctuations, which necessitates traveling long distances to reach national or international markets. Often, by the time they arrive at these destinations, the price has changed, and they must sell their product at the low price; furthermore, middlemen said, especially when dealing with unknown traders/exporters, they suspect these individuals manipulate the scales. However, for most of these middlemen, they complained that they lack adequate knowledge to successfully bargain with larger traders/exporters. This mistrust between middlemen and traders extends as well to the relationship between them and other actors. For example, small and large middlemen complained they cannot rely on farmers to deliver requisite volumes of high-quality product at specified times. Further, refugee middlemen, who sell onward to host community middlemen running larger businesses, said they feel that these large middlemen take advantage of their refugee status because they do not have the ability to connect directly with traders/exporters (OPM does not allow lorries and trailers in the settlement); in particular, refugees said that middlemen who come through the settlement use unfair scales and buy maize at low prices. Refugee middlemen receive money from larger host community middlemen to purchase a specified quantity of crops from farmers within the settlement, and to meet those goals they reported that they often struggle to make a profit unless they get the lowest prices from producers.

Aside from prices, but also a contributor to the low value of maize, non-producers, including processors, specifically complained about the poor quality of grain. Large middlemen reported receiving maize mixed with other items such as rocks or dirt and believed that this is done intentionally to increase the weight or because of poor post-harvest practices like drying maize on the ground. Small middlemen also stated that pests and disease often lead to deteriorated grains, whereas respondents from mills confirmed receiving poor-quality grain that is often contaminated with other materials, which can damage machine operations.

One interviewee at the KCDP stated that producers will often choose not to dry their maize entirely because they lose up to 20 percent of the weight with the decreased moisture. Regularly, middlemen said they come across discolored and unclean maize grain contaminated with aflatoxins (mold in soil) because of poor post-harvest handling. The lackluster maize grain especially hurts processors, who in turn refuse to pay high prices for the grain that they do receive, thus reinforcing the cycle of low profits for all actors in the value chain. However, these actors offered a few suggestions to break this pattern, and reported certain aspects of their work that might offer opportunities for increased profit and productivity. Exhibit 58 summarizes the challenges confronting large-scale market traders, middlemen, and processors.
6.1.2 Opportunities

Most of the middlemen interviewed started their business with profits made from small bumper harvests or a minimal amount of savings. Subsequently, they started doing small trades with neighbors and farmers in the surrounding communities to grow their business. These success stories show that despite the obstacles as discussed, farmers, if provided a small infusion of capital and the right type of training, can shift to more profitable areas of the value chain.

All large and small middlemen reported owning at least one facility for storage, and a few reported having equipment such as sacks and pallets at the ready after they purchase maize. Of note, refugee middlemen (all small middlemen) said that they have limited access to adequate storehouses, and some respondents said they simply use their own homes to contain the maize, which, because of the poor quality of their homes, leaves it susceptible to rodents and rain. Large and small middlemen from both the refugee and host communities said they would welcome support to upgrade their structures and supplies so that they can more adequately store the maize.

Improving post-harvest handling practices is key for middlemen; according to the largest buyer of maize in Kamwenge (KCDP), his business reported a loss of 2–3 billion shillings because of poor quality. In response, KCDP partnered with a local agricultural development organization (AgriBusiness Initiative) to train farmers on the best post-harvest handling practices and then bought maize from these trained farmers—this model could be replicated among other private sector actors. Middlemen stated, as well, that they themselves would like to receive training on business skills and practices to improve their marketing abilities.

Additionally, large middlemen said that they would have greater opportunities to expand their business if they received government support to reach new markets, either in the form of
improved road infrastructure or facilitation into larger export markets. KCDP also suggested that perhaps the government could better rely on and use the Uganda Warehouse Receipt System (WRS) Authority\textsuperscript{24} to regulate maize.

Of note, middlemen interviewed did not necessarily state definitively that they would offer farmers higher prices if they received better-quality maize. However, middlemen did report that they desire greater volumes of maize at consistent periods of time from farmers. Thus, even if farmers may not automatically receive more money for their supply by providing quality maize, improving their ability to adequately grow significant maize volumes could lead to a greater diversity of sales outlets.

6.1.3 Sales Prices

During the interviews, we also elicited the price at which maize is sold to different value chain actors. As Exhibit 59 shows and as discussed in Chapter 2, farmers sell the maize to middlemen for approximately 350 UGX per kilogram and at local markets for 500 UGX per kilogram. Large middlemen then sell to large scale processors for 400 UGX, who then sell at supermarkets for about 600 UGX. The price of maize sold at international markets and local markets is the same (about 500 UGX per kilogram).

\begin{center}
\textbf{Exhibit 59. Amount Earned per Kilogram of Maize}
\end{center}

\begin{center}
\includegraphics[width=\textwidth]{maize_price_flowchart}
\end{center}

6.2 Beans

6.2.1 Challenges and Constraints

Three large middlemen and 15 small middlemen who sell beans were interviewed; these respondents explained that, similar to those who deal with maize, they struggle with keeping

\textsuperscript{24} WRS allows farmers to use their commodities as collateral to access loans from financial institutions. The WRS has been in place in Uganda since an initial pilot in 2004. It was designed to ensure better market access and credit for farmers. Source: https://www.afdb.org/en/aec-2016/papers/paper/ugandas-warehouse-receipt-systems-improving-market-performance-and-productivity-5179/
abreast of the constant price fluctuations that occur in the bean market. Consequently, these actors often receive lower prices from buyers than those agreed upon during the initial contact. Further impeding profits for middlemen, some of them offer farmers advance cash payments to secure an adequate supply, but they fail to receive the agreed-upon quantity because farmers take their money and then sell to other middlemen, and/or they end up receiving poor-quality beans with high moisture content. Middlemen also reported that a reliance on large middlemen or traders/exporters for price information can leave them feeling manipulated and ill prepared to negotiate better rates for themselves. As with middlemen dealing in maize, those who sell beans also complained about weigh scales that have been tampered with.

Additionally, even though almost all of these non-producers reported that they have some sort of vehicle for their operations, the poor road networks, especially during rainy season, can hinder operations. Some large middlemen reported traveling as far as Kampala, Kenya and Kigali, which means that transportation poses a significant hurdle to improving business. As such, given the high cost of extensive travel and the road conditions, generally, both large and small middlemen prefer to keep close to their community when buying unless they truly cannot amass a sufficient supply of beans. However, even traveling short distances can pose transportation issues, as one small middleman explained that usage of boda bodas in rainy season can often lead to accidents.

Storage, though not a severe hindrance to host communities’ small and large middlemen as they often have their own facilities, still represents a challenge, especially to refugee middlemen, in terms of the quality of the structures available, capital for adequate inputs (e.g., pallets, sacks, and post-harvest pesticides), and capacity to retain beans for long periods of time. At most, one middleman reported being able to store beans for up to five months, whereas others said they could store for a few months or that they must turn over their beans supply to make room for storing maize. Exhibit 60 summarizes the challenges confronting large-scale market traders, middlemen, and processors.

**Exhibit 60. Summary of Challenges for Non-Producers in Beans Value Chain**

![Diagram showing challenges faced by large and small middlemen in the beans value chain]

Note: There are no beans processors.
6.2.2 Opportunities

Given the challenges related to the quality and available supply of certain varieties of beans, it would appear that if farmers can advance their agronomic practices to yield a greater quantity, then more doors would open for large and small middlemen to become involved in the beans value chain. However, higher and better bean yields alone cannot raise incomes and improve livelihoods. According to large and small middlemen, thorough price information, as well as reliable rates for beans, could improve their businesses and allow them to adapt to the constant price fluctuations (Exhibit 61). Similar to the conditions within the maize value chain, non-producers of beans consistently reiterated that they need greater market intelligence for more price awareness.

Additionally, large and small middlemen said that they would like to know how to increase their own storage capacity so they can more strategically store their beans and sell at times of higher prices, rather than feeling desperate to sell off their supply quickly before spoilage or to retain space for other commodities. At present, most of these buyers in the host community have their own facilities and thus lack not so much the capacity for storage, but rather the training regarding best storage practices. However, if supply did increase because of greater farm productivity, then large and small middlemen would have to invest in larger structures.

6.2.3 Sales Prices

Exhibit 61 shows the changes in bean sale prices along the value chain. The difference between the sale price of beans by farmers and the price sold at the national markets is about 300 UGX per kilogram. Since beans are primarily sold to middlemen in Kamwenge, farmers get approximately 900 UGX per kilogram. The difference between bean prices sold in the local markets and national/international markets is large in magnitude: middlemen sell beans for 960 UGX per kilogram at the local markets and for 1200 UGX per kilogram at the national/international markets.

Exhibit 61. Amount Earned per Kilogram of Beans
6.3 Groundnuts

6.3.1 Challenges and Constraints

Growers of groundnuts tend to intercrop with maize, and sometimes beans, which means that they share many of the same obstacles as those previously discussed in these value chains (e.g., unknown price fluctuations). However, because the level of knowledge surrounding groundnut production among farmers remains more limited than those for maize and beans (see Section 4.4), large and small middlemen more often receive poor-quality (e.g., not dried enough, infested with pests) groundnuts that fetch low prices. Only one middleman reported that she also processes groundnuts into flour after buying them; instead, almost all large and small middlemen purchase unshelled groundnuts mostly because, as a large middleman explained, unshelled groundnuts expire more slowly compared to shelled varieties. However, even despite the longer expiration date on unshelled groundnuts, middlemen reported that they still struggle with adequate postharvest handling to retain groundnuts for extended stretches of time.

Groundnut processors shared the same types of challenges that maize millers often face, including low capital and outdated machines that constantly need repair. Although the equipment required for processing groundnuts is cheaper than that for maize, investing in this production represents an additional cost that, as one processor explained, necessitates taking out loans and borrowing money on occasion from microfinance organizations. Exhibit 62 summarizes the challenges confronting large-scale market traders, middlemen, and processors.

Exhibit 62. Summary of Challenges for Non-Producers in Groundnuts Value Chain

6.3.2 Opportunities

Despite the obstacles to trading groundnuts, non-producers involved in this value chain indicated interest in continuing their operations and said that they could improve their positions if they received support. In particular, similar to sentiments expressed among middlemen in the maize value chain, small middlemen expressed an interest in receiving business skills training so they can
better negotiate prices and interact with large middlemen and large-scale traders (Exhibit 62). The overarching challenge for both large and small middlemen remains accumulating sufficient capital to scale up business, and therefore any opportunities for enhancing profit must, according to these actors, address this deficit.

As for processors, the one processor interviewed who works with groundnuts suggested that he could potentially advance his business if farmers could provide higher-quality groundnuts and package their produce in smaller quantities because he does not always have the capital to purchase in bulk.

6.3.3 Sales Prices

Exhibit 63 shows the change in the price of groundnuts along the value chain. Two key insights emerge from the price changes. First, the difference between the price that farmers obtain and that middlemen obtain from selling groundnuts (about 125 UGX per kilogram) is not significantly large as compared to maize and beans price changes along the value chains. Second, large middlemen sell to processors and the national market at the same price for about 1,875 UGX per kilogram.

Exhibit 63. Amount Earned Per Kilogram of Groundnuts

Note: The difference in the sale price of groundnuts to small and large middlemen should be interpreted with caution due to limited data.

6.4 Cross-Cutting Themes

Input dealers interviewed who supply producers growing each of the three crops largely concurred that their transactions often depend on trust and familiarity with the farmers. Although one dealer said that he does not cap the credit amount for all customers, another dealer said he provides credit only up to 30,000 shillings; both of these actors stated that they do not charge interest. Although customers face a deadline for repayment, this timeline fluctuates depending on the individuals and their needs as well as financial status. Relationships between input dealers and farmers matter because these dealers often obtain new business from word of mouth; thus, their reputation in a community hinges on farmer satisfaction.
Appeasing farmers becomes especially challenging, according to one input dealer, when farmers expect that usage of a certain input (e.g., fertilizer or pesticide) will automatically enhance the productivity of their crops; when they do not obtain the desired results, the dealers receive the blame. However, ensuring the quality of seeds and other inputs can be difficult, and each of the dealers interviewed reported different approaches to obtaining high-quality inputs. One dealer said that he has established relationships with certified and tested companies and trusts only their products, whereas another said that he tries to stay away from Kampala suppliers, as he believes that they dilute the imported inputs that they purchase.

To improve their business and profitability, the input dealers interviewed offered varying solutions. One dealer suggested downsizing the products to meet the needs of smallholder farmers who often do not require large quantities. If shrinking the packaging is impossible, this dealer recommended that farmers organize themselves into cooperatives to collectively purchase inputs in bulk and to share resources; this strategy could also potentially increase access to credit by pooling farmers’ finances. Meanwhile, another dealer emphasized greater government involvement to: 1) verify imported products and dissuade tampering, 2) subsidize input dealers or offer some type of discounted purchases of inputs, and 3) improve roads to establish better linkages between input suppliers and small trading centers, and as well improve connections to more remote farmers by allowing the input dealer to travel more easily.

Overall, the Activity can support the three value chains by: 1) identifying input dealers in Bihanga, Bisozi, Bwizi, Nkoma, Nkoma/Katalyeba, and within the settlement, 2) deciphering who is selling certified products at fair prices, and 3) providing this information to FFBSs to establish linkages between producers in the Activity and trustworthy, accessible input dealers.
CHAPTER 7. LAND DISTRIBUTION PATTERNS

In this chapter, we present ancillary information related to land distribution and land rentals in Kamwenge, especially in the Rwamwanja refugee settlement. The information may help inform AVSI programming aimed toward strengthening agricultural livelihoods in the settlement, given that new refugees may be entering the settlement and further land distribution may occur among existing and new refugees.

Exhibit 64 shows the distribution of land among the Ugandan and refugee households. About three times more refugee households own and cultivate land less than 0.5 acres compared to Ugandan households. However, both Ugandan and refugee households tend to cultivate maize and beans on plots of land less than an acre in size. Groundnuts were not frequently cultivated by our general sample of relatively poor and extremely poor households, so it is beyond the scope of our analysis to know whether groundnuts are cultivated on smaller plots.

Exhibit 65. Cumulative Amount of Land Rented Per Household to Cultivate

Renting land is also prevalent among our survey sample, although the incidence of renting land is greater among Ugandan households as compared with refugee households for all plot sizes (see Exhibit 65)—about double the number of Ugandans rent less than an acre of land as compared with refugees.
Exhibit 66 and Exhibit 67 show the basic descriptive summary of renting land by Ugandan and refugee households. For plot sizes less than one acre, refugees tend to pay more rent for the same size of land as compared with Ugandans. Although the data suggest that refugees pay less rent for land greater than an acre, the data should be interpreted with caution owing to the low sample size of refugees renting more than one acre of land. Modes of land acquisition vary only slightly for refugee and Ugandan households, with a key difference being that about 33 and 18 percent of refugees reported receiving land less than 0.25 acres and land between 0.25 and 0.5 acres, respectively, from government transfers. Such government transfers were absent for Ugandan households. The fact that refugee households perceive land they receive from the government upon entry to the country as being rented may prevent them from making appropriate land investments in the long run because of a lack of land tenure security and perhaps due to other restrictions on land-use by the OPM.25

Most Ugandan and refugee households rented land through leasing arrangements. Only a very small proportion of refugee households inherited land, but a higher proportion of Ugandan households had received land through inheritance. Leasing land through mere agreements with property rights was more common among Ugandans as compared with refugees.

Exhibit 66. Land Acquisition Patterns Among Ugandan Households

<table>
<thead>
<tr>
<th>Size (acres)</th>
<th>Price (average)</th>
<th>Percentage of plots rented per size</th>
<th>Acquisition of Land</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Inherited / gift</td>
<td>Lease</td>
</tr>
<tr>
<td>&lt;0.25</td>
<td>50,000</td>
<td>16.60</td>
<td>10.26</td>
</tr>
<tr>
<td>0.25–0.50</td>
<td>108,970</td>
<td>33.19</td>
<td>8.97</td>
</tr>
<tr>
<td>0.50–0.75</td>
<td>116,428</td>
<td>3.40</td>
<td>–</td>
</tr>
<tr>
<td>0.75–1.00</td>
<td>229,346</td>
<td>24.26</td>
<td>15.79</td>
</tr>
<tr>
<td>&gt;1.00</td>
<td>312,000</td>
<td>22.55</td>
<td>20.37</td>
</tr>
</tbody>
</table>

Exhibit 67. Land Acquisition Patterns Among Refugee Households

<table>
<thead>
<tr>
<th>Size (acres)</th>
<th>Price (average)</th>
<th>Percentage of plots rented per size</th>
<th>Acquisition of Land</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Inherited / gift</td>
<td>Lease</td>
</tr>
<tr>
<td>&lt;0.25</td>
<td>70,000</td>
<td>19.78</td>
<td>5.56</td>
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<tr>
<td>0.25–0.50</td>
<td>98,750</td>
<td>29.67</td>
<td>3.70</td>
</tr>
<tr>
<td>0.50–0.75</td>
<td>133,333</td>
<td>3.30</td>
<td>–</td>
</tr>
<tr>
<td>0.75–1.00</td>
<td>174,687</td>
<td>25.27</td>
<td>8.70</td>
</tr>
<tr>
<td>&gt;1.00</td>
<td>1,343,125</td>
<td>21.98</td>
<td>–</td>
</tr>
</tbody>
</table>

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CHAPTER 8. RECOMMENDATIONS AND CONCLUSIONS

The analyses presented for the maize, beans, and groundnuts value chains operating in Kamwenge aim to support the implementation and design of the interventions under the Graduating to Resilience Activity. In this chapter, we shed light on the main recommendations and findings that have emerged from our analyses and are of direct relevance for AVSI’s programming. In proposing these recommendations, we have attempted to tie them to the actual interventions that the Activity will implement in the future. The recommendations are as follows.

**Provide training and information to households on cultivation methods, and market-based business and technical skills.** As the analysis suggests, across the three value chains, households have little access to information on cultivation methods and often feel they have limited knowledge of market conditions to successfully grow their business. Ugandan households reported receiving some of this information from formal information sources, but refugee households stated in the survey that they tend to access and use informal information channels. When information exchanges occur only among households’ social networks, they do not have any avenue for learning about newer or more fruitful ways of cultivation, especially if no one in the network has access to information about newer techniques. Further, lack of information on market prices and quality expectations prevents households from selling their output and creates an atmosphere of mistrust among buyers and sellers—a highly common theme that emerged in our qualitative analysis.

The Activity could address issues related to limited awareness of production technologies through the FFBS approach, which already seeks to provide training and coaching to households to enhance producers’ knowledge. To build upon the FFBS method, the Activity could provide specific information on cultivating maize, beans, and groundnuts.

Simultaneously, the FFBS could also provide a conduit for farmers to engage in more training related to improving their marketing and business skills, including modules on negotiation, recordkeeping, and financial management. Such business management training has the potential for improving their economic activities as well as personal financial management. Furthermore, these FFBSs may offer a reliable source of information to farmers about agricultural prices at various sources. Separately, the coaches attached to each household could engage in more direct and personalized training to enhance the marketing abilities of individual producers and empower them to move away from their reliance on middlemen. Additionally, these coaches could deliver market information to households on a regular basis or enable households to seek information from formal sources such as radio, cellphones, or extension services. Whereas these are suggestions for providing market information to farmers, the Activity could also consider

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26 Information on cultivation practices could be especially useful for refugee households, who were not necessarily involved in agricultural livelihoods in their host country, prior to moving to Uganda.


28 A private sector led model could be used to explore the feasibility of market information provision.
viable business models (such as mobile applications) for sustained provision of information in the long-term.

**Help improve access to agricultural inputs.** Our analysis also revealed that other than seed, few households use agricultural inputs such as organic herbicides, pesticides, and fertilizers. Often, farmers lack the ability to purchase these inputs, as they are sold in large bulk quantities and high transportation costs are incurred in accessing the local shops. If the Activity could allow farmers to purchase the inputs (preferably repackaged into small quantities) at the FFBSs, then farmers may be more likely to utilize these inputs on their farms. Furthermore, these FFBSs could be linked with farmer groups for bulk purchase of inputs by these groups. In this manner, they could pool resources to reduce the burden of transportation costs.

Alternatively, a successful farmer group could circumvent the FFBS and directly purchase inputs from retailers if that route proves more cost effective. However, the success of such an endeavor would depend on the ability of members to work collectively effectively, which, according to some of the FGDs, represents a challenge because individuals do not necessarily trust each other. If AVSI determines assisting farmer groups would be a more sustainable path, then they must consider and explore potential pathways to improve the seamless functioning of these groups and take steps to strengthen their ability to coordinate and come together.

**Improve linkages and diversify source of harvest sales.** Our analysis revealed that the three value chains are associated with varying levels of profit margins and actor presence. For maize cultivation, the Activity could ensure that households are connected to the most appropriate actors for input supply, production, and sales, and take advantage of the heterogeneity in the type and size of actors within the value chain. The Activity may not need to focus effort in bringing in any actors, such as international exporters or processors, to Kamwenge, as many of them appear to be operating in the region already. For beans, the data showed that they are largely produced for household consumption. However, the crop fetches a good sales price. Therefore, the Activity could focus on enabling households to sell a greater share in the market, irrespective of the source to which they sell.

Although improved linkages with input suppliers across all value chains could greatly help to increase the quality of production for farmers, this relationship becomes especially valuable in the groundnuts value chain. As the FGDs and KIIIs revealed, groundnut production remains relatively rudimentary and farmers often do not understand the necessary inputs required for improving their yields; furthermore, financial constraints often leave farmers unable to buy the additional inputs needed for this type of production, which varies in complexity compared with maize or beans. Because groundnuts are highly profitable despite requiring high input cost, ensuring that farmers have the requisite inputs so they can sell their output to processors and traders will significantly improve their welfare. Broadly speaking, for maize, the Activity should focus on creating linkages (especially to information sources) and ensuring that producers sell to actors already present in the value chain, which would allow them to earn a higher price. For groundnuts and beans, the Activity may need to help not only form the linkages, but also encourage the participation of traders, processors, traders/exporters, and international organizations like WFP to initiate buying from poor communities.
Another overarching theme that emerged from our quantitative and qualitative analyses is that farmers dislike selling to small middlemen as it fetches them a lower sale price for their crop. As such, we recommend a few strategies to weaken the dependence of producers on small middlemen, and instead strengthen their relationship directly to other value chain actors. Enabling agricultural households to sell at the market instead of selling to the small middlemen could significantly improve the position of these households within the value chain.

As a further recommendation to diversify sales outlets and stabilize prices received, refugees mentioned they wish to sell their maize to WFP. Through an interview with the WFP, we learned that WFP buys maize through cooperatives and other farming organizations that can bulk at least 6 to 10 tons of maize. There are, then, opportunities for the production and marketing groups to join together to form “super PMGs” to bulk the quantity of maize required for purchase by WFP. As these groups will have previously been trained at FFBSs, the quality of maize produced will meet WFP standards.

Another important linkage to establish would be between farmers and formal financial institutions in the area. This kind of relationship could provide farmers a more thorough understanding of key financial products to improve their acquisition of the requisite inputs needed for improved agricultural yields. Furthermore, given the environment of mistrust that permeates all relationships between actors in the value chain as discussed, connecting farmers and strengthening their liaisons with financial actors could be beneficial to ensuring farmers have a reliable outlet for obtaining money management advice and a more formalized pathway for loans.

Ensure that consumption smoothing cash transfers align with pre-harvest months when farmers feel pressure to sell quickly. The amount of the consumption smoothing cash transfers could be tied to periods close to harvest when farmers face extreme cash shortages and tend to sell their crops prematurely or at lower prices at the farm gate. Although the cash transfers would be made every month, farmers could be paid more in months close to the harvest season as compared to months right after the harvest, thereby keeping the average monthly transfers the same. If farmers have the flexibility to harvest at the appropriate time and explore the potential of bulking their produce (even small quantities) to offset transportation costs, they could earn better prices for their produce. This costless attention to timing of cash transfer delivery could potentially be effective in allowing farmers to have greater profits and bargaining power.

Explore opportunities for improved post-harvest facilities and practices. Farmers incur significant post-harvest losses, as producers repeatedly mentioned in FGDs and interviews. The asset transfers made to the intervention arms receiving assets could be made with nudges to purchase equipment to reduce these losses so that farmers may consider using that money for

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29 All farmers can potentially sell to the market and do not require any licenses. However, they need to pay a small fee (about 500-1000 USH depending upon the commodity sold per visit to the market) to sell at the market.
30 This implies forming groups of roughly 11 to 18 Ugandan smallholder agricultural households or 14 to 24 refugee households.
purchasing tarps and/or pooling money to construct storage facilities within their community, which would also improve their ability to bulk crops.

Although nudging farmers to invest in post-harvest equipment may be one pathway to improving their post-harvest losses, AVSI could also consider providing more direct training and services. For example, FFBS could train farmers in methods to reduce these losses and information on equipment needed for improved post-harvest practices. The FGDs and KIIs already revealed that farmers consider post-harvest losses a significant problem; therefore, they may not require a strong incentive other than details on good agricultural practices to engage in improved practices. One other commonly cited deterrent to improved post-harvest practices is the lack of adequate storage. Given the difficulties as previously described with farmers coming together collectively, AVSI could explore providing farmers with more individualized storage equipment, or facilities that only a few producers share in order to reduce the level of mistrust if working at the larger community level.

**Improve women’s role in value chains by ensuring that they receive training, information, and access to credit.** Within agricultural households, women’s participation and roles in the value chain are limited compared with those of their male counterparts. As the Activity is designed using the women-plus approach, it must take care to time VSLA, FFBS trainings, and coaching so that women can feasibly attend amid their many other commitments and time demands. As suggested previously, the coaches could help to provide households with market information, and when they do so, the Activity should consider involving both women and men as frequently as possible to reduce the possibility of household tensions and gender-based violence. Moreover, through the VSLA and coaching, women could be provided information on the procedures for becoming a SACCO or a bank member, in case the woman chooses to expand beyond her VSLA. Making these intangible knowledge and information transfers and removing these credit constraints may not change their role and participation in the value chains in the short term, but may provide women a greater voice and bargaining power when contributing to household decision-making in the long run.

**Explore the possibility of strengthening contractual relationships between buyers and producers.** Our analyses revealed an atmosphere of mistrust among all actors in the value chain. Beyond the lack of information, as previously discussed in our first recommendation, the absence of binding standards and regulations, such as for weigh scales, contributes to the environment of suspicion that characterizes the relationships among value chain actors. Although it is not an easy task to address these sentiments, if AVSI could work with some of the buyers to facilitate the establishment of contractual agreements with farmers or farmer groups, especially for the maize value chain, the mistrust among the actors over time could be reduced and allow for improving the functioning of the value chain, as a whole, in the region. However, such long-term relationships could be established at a later phase of implementation in the Activity when producers have acquired the status of being able to produce quality crops and plan beyond fulfilling their subsistence needs. The Activity could also foster greater interactions among non-producer value chain actors for narrowing the information gap and building linkages.
ANNEXES

Annex I. Value Chain Decision Matrix

Annex II. Qualitative Data Collection Instruments
### Annex I. Value Chain Decision Matrix

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Maize</th>
<th>Beans</th>
<th>Groundnuts</th>
<th>Cassava</th>
<th>Irish potatoes</th>
<th>Vegetables</th>
<th>Cattle</th>
<th>Goats</th>
<th>Pigs</th>
<th>Chickens</th>
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<tr>
<td>Number of extremely poor Ugandan households involved in the value chain</td>
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<td>6</td>
<td>4</td>
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<td>3</td>
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<td>Number of extremely poor refugee households involved in the value chain</td>
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<td>6</td>
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<td>3</td>
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<tr>
<td>Number of poor women involved in the value chain</td>
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<td>6</td>
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<td>4</td>
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<td>2</td>
<td>3</td>
<td>3</td>
<td>3</td>
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<td><strong>Subtotal (30%)</strong></td>
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<td><strong>18</strong></td>
<td><strong>12</strong></td>
<td><strong>12</strong></td>
<td><strong>12</strong></td>
<td><strong>6</strong></td>
<td><strong>5</strong></td>
<td><strong>9</strong></td>
<td><strong>8</strong></td>
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<tr>
<td>Potential for improving incomes of extremely poor refugee households</td>
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<td>4</td>
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<td>6</td>
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<td>2</td>
<td>3</td>
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<tr>
<td>Potential for improving incomes of women in the value chain</td>
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<td>3</td>
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<td><strong>18</strong></td>
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<td>Low barriers to entry for extremely poor Ugandan households</td>
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<td>Low barriers to entry for extremely poor refugee households</td>
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<td>Low barriers to entry for women</td>
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<td><strong>12</strong></td>
<td><strong>9</strong></td>
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<td><strong>9</strong></td>
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<tr>
<td>Criteria</td>
<td>Maize</td>
<td>Beans</td>
<td>Groundnuts</td>
<td>Cassava</td>
<td>Irish potatoes</td>
<td>Vegetables</td>
<td>Cattle</td>
<td>Goats</td>
<td>Pigs</td>
<td>Chickens</td>
</tr>
<tr>
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<td>--------</td>
<td>-------</td>
<td>------</td>
<td>----------</td>
</tr>
<tr>
<td>Potential for closing information gaps/providing training on any aspect of the value chain (5%)</td>
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<td>2</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>6</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Potential for scale economies (10%)</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Potential for asset transfer within the value chain (10%)</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>4</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
</tbody>
</table>

| Weighted commodity score | 10.4 | 10.4 | 9.4 | 9.55 | 8.2 | 10.4 | 5.85 | 7.95 | 7.65 | 8.35 |

Note: 1 = Commodity does not meet criteria; 6 = Commodity meets the criteria best
Annex II. Qualitative Data Collection Instruments

Key Informant Interviews

Graduating to Resilience Activity
Value Chain Assessment
Interview Guides – Large Market Traders aka Large Middlemen

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<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>2. Interviewer/Facilitator Name:</td>
</tr>
<tr>
<td>3. Participant ID/name:</td>
</tr>
<tr>
<td>4. Start Time:</td>
</tr>
<tr>
<td>5. Finish Time:</td>
</tr>
</tbody>
</table>

Introduction and consent

1. Introduce yourself and the study: Hello my name is ________. I work for ________. Graduating to Resilience is implemented by a consortium led by AVSI Foundation (AVSI), in partnership with IMPAQ International and TrickleUp. The goal of Graduating to Resilience (the Activity) is “To graduate extremely poor refugee and Ugandan households in Kamwenge from conditions of food insecurity and fragile livelihoods to self-reliance and resilience.” Over the next seven years, the AVSI Consortium will work with 13,200 extremely poor households. Half of the households will be from Uganda and the other half will be from the refugee community living in Rwamwanja settlement. As part of the project, AVSI is conducting an assessment of the maize, beans, and groundnuts value chains in order to learn more about the people involved in these value chains.

   a. Obtained written informed consent [Read Consent Form]
      a. Did you ask if the participant had any questions? □ Yes □ No
      b. Did participant agree to participate? □ Yes □ No →STOP

   b. Did you give participant copy of consent? □ Yes □ No

1. Buying the Commodity
First, I’d like to understand a little more about your role as a buyer of the commodity.

1. How did you get involved as a large market trader?
2. What commodities do you buy?
   Who are you buying from and why (middlemen, individual farmers, farmer groups, etc.)?
3. What is your buying price for each commodity?
4. How is the price determined? What factors do you take into consideration when determining price?
5. Where do you store the commodity? What are the additional costs of storing the commodity there?
6. What facilities do you have for storage?

2. Relationship with Buyers

I’d like to ask you about your relationship with your buyers.

7. What is your selling price?
8. Who do you sell to? Where are they located? (WFP, Rwandan companies, Ugandan companies, other)
9. How did you establish his relationship with the buyer?
10. How far do you travel for buying and selling?
11. What are the costs of this transport?

3. Facilitators and Constraints

Now, I’d like to ask you a bit about aspects of your job that you’ve identified as helping and about any aspects that cause trouble.

12. What are some aspects that facilitate your job? What do you find most challenging?

13. What are the challenges you face when selling the product? (probe about any unique challenges women and men face, as a result of their gender) (probe about issues with trust, unfair practices, lack of knowledge, etc.)
14. What are the challenges you face when buying the product? (probe about trusting the sources from whom you are buying and about quality of the product)
15. What challenges have you observed by those who sell to you or buy those who sell to you? What causes these challenges?

Thank the participant for his/her time.

Graduating to Resilience Activity
Value Chain Assessment
Key Informant Interview Guide – Livelihood Participants

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3. Participant ID/name:

4. Start Time:

5. Finish Time:

Introduction and consent

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B. Obtained written informed consent [Read Consent Form]

A. Did you ask if the participant had any questions? □ Yes □ No

B. Did participant agree to participate? □ Yes □ No →STOP

C. Did you give participant copy of consent? □ Yes □ No

1. Livelihood

We’d like to talk to you a few questions about your current livelihood, and get to understand more about what you do day to day.
a. Is this map of the value chain accurate? If not, what would you change?
b. Can you tell me why you chose your current livelihood over others?
c. How much land do you have?
d. Do you own it or do you rent it? How much did/do you pay for it? (please note, per month or season if renting)
   1. If you rent, what is the duration of the contract? How many months?
   2. Is this land used exclusively for cultivating [crop]? For what other purposes do you use this land throughout the year? For how many months a year do you use this land for cultivation of [crop]?
e. How much of that land is used for growing [crop]?
f. What is the crop yield for this land?
g. What inputs do you use? Where do you go to buy them? How often do you buy these inputs? Do you buy these in a group or individually?

<table>
<thead>
<tr>
<th>Input</th>
<th>Where Purchased</th>
<th>How Frequent</th>
<th>Group or Individual</th>
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h. What are the costs of each of these inputs?
   
   *Interviewer: Make sure to record cost for the quantity bought and how much is exactly used in cultivating [crop] on that particular plot of land.*

i. How do you finance these costs?
j. Do you use machinery for planting, harvesting, processing? How do you obtain this machinery?
   1. If rented, who do you rent if from? For how much?
   
   *Interviewer: Make sure to record the units like months, or season.*

   2. If owned, do you ever rent out this machinery? For how much?
   
   *Interviewer: Make sure to record the units like months, or season.*

k. How do you obtain seeds? How do you verify the quality of the seeds? Are you able to purchase quality seeds? If not, please explain.
l. How long does it take from planting to harvest?
m. How many times a year do you sell?

n. How could you improve the rate of return on this crop?
o. Do you hire casual laborers? If yes, how much do you pay them? For how many days do you hire them for growing [crop]?
p. Do you use your friends and family members for cultivating [crop]? For how many days? Do you pay friends? If yes, how much?
q. Do you work in groups for activities like weeding, planting, and harvesting?

b. Access to Markets

Now we’d like to ask you for a few questions about your processes for selling your harvest.
r. How much do you sell this commodity for (price/unit)?
s. Do you sell individually or in bulks as a group?
t. How do you find out about prices when selling?
u. Who do you sell to? Why do you sell to them? Are there any issues with trust when selling actor? How much do you sell to each actor?
v. Do you know who they sell to?

C. Opportunities within Value Chain

w. What kind of information will help you in improving cultivating of this crop?
x. What kind of information will help you in selling the crop?
y. What are the key barriers that you face in cultivating this crop?
z. What are some ways in which you can increase your profit for cultivating this crop?

Thank the participants for their time.
Graduating to Resilience Activity  
Value Chain Assessment  
Interview Guides – Big Farmers/Commercial Farmers

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2. **Obtain written informed consent** [Read Consent Form]
   a. Did you ask if the participant had any questions? □ Yes □ No
   b. Did participant agree to participate? □ Yes □ No → STOP
   c. Did you give participant copy of consent? □ Yes □ No

3. **Questions about Land and Agriculture**
   Thank you for taking the time to answer some questions. I’d like to learn more about your participation in agriculture in your community.
   First we would like to know what crops you grow.
1. How long have you been a farmer? Why did you choose to be a farmer? What do you like most about your job?

2. Is this map of the value chain accurate? If not, what would you change?

3. Can you tell me about your land use? How much land do you own? Do you rent it or own it? If rented, how much do you pay for it a season?

4. What crops do you grow? What amount of land is used for each crop? How do you decided how much land to use?

5. What inputs do you use to help grow crops? Where do you go to buy these inputs? How much of each do you use per crop? How much do you pay for this input per acre? (Probe for machines used to cultivate crops)

6. Who do you sell to, where do you sell it, and why do you sell there? At what price do you sell?

4. **Questions Regarding Labor**

Now, I’d like to ask you a bit about the people you’ve hired to work on your land and/or farm.

1. How many people do you employ on the land and on the farm? How many are women, how many are children, how many are Ugandan, how many are refugees?

2. How do you decide who to hire? (Probe: Men vs. Women, Ugandans vs. Refugees)

3. Approximately how many people do you hire per day? If this varies, why does this vary?

4. What crops require more hired labor?

5. At what times of the year do you need to hire more people?

6. How do you find people to work as casual laborers?

7. How much do you pay casual laborers? (how much for women, for children, for men, for Ugandans, and for refugees)

8. What are the challenges you face in hiring casual laborers?

9. What skills are you looking for when hiring a casual laborer?
10. What do you think are the biggest barriers to accessing employment faced by casual laborers that you hire?

11. What are your biggest challenges or challenges other farmers like you have?

5. Questions about Market Information
I’d like to ask you how you find out about information related to market prices.

  1) How do you learn about prices for each crop?
  2) Where do you learn about prevailing wages for labor?

6. Questions about Profit
Finally, I’d like to ask you a few questions about profit.

  1. How much is your profit per acre per kilogram after deducting your cost? Is it including your land rental cost or excluding it?

Thank the participants for their time.

Graduating to Resilience Activity
Value Chain Assessment
Interview Guides – Input Dealer

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2) **Obtained written informed consent** [Read Consent Form]

   I. Did you ask if the participant had any questions? □ Yes □ No

   II. Did participant agree to participate? □ Yes □ No →STOP

   III. Did you give participant copy of consent? □ Yes □ No

3) **Questions for Input Dealer**

   I’d like to ask you a few questions about your work as an input dealer.

   1. How long have you been working as an input dealer? What do you like about being an input dealer?

   2. Do you know other input dealers? Can you tell me about who they are? Do women work as input dealers? Is this common?

   3. Who are your customers? How do you seek new customers? (Probe: do you work with women and men, do you work with Ugandans and refugees?)

   4. Where do you go to sell these inputs? How far do you travel?

   5. What inputs do you sell? (Probe for seeds and ask how they verify the quality of their seed)

   6. Where do you purchase your product and for how much? (Probe if are there any issues with trusting the quality of the products from these sources)

   7. How much do you buy? Sell monthly?

   8. What inputs are most required or demanded by maize farmers? At what price do you sell each input per unit?
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9. What inputs are most required or demanded by bean farmers? At what price do you sell each input per unit?

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10. What inputs are most required or demanded by groundnut farmers? At what price do you sell each input per unit?

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<th>Price per Unit</th>
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11. Do you provide credit for your customers? If so, please tell us more about the amount of credit you provide, interest rates, and payback period.

12. Are there ever shortages of inputs? If so, why?

13. What is the greatest barrier you face in your jobs? What barriers do your customers face?

14. How do you think access to inputs could be strengthened?

Thank participant for his/her time.

<table>
<thead>
<tr>
<th>Type of Product</th>
<th>Product Name</th>
<th>Unit of Measure</th>
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Graduating to Resilience Activity
Value Chain Assessment
Interview Guides – Middlemen/ Traders AKA Small Middlemen
Introduction and consent

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2) Obtained written informed consent [Read Consent Form]
   • Did you ask if the participant had any questions? □ Yes □ No
   • Did participant agree to participate? □ Yes □ No →STOP

A. Buying the Commodity

I’d like to learn more your role as a middleman particularly with <crop>.

1. How did you become involved with being a middleman? How long have you been doing it?
   What types of crops do you buy?
2. What skills do you need to do your job?
3. Is this map of the value chain accurate? If not, what would you change?
4. How do you obtain your commodity (house to house, markets, people bring it to you, etc.)? Are there issues with trust or quality when buying from these locations?
5. How much do you pay for the commodity (cost/weight)?
6. What are the quality requirements of the products you buy?
7. How do you find out about the prices when you are buying a commodity?
8. What facilities do you have to store the commodity? How much does it cost to store the commodity? Are there additional costs associated with storing? (Probe: for storage containers, security, etc.)

B. Relationship with Buyers

In our project, we also want to know your relationship with those you sell to.

9. How much do you sell the commodity (cost/weight) for?
10. Who do you sell to? Why do you sell to them? Are there issues with trust when selling your commodities?
11. Who do they sell to?
12. What are the relationships/agreements/arrangements you have with large scale buyers?

C. Facilitators and Constraints

Last, I’d like to ask you a little bit about what makes your job as a middleman easy and what makes it difficult.

13. What about being a middleman do you like? What do you find most difficult? Do you face any challenges when buying and selling the product? (probe about any unique challenges women and men face, as a result of their gender)
14. Have are the greatest challenges faced by those who you buy from? And from those that you sell to?

Thank the participants for their time.
Graduating to Resilience Activity
Value Chain Assessment
Interview Guides – Cooperative Representatives

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2) **Obtained written informed consent** [Read Consent Form]
   a. Did you ask if the participant had any questions? □ Yes □ No
   b. Did participant agree to participate? □ Yes □ No →STOP
   c. Did you give participant copy of consent? □ Yes □ No

a. **Cooperative Information**
   I’d like to get to know a little bit more about the history of the cooperative.
   1. Please state the name and location of the cooperative.
   2. When did this cooperative start?
   3. What are the objectives of the cooperative?
4. What is the registration status of the cooperative?
5. How/why did you form the cooperative?

b. Cooperative Membership
Now, I’d like to ask you a little more about the services offered by your cooperative to the members.
6. How many members do you have? What are the composition of the members of the cooperative (by gender)? Are your members Ugandans, refugees?
7. What draws people to join your cooperative?
8. How much does it cost to join the cooperative?
9. What enterprises does the cooperative focus on? Does everyone have the same livelihood or do people participate in many livelihood activities?
10. What services does the cooperative provide to members? (Bulk selling, loans, storage, information sharing, etc.)
11. To whom does the cooperative sell its products? Why does the cooperative sell them to this/these groups? How much do you sell the particular crop for? Are there issues with trust when selling to these groups?
12. What are the biggest challenges members of your cooperative face?

c. Loans
Last, I’d like to ask you about loans. Does your cooperative provide loans?
If yes:
13. What is the average size of loans?
14. What is the interest rate on loans?
15. Do you have rules on the size of the loan minimum or maximum amount?

16. What is the payback period on loans?
17. What is the payback rate for loans?
18. What time of year do you provide the most loans?
19. What do borrowers primarily use the loans for?
20. Are there times of the year when it is more difficult to get a loan? If so, please explain.
21. What unique challenges (if any) do women face in joining and benefiting from the services of the cooperative?

Thank the participant for his/her time.

Graduating to Resilience Activity
Value Chain Assessment
Interview Guides – Processing Company/Mills

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2) **Obtained written informed consent** [Read Consent Form]
   I. Did you ask if the participant had any questions? □ Yes □ No
   II. Did participant agree to participate? □ Yes □ No →STOP
   III. Did you give participant copy of consent? □ Yes □ No
D. Buying Commodity

I’d like to understand your process as an input buyer.

1. How long have you been working for a processing company? What attracted you about the job?
2. If someone wanted this job, what skills would they need?
3. From whom do you purchase the commodity? Why do you purchase from this person/place? Is it the same person/place each time? Are there any issues with trust and or quality when purchasing from this source?
4. At what price do you buy the commodity?
5. How do you determine the buying price? What factors do you consider?
6. Is this map of the value chain accurate?

E. Processing

I’d also like to know about different aspects of processing.

7. How much do you process monthly?
8. What is the unit cost for processing?
9. What are the end products after processing?
10. Who do you sell to?
11. At what price do you sell the final products?

F. Machinery

Next, I’d like to know about the machinery you use for processing/milling.

12. If an individual, how much does the milling machine (or other machinery used) cost? Did you take a loan out to buy it?
13. Did you buy it individually or as a group? If in a group, how many members (how many male and how many female)? Explain the group dynamics, who operates the machine, how do you share profits?
14. How has the machinery improved profits?
15. What other activities does the company take part in, apart from milling?
G. Challenges:

Last, I would like to ask you about possible challenges to working in processing/milling.

16. What are the greatest constraints associated with processing/milling?
17. What do you consider to be the greatest barriers for those you work with?
18. What advice would you give to someone starting in the processing/milling industry?

Thank your participant for his/her time.

Graduating to Resilience Activity
Value Chain Assessment
Interview Guides – Savings and Credit Cooperative Organization

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b. **Obtained written informed consent** [Read Consent Form]
   1. Did you ask if the participant had any questions? □ Yes □ No
II. Did participant agree to participate? □ Yes □ No → STOP
III. Did you give participant copy of consent? □ Yes □ No

Membership

I'd like to start by asking you question regarding your members of SACCO.

1. How many members are part of the SACCO? How many of the members are female refugees, female nationals, male refugees, and male nationals?
2. How many of the members are in groups?
3. What is the average size of a group?
4. Is there a difference between Ugandan and refugee members? (PROBE: Access, rules, terms of loan, membership, savings behavior, size of loan, etc.)
5. What is the membership fee? For an individual? For a group?
6. What is the monthly contribution? For an individual? For a group?

Loans

Next, I'd like to ask you questions related to loans.

7. What is the interest rate for a loan?
8. How do you apply for a loan? What are the requirements?
9. What is the payback period for a loan?
10. What is the payback rate for a loan?
11. What is the average size of a loan?
12. What time of year do you provide the most loans?
13. What do borrowers primarily use the loans for? (probe about what female refugees and nationals use the loans for, compared with their male counterparts)
14. Are there times when it is more difficult to provide loans? OR what factors influence how many loans can be provided?
15. How do you encourage people to join the SACCO?
16. Are there other services the SACCO provides to its members beyond savings and loans? What are they?

Challenges of Members

Last, I’d like to know a little more about possible challenges experienced by members of SACCO.
17. What unique challenges (if any) do women face in joining and benefiting from the services of the SACCO?

18. What are common challenges faced by members of a SACCO?

General challenges of the SACCO:

Link to SACCO to Value Chains:

Thank participants for his/her time.

Graduating to Resilience Activity
Value Chain Assessment
Interview Guides – World Food Programme

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Introduction and consent

1. Introduce yourself and the study: Hello my name is __________. I work for __________. Graduating to Resilience is implemented by a consortium led by AVSI Foundation (AVSI), in partnership with IMPAQ International and Trickle Up. The goal of Graduating to Resilience (the Activity) is “To graduate extremely poor refugee and Ugandan households in Kamwenge from conditions of food insecurity and fragile livelihoods to self-reliance and resilience.” Over the next seven years, the AVSI Consortium will work with 13,200 extremely poor households. Half of the households will be from Uganda and the other half will be from the refugee community living in Rwamwanja settlement. As part of the project, ASVI is conducting an assessment of the maize, beans, and groundnuts value chains in order to learn more about the people involved in these value chains.

2. Obtained written informed consent [Read Consent Form]
   1. Did you ask if the participant had any questions? □ Yes □ No
   2. Did participant agree to participate? □ Yes □ No →STOP
General Practices

I'd like to ask you a few questions about your general practice in selecting and buying maize.

1. How much do you purchase locally per month?
2. What price do you pay for the maize? How is this price determined?
3. Do you buy the maize processed or whole kernels? If whole kernels, where do you take the maize to be processed? If processed, where do you buy from?
5. Do you have regulations dictating who you can buy maize from? What are those regulations?
6. Do you have quality standards when purchasing maize? What are they? How do you verify this?
7. Do you ever have difficulty finding maize of the desired quality? Please explain?
8. Do you have any affirmative action for procuring from female-owned enterprises? If so, describe the nature of the affirmative action, and to what extent WFP has implemented it.

Thank participant for his/her time.

Focus Group Discussions

Graduating to Resilience Activity
Value Chain Assessment
Focus Group Discussion Guide

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a. **Introduce yourself and the study.** Our names are __________ (Facilitator and Note Taker). Graduating to Resilience is implemented by a consortium led by AVSI Foundation (AVSI), in partnership with IMPAQ International and TrickleUp. The goal of Graduating to Resilience (the Activity) is “To graduate extremely poor refugee and Ugandan households in Kamwenge from conditions of food insecurity and fragile livelihoods to self-reliance and resilience.” Over the next seven years, the AVSI Consortium will work with 13,200 extremely poor households. Half of the households will be from Uganda and the other half will be from the refugee community living in Rwamwanja settlement. As part of the project, AVSI is conducting an assessment of the value chain in order to learn more about the people involved with the value chain.

b. **Obtained written informed consent** [Read Consent Form]
   a. Did you ask if the participant had any questions? □ Yes □ No
   b. Did participant agree to participate? □ Yes □ No → STOP
   c. Did you give participant copy of consent? □ Yes □ No

**Context**

a. Please introduce yourself to the group.

b. Please describe your role and your experience working in this community.

**Value Chain Mapping**

Explain to participants the value chain and show them a model of a value chain map. Explain the components of the value chain and that you are interested in learning about their position in the value chain and their challenges and opportunities.

*Before moving forward, ask if there are any questions about the components of the value chain.*

a. What can you tell me about the actors in this map?
   b. Does this map of actors seem accurate to you?
   c. Would you add or remove anyone? Why or why not?
   d. Are there any actors not active in Kamwenge? What about Rwamwanja?
   e. What key government policies influence each key activity in the value chain?

c. What kind of access do Ugandan farmers have to each of the actors you mentioned on the map?
   a. What about refugees? What are the key differences?
b. What about women? What kind of participation do they have in this value chain?
d. What are the interactions between different actors in the value chain?
a. Which actors do you interact with?
b. What kinds of transactions take place? Are they financial, for exchanging products, or for information exchanges?
c. What kind of forward and backward linkages exist?
d. How often do these interactions and transactions occur between actors in the value chain?
e. Now, let us think a little about bargaining power in these interactions and transactions.
a. What kind of influence do you exercise over other actors in the value chain? Does your work influence the work of others? In what ways?
f. Are any of these activities in the value chain occurring in groups?
a. What kind of groups could be facilitated to improve and strengthen this value chain?
g. What support do farmers need to strengthen their role in this value chain?
a. What kind of support will make them grow this crop more?
b. What kind of support will make them market these crops?
c. What kind of support will make them take on other roles/earn more profit in this value chain?
d. What about women? What kind of support do they need to increase their participation in the value chain?
h. What are your primary information needs as you engage in this value chain?
a. Where do you obtain this information?
b. What are the key challenges in obtaining information?
i. What activities could AVSI to do to support farmers? Where could AVSI intervene most in this value chain to improve the participation of farmers?

*Explain to the participants the kind of interventions that AVSI can implement. For example, AVSI can provide training through farmer schools, help form groups, provide market information, and help improve access to different actors.*

j. What are the key challenges at each step of the value chain?
Ask for each key element in the value chain such as input, cultivation, selling, processing, etc.

k. What are they key factors enabling factors or encouraging your role in this value chain?
a. For example, do you get a good price when you export this? Is there a particular government policy helping you? What about the available technology?
b. What other enabling factors could help you improve your role in the value chain?
I. Please think about the services and training that you need. What services are available? Are you able to use them? Why/why not?
   a. Probe: maintenance services, business development services, agricultural extension services, financial services, training (vocational training institutes, entrepreneurship training, farmer field schools, demonstrations)
   b. What other service do you think could be offered in your community, if any?

Recommendations and Wrap-Up

m. Think about the next five to six years. What are the key opportunities for getting involved in this value chain?
   a. Where do you think are the opportunities to make the most profit? In cultivation? In processing?
   b. Where are the most growth opportunities for improving this value chain?

n. Please think about the changes you’d like to see in how [insert name of crop] is produced, marketed, processed and sold. What kind of improvements or additional supports are needed?

o. What opportunities are there to increase employment and business opportunities for people like you?

p. Which stakeholders or institutions have the power to bring about or hold back changes?

q. Is there anything else we should know?