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# Baseline Study of Title II Development Food Assistance Programs in Uganda

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**List of Acronyms**

ARI	Acute Respiratory Infection
BMI	Body Mass Index
DHS	Demographic and Health Survey
EA	Enumeration Area
FANTA	Food and Nutrition Technical Assistance III Project
FFP	Office of Food for Peace
FGD	Focus Group Discussion
FTF	Feed the Future
GHG	Growth, Health, and Governance
GPS	Global Positioning System
HAZ	Height-for-Age Z-Score
HDDS	Household Dietary Diversity Score
HH	Household
HHS	Household Hunger Scale
HIV	Human Immunodeficiency Virus
IDI	In-Depth Interview
IP	Implementing Partner
IYCF	Infant and Young Child Feeding
KI	Key Informant
KIDDP	Karamoja Integrated Disarmament and Development Program
LC	Local Council
LCU	Local Currency Unit
LSMS	Living Standards Measurement Survey
MAD	Minimum Acceptable Diet
MCC	Maternal Child Care
NGO	Non-Governmental Organization
NRM	Natural Resource Management
OLS	Ordinary Least Squares
OR	Odds Ratio
ORT	Oral Rehydration Therapy
PDB	Potential Direct Beneficiary
PPP	Purchasing Power Parity
PPS	Probability Proportional to Size
PVO	Private Voluntary Organization
QA	Quality Assurance
RWANU	Resiliency through Wealth, Agriculture, and Nutrition in Karamoja
SPSS	Statistical Package for the Social Sciences
UBOS	Uganda Bureau of Statistics
UGX	Ugandan Shilling
UNICEF	United Nations Children's Fund
UNPS	Uganda National Panel Survey
USAID	U.S. Agency for International Development
USD	United States Dollar
VHT	Village Health Trainee
VSG	Village Savings Group
WEAI	Women's Empowerment in Agriculture Index
WFP	U.N. World Food Program
WHO	World Health Organization

## **Executive Summary**

### **Overview of the Baseline Study**

In Fiscal Year 2012, the U.S. Agency for International Development (USAID) Office of Food for Peace (FFP) awarded funding to private voluntary organizations (PVOs) to design and implement multi-year Title II development food assistance programs in the most food-insecure regions of Uganda. In Uganda, the selected programs are Resiliency through Wealth, Agriculture, and Nutrition in Karamoja (RWANU) in southern Karamoja; and Growth, Health, and Governance (GHG) in northern Karamoja. The main purpose of the Title II programs is to improve long-term food security in Karamoja through a variety of interconnected activities.

In line with the USAID Evaluation Policy, FFP contracted with ICF International to carry out a baseline study in villages in the Karamoja Region selected for implementation of the Title II development food assistance programs. This baseline study is the first phase of a pre-post evaluation survey cycle. The second phase will include a final survey, to be conducted in five years, when the Title II programs are completed. The baseline study includes two components: (1) a representative population-based household survey to collect data for key FFP and program-specific indicators; and (2) a qualitative component to gather additional data that add context, richness, and depth to the results from the household survey. The results from the baseline study will be used for the following purposes:

1. Establish baseline values of key FFP and program-specific indicators prior to implementation of the Title II programs;
2. Assist the PVOs in establishing target levels for improvements in these indicators over the five-year Title II program cycle;
3. Inform PVOs about the current food security situation so they can refine their program design and implementation strategies and improve efficiency by targeting the areas and subgroups that will benefit most; and
4. Provide FFP baseline indicator values that can be compared across countries through meta-analyses of the indicator results.

The population-based household survey sample was designed to be statistically representative of the beneficiary villages selected for implementation by each respective program in its designated geographic regions of operation. The multistage clustered sampling design yielded a household sample size of 2,400 per program or 4,800 households overall. Questionnaires and training materials were developed and finalized based on consultations with FFP, the Food and Nutrition Technical Assistance III Project (FANTA), and the PVOs. The fieldwork, including training, data collection, and data entry, began in mid-January 2013 and concluded in June 2013.

The qualitative study component was conducted during the same timeframe as the population-based household survey. The qualitative team visited eight villages and undertook in-depth interviews (IDIs) and focus group discussions (FGDs). The team also conducted formal interviews and informal conversations with key informants who had insights into health and nutrition, as well as livelihood development in the villages where the RWANU and GHG programs are implemented. Nine question guides were used to conduct the IDIs and FGDs. Ultimately, the team conducted seven FGDs and 24 IDIs with potential direct beneficiaries (PDBs) and six IDIs and three informal conversations with key informants.

Limitations and challenges experienced during the research process include a compressed timeline, difficulty obtaining current household counts at the village level from existing data sources, difficulty recruiting experienced local interviewers in the Karamoja region, logistics and transportation constraints, difficulty accessing some villages, the length and complexity of the household survey questionnaire, seasonality of data collection, limitations of self-reported data, and concurrent fielding of the qualitative and household studies.

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### **Key Findings**

The baseline study findings and conclusions cover seven broad areas: (1) characteristics of the population; (2) household hunger and dietary diversity; (3) poverty levels; (4) water, sanitation, and hygiene; (5) agricultural practices; (6) women's health and nutrition; and (7) children's health and nutrition.

#### **Characteristics of the Population**

Historically, individuals in the districts that are part of the Title II program area are pastoralists who have faced decades of cattle raids. In fact, the Karamojong have been characterized as a nomadic people. However, qualitative data indicate that, while the Karamojong do follow their cattle while they graze, they tend to have a home base in their village *manyattas* (a traditional African village of huts, typically enclosed by a fence). The shift from animal rearing to agriculture as a primary form of livelihood is a recent trend in the history of the Karamojong.

The results of the household survey indicate that the average household in the program area includes 6.3 household members. Children ages 0-59 months are household members in nearly 75 percent of all households. Children ages 0-23 months are household members in about 35 percent of households. The majority of household heads have no formal education (83 percent). Most households include an adult male and female (89 percent).

#### **Household Hunger**

The household survey data show that about 73 percent of households suffer from moderate or severe hunger, with a higher prevalence in the northern Karamoja program area (76 percent) compared to the southern Karamoja program area (69 percent). Most of these households suffer from moderate hunger (65 percent), and 8 percent suffer from severe hunger. The baseline study was conducted in February to April of 2013, during the start of the lean season. According to the Famine Early Warning System Network (FEWS NET), food supplies were expected to be depleted approximately two to three months before the normal start to the lean season in March 2013.<sup>1</sup> Since the prevalence of household hunger is based on the occurrence and frequency of food deprivation experiences within the past four weeks, the early depletion of food supplies may have contributed to these high rates of moderate and severe hunger.

Data from the qualitative study indicate that accessibility of food is variable and influenced by a number of factors, such as the season (rainy versus dry), success of crop production, and access to an income that allows for the purchase of food. Wild foods during the rainy season add diversity to the diet that may not be available during the dry season. However, some individuals and family are solely dependent on such food sources due to a failure to harvest crops, to raise animals or to secure sufficient economic resources to purchase needed household supplies. Resilience during the dry season is also dependent upon success with production and access to other livelihood sources. In times of scarcity, individuals reported consuming one or two meals along with local brew to help keep them full.

#### **Household Dietary Diversity**

The Household Dietary Diversity Score (HDDS) of 2.4 indicates that households are typically able to access and consume 2.4 of 12 basic food groups. Diets are primarily composed of cereals and tubers, with some legumes and vegetables. Again, the early depletion of food supplies may have impacted the availability and access to foods, leading to a lower HDDS score for the 2013 lean season. The District Health Office Action Against Hunger (DHO-ACF) Nutritional Surveillance Program<sup>2</sup> reported an HDDS

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<sup>1</sup> FEWS NET, Uganda Food Security Outlook, Jan.-June 2013. Retrieved from [http://www.fews.net/docs/Publications/UG\\_OL\\_2013\\_01\\_en.pdf](http://www.fews.net/docs/Publications/UG_OL_2013_01_en.pdf)

<sup>2</sup> DHO-ACF and UNICEF Nutrition Surveillance Report (May 2012) *Nutrition Surveillance Karamoja Region, Uganda, Round 8, 2012*. Retrieved from [http://www.actionagainsthunger.org/sites/default/files/publications/DHO-ACF\\_Karamoja\\_Nutrition\\_Surveillance\\_Round\\_8\\_-\\_Final\\_Report\\_2012.05.pdf](http://www.actionagainsthunger.org/sites/default/files/publications/DHO-ACF_Karamoja_Nutrition_Surveillance_Round_8_-_Final_Report_2012.05.pdf)



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of 4.3 for the Karamoja region in the lean season of 2012, and the U.N. World Food Program<sup>3</sup> (WFP) reported an HDDS of 4.8 for Uganda as a whole (data collected from the Uganda National Panel Survey [UNPS] in 2009-2010).

Qualitative data indicate that the most common foods consumed are *posho* (a region-specific name for a dish made from maize flour and water, which may also be called *ugali*, *sima*, or *sembe*), beans or peas, maize, and wild greens. For the most part, respondents indicated that all family members eat from the same pot and, therefore, eat the same types of food. In terms of beverages, the two items most frequently identified by respondents are water and the local brew. The majority of food that individuals consume, according to qualitative data, is food that they produce or forage locally.

### Poverty Levels

A total of 94 percent of the population in the survey areas currently lives in extreme poverty (less than \$1.25 USD per day). Daily per capita expenditures are, on average, \$0.56 USD per day, per person, with similar values in both program areas. The mean depth of poverty in the survey areas is 63.7 percent of the poverty line, with significantly deeper poverty in the southern Karamoja program areas (67 percent) than the northern Karamoja areas (62 percent).

The poverty rates in the survey area are very high compared to the rates in Uganda as a whole. Data from the Uganda National Household Survey IV<sup>4</sup> show that 25 percent of the Uganda population lives below the poverty line<sup>5</sup> and about 75 percent of the population in the Northeast region lives below the poverty line. The Northeast region as defined in the UNHS consists of the entire Karamoja region and a number of neighboring districts.

As part of the qualitative findings, six primary sources of income were identified: making charcoal, gathering firewood, producing local brew, engaging in small-scale agricultural production (both the sale of crops and animal rearing), working as hired labor in private gardens, and “casual labor.” Most of the casual labor, as reported by potential beneficiaries, is inconsistent and undertaken on an as-needed basis. The incomes of those interviewed are generally insufficient to cover all nutritional needs, health care needs, and other necessary expenses.

### Water, Sanitation, and Hygiene

While about 40 percent of households reported using an improved drinking water source, mainly boreholes, about 77 percent of households reported taking no measures to ensure the water is safe to drink. In comparison, these rates are much lower than those reported in the 2011 Demographic and Health Survey (DHS),<sup>6</sup> where approximately 66 percent of all rural Ugandan households reported using an improved drinking water source and 38 percent reported boiling water prior to drinking.

Only 15 percent of households reported using an improved sanitation facility (non-shared) during the daytime, either a ventilated pit latrine or a pit latrine slab. The majority of households did not use any facility (70 percent) or used an open pit (12 percent). The results for the sanitation indicator are similar to those reported in the 2011 DHS, with 15 percent of all rural Uganda households using a non-shared improved sanitation facility.

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<sup>3</sup> United Nations World Food Program (2013). *Comprehensive Food Security and Vulnerability Analyses (CFSVA): Uganda*. Retrieved from <http://documents.wfp.org/stellent/groups/public/documents/ena/wfp256989.pdf>

<sup>4</sup> Uganda National Household Survey, Socio-economic Module. Abridged Report (November 2011). Retrieved from <http://www.ubos.org/UNHS0910/unhs200910.pdf>

<sup>5</sup> The poverty line is not clearly defined and may differ from \$1.25/day USD as used in the baseline study of Title II development food assistance programs.

<sup>6</sup> Uganda Demographic and Health Survey (2011). Retrieved from <http://www.measuredhs.com/pubs/pdf/FR264/FR264.pdf>

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Soap or another cleansing agent was observed at the hand washing station in only 8 percent of households. In contrast, the 2011 DHS survey reported a rate of 27 percent with water and soap at hand washing stations for rural Ugandan households.

According to qualitative data, the main contributing factor to the poor level of hygiene is lack of accessibility to an improved water source. In fact, respondents frequently named new boreholes or closer access to water when asked about the greatest needs in their village.

Reports from key informants and potential direct beneficiaries during qualitative data collection differed with respect to sanitation practices. While key informants reported a very low level of latrine use and hand washing, most potential direct beneficiaries reported having and using latrines and washing their hands at key points throughout the day.

### **Agriculture**

The majority of farmers (91 percent) in the household survey reported raising crops, and more than one-quarter (28 percent) reported raising animals. The most common crops planted are sorghum, maize, and beans, and the most common animals raised are goats, cattle, and chicken. The average number of crops planted per household is 2.6. According to qualitative findings, the primary objective of farming is subsistence, with sales occurring in the event of excess production. Additionally, because of the fluctuating nature of the crop yield, respondents rely on additional sources of income to meet household needs.

Overall, 17 percent of farmers reported using at least two sustainable crop practices, and 12 percent reported using at least two sustainable livestock practices (for cattle and goats). Although most farmers still prepare their soil by hand (89 percent), soil preparation with ox plow (23 percent of farmers) and intercropping (20 percent of farmers) are the most commonly reported sustainable practices. About 16 percent of farmers reported using at least two sustainable natural resource management (NRM) practices, and half of farmers reported using improved storage practices, mainly cereal banks/silos or granaries.

In general, the qualitative data indicate that most agricultural decisions are made either solely by males or jointly by males and females. In cases where women and men make decisions jointly, women's input tends to focus on the storage and preparation of the crops for future use, whereas men tend to decide which crops the household will cultivate. The results for the five domains of empowerment index from the Women's Empowerment in Agriculture Index (WEAI) indicate that 42.4 percent of women are considered empowered in agriculture compared to 62.3 percent of men.

### **Women's Health and Nutrition**

The nutritional status of women ages 15-49, as measured by Body Mass Index (BMI), is generally good despite a lack of dietary diversity. The majority of women ages 15-49 in the survey population (72 percent) have a BMI within the normal range (18.5-24.9), while 23 percent are considered underweight (BMI less than 18.5). Dietary diversity for women ages 15-49 is low; most consume, on average, 2.3 of nine basic food groups. Almost all consume grains, roots, and tubers, while only half consume green leafy vitamin A-rich vegetables.

In the household survey, three-quarters (77 percent) of women reported that they make decisions about health care for themselves and for their children either alone or jointly with their partner. Overall, more than half of these women (60 percent) reported attending four or more antenatal visits. During qualitative data collection, the majority of women and men stated that women are the main decision makers around antenatal care. When asked about family planning, almost half of women ages 15-49 indicated they are aware of where they can go to receive family planning services. Less than a quarter of women (23 percent) were able to identify at least seven of 15 important infant and young child feeding (IYCF) practices and maternal child care (MCC) practices.

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The most common illnesses identified during qualitative data collection are malaria, diarrhea, and cough/cold. The majority of respondents acknowledged an improvement in the health of the community in recent years, yet discussions about community needs frequently included health facilities, medication, and illness prevention. The majority of respondents described distance from the health centers and cost as the greatest hindrances to receiving care. Respondents generally reported having trust in health service providers and mentioned an improvement in health care services. When discussing causes of disease, respondents said contributing factors are limited access to health care facilities, lack of proper hygiene, and limited prevention mechanisms.

### **Children's Health and Nutrition**

More than one-third (37 percent) of children under five years of age in the household survey are moderately or severely stunted, and 21 percent of children under five years of age show signs of being moderately or severely underweight. In comparison, rates of stunting in the 2011 DHS for children under five years of age were 36 percent in rural Ugandan households and 19 percent in urban Ugandan households; and rates of underweight children were 15 percent in rural Ugandan households and 7 percent in urban Ugandan households.

Only 4 percent of children ages 6-23 months are receiving a minimum acceptable diet (MAD). This result is largely driven by the lack of a diverse nutritional diet. The proportion of children 6-23 months of age with a minimum dietary diversity of four or more food groups is low: 6 percent for breastfed children 6-8 months, 8 percent for breastfed children 8-23 months, and 6 percent for non-breastfed children 6-23 months of age.

Overall, 60 percent of children ages 0-6 months are exclusively breastfed. Qualitative data indicate that the majority of women exclusively breastfeed their children, although the age when children are introduced to supplemental foods varies. Many respondents indicated that breastfeeding is a strong cultural tradition within their community. Men and women stated that women make the decision to breastfeed and that it is a natural process supported through generations of tradition. This high level of breastfeeding is an important factor in predicting the future health of children. When asked at what age women begin to introduce other foods, most respondents indicated they begin to introduce soft foods, such as porridge, when the child is between four and six months old. As solid foods are introduced, many infants continue to breastfeed until they begin to walk.

According to the qualitative data, the most frequent illnesses identified by those interviewed include respiratory problems, gastrointestinal problems (commonly referred to as a stomachache), diarrhea, and malaria. When asked if children suffer the same ailments as adults, most respondents indicated that they do. The two ailments most frequently associated with children are diarrhea and malaria.

Overall, 22 percent of all children under five years of age had diarrhea in the two weeks preceding the survey (similar to the 2011 DHS rate of 24 percent in rural Ugandan households and 22 percent in urban Ugandan households). Of the children with diarrhea, caregivers reported that 31 percent had blood in their stools, giving cause for concern at this high level of complicated diarrhea (7 times higher than the 2011 DHS rate of 4 percent in rural Ugandan households). Caregivers reported seeking advice or treatment for the majority of children with diarrhea (85 percent). Of the children under five years of age with diarrhea, 88 percent are treated with oral rehydration therapy. The interview and focus group data indicate that, overall, respondents are able to seek treatment for their children when needed.

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## 1. Introduction

In Fiscal Year 2012, the U.S. Agency for International Development (USAID) Office of Food for Peace (FFP) awarded funding to private voluntary organizations (PVOs) to design and implement multi-year Title II development food assistance programs in the most food-insecure regions of Uganda. The selected programs are Resiliency through Wealth, Agriculture, and Nutrition in Karamoja (RWANU) and Growth, Health, and Governance (GHG). RWANU is being implemented in southern Karamoja by ACDI/VOCA in partnership with Concern Worldwide and Welthungerhilfe. GHG is being implemented in northern Karamoja by Mercy Corps in partnership with Peace for Development Agency, and Tufts University's Feinstein International Center. The main purpose of these Title II programs is to improve long-term food security in Karamoja.

The strategic objectives of RWANU are to improve the availability of and access to food and to reduce malnutrition in pregnant and lactating mothers and in children under five years of age. Program activities include farmer capacity building and savings mobilization, strengthening agricultural input supply, restocking of goats, improvement of sanitation, improvement of feeding practices for infants and young children, and meeting the nutritional needs of pregnant and lactating women and of children under two years of age. The program is expected to reach 269,559 direct beneficiaries.

The strategic objectives of GHG are to strengthen livelihoods, improve nutrition among children under age two, and improve governance and local capacity for conflict mitigation. Program activities include strengthening input and support services, increasing market access, promoting agricultural investments, providing nutrition education, offering incentives for seeking appropriate health care, and building the capacity of local governance and youth organizations. The program is expected to reach 304,140 direct beneficiaries.

In line with the USAID Evaluation Policy, FFP contracted with ICF International (ICF) to carry out a baseline study in a sample of villages selected for implementation of the Title II development food assistance programs (see Annex 11 for the Contract Scope of Work). This baseline study is the first phase of a pre-post evaluation survey cycle. The second phase will include a final survey to be conducted in five years when the Title II programs are completed. The baseline study includes two components: (1) a representative population-based household survey to collect data for key FFP and program-specific indicators; and (2) a qualitative component to gather additional data that add context, richness, and depth to the results from the household survey. The results from the baseline study will be used for the following purposes:

1. Establish baseline values of key FFP and program-specific indicators prior to implementation of the Title II programs;
2. Assist the PVOs in establishing target levels for improvements in these indicators over the five-year Title II program cycle;
3. Inform PVOs about the current food security situation so they can refine their program design and implementation strategies and improve efficiency by targeting the areas and subgroups that will benefit most; and
4. Provide FFP baseline indicator values that can be compared across countries through meta-analyses of the indicator results.

FFP defines food security as “all people at all times hav[ing] both physical and economic access to sufficient food to meet their dietary needs for a productive and healthy life.” Food security depends on four main factors: availability of food, access to food, utilization of food, and stability. Availability of food refers to the physical presence of food in the region, whether in markets, on farms, or through food assistance. Access to food refers to the ability of households to procure a sufficient quality and quantity of food. Utilization of food refers to the ability of individuals to properly absorb and select nutritious food. Stability in this context is the capacity to sustain acceptable nutrition over time.

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The baseline study of Title II development food assistance programs in Uganda was designed to provide information on all four aspects of food security. The study investigates household food access; sanitation and hygiene; agriculture, household expenditures, and assets; and dietary diversity and anthropometry among women and children. The survey includes the Women's Empowerment in Agriculture Index (WEAI) survey module. Feed the Future (FTF), the U.S. Government's global hunger and food security Presidential initiative, developed this survey module to measure and track levels of women's empowerment for decision making in agricultural households and within the community.

This report begins with an overview of the study methods for the household survey and qualitative study, followed by a summary of the current food security situation in Karamoja. The findings from the population-based household survey are then presented for all FFP and program-specific indicators. The qualitative study results are integrated with these findings to provide further context and understanding. The report closes with a summary of key findings and conclusions.

## 2. Methodology

### 2.1 Methods for Population-based Household Survey

#### A. Study Design and Objectives

The primary objective of the population-based household survey is to assess the status of key FFP and program indicators prior to program implementation. The baseline measurements will be used to calculate change in these indicators and undertake a statistical test of differences in the indicators at completion of the five-year Title II program cycle, when the same survey will be conducted again in the program areas. This pre-post design will enable the measurement of changes in indicators between the baseline and final evaluation, but will not allow statements about attribution or causation to be made.

#### B. Sample Design

The sample for the population-based household survey was selected using a multistage clustered sampling approach to provide a statistically representative sample of the beneficiary villages selected by each Title II program, respectively, in its designated geographic region of operation. For RWANU, these villages are located in the southern Karamoja districts of Moroto, Napak, Nakapiripirit, and Amudat. For GHG, these villages are located in the northern Karamoja districts of Kaabong, Kotido, and Abim. For the remainder of this report, the labels "northern Karamoja" and "southern Karamoja" will be used to represent the geographic areas covered by the GHG and RWANU programs, and the term IP will be used to represent the collective implementing partner organizations for each program.

The sample allocations for each program were based on adequately powering a test of differences in the prevalence of stunting because stunting is a key measure for food insecurity. The sample size derived using the stunting indicator provides enough households to measure target change levels for all other indicators except two: the exclusive breastfeeding indicator for children 0-5 months and the minimum acceptable diet (MAD) indicator for children 6-23 months. The following criteria were used for deriving sample sizes for each Title II program:

- design effect of 2;
- confidence level of 95 percent;
- power level of 80 percent;
- expected change in stunting, over the life of the program, of 6 percentage points;
- use of the Stukel/Deitchler Inflation and Deflation Factors (see Appendix A of the FANTA Sampling Guide<sup>7</sup>) to determine the number of households (with children ages 0-59 months) to select; and

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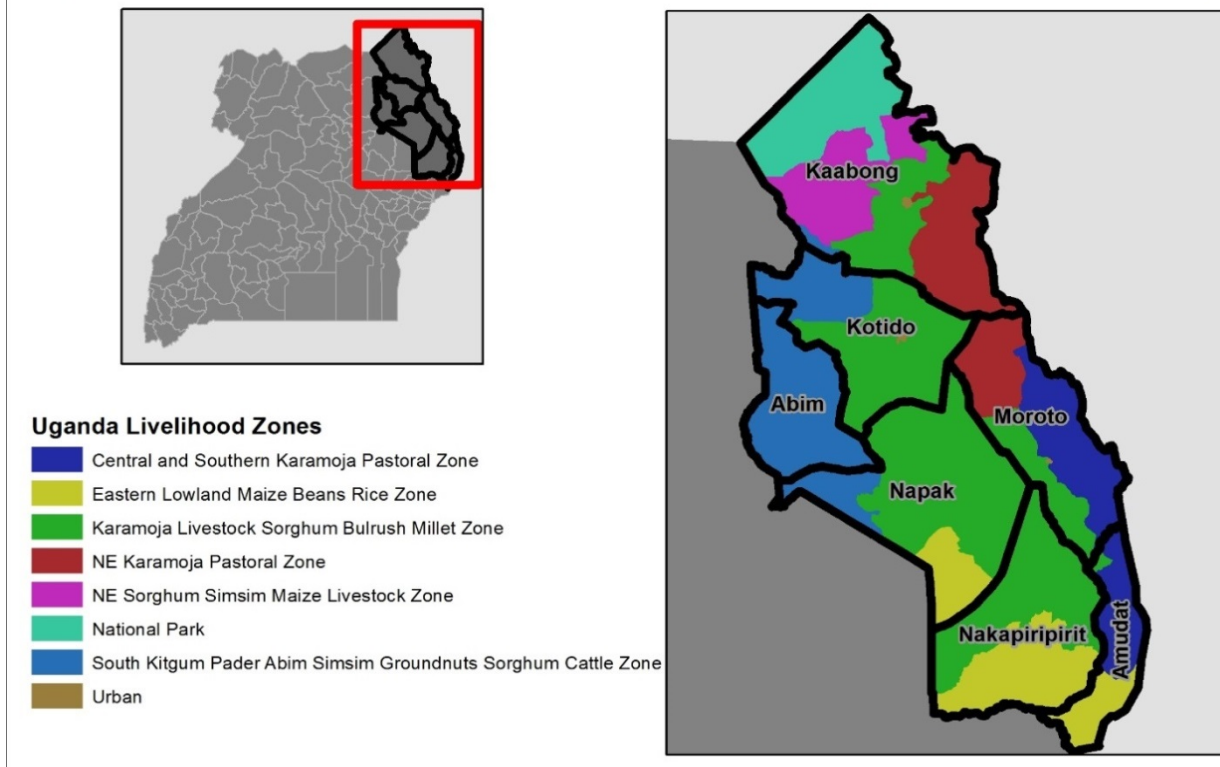
<sup>7</sup> FANTA III Sampling Guide (1999) and Addendum (2012). Retrieved from <http://www.fantaproject.org/monitoring-and-evaluation/sampling>

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- inflation of the sample size of households by 10 percent to account for estimated household nonresponse.

Based on these criteria, the optimum sampling allocation was determined to be 80 villages, with 30 households per village for each program. The household sample size was 2,400 per program, or 4,800 households overall. A more detailed description of the sampling methodology, including household definitions and specific household selection procedures, can be found in the Sampling Plan for Baseline Studies of Title II Development Food Assistance Programs (see Annex 1). An overview of the sample selection procedures is provided below.

Figure 1: Selected Districts for the Title II Baseline Survey



The sampling frame for each program was constructed from the set of villages selected for implementation by each IP. The IPs provided village lists, which were matched to census-level household and population information in order to assign a measure of size for each village. Census-level household counts for villages in Uganda were obtained from the Uganda Bureau of Statistics (UBOS). Since the last census was conducted in 2002, it was not possible to match some of the villages on the lists provided by the programs to the census file. ICF attempted to gather information for household counts for these villages from other sources, such as the U.N. World Food Program (WFP), but ultimately, there were some villages for which the household counts were not known during the sampling stage. These villages were handled separately in the sample selection process, as described below.

The sample selection of 4,800 households was done in two stages: first, sampling of geographic clusters, and then sampling of households within the clusters. The first-stage sample of 80 clusters or villages for each program was selected using the sampling frame and an approximation to the PPS (probability proportional to size) sampling method. The number of households in each village was used as the size measure to assign villages to size strata. Villages with less than 30 households, which accounted for less than 1.5 percent of all households in the frame, were removed from the sampling frame. A separate stratum was created for villages without household counts, and villages in this stratum were selected

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using a simple random sampling method. Table 2.1 provides the total program and sampled community and household counts for each program.

Sampled communities were allocated proportional to the size of each district. Replacement communities were selected and used in instances where a community refused to participate. Replacements were made based on matching the department and sampling size stratum.

**Table 2.1 Sampled Villages and Households for Each Title II Program**

District	Total villages in program	Total households in program*	Total villages sampled	Total households sampled
<b><i>Northern Karamoja–GHG</i></b>				
Abim	254	12,079	12	360
Kaabong	351	53,496	47	1,410
Kotido	157	21,720	21	630
<b>TOTAL</b>	<b>762</b>	<b>87,295</b>	<b>80</b>	<b>2,400</b>
<b><i>Southern Karamoja–RWANU</i></b>				
Amudat	35	2,309	9	270
Nakapiripirit	168	14,490	28	840
Moroto	21	2,289	4	120
Napak	178	13,940	39	1,170
<b>TOTAL</b>	<b>402</b>	<b>33,028</b>	<b>80</b>	<b>2,400</b>

\*Household counts were initially unavailable for 40 of the 762 villages in the GHG program and for 126 of the 402 villages in the RWANU program. These household counts represent the total households for the 722 villages in the GHG program with household counts and the 276 villages in the RWANU program with household counts.

The second-stage selection of households was completed when the field teams entered each community. Prior to the second-stage sampling, the selected communities were canvassed on the ground in order to

- validate and/or update the household counts for each community;
- determine the appropriate sampling interval needed to obtain 40 households, using updated household counts;
- assess the density and placement of households within the community; and
- determine whether the community was large enough to divide into segments.

A systematic sampling approach was used to select households. This method entailed (1) randomly choosing a starting point between 1 and n (the sampling interval), with the household labeling 1, 2, ... n commencing at one end of the cluster; (2) conducting an interview in the first household represented by the random starting point; and (3) choosing every nth household from the previous one thereafter for an interview (where n is the sampling interval and equals the total number of households in the cluster, divided by 30), until the entire cluster has been covered. The field team supervisor was trained on how to implement the systematic sampling method before entering the field. Global positioning system (GPS) units were used to capture the longitude and latitude at the center of each community. Households in which no survey was conducted due to absence or refusals after three attempts were not replaced; therefore, the target of 30 households per cluster was not always achieved. The total number of households with completed interviews for each program is provided in the Findings, Section 4.1.

A third stage of sampling was done at the individual level to select one woman in households where multiple women were eligible to be interviewed for questionnaire modules E (women's nutrition and health) and J5 (women's family planning practices). For these modules, a Kish grid was used to randomly select a woman 15-49 years old to be interviewed. All children under five years of age were interviewed for the children's module. For module G (agriculture), all farmers with decision-making power over land or livestock were interviewed. Further details of sampling at the individual level are provided in the Sampling Plan for Baseline Studies of Title II Development Food Assistance Programs (Annex 1).

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### C. Questionnaire

The survey instrument (see Annex 2) was developed through a series of consultations with FFP, the Food and Nutrition Technical Assistance III Project (FANTA), and the IPs before, during, and after the in-country workshop in December 2012. During the workshop, ICF and the IPs shared information about the baseline study and Title II programs and worked on finalizing the survey instrument.

A preliminary questionnaire was developed prior to the workshop, based on the selected FFP indicators and the guidelines described in the *FFP Standard Indicators Handbook*.<sup>8</sup> Definitions for sustainable agricultural practices, value chain activities, and improved storage practices were confirmed with the IPs during the workshop, along with definitions for the program-specific indicators to be included in the questionnaire. Other questions that required adaptation to the local country context, such as foods and types of sanitation facilities, were also defined in consultation with the IPs, the USAID mission in Uganda, FFP, and FANTA.

The questionnaire consisted of separate modules for the following topics:

- Module A: Household identification and informed consent
- Module B: Household roster
- Module C: Household food diversity and hunger
- Module D: Children's nutrition and health
- Module E: Women's nutrition and health
- Module F: Household sanitation practices
- Module G: Agriculture
- Module H: Household consumption
- Module J1: Caregiver's health, antenatal, and infant care practices
- Module J3: Household mobility and security
- Module J5: Women's family planning practices
- Anthropometry
- Women's Empowerment in Agriculture

Questions for Modules A through G were adapted using questions from the *FFP Standard Indicators Handbook* and the Demographic and Health Survey (DHS) questionnaire<sup>9</sup>. Questions for Module H were adapted from the Uganda National Panel Survey (UNPS), conducted by UBOS in 2009-2010; and FTF population-based survey instrument module E (Volume 8, October 2012)<sup>10</sup>. Questions for Modules J1, J3, and J5 were provided to ICF by the IPs after the December 2012 workshop. The WEAI module was taken from the FTF population-based survey instrument module G. This module collects data about the roles of primary male and female decision makers in the household. It was administered in all households, regardless of whether agricultural activity occurred, except those with no adult members or those without an adult female decision maker.

### D. Field Procedures

#### a. Training, Piloting, and Pretesting

For training and fielding purposes, ICF developed three training manuals based on FFP and DHS guidelines:

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<sup>8</sup> USAID. (2011). *FFP Standard Indicators Handbook (Baseline-Final Indicators)*. Retrieved from [http://pdf.usaid.gov/pdf\\_docs/pnadz580.pdf](http://pdf.usaid.gov/pdf_docs/pnadz580.pdf)

<sup>9</sup> DHS Model Questionnaire – Phase 6 (2008-2013) (English, French)/ Retrieved from <http://www.measuredhs.com/publications/publication-dhsq6-dhs-questionnaires-and-manuals.cfm>

<sup>10</sup> Retrieved from [http://www.feedthefuture.gov/sites/default/files/resource/files/ff\\_ vol8\\_populationbasedsurveyinstrument\\_oct2012.pdf](http://www.feedthefuture.gov/sites/default/files/resource/files/ff_ vol8_populationbasedsurveyinstrument_oct2012.pdf)



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1. **Team Leader Manual** – includes a number of topics required to effectively prepare team leaders and field editors for fieldwork, such as introduction and objectives of the study, survey organization, team leader roles and responsibilities, rules and regulations, ethics, fieldwork preparations, and quality control requirements/procedures.
2. **Interviewer Manual** – includes guidelines for implementation of the survey and fieldwork procedures, including interviewing techniques and procedures for completing the questionnaires. This manual also includes detailed explanations and instructions for each question in the questionnaire.
3. **Anthropometry Manual** – includes procedures adapted from the DHS biomarker manual for all of its surveys worldwide. The procedures in the DHS biomarker manual were adapted from *How to Weigh and Measure Children*<sup>11</sup> and approved by FFP for use in this survey.

Training in Uganda took place from mid-January to mid-February 2013 and consisted of four phases, with each phase lasting one week. The first phase was held in Mbale and was attended by about 180 interviewers. Mbale is situated in the Mbale District and is the nearest large town outside Karamoja and one of the key entry points into Karamoja. This phase began with an explanation of the survey objectives, sampling design, and methods for selecting households and respondents within the households. The training provided a detailed explanation of the questionnaire, question by question, including routing and filtering, and a discussion of directive and nondirective probing. This session was followed by mock interviews among interviewers and discussions of any problems that arose.

In the second phase of the training, interviewers were divided into 20 teams, with a team leader and three or four interviewers on each team. These teams were dispatched to their home districts to pilot the questionnaire. The objectives of the pilot were to (1) test the translation of the questionnaire into the three local languages (Karamojong, Luo, and Swahili); (2) identify issues related to the questionnaire (routing, wording, length, etc.); and (3) assess the capability of each interviewer.

Based on the pilot results, the questionnaire was revised and finalized. Interviewers were then assigned to different roles based on their performance in the training and pilot study. There were 7 district supervisors, 20 team leaders, 40 anthropometrists, 17 back checkers, and 77 interviewers.

The third phase of the training was held in Moroto (Moroto is the headquarters city in the District of Moroto) and consisted of three sessions. One three-day session was devoted to training district supervisors, team leaders, and back checkers. It covered in detail their leadership roles and quality control requirements. One refresher training session was held with all participants, except anthropometrists, to review the questionnaire and discuss changes. A training session on anthropometry was also organized for the anthropometrists, and it included classroom instruction and a field practicum. All team members attended the first day of the anthropometry training, which provided an overview of the anthropometry module.

During the fourth phase, teams returned to their home districts to pretest the survey. The pretest encompassed all modules of the questionnaire and included all district supervisors, team leaders, and interviewers. The purpose of the pretest was to ensure that field teams were ready for data collection. Survey teams conducted live interviews in non-sampled villages to test-run team coordination, field logistics, and readiness of interviewers to begin data collection. Debriefing sessions were held to review issues identified during the pretesting and before the fieldwork officially started in mid-February 2013.

b. Fieldwork

Fieldwork in Uganda immediately followed the conclusion of the pretest in mid-February 2013. It lasted approximately two months and was completed by the end of April 2013. As described in Section 2.1B, the field teams canvassed each village prior to conducting the fieldwork to update the number of

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<sup>11</sup> I.J. Shorr. *How to Weight and Measure Children*. UN: New York. 1986. Modified in 1998.

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households and to sketch maps of the village boundaries and the households within the villages. The updated household counts were then reported to the ICF survey specialist to determine the sampling intervals.

During the first few weeks of fieldwork, ICF field managers visited all interview teams in seven districts to oversee the interviews and to assist the teams in identifying and correcting mistakes. For quality control purposes, team leaders were required to keep fieldwork control sheets to record contacts with households and GPS data for each village. These sheets were used to record the number of attempts to reach each household, number of households and individuals interviewed within each household, and reasons for nonresponse in households where interviews were not obtained.

Back-checkers were required to spot check and verify information in at least 15 percent of the interviews. Back-checks verified that the interview took place, the approximate duration of the interview, information on the household roster, proper administration of the various sections of the questionnaires, and interviewers' general adherence to professional standards. In addition, team leaders conducted field editing to review every completed questionnaire on the same day of data collection to check for adequate completion of all fields, presence of missing data, and legibility of open-ended items. Interviewers were required to make corrections or to return for re-interview if necessary.

Furthermore, to enhance the quality control mechanism and improve field teams' capacities, ICF set up two quality assurance (QA) teams in the region, each with two QA specialists. One team was based in Kotido (for northern Karamoja) and the other was based in Moroto (for southern Karamoja). The QA teams performed a complete final review of each questionnaire before transferring the questionnaires to Kampala for data processing. Additionally, the QA specialists assisted ICF in coaching interviewers who demonstrated difficulty in comprehending the questionnaire by traveling with the teams.

### c. Data Entry and Processing

When all survey forms for a village were cleared through the field quality control procedures, the forms were packaged and forwarded to the central data entry office in Kampala. The forms were entered by a team of trained data entry personnel, who used QPSMR data entry software customized to fit the survey form. ICF worked directly with the data entry team to ensure that the data entry program was thoroughly tested and matched the survey form. ICF reviewed the data entry program to ensure that only valid data ranges were allowed for each question and that the program included checks for questionnaire logic (e.g., skips and filters) and flagged any data inconsistencies. ICF developed a common Statistical Package for the Social Sciences (SPSS) database structure, which was forwarded to the in-country data processing team and was used for delivering all data to ICF.

ICF conducted a quality control review of the raw data and converted SPSS data files after 100 survey forms were entered to ensure that the data were complete and accurate and to determine whether there were any problems with data conversion or the database structure. Appropriate feedback was provided, and changes to the data entry software or SPSS database were incorporated as needed.

For the final dataset, data cleaning took place locally, in-country, based on ICF's review of the final dataset. Checks were conducted for the following: village matching to sampled villages; household roster consistency with individuals interviewed for each module; duplicate records; data completeness (e.g., variables, labels, and missing data); data validity (e.g., frequency distribution anomalies and out-of-range values); and data consistency (e.g., correspondence between the number of interviews at each level, and skip patterns). Identified data inconsistencies were forwarded to the data teams for review and correction. Final data review and preparation for analysis took place at ICF after receipt of the cleaned dataset.

## E. Data Analysis

### a. Sampling weights

Sample weights were computed for each indicator corresponding to a unique sampling scheme. The sampling weight consists of the inverse of the product of the probabilities of selection from each of the

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stages of sampling (cluster selection; household selection; and, when relevant, individual selection). For Uganda, separate weights were derived for the following indicators:

- Households (used for indicators derived from Modules C, F, H, and J3)
- Children (Module D)
- Women 15-49 years (Modules E and J5)
- Farmers (Module G)
- Caregivers (Module J1)

Weights were adjusted to compensate for household and individual nonresponse, as appropriate. Different sampling weights were calculated for separate analyses of each program area and for the aggregate Title II program data.

### b. Indicator definitions and tabulations

FFP indicators were calculated using tabulation methods as currently documented in the *FFP Standard Indicators Handbook*. Table A3.1 in Annex 3 presents the specific definition and disaggregation for each indicator. Child stunting and underweight indicators are derived using the World Health Organization (WHO) Child Growth Standards and associated software.<sup>12</sup> Consumption aggregates—to compute prevalence of poverty, mean depth of poverty, and per capita expenditure indicators—follow the World Bank’s Living Standards Measurement Survey (LSMS)<sup>13</sup> methodology (see Annex 4 for more detail).

The four FFP agricultural indicators were developed based on input from the IPs, FANTA, and FFP. Agricultural activities, value chain activities, and storage practices were defined based on those activities and practices used and promoted by the IPs. Table A3.2 of Annex 3 provides operational definitions of each indicator.

Program-specific indicators were selected and defined based on the objectives of the programs designed by the IPs. These indicators were discussed during the December workshop and were finalized based on input from FFP, FANTA, and the IPs. Table A3.3 of Annex 3 provides the selected program-specific indicators and their definitions.

Results for all indicators are weighted to represent the full target population and tabulated for the combined program areas and for each Title II program separately. Point estimates and variance estimation are derived using Taylor series expansion and take into account the design effect associated with the complex sampling design; 95 percent confidence intervals are provided for all FFP indicators at the country level and for each Title II program separately. A tabular summary of all indicators with confidence intervals for both program areas combined and separately is provided in Annex 7.

### c. Handling of missing or erroneous data

Missing data points were excluded from both the denominator and the numerator for calculation of all FFP and program-specific indicators. “Don’t Know” responses were recoded to the null value and were included in the denominator. For example, for the household dietary diversity component, “Yes,” “No,” and “Don’t Know” responses were included in the denominator, but only “Yes” responses were counted in the numerator.

For anthropometry indicators, the WHO software flagged biologically implausible cases according to WHO criteria,<sup>14</sup> and only those children with valid weight and height scores were included in the analysis

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<sup>12</sup> WHO. (2011). WHO Anthro and macros, version 3.2.2. Retrieved from <http://www.who.int/childgrowth/software/en/>

<sup>13</sup> Living Standards Measurement Study (LSMS) surveys. Retrieved from: [www.worldbank.org/lsm](http://www.worldbank.org/lsm)

<sup>14</sup> WHO Multicentre Growth Reference Study Group. WHO Child Growth Standards: Length/height-for-age, weight-for-age, weight-for-length, weight-for-height and body mass index-for-age: Methods and development. Geneva: World Health Organization, 2006 (312 pages).

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for the stunting and underweight indicators. Implausible cases were excluded from the analysis, but were left in the dataset.

### d. Descriptive cross-tabulations

Further descriptive analyses were conducted to provide additional context and present the subcomponents underlying some key indicators. These descriptive analyses include the following:

- Characteristics of households: household size, household headship, education level of head of household, gendered household type, percentage of households with children under five years of age and with a child 6-23 months;
- Food groups consumed for Household Dietary Diversity and Women's Dietary Diversity;
- Sanitation practices: drinking water sources, treatment of drinking water, and toilet facilities;
- Prevalence of stunted and underweight children under five years of age, by age group;
- Breastfeeding status for children under two years, by age group;
- Components of a minimum acceptable diet (MAD) for children 6-23 months;
- Percentage of women 15-49 years old by Body Mass Index (BMI) and height groupings;
- Percentage of farmers by value chain activity performed in the past 12 months;
- Percentage of farmers by sustainable agricultural practice used in the past 12 months; and
- Percentage of farmers by storage practice used in the past 12 months.

### e. Multivariate Models

Multivariate analyses were performed to deepen IPs' understanding of the causes of (a) food insecurity and (b) malnutrition. These analyses were adjusted to take the design effect into account and were conducted separately for each program and overall. Multivariate analyses were limited to two critical indicators:

- Household Hunger Scale (HHS)—moderate or severe hunger as a critical food insecurity indicator
- Prevalence of stunted children under five years of age—height-for-age Z-score (HAZ) as a critical malnutrition indicator

For household hunger (a binary indicator), a logistic regression approach was used. For the HAZ (a continuous indicator), an ordinary least squares (OLS) regression approach was used.

For each of these outcomes, independent variables were identified separately. The variables were selected based on the availability of variables from the survey data and their theoretical relevance as predictors; this relevance was established by reviewing previous models and discussions with the IPs, FFP and FANTA. Independent variables included in each model are presented in sections 4.2.A.1 and 4.5.A.1, with the full models presented in Annex 9. It is worth noting that these models are exploratory rather than causal, and that the possibility of unobserved variable bias cannot be ruled out.

## 2.2 Methods for Qualitative Study

### A. Study Design and Objectives

The overarching objective of the qualitative component of the baseline study is to elucidate and contextualize the findings from the population-based household survey. Specifically, the qualitative component aims to uncover patterns in decision-making and access to health care and food/beverages at the family and villages levels, and to help researchers understand the “how” and “why” of food utilization and consumption, as well as the access and uptake of health care. For example, the household survey provides information about foods and beverages the household uses, consumes, or produces; and health care the household accesses, uses, or consumes. Qualitative data provide insight into who makes the decisions regarding food/beverage usage, consumption, and production, as well as decisions regarding

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health care use and/or consumption, what the decision-making process is, and how other factors (such as demographic characteristics, culture, or socio-historical context) may affect the decision-making process.

To supplement the household survey findings, ICF aimed to meet seven intermediate analytic goals:

1. Describe access to and use of food and beverages at the household and village levels, especially access and use for women and children under five years of age.
2. Describe the decision-making process used for food and beverage consumption at the household and village levels, especially as it affects women and children under five years of age.
3. Describe patterns in the health care needs of households and villages, and the access to and type of care available to household and village members, emphasizing the needs of women and children under five years of age.
4. Describe how decisions are made regarding health care at the household and village levels, especially for women and children under five years of age.
5. Describe patterns in agricultural development and processes at the household and village levels for farming for subsistence and income generation.
6. Describe the living conditions and economic practices of potential program participants.
7. Describe any cultural, political, environmental, or other social contexts that may influence decision making and access to food and health care.

To meet these objectives, a qualitative research team undertook a field study of a sample of villages where the GHG and RWANU programs will be implemented. The qualitative team consisted of a senior qualitative research expert from ICF and interview specialists, recruitment staff, and local translators from the local subcontractor, A.C. Nielsen. The field study consisted of three components. First, the qualitative team met with staff from the programs and from the survey team to identify key areas that needed to be explored in greater depth. Second, the team visited eight villages, where they undertook in-depth interviews (IDIs) and focus group discussions (FGDs) with a sample of individuals, as described below. Four of the villages represented areas where the GHG program will be implemented and the other four where the RWANU program will be implemented. The sample of villages selected for the qualitative study align with those from the household survey. Finally, the team conducted formal interviews and informal conversations with key informants who had insights into health and nutrition, as well as livelihood development, in the villages where the RWANU and GHG programs will be implemented.

### **B. Study Sample**

The household survey was conducted with four primary respondent groups: the heads of household or responsible adults, women ages 15-49, primary caregivers or mothers of children under five years of age, and farmers. These groups were also the primary focus of the qualitative data collection. Specifically, the qualitative team identified two categories of individuals to participate in the interviews and focus groups: key informants (KIs) and potential direct beneficiaries (PDBs). KIs are individuals who, due to their position, have important information regarding either the villages in which the Title II programs will be implemented or the programs themselves. PDBs are individuals who may participate in the programs in the future. In this study, the qualitative team worked with the following six categories of definitions and recruitment criteria for PDBs:

- Male head of household: A man who self-identifies or is identified by another household member as head of household and has decision-making authority. This individual may or may not have children, may or may not have a single or multiple spouses, and may or may not participate in farming activities. The preference is to speak with individuals who have children under five years of age in the household, though this is not a requirement.
- Female head of household or lead female in household: A woman who self-identifies or is identified by another household member as a lead female figure in a household and has some decision-making authority. The individual may or may not have children, may or may not live with her husband or a male head of household, and may or may not participate in farming

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activities. The preference is to speak with individuals who have children under five years of age in the household, though this is not a requirement.

- **Male farmer:** Using the standard FFP definition of farmer<sup>15</sup> established in the baseline survey, a male who undertakes and has decision-making authority over farming activities either on his own property or on someone else's (community plot). The type of farming the individual undertakes is open. He may participate in the care of animals, preparation of fields, tending to and harvesting crops, or the processing of food stuffs. He may participate in farming either for subsistence or income generation, or both.
- **Female farmer:** Using the definition of farmer indicated above, a female who undertakes and has decision-making authority over farming activities on her own property or someone else's (community plot). The type of farming the individual undertakes is open. She may participate in the care of animals, preparation of fields, tending to and harvesting crops, or the processing of food stuffs. She may participate in farming either for subsistence or for income generation, or both.
- **Male caregiver or father:** A male in the household who either cares for children in the household or is a father of children under five years of age. He should have knowledge of the child's feeding and eating patterns and health care needs and consumption. This individual may or may not be a head of household and may or may not farm. It is not important or relevant for this individual to be a farmer.
- **Female caregiver or mother:** A female in the household who either cares for children in the household or who is a mother of children under five years of age. She should have knowledge of the child's feeding and eating patterns and health care needs and consumption. This person may or may not have a spouse living in the household. It is not important or relevant for this individual to be a farmer.

The key informants included representatives from the programs and their partners, village or district health and/or nutrition experts, and village or district livelihood or agricultural development experts.

For the qualitative study component, the sampling strategy was purposive. Villages and individuals were targeted based on a set of criteria in order to meet the overall objective of the qualitative component. Three main criteria were used to select the sample: category of individual, geographic region, population size (to denote access to services), and strategic objectives of the IPs. Tables A5.1 and A5.2 in Annex 5 provide a summary of information, by IP, for the category of individual (type of PDB or KI) who was interviewed or who participated in the focus group, the location where the activity took place, a breakdown of the villages by number of households, and the strategic objective.

### C. Instruments

ICF used nine question guides to conduct the IDIs and FGDs. These guides, listed below, are included in Annex 6:

- IDI Guide for Male Heads of Household and Female Lead in Household
- FGD Guide for Male Heads of Household and Female Lead in Household

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<sup>15</sup> FFP definition of a farmer: Farmers include (1) herders and fishers and are men and women who have access to a plot of land (even if very small) over which they make decisions about what will be grown, how it will be grown, and how to dispose of the harvest; AND/OR (2) men and women who have animals and/or aquaculture products over which they have decision-making power. Farmers produce food, feed, and fiber, where "food" includes agronomic crops (crops grown in large scale, such as grains), horticulture crops (vegetables, fruit, nuts, berries, and herbs), animal and aquaculture products, as well as natural products (e.g., nontimber forest products, wild fisheries). These farmers may engage in processing and marketing food, feed, and fiber and may reside in settled communities, mobile pastoralist communities, or refugee/internally displaced person camps.

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- IDI Guide for Male Caregiver/Father of Children 5 and Under and Female Caregiver/Mother of Children 5 and Under
- FGD for Male Caregiver/Father of Children 5 and Under and Female Caregiver/Mother of Children 5 and Under
- IDI Guide for Male and Female Farmers
- FGD Guide for Male and Female Farmers
- IDI Guide for IP reps
- IDI Guide for Business and Agriculture Development Expert
- IDI Guide for Health and Nutrition Expert

ICF set a number of priorities in the development of the question guides. The first priority was to meet the primary objective of the qualitative research—that is, to help researchers understand findings from the household survey. The team ensured that the topic areas covered in the qualitative question guides mirrored those found in the household survey. The topic areas include the following:

- Food access and utilization
- Nutritional status of women and children
  - Prenatal care
  - Breastfeeding
- Health status and access to health care
  - Diarrhea and oral rehydration
- Water, sanitation, and hygiene
- Agriculture and livelihood
  - Agricultural production
- Poverty measurement
- Socio-cultural community context
- Program implementation, strategies, and goals

The second priority was to merge the objectives of the qualitative component (to pinpoint decision-making processes, identify roles and responsibilities, and understand socio-cultural contexts that might influence survey responses and measures) with the topics covered in the household survey. For example, in questions about food access and utilization, the qualitative instruments go beyond the household survey questionnaire by asking how decisions were made, who made the decisions, and what influenced choices.

The third priority was to tailor the instruments to the various respondent groups and type of data collection. Questions were targeted to the specific type of respondent, such that farmers answer a greater number of questions about agriculture and farming than caregivers did. Conversely, caregivers were given questions that emphasized child health and nutrition as well as maternal health, while farmers were not. ICF ensured that a single guide was used for male and female participants in the same category to avoid the assumption that men could answer some types of questions while women could answer others.

#### **D. Data Collection**

Data collection took place in eight villages in four districts (of a total of seven sampled for the household survey): Kaabong and Abim districts in northern Karamoja where the GHG program will be implemented and Napak and Nakapiripirit districts in southern Karamoja where the RWANU program will be implemented. The villages sampled from each district are as follows:

- Kaabong: Naporukolong
- Kaabong: Lopelipel
- Abim: Geregere East
- Abim: Olem East
- Napak: Iriiri
- Napak: Lomusia

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- Nakapiripirit: Cucu
- Nakapiripirit: Kilimanjaro

Overall, ICF conducted a total of 7 FGDs and 24 IDIs with PDBs, and six IDIs and three informal conversations with key informants.<sup>16</sup> Table A5.3 of Annex 5 provides a breakdown of the number of PDB interviews conducted, by district. PDB interviews were conducted by individuals from the districts in which data collection was occurring and took place in the local language. A qualitative research expert from ICF oversaw the interviews, with the assistance of an interpreter. As described above, three primary guides were used for the IDIs (one for heads of household, one for farmers, and one for caregivers), and three primary guides were used for the FGDs with PDBs (one for heads of household, one for farmers, and one for caregivers). Each IDI with PDBs lasted approximately 1½ hours, and each FGD with PDBs lasted between 1½ and 2 hours. Informal conversations and IDIs with KIs occurred within the districts; in Kampala; and, when necessary, over the telephone. On average, IDIs and informal conversations with KIs lasted between 1 and 2½ hours. All IDIs and FGDs were digitally recorded, and a senior researcher took field notes during IDIs and FGDs to accompany the transcripts from the recordings.

### **E. Data Preparation, Coding, and Analysis**

Prior to the completion of the data collection, the local subcontractor began transcribing and translating the IDIs and FGDs that had been digitally recorded. ICF conducted periodic QA checks to ensure that the transcripts align with observations of interviews. Some challenges with transcription were encountered due to having to conduct the interviews outdoors, which caused difficulties hearing the recordings. For the few portions of the interviews that were inaudible, analysts relied on field notes to supplement analysis. Once the transcription was completed, an individual from the coding team developed a codebook in collaboration with an individual from the data collection team, drawing from the IDI and FGD protocols, experience in the field, and the structure of the final report. The data were coded using ATLAS.ti. To check for reliability at the front end of coding, two coders coded the same transcript simultaneously and re-coded until they reached consensus. The lead coder then reviewed the coding to ensure consistency.

To provide an understanding of the quantitative indicators derived from the results of the household survey, content and domain analysis were used to analyze the qualitative data. Content analysis was used to identify themes or trends in responses, both within and across respondent groups so that the findings from the household survey could be triangulated with the findings from the qualitative data collection. For example, content analysis was undertaken to identify which foods individuals consume and whether those identified through the qualitative component of the study align with those from the household survey. Domain analysis was used to examine the possible relationship between responses and the socio-cultural context of the villages in which the program was being implemented. Drawing from the previous example, researchers undertook domain analyses to help them understand the context in which choices about food consumption are made and the possible influence that particular contextual factors may have on the decision-making process. In this report, the intent is to assess the qualitative trends in relationship to the household survey findings and to better understand the quantitative indicators through an examination of context.

### **2.3 Study Limitations and Issues Encountered**

Limitations and issues encountered during the baseline study are summarized below.

#### **Compressed timeline for fielding the surveys**

Baselines are critical to the overall Title II program evaluation cycle and must measure key attributes of the target population prior to the start of program implementation. This requirement resulted in considerable pressure to field the baseline data collection as soon as possible so as not to delay the start of

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<sup>16</sup> Three informal conversations took place in lieu of formal interviews. The informant preferred not to be recorded.



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program implementation. Within a very limited time frame, the ICF research team developed the technical approach to the baseline study and created survey instruments, procedural manuals, and field guides. Additionally, lead time for IRB applications and planning and logistics for the fieldwork was very short. Because it was the first time FFP contracted with an outside firm to conduct an independent baseline study of Title II programs, many elements of the project had to be developed for the first time. Future FFP-managed baseline and endline surveys will benefit from the preparative work accomplished during this early stage.

### **Qualitative study designed concurrently with population-based household survey**

Due to the short timeline for the overall study, it was not possible to undertake the qualitative study after the household survey was completed, so the surveys were conducted concurrently. There were consequences in having the components occur simultaneously. First, the qualitative research team was unable to draw from the household survey findings to inform the study design. Consequently, the instruments, sampling, and overall approach were designed prior to the household survey data collection. Second, so as not to miss particular topic areas, the qualitative team covered a broad range of topics but could have covered the fewer topics in greater depth had the household survey results been available. Third, the qualitative team emphasized data collection at the household level with single individuals rather than at the key informant level so that data could be triangulated with data collected by the household survey teams. The number of communities visited and interviews conducted were limited, which constrained researchers' ability to identify contextual differences across communities. While in most cases the data collected are useful in exemplifying the findings from the household survey, further qualitative information could have helped to explain specific household survey results.

### **Outdated household counts**

The research team did not originally plan to conduct a household listing exercise in sampled villages. However, a listing exercise was necessary because the household counts obtained from UBOS were outdated and there were some villages for which household counts were not available at all. The need for the listing exercises led to complications in terms of time and costs.

### **Recruitment and training difficulties**

To address cultural and language barriers, ICF recruited interviewers from the region and, when possible, from specific districts. Recruiting a sufficient number of qualified interviewers for such a large-scale and complex study in what is arguably the least developed region of Uganda presented challenges not only for the household survey, but also for the qualitative data collection. Some interviewers were disqualified during the training and fielding process. ICF spent significant time and resources to train and develop members of the data collection team; their capacity was the key to successful fieldwork implementation.

### **Number of interviewers recruited per district was not proportional to the sample size**

The local subcontractor initially assumed that an equal number of interviewers would be needed for each of the seven districts participating in the study. However, more villages and households were sampled for larger districts than smaller ones. Early in the study, the research team planned to address this issue by redeploying interview teams that finished earlier in the smaller districts so that they could help in larger districts, such as Kaabong and Nakapiripirit.

### **Logistics and transportation constraints**

Karamoja has limited transportation, energy infrastructure, and logistical support (e.g., administrative supplies and, cash to pay for logistics, bank trips, etc.). Electricity is available for only a few hours, via generator, in most parts of the region; and Internet and cell phone coverage are unstable and sparse. As a result, questionnaires had to be printed and transported from Kampala, which is a 12-hour drive from Karamoja, by car. Moreover, the geography and road conditions made transportation a daunting challenge. It usually takes hours to travel from one village/town to another. The fieldwork was conducted

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shortly before the rainy season, and the unpredictable rainfall sometimes made roads treacherous or impassable.

### **Difficulty accessing the villages**

Despite the teams' best efforts, they found some villages inaccessible. For instance, a village in the mountains in the Amudat district was only assessable via rock climbing. This made it logistically challenging and dangerous for interviewers to reach the village, especially with heavy and bulky anthropometry equipment. A few villages refused the research teams because several recent visits by development organizations had resulted in little change. Some villages were relocated because of the government's development programs. In each instance, villages that were identified for inclusion in the study but could not be accessed were replaced with pre-identified back-ups. This process, however, was time consuming and created logistical challenges.

### **Length and complexity of the questionnaire**

The length and complexity of the questionnaire made interviews difficult. Interviewers often needed to explain survey questions verbally. To maintain consistency, each interviewer carried a printed manual to use as a reference. The questionnaire was divided into three separate components that were not always conducted simultaneously in each household: (1) general questionnaire of FFP and program-specific indicators; (2) WEAI module; and (3) anthropometry module. The three separate components took approximately three hours to complete in each household and the staggered timing to complete them increased the risk that interviewers might misplace one of the components or lose track of which ones belonged together.

### **Confusion over the eligibility criteria for children**

On the household roster, eligible children are defined as "any child under six years of age." However, the definition of children eligible for the children's module is "those under five years of age." Although the inclusion of children under six as eligible on the roster was intentional so as not to miss any children that might actually be less than five, this difference in definition between the roster and the children's module created confusion for many of the field staff and interviewers. Field managers and team leaders continually explained and reinforced the difference between the roster requirements and the children's module verification of age under five years throughout the trainings and fieldwork.

### **Validity and reliability of self-reported data**

Most of the data collected for the indicators rely on self-reporting. Self-reporting has several limitations, such as the possibility of exaggeration or omission of information; inaccurate recollection of experiences or events; social-desirability bias or reporting of untruthful information; and reduced validity when respondents do not fully understand a question.

### **Seasonality of data collection**

The timing of the survey data collection can affect indicators that measure food access, hunger, and dietary diversity. The household survey was intentionally conducted in February to April, at the start of the lean season, so as to measure indicators at the most vulnerable period for the beneficiary population. Although this is not a limitation, it will be important that endline data are also conducted during the same time period. As noted in Section 3 of this report, there were several factors that led to early depletion of food supplies during the 2013 lean season, which further impacted food insecurity in the survey region.

### **Tight timeframe for analysis and reporting**

The tight timeframe for data analysis and reporting did not allow sufficient time for the research team to thoroughly analyze and evaluate the wealth of data collected for the household survey. The quantitative analysis focused on development of the indicators, accompanied by supporting bivariate analyses. Little time was available to develop and explore further multivariate analyses. Additionally, much of the rich qualitative data that was collected could not be fully analyzed and included in the report.

### 3. Overview of the Food Security Situation in Karamoja

The Karamoja region suffers from chronic food insecurity, primarily due to poor climate and civil insecurity. These challenges are compounded by poor water and sanitation practices as well as mother and young child feeding and care behaviors that contribute to malnutrition. Additionally, the region is geographically isolated, with limited roads and markets. The purchase of household food continues to be the major source of food in the region, at 49 percent during the April/May period.<sup>17</sup> During this time of year, most households have depleted food reserves hence more reliance on purchasing of food. Compounding this problem is the steady increase in food prices during this period of the year, which places additional hardship on poor households. Access to food at the household level remains a serious issue; surveillance indicates that only 2.57 percent of households were food secure and 76.5 percent of households had serious food access problems during the April/May period of 2012.<sup>18</sup>

Karamoja has three main livelihood zones.<sup>19</sup> While there are distinctions within each zone, the patterns remain relatively consistent within each. The western portion of Karamoja is primarily agriculture based. This region has the greatest rainfall (800 to 1200 millimeters per year) and is known as the greenbelt of Karamoja. The middle portion is largely agro-pastoral, with an average of 500 to 800 millimeters of poorly distributed rainfall per year. Most families in this area practice agriculture, though it is less productive than in the western zone. The eastern portion of Karamoja is predominantly pastoral, with low rainfall (less than 700 millimeters, poorly distributed), and is not well suited for agriculture.

Most inhabitants of the region, even those who are predominantly pastoralist, participate to some degree in agriculture.<sup>20</sup> The most common crops are maize and sorghum, sometimes complemented with beans and groundnuts.<sup>21</sup> However, agriculture in Karamoja is a high-risk endeavor due to the frequency of droughts and floods and low productivity.<sup>22</sup> Weather in the region has been particularly erratic since 2001, with frequent dry spells (2002, 2004, 2006, 2007, 2008, 2009, 2010, and 2011).<sup>23</sup> Although most of Uganda is bimodal, Karamoja experiences only one rainy season and a single harvest per year.<sup>24</sup> This weather pattern limits the supply of food and increases the length of the lean period. Improved agricultural extension services are needed to improve practices.<sup>25</sup> Farmers are limited in their ability to buy inputs such as improved seeds due to the lack of cash and of availability in the marketplaces. Crop diseases are also a common problem.<sup>26</sup> The result is a very low quality<sup>27</sup> and quantity of agricultural productivity, which contributes to the cycle of food insecurity.

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<sup>17</sup> Action Against Hunger. (2012). *Nutrition surveillance, Karamoja region, Uganda, round 8, May 2012*. Retrieved from: [http://www.actionagainsthunger.org/sites/default/files/publications/DHO-ACF\\_Karamoja\\_Nutrition\\_Surveillance\\_Round\\_8\\_-\\_Final\\_Report\\_2012.05.pdf](http://www.actionagainsthunger.org/sites/default/files/publications/DHO-ACF_Karamoja_Nutrition_Surveillance_Round_8_-_Final_Report_2012.05.pdf)

<sup>18</sup> Ibid.

<sup>19</sup> Government of Uganda, Office of the Prime Minister. (2009). *Karamoja action plan for food security (2009-2014)*. Retrieved from [http://www.opm.go.ug/assets/media/resources/17/Karamoja\\_Action\\_Plan\\_for\\_Food\\_Security\\_\(2009-2014\).pdf](http://www.opm.go.ug/assets/media/resources/17/Karamoja_Action_Plan_for_Food_Security_(2009-2014).pdf)

<sup>20</sup> Browne, S., & Glaeser, L. (2010). *Karamoja region food security assessment: Uganda. A special report by the famine early warning system network (FEWS NET)*. Washington, DC: USAID. Retrieved from <http://www.fews.net/docs/Publications/Karamoja%20Food%20Security%20Assessment%20January%202010.pdf>

<sup>21</sup> Stites, E., & Mitchard, E. (2011). *Milk matters in Karamoja: Milk in children's diets and household livelihoods*. Boston: Feinstein International Center. Retrieved from <http://sites.tufts.edu/feinstein/2011/milk-matters-in-karamoja>

<sup>22</sup> Levine, S. (2010). *What to do about Karamoja? Why pastoralism is not the problem but the solution. A food security analysis of Karamoja*. Rome: Food and Agriculture Organization of the United Nations. Retrieved from <http://www.celep.info/wp-content/uploads/downloads/2011/07/what-to-do-about-Karamoja.pdf>

<sup>23</sup> World Food Programme. (2013). *Comprehensive food security and vulnerability analysis (CFSVA): Uganda*. Retrieved from <http://www.wfp.org/content/uganda-comprehensive-food-security-and-vulnerability-analysis-cfsva-april-2013>

<sup>24</sup> Government of Uganda, Office of the Prime Minister. (2009).

<sup>25</sup> Ibid.

<sup>26</sup> Browne, S., & Glaeser, L. (2010).

<sup>27</sup> Ezaga, O. P. (2010). *Markets for livestock and food crops in Karamoja subregion*. Rome: FAO. Retrieved from [http://www.fao.org/fileadmin/user\\_upload/drought/docs/1\\_Markets%20for%20Livestock%20and%20Food%20Crops%20in%20Karamoja.pdf](http://www.fao.org/fileadmin/user_upload/drought/docs/1_Markets%20for%20Livestock%20and%20Food%20Crops%20in%20Karamoja.pdf)

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The Famine Early Warning System Network (FEWS NET) provides details on events affecting the food security situation during the data collection period for the baseline study.<sup>28</sup> The Karamoja region received normal to above-normal rainfall during the prior year (2012), but due to waterlogging conditions and an outbreak of fungal disease on sorghum (the main staple crop), harvests were below average. These harvests, which were mostly completed in October to November 2012—except for long-maturing sorghum harvests, which were harvested in early January 2013—were mostly consumed as green consumption. Therefore, the dry harvest did not replenish household stocks to normal levels. As a result, a majority of poor households depleted their own production and faced food deficits of two to three months before the normal start to the lean season in March 2013. During the previous year, households in the region experienced poor crop sales during the dry season, which further reduced the ability of poor households to purchase adequate levels of food.

Traditionally, pastoralists lived in *manyattas* while traveling to mobile enclosed cattle camps (*kraals*) during the dry season to find better water and grass for their animals. However, civil unrest and widespread raiding of herds limits pastoralists' mobility, and the traditional *kraal* system has largely ceased.<sup>29</sup> Travel restrictions limit herders' ability to move livestock at will.<sup>30</sup> Many animals are now corralled in protected *kraals* adjacent to Ugandan army camps. While most respondents indicate that this practice has decreased the losses due to raiding, other challenges have arisen. Because herders can take the animals only as far as they can walk in a day while still returning to the *kraal* at night, areas immediately surrounding the protected *kraals* have been significantly overgrazed. Similarly, herders are unable to relocate the *kraals* when they believe it is necessary due to seasonal changes and must first convince the army.<sup>31</sup> Additionally, the close quarters of the animals has led to an increase in diseases that diminish the herds directly and reduce reproduction rates.<sup>32</sup> Some reports indicate that the military limits the owners' ability to sell their stock at will.<sup>33</sup> All of these issues contribute to the reduced quality of herds and their usefulness in helping families deal with shocks.

Another outcome of this situation is reduced access to animal products. Historically, milk has been critical to the diets of the region's population.<sup>34</sup> Now, not only has the availability of milk decreased due to reductions in the quality of the herd, it has also decreased due to milking of the animals by soldiers or requirements that the soldiers be given a portion as payment for their services.<sup>35</sup> Traditionally, the most vulnerable individuals traveled with the herders to the *kraals* to have ready access to milk. Now, the animals may be a significant distance from the residences of those most in need of milk, thus reducing their consumption.<sup>36</sup> The reduced availability of milk has also contributed to the disintegration of traditional social support networks. The better off have long shared their milk with the poorest of the population, but this practice has largely ceased due to the limited supply of milk.<sup>37</sup>

Households' means of coping with food insecurity has led to practices that threaten the environment. Many households supplement income by collecting wood and producing charcoal for sale. The increased reliance on natural resources contributes to the rapid degradation of the environment in Karamoja, and this trend is expected to increase food insecurity.<sup>38</sup>

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<sup>28</sup> FEWS NET, Uganda Food Security Outlook, Jan.-June 2013, Retrieved from [http://www.fews.net/docs/Publications/UG\\_OL\\_2013\\_01\\_en.pdf](http://www.fews.net/docs/Publications/UG_OL_2013_01_en.pdf)

<sup>29</sup> Stites, E., & Akabwai, D. (2009). *Changing roles, shifting risks: Livelihood impacts of disarmament in Karamoja, Uganda*. Boston: Feinstein International Center. Retrieved from <http://hdl.handle.net/10427/71114>

<sup>30</sup> Browne, S., & Glaeser, L. (2010).

<sup>31</sup> Stites, E., & Akabwai, D. (2009).

<sup>32</sup> Levine, S. (2010).

<sup>33</sup> Stites, E., & Akabwai, D. (2009).

<sup>34</sup> Stites, E., & Mitchard, E. (2011).

<sup>35</sup> Ibid.

<sup>36</sup> Stites, E., & Akabwai, D. (2009).

<sup>37</sup> Stites, E., & Mitchard, E. (2011).

<sup>38</sup> Browne, S., & Glaeser, L. (2010).

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Child feeding practices also contribute to malnutrition in the region. Brewing and selling local beer to acquire cash is increasingly common, and the family, including children, generally consumes the leftovers and byproducts of production.<sup>39</sup> While providing infants and children with animal milk remains a priority for families, small children have less access to fresh animal milk than in the past. Many women do not exclusively breastfeed through six months of age, and children are often weaned very early (some reports indicate as early as six weeks).<sup>40</sup> The diets of young children often lack protein and diversity. The majority of children (82 percent) ages 6 to 23 months had an unacceptable diet, according to 2012 lean season surveillance, lacking adequate quantity and variety of food.<sup>41</sup>

Water and sanitation practices in the region contribute to malnutrition among children and adults. More than half of households (60.8 percent) reported using the bush for human waste disposal in 2012. Hand washing with soap is not widespread, partially due to the cost and unavailability of soap. Diarrheal diseases are common, especially among young children. Limited access to health services compounds these problems.<sup>42</sup>

Many of the challenges described above are longstanding, resulting in a half-century history of food aid<sup>43</sup> and short-term humanitarian assistance in Karamoja. The two Title II programs, RWANU and GHG, aim to improve long-term food security in Karamoja through a variety of interconnected activities. In addition to the Title II programs, other ongoing programs may impact the findings of the baseline survey. These programs support food security in the program zone, and some are scheduled to be phased out in 2015, the midpoint in Title II program implementation. At that time, it is plausible that the area will experience a significant decline in food security due to the sudden loss of this massive injection of food in the region. Furthermore, the Office of the Prime Minister has been supporting a free plowing scheme, which will be suspended at the end of the current financial year (2013). Ongoing programs include the following:

- Food assistance to the most vulnerable households and cash-for-work and food-for-work programs funded by the Northern Uganda Social Action Fund (NUSAFII) and implemented by WFP and other partners: More than 60,000 identified food-insecure households (with an estimated 400,000 members) who participate in public works programs are to receive conditional food or cash transfers beginning in July 2012 through August 2014. Extremely Vulnerable Households—34,000 households, with a total of 155,000 members—will receive unconditional food assistance at 50 percent of the recommended daily allowance for the duration of the lean season in 2013.
- Community-Based Supplementary Feeding Program: Nearly 25,000 moderately malnourished children and moderately malnourished pregnant and lactating mothers will receive highly fortified foods monthly, together with care to treat and “cure” their moderate malnutrition.
- School Feeding: More than 100,000 schoolchildren in all schools in Karamoja should receive school meals to alleviate short-term hunger and maintain attendance.
- Maternal Child Health and Nutrition program: All pregnant and lactating women who seek antenatal, postnatal, and young child health services in Karamoja, and children under two years of age, will receive highly fortified food to prevent stunting.

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<sup>39</sup> Dancause, K. N. et al. (2010). Beer is the cattle of women: Sorghum beer commercialization and dietary intake of agro-pastoral families in Karamoja, Uganda. *Social Science & Medicine*, 70(8), pp. 1123-30.

<sup>40</sup> Stites, E., & Mitchard, E. (2011).

<sup>41</sup> Action Against Hunger. (2012).

<sup>42</sup> Gelsdorf, K., Maxwell, D., & Mazurana, D. (2012). *Livelihoods, basic services and social protection in Northern Uganda and Karamoja*. Working paper 4. London: Secure Livelihoods Research Consortium, Overseas Development Institute. Retrieved from <http://www.odi.org.uk/sites/odi.org.uk/files/odi-assets/publications-opinion-files/7781.pdf>

<sup>43</sup> Government of Uganda, Office of the Prime Minister. (2009).

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## 4. Findings

The findings of the baseline study are presented according to five content categories: (1) characteristics of the population, (2) household indicators, (3) agricultural indicators, (4) women's health and nutrition, and (5) children's health and nutrition. Each section includes results for FFP and program-specific indicators, along with relevant results from the qualitative study. The tables in Annex 7 present a tabular summary of all FFP and program-specific indicators, confidence intervals, standard errors, and weighted population estimates for each program area and for the areas combined, along with results for statistical tests of differences between the two programs for each indicator. The WEAI findings and discussion are provided in Annex 8.

### 4.1 Characteristics of the Study Population

This section provides an overarching picture of the northern and southern Karamoja program areas. Demographic characteristics are presented from the household survey, and results from the qualitative study are provided with respect to mobility, security, and violence in the region.

A total of 4,766 household interviews were completed across the Karamoja region: 2,399 in the northern Karamoja program districts and 2,367 in the southern Karamoja program districts. Table 4.1a provides estimates of the populations represented in the survey area overall and for specific subgroups.

Table 4.1b shows the characteristics of these households. The average household included 6.3 household members. Children ages 0-59 months were household members in nearly 75 percent of all households. Children ages 0-23 months were household members in about 35 percent of households. The majority of heads of household (83 percent) had no formal education. Education levels were higher in the northern Karamoja program area than in the southern Karamoja program area. Most households (89 percent) included an adult male and female.

**Table 4.1a Total Population in the Title II Area by Program Area**  
[Uganda, 2013]

	Total	Northern Karamoja	Southern Karamoja
Total population	983,906	559,850	424,056
Male	473,724	269,269	204,455
Female	510,182	290,581	219,601
Total households (HH)	155,574	87,812	67,762
Male and Female Adults	15,340	9,660	5,681
Female Adults Only	1,749	658	1,091
Male Adults Only	138,485	77,495	60,990
Child No Adults	0	0	0
Women of reproductive age (15-49 years)	202,672	118,040	84,632
Children 0-59 months	191,021	111,334	79,687
Males 0-59 months	93,842	55,689	38,153
Females 0-59 months	97,179	55,645	41,534
Children 0-5 months	21,553	12,645	8,908
Males 0-5 months	11,424	6,712	4,712
Females 0-5 months	10,129	5,933	4,196
Children 6-23 months	59,976	34,540	25,436
Males 6-23 months	30,266	18,039	12,227
Female 6-23 months	29,710	16,501	13,209

Source: USAID Title II survey in Uganda (2013), weighted population estimates

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	Total	Northern Karamoja	Southern Karamoja
Average household size	6.3	6.4	6.3
Percent of households with children 0-59 months	75.8	77.2	73.9
Percent of households with a child 6-23 months	36.2	36.4	36.0
Household headship (% male)	85.0	84.5	85.7
<b>Education level of head of household</b>			
No formal education*	83.2	78.7	89.0
Pre-primary	0.4	0.8	0.0
Primary	9.1	10.5	7.2
Secondary*	6.4	9.0	3.0
Higher	0.9	1.1	0.7
<b>Gendered household type</b>			
Adult Female No Adult Male	9.9	11.0	8.4
Adult Male No Adult Female*	1.1	0.7	1.6
Male and Female Adults	89.0	88.2	90.0
Child No Adults	0.0	0.0	0.0
Number of responding households	4,766	2,399	2,367

\* Difference between program areas is statistically significant at  $p < .05$

### A. Mobility and Security

Qualitative findings reveal the relationship between the history of the Karamojong and observed patterns of behavior, beliefs, and practices. An issue that has a tremendous impact on the daily lives of the Karamojong is the high level of violence and insecurity. The Karamojong have a long history of pastoralism, but have perpetrated decades of violent cattle raids. Although the Karamojong are often characterized as a nomadic people, qualitative data indicate they follow their cattle while they graze but tend to have a home base in their village *manyatta*. The migration reported by study participants is due primarily to violence and insecurity. Cattle raids by competing tribes continue, sometimes across international borders with South Sudan and Kenya. Internal raids are exacerbated by a high prevalence of guns, many of which were obtained with the fall of Idi Amin in 1979. According to interviews with potential direct beneficiaries and key informants, the raids resulted in a drastic reduction in cattle ownership, the main livelihood source for most villages. These raids made it unsafe for the Karamojong to cultivate ancestral lands located far from their village. As one respondent said,

I practice farming, but I don't have oxen. Because [at] the times when the raids were persistent, all of the animals I had were raided. For the case of livestock for my household, I don't have any animals I keep at home. Before, I had animals. But all the animals were taken away during the time of the raids.

Therefore, some households may be discouraged from owning livestock due to the fear of loss through theft or raiding. In addition, the pervasiveness of arms creates a culture of violence and fear that, according to a majority of respondents, greatly inhibits their lives. Upon close examination, respondents indicated that a lack of security impacts their lives in terms of livelihood development; their ability to interact with other villages; and their ability to access health care, agricultural development, drinking water, and education. As one respondent stated, "When there is insecurity, you cannot dig. Like those days, people were chased away from their farmland into camps that made farming very difficult. And so, people were affected by hunger."

Violence and insecurity persist in Karamoja. In recent years, however, the Ugandan Government re-initiated a large-scale disarmament, started between 2000 and 2001 that is referred to as the Karamoja

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Integrated Disarmament and Development Program (KIDDP).<sup>44</sup> As described by one respondent in a village in Napak,

Initially there were raids among the following clans of the Karamojong: Jie of Kotido District, Matheniko of Moroto District, Bokora of Napak District, and the Pian of Nakapiripirit District. . . . But after a period of time, the government intervened and disarmed the people since they had owned guns illegally, and that is why we have peace now in Karamoja.

An assessment of Karamoja conflict and security, conducted by Saferworld,<sup>45</sup> found that armed violence between ethnic groups, particularly in the form of cattle raiding, is still prevalent in Karamojong society, affects all communities, and mostly involves firearms. In a follow-up study conducted in 2011-2012,<sup>46</sup> Saferworld found continued insecurity felt by communities and reports of illegal weapons still in the hands of civilians.

Despite respondents' mixed perceptions of the disarmament process, the consensus is that the process has resulted in a drastic change in the way they live their lives. They say disarmament has increased their ability to interact with individuals from other villages and made it safe for children to journey to school, for individuals to start reintegrating livestock into their villages and households, and for businesses to come into the villages and explore the possible extraction of mineral resources. Above all else, disarmament has eliminated the sense of fear so many lived with. A female head of household described how life has changed in the past two years:

What I see in this regime of Museveni, there are changes in that the insecurity which was there is [there] no more. There is some peace, even wealth/animals, which were formerly raided by the warriors. It [the increase of animals] has started accumulating now.

Referencing the recent increase in peace, another respondent stated, "Even on the side of health, health centers have also increased. Even on the side of agriculture. People can now attend to their gardens." Although the people's sense of security has increased, life is not easy in Karamoja. Those who live there still face challenges. As one individual said,

We can move to cultivate in far places where we used to access in the past. That's why we are getting food varieties that are good and healthy. But, the only challenge we still have is the pests which are disturbing us. Not the warriors.

### **B. Increased Movement**

The household survey demonstrated that the security situation is improving and that lifestyle changes are occurring. When asked about movement and security, approximately 61 percent of all respondents reported increased movement in areas that were previously not accessible due to insecurity. As shown in Table 4.1c, more respondents in the southern Karamoja program area (71 percent) reported increased movement than in the northern Karamoja program area (52 percent).

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<sup>44</sup> The disarmament process in Karamoja has a long and violent history. Pre-disarmament activities started as far back as 1986. Most current discussions reference the various phases of disarmament that took place through KIDDP. More information can be found in the following two documents: *Creating conditions for promoting human security and recovery in Karamoja, 2007/2008-2009/2010*, by the Karamoja Integrated Disarmament and Development Program and the Office of the Prime Minister (2007). Retrieved from [http://www.brookings.edu/~media/Projects/idp/Uganda\\_Karamoja\\_2007.PDF](http://www.brookings.edu/~media/Projects/idp/Uganda_Karamoja_2007.PDF); and *Crisis in Karamoja: Armed Violence and the Failure of Disarmament in Uganda's Most Deprived Region*, by J. Bevan for the Small Arms Survey, Geneva, Switzerland (2008). Retrieved from <http://www.smallarmssurvey.org/fileadmin/docs/B-Occasional-papers/SAS-OP21-Karamoja.pdf>

<sup>45</sup> Saferworld. (2010). *Karamoja conflict and security assessment*. Retrieved from <http://www.saferworld.org.uk/downloads/pubdocs/Karamoja%20conflict%20and%20security%20assessment.pdf>

<sup>46</sup> Saferworld. (2012). *Tracking key conflict and security dynamics in Karamoja: An update*. Retrieved from <http://www.saferworld.org.uk/downloads/pubdocs/Uganda%20PPP%20report.pdf>



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Table 4.1c Program-specific Indicators - Increased Movement by Program Area			
Program-specific indicators by program area [Uganda, 2013]			
	Total	Northern Karamoja	Southern Karamoja
<b>Increased Movement (Household respondents)</b>			
Percentage reporting increased movement in areas that were previously not accessible due to insecurity*	60.7	52.4	71.4
Number of responding households	4,766	2,399	2,367

\* Difference between program areas is statistically significant at  $p < .05$

## 4.2 Household Indicators

This section begins with the household survey findings for the Household Hunger Scale (HHS), followed by an exploration of the predictors of household hunger and the results for the Household Dietary Diversity Score (HDDS). Qualitative data, when available, highlight the findings from the household survey with respect to food and beverage sources, access, availability, and diversity.

### A. Household Hunger Scale (HHS)

Household hunger was measured using the HHS, a perception-based food deprivation scale. The scale consists of three components measuring inadequate household food access, with each component split into an occurrence question (whether the episode of food deprivation occurred at all in the past four weeks) and a frequency of occurrence question (how many times the episode had occurred in the past four weeks). The responses to the questions are coded and summed into a numerical score (with a minimum possible score of 0 and a maximum possible score of 6) representing three levels of hunger: (1) *Little to no hunger* (HHS score = 0 to 1); (2) *Moderate hunger* (HHS score = 2 to 3); and (3) *Severe hunger* (HHS score = 4 to 6).

Table 4.2a provides the results for the HHS. Overall, 73 percent of households suffer from moderate or severe hunger, with a higher prevalence in the northern Karamoja program area (76 percent) than in the southern Karamoja program area (69 percent). The HHS is based on perceptions of hunger in the past four weeks and thus may be sensitive to the season in which the survey is conducted. In the case of the Uganda household survey, data were collected during the lean season, from February through April.

Table 4.2a Food for Peace Indicators - Household Hunger Score (HHS)			
Household-level FFP indicators by program area [Uganda, 2013]			
	Total	Northern Karamoja	Southern Karamoja
<b>HHS (All Households)</b>			
Prevalence of households with moderate or severe hunger*	72.8	76.0	68.8
Adult Female No Adult Male	71.7	73.2	69.1
Adult Male No Adult Female	70.7	61.7	76.2
Male and Female Adults*	73.0	76.4	68.7
Child No Adults <sup>1</sup>	-	-	-
Number of responding households	4,766	2,399	2,367
Adult Female No Adult Male	452	254	198
Adult Male No Adult Female	70	25	45
Male and Female Adults	2,124	2,120	2,124
Child No Adults	0	0	0
Number of responding households	4,766	2,399	2,367

<sup>1</sup> No households of this type in the sample  
\* Difference between program areas is statistically significant at  $p < .05$

### A.1 Predictors of Household Hunger

Multivariate logistic regression models for moderate and severe household hunger (hereafter referred to as “household hunger”) were applied to help researchers understand factors associated with household hunger for the overall Karamoja region and separately for each program area. Annex 9, Table A9.1 presents statistical results for these models. Independent variables in the model include the following:

- Household composition: Number of prime-aged adults (15-49 years old), number of elder dependents (50 years or older), and number of young dependents (ages 0-14)
- Demographic characteristics of the head of household: Sex, age, and education level
- Socioeconomic status: household poverty and food consumption
- Household agricultural status: Raised crops in the last 12 months, number of farmers in the household, used at least two sustainable livestock practices, used at least two sustainable crop practices, used at least one sustainable natural resource management (NRM) practice, practiced value chain activities, used improved storage practices
- District

The overall model shows that the models are significantly different between program areas, so predictors are presented separately for each program rather than overall. The model for the northern Karamoja program areas shows a low explanatory power, with a pseudo  $R^2 = .07$ , indicating that the independent variables in the model explain about 7 percent of the variance in household hunger. The model for the southern Karamoja program areas has a somewhat better fit, with a pseudo  $R^2 = .12$ .

In the logistic regression framework, the significance of individual predictors is based on odds ratios (ORs). ORs indicate the extent to which the likelihood of an outcome increases for each unit increase in the predictor variable (in the case of continuous predictors), or for the presence of the predictor variable relative to its absence (in the case of binary predictors). For example, if owning livestock decreases the likelihood of household hunger from 70 percent to 60 percent, this would be equivalent to an OR of  $(60/40)/(70/30) = 0.64$ . ORs are always positive numbers, with an OR of 1 indicating no change in the odds of an event, values between 0 and 1 indicating a decrease in the odds, and values greater than 1 indicating an increase in the odds. In a multiple logistic regression model, the OR indicates the increase or decrease in the likelihood of an outcome for a unit increase in the predictor. Significant predictors must be interpreted as the change in the odds of household hunger, with all other factors in the model being equal.

Significant predictors of household hunger for the northern Karamoja program areas include the following:

- Sex of head of household: Having a female head of household decreases the odds of household hunger by a ratio of 0.72.
- Daily per capita food consumption: Each log of Ugandan shilling (UGX) spent in food during the last week increases the odds of household hunger by a ratio of 1.73. Using untransformed food consumption, the increase in odds would be 1.61 for every additional 1,000 UGX daily per capita or 1.84 for every additional USD in constant 2010 prices.
- District: Households in Kotido (OR = 2.51) and Abim (OR = 3.18) are more likely to suffer from hunger than households in Kaabong.

Deriving recommendations from any cross-sectional multivariate model must rest on the assumption that the model is causal, which may or may not be the case. Furthermore, the models identified few significant effects for the northern Karamoja program area. The effect of daily per capita food consumption is in fact rather counterintuitive: in the current model, greater household food consumption is associated with increased odds of household hunger. Although food consumption in the last week and household hunger may not be necessarily correlated for every household, it is expected that, on average, they would be. In the absence of an alternative explanation, this result should be disregarded, as it seems to be spurious.

Significant predictors for the southern Karamoja household hunger model include the following:

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- Number of elder dependents: Each additional elder dependent increases the odds of household hunger by 1.70.
- Age of the head of household: Each additional year of age for the head of household decreases the odds of moderate or severe household hunger by a ratio of 0.98.
- Educational level of head of household: Having a head of household with a secondary education decreases the odds of household hunger by a ratio of 0.44 relative to a head of household with no education. Having a head of household with postsecondary education decreases the odds of household hunger by a ratio of 0.48 relative to a head of household with no education.
- Raised crops in the last 12 months: If a household raised crops in the last 12 months, the odds that it will suffer from hunger increase by 3.45.
- Used at least two sustainable agriculture practices for crops: Households that used at least two sustainable crop practices are less likely to suffer from hunger by a ratio of 0.66. Post hoc analyses indicate that, of all sustainable crop practices, only intercropping is associated with a reduced likelihood of household hunger (OR = .38,  $p = .00$ ).
- Practiced value chain activities: Households that practiced value chain activities are less likely to suffer from hunger by a ratio of 0.54. Post hoc analyses indicate that, of all value chain activities, only grading is associated with a reduced likelihood of household hunger (OR = .46,  $p = .00$ ).
- Using improved storage practices: Households that used improved storage practices are less likely to suffer from hunger by a ratio of 0.65.
- District: Households in Amudat (OR = 0.56) are less likely to suffer from hunger than households in the remaining districts.

There are some surprising results in this model, most notably the fact that raising crops increases the odds of household hunger. In the southern Karamoja program area, 19.6 percent of all households did not raise any crops. Hunger among households that raised crops in the southern Karamoja program areas is 83 percent, compared to 75 percent for households not raising crops. These differences are largest in the Napak district (84 versus 70 percent hunger). This finding must, however, be interpreted in combination with the other agricultural indicators in the model, which show that using improved crop and storage practices and practicing value chain activities reduce the odds of hunger. One way to interpret these results is that households that raise crops and do not implement improved practices are more likely to suffer from food insecurity than households that do not raise crops at all. A reverse causal interpretation is also possible if wealthier households happen to invest more and have storage facilities.

This hypothesis was tested post hoc based on a model that contains all the predictors in the main model plus the interaction terms between raising crops and the remaining agricultural indicators. Results from this analysis show that the interaction of raising crops and practicing value chain activities, in particular, is a significant predictor of household hunger, above and beyond the other predictors in the model. Those households that raise crops and practice value chain activities are significantly less likely to experience hunger, by a factor of 0.25 ( $p < .01$ ).

### **A.2 Drivers of Hunger: Access and Availability**

A primary driver of hunger is the access and availability of food. According to the qualitative data, the majority of food that individuals consume is food they produce or forage locally. The process of production is further discussed in the section on agriculture. However, individuals produce most of the foods they consume, including the sorghum used for local brew, on their lands. Further, as suggested above and in the section on agriculture, factors that drive successful production include enhanced production techniques, environment changes, and the ability of an individual to work. In qualitative interviews, respondents noted that they purchase some of the crops and animals they consume at the local market. However, these tend to be foodstuffs and items they were unable to produce on their own, such as salt, cooking oil, or silverfish.

Qualitative data indicate that in villages where people are successfully cultivating crops or where respondents have reported past development programs in the region, individuals have greater access to

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food during the dry season. This is because after food production has ended and crops have been harvested, individuals store crops for use throughout the year or sell some, which allows them to purchase what they need. In villages where production levels and development levels are lower, there is a heavier reliance on food found in the wild, and respondents report having greater access to foods during the rainy season. As one respondent in Napak stated,

During rainy season, we can depend on wild foods such as mushrooms, wild fruits, and others, but in dry season everything is dry. We only wait for relief food or we send kids to collect firewood and sell [it] to people in the Matay trading center, and the money we get is used for buying food.

Qualitative interviews indicate that individuals who report successful crop production and high yields also report eating more frequently. Local brew is used as a substitute for meals, and in times of scarcity, individuals reported consuming one or two meals along with local brew to help keep them full. Therefore, the availability of food and access to it help drive the consumption of local brew. In Kaabong, where respondents indicated better access to food during the rainy season, one individual explained,

In the rainy periods, we are able to access food, most especially vegetables. And, we can at least eat twice a day. Whereas in dry periods, food is so scarce and we can either eat once or only take alcohol and sleep. The little food available is left for the young ones.

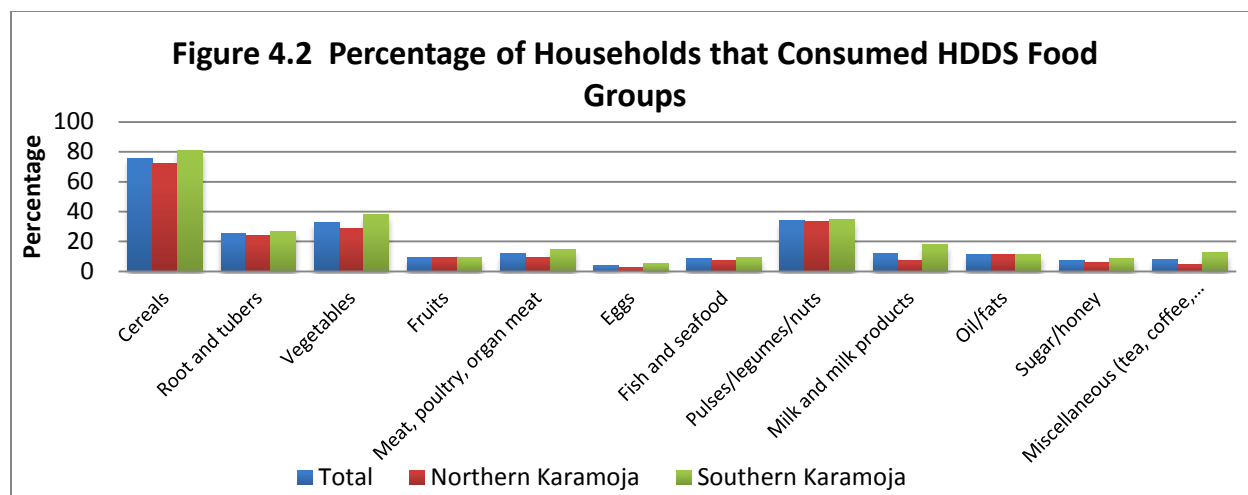
### B. Household Dietary Diversity Score (HDDS)

The HDDS is based on the number of different food groups consumed by the head of household or any other household members in the past 24 hours. The set of 12 food groups is derived from the U.N. Food and Agricultural Organization. The HDDS ranges from 0 to 12, with lower numbers indicating less dietary diversity. Although the HDDS gives an indication of food groups consumed in the household, the HDDS should not be interpreted as a nutrition indicator reflecting diet quality, but rather as an indicator of food access. Thus it serves as a proxy for socioeconomic status.

Table 4.2b presents the results for the HDDS. The overall score of 2.4 indicates poor dietary diversity, with only two to three of the 12 food groups consumed in each household, on average. Dietary diversity is higher in the southern Karamoja program area (HDDS=2.7) than in the northern Karamoja program area (HDDS=2.2). As shown in Figure 4.2, about 75 to 80 percent of households consume foods made from cereal grains such as wheat, maize, rice, sorghum, and/or millet. Vegetables and pulses, legumes, or nuts are the second and third most commonly eaten food groups.

<u>Table 4.2b Food for Peace Indicators - Household Dietary Diversity Score (HDDS)</u>			
Household-level FFP indicators by program area [Uganda, 2013]			
	Total	Northern Karamoja	Southern Karamoja
<b>HDDS (All Households)</b>			
Average Household Dietary Diversity Score*	2.4	2.2	2.7
Number of responding households	4,766	2,399	2,367

\* Difference between program areas is statistically significant at  $p < .05$



Qualitative data also indicate a low level of dietary diversity in the four districts visited in Karamoja. The most common types of food that individuals and families consume are *posho*, beans or peas, maize, and wild greens. Less frequently mentioned foods include sorghum, rice, sunflower, squash or pumpkins, sesame, cassava, and sweet potatoes.

The vast majority of the food described is either a starch or a legume. While some households produce vegetables such as cabbage, tomatoes, and eggplant, the primary source of vegetable fiber is wild greens that individuals forage during the rainy season. Very few individuals reported eating meat. This tendency may be due to a decrease in livestock that results from raids, or it might be attributed to the tradition of retaining animals as a form of currency or indicator of wealth/status rather than selling or consuming them, as potential beneficiaries and key informants indicated. For the most part, respondents indicated that all family members eat from the same pot, and therefore eat the same types of food. The only variance indicated was for very small children, who consume porridge that other family members do not consume. When asked whether the quantities that individuals consumed varied by family member, age, or gender, the most frequent response given was that leftovers and any additional food tend to go to the children.

In terms of beverages, the two items most frequently identified by respondents are water and the local brew. Water is most frequently named as the beverage consumed with meals. “Kwete” (local brew) is a beverage that is produced locally, often within one’s home. It has “low levels”<sup>47</sup> of alcohol, and the primary ingredient is usually sorghum. Some local brews are made with other products such as *simsim* (sesame) or maize, depending on the geography and the crops and animals produced in the village. Most individuals who reported consuming local brew stated that consumption begins in the mornings. One individual explained that the alcohol content is lower in the morning, that the beverage becomes more bitter as the day goes on, and that “Kwete [local brew] you need to take it like at around 11 a.m. in the morning, because if it delays, it ferments and become bitter (Kong) and can easily make one drunk.” Regarding the consumption of local brew by children, responses were fairly divided. In some villages, individuals were adamant that local brew and other forms of alcohol (it should be noted that respondents never describe local brew as a type of alcohol) are not consumed by children. In other villages,

<sup>47</sup> “Low” is the terminology used by individuals when describing the level of alcohol in local brew. There is some indication that the percentage of alcohol falls in the range of 2 to 4 percent. However, recent studies have not been undertaken. These numbers are drawn from Food Tables for Africa from 1968, which report between 2 and 2.8 percent, and from a more recent study in Kenya on the alcohol content of local brews: “Estimating Alcohol Content of Traditional Brew in Western Kenya Using Culturally Relevant Methods: The Case for Cost Over Volume” by R. Papas, J. Sidle, E. S. Wamalwa, T. O. Okumu, K. L. Bryant, J. L. Goulet, S.A. Maisto, R. S. Braithwaite, and A. C. Justice. *AIDS Behav.* 2010 August; 14(4): 836–844; manuscript Retrieved from <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2909349/>

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individuals admitted that taking local brew is a cultural practice that begins at an early age, even as early as six months, when it is mixed with a child's porridge so that the child develops a "taste" for it. As a male caregiver in Kaabong stated,

It is the same in all households and everyone takes it, even young kids. The young kids have learned to drink due to lack of animals that would provide milk for them. Each one drinks according to his/her capability. Young kids can go to the pot of alcohol and get a drink.

### **B.1 Socio-Cultural Consumption Practices**

The qualitative data analysis identified two categories of social and cultural practices and traditions that influence consumption practices. The first category includes traditions that dictate which types of foods can or should be eaten based on sex and age. For example, women are discouraged from eating the testes of an animal and the back of the chicken, but in a number of locations, the liver is reserved for women. Men and boys are often reserved the lungs and the head of an animal. The second category relates to specific desired outcomes. For example, young boys who are shepherds are encouraged to eat the hoofs of goats and cattle to improve shepherding skills. Women of childbearing age are discouraged from eating young goats so as to avoid premature births, and in Abim these women are discouraged from eating pumpkin leaves to avoid giving birth to babies with heads shaped like pumpkins. In general, many individuals do not consume meat due to the scarcity of livestock in the region and the prohibitive cost. However, a prevalent tradition is to slaughter an animal to share in celebration of holidays such as Christmas or New Year's.

### **C. Household Poverty Levels**

In this section, poverty indicators generated from the household survey data are presented, followed by data gathered through the qualitative study regarding sources of income; income sufficiency; and roles, responsibilities and decision making in income generation.

Poverty indicators are based on household consumption and are used as a proxy for income. Income in most developing countries and rural areas is difficult to measure, and consumption data are typically less prone to recall error and more smoothly distributed over time than income data.<sup>48</sup>

The three FFP poverty indicators are (1) the percentage of people living on less than \$1.25 USD per day per capita, (2) daily per capita expenditures, and (3) mean depth of poverty. See Annex 4 for definitions of these indicators and the methodology used to compute them. The results for these indicators are provided in Table 4.2c.

A total of 94.3 percent of the population in the survey areas is currently living in extreme poverty (less than \$1.25 USD per day), which is substantially higher than the percentage of the population living in extreme poverty for Uganda as a whole (38 percent).<sup>49</sup> Although the corresponding figure for the Karamoja region is not available from the 2009 household survey report (which uses a different poverty line), the data show that poverty in the Northeast region (comprised of the districts of Abim, Moroto, Kaabong, Nakapiripirit, Katwaki, Amuria, Bukedea, Soroti, Kumi, and Kaberamaido) is about three times higher than the national figure (76 versus 25 percent),<sup>50</sup> which is in line with the findings of this study.

Daily per capita expenditures are, on average, \$0.56 USD per day, per person (expressed in constant 2010 USD), with similar values in both program areas.

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<sup>48</sup> See, for example, "Poverty Measurement and Analysis" by A. Coudouel, J. S. Hentschel, and Q. T. Wodon, in *Core Techniques and Cross-Cutting Issues*, Retrieved from [http://siteresources.worldbank.org/INT/PRS1/Resources/3836061205334112622/5467\\_chap1.pdf](http://siteresources.worldbank.org/INT/PRS1/Resources/3836061205334112622/5467_chap1.pdf)

<sup>49</sup> According to the latest figures compiled by the World Bank for Uganda (2009), exact methodology to compute the poverty headcount ratio is not available, although both the World Bank and the figures used for this report are based on the international poverty line of \$1.25 USD per day, per capita, and the LSMS framework. See <http://data.worldbank.org/indicator/SI.POV.DDAY>

<sup>50</sup> See [http://www.ubos.org/UNHS0910/chapter6\\_%20Poverty%20trend%20estimates.html](http://www.ubos.org/UNHS0910/chapter6_%20Poverty%20trend%20estimates.html)

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The mean depth of poverty in the survey areas is 63.7 percent of the poverty line, with significantly deeper poverty in the southern Karamoja program area (67 percent) than in the northern Karamoja area (62 percent). This indicator is useful in understanding the average daily per capita amount that would have to be transferred to the poor to end poverty in the survey area. It is the sum over all individuals of the shortfall of their real private consumption per adult equivalent from the poverty line, divided by the poverty line. One way to interpret the mean depth of poverty is that it gives the per capita cost of end poverty, as a percentage of the poverty line, if money could be targeted perfectly. Thus, with a mean depth of poverty of 63.7 percent, it would cost 63.7 percent of the poverty line per person in the program area in order to end poverty through selective transfers.

	Total	Northern Karamoja	Southern Karamoja
Percent of people living on less than \$1.25/day	94.3	93.2	95.6
Adult Female No Adult Male	93.8	92.6	96.2
Adult Male No Adult Female*	87.2	100.0	78.9
Male and Female Adults	94.4	93.3	95.8
Child No Adults <sup>1</sup>	-	-	-
Daily per capita expenditures <sup>2</sup>	0.56	0.58	0.52
Adult Female No Adult Male	0.62	0.63	0.61
Adult Male No Adult Female	0.66	0.50	0.76
Male and Female Adults	0.55	0.58	0.51
Child No Adults <sup>1</sup>	-	-	-
Mean depth of poverty <sup>3</sup> *	63.7	61.5	66.7
Adult Female No Adult Male	58.2	57.1	60.5
Adult Male No Adult Female	56.6	64.3	51.5
Male and Female Adults*	64.3	61.9	67.4
Child No Adults <sup>1</sup>	-	-	-
Number of household members in responding households	29,659	15,127	14,532

<sup>1</sup> No households of this type in the sample  
<sup>2</sup> Expressed in constant 2010 USD  
<sup>3</sup> Expressed as percent of poverty line  
\* Difference between program areas is statistically significant at  $p < .05$

### C.1 Income Sources

The household survey did not collect data on income sources; however the qualitative study gathered some data with asked questions regarding income sources. Their responses indicate that income sources in Karamoja are fairly consistent across districts and are rather meager. There is a dearth of possible livelihoods, so individuals find income from the few sources they have available to them. Across the region, respondents identified six primary sources of income: making charcoal, gathering firewood, producing local brew, engaging in small-scale agricultural production (both the sale of crops and animal rearing), working as hired labor in private gardens, and “casual labor.” Most of this work, as reported by potential beneficiaries, is undertaken inconsistently, on an as-needed basis. That is, when individuals are unable to produce sufficient crops and animals for consumption or have an upcoming or outstanding expense, they seek other types of work. As one respondent from Napak described,

Normally I depend on agricultural products. I had harvested in plenty in the previous year. But, if not, in most cases I also rely on selling firewood, laboring for others. Later we are paid at the end, and that money is being used for buying home needs.

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Primarily women gather firewood. Men are more likely to work in other individuals' gardens or to seek other casual labor, and the income gained from these sources typically goes to health care or education costs or to purchase food or home essentials (such as soap). Therefore, although the roles of men and women may differ, both can contribute to the household income. Respondents indicated that the primary breadwinners are the parents (both male and female), but when children grow old enough, they can contribute to the family income as well.

It is common in some villages for a man to take several wives. Families receive income when young women marry, as the groom's family pays a "bride price" to the bride's family. In some cases, the bride's family continues to visit the groom's family for additional resources. In situations where second or third marriages occur, a bride price does not accompany a subsequent bride. For some women, when their husband or husband's family pays a bride price, she becomes obligated to perform particular household duties such as cooking and cleaning.

The head of the household, usually a man, controls the income. This arrangement is evident in the following exchange with a woman about her savings:

**Moderator:** Do you have any savings?

**Respondent:** I don't have, but my husband has.

**Moderator:** Where does he get the money for saving?

**Respondent:** I get it through local brewing and give to my husband to save.

**Moderator:** Who has the decision over the savings?

**Respondent:** My husband has the authority over that money.

This exchange demonstrates the dichotomy in Karamoja: women in Karamoja often play an important role in maintaining the household and bringing in income. In cases where men are not present, or where women are the heads of household, women are both the generators and controllers of the household income. However, while many respondents indicated that women are gaining rights, a similar number of women reported that men, when present, make the final decisions regarding expenses in the household.

### C.2 Income Sufficiency and Savings

Potential beneficiaries stated that they have enough to "survive."<sup>51</sup> However, in discussing income sufficiency and savings with key informants, and in examining the data, it is apparent that the Karamojong define "survival" on the most basic level. It was not uncommon for respondents to report going to sleep hungry or using local brew to fill the void in their stomachs. At times, children are unable to attend school because the family can't afford the supplies needed or the fees associated with attending school. As one female head of household in Abim stated,

In my home I live by digging with my own hand, and that is what we eat, and when I get some money, especially by digging in other people's gardens, that is what I used to buy with what to eat and I prepare it for the children to eat. Sometimes when I work somewhere, and I get the money, I go and buy for them clothes. Sometimes I buy . . . books and I take with them to school; and when they are back from school during holidays they help me work for money, part of which we buy with what to eat. We also dig our gardens and cultivate what to eat. This is how we struggle here.

Additionally, respondents said it is difficult and expensive to access health care. Even when health care is provided at no or little cost, respondents often cannot afford to pay for transportation to the health care facility. Insufficient income prompts individuals to assess immediate needs and determine what can be put off until later. Respondents made it clear that the focus is on "needs" rather than "wants." This focus on basic necessities was frequently described when respondents were asked if there are times when they

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<sup>51</sup> The term "survive" is used colloquially here, as it was used by respondents. When asked if they had sufficient income, they often responded, "We make enough to survive" or "We make enough to get by." However, as survey data indicate, they may be "surviving," but they are not thriving in the sense that they have low levels of dietary diversity and high levels of poverty.



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wish to purchase a food or beverage but are unable to do so. The most frequent response was yes. Respondents forgo many indulgences on a regular basis, including sugar, tea, milk, alcohol, and soda. A respondent in Nakapiripirit said, “There are no other means of getting income but what we get through firewood collection. We also spent on health and other things. So, sometimes you forgo what you want and spend on the other.”

As far as savings, there were two primary response categories. Respondents indicated that they did not earn enough to save, or that they participated in a village savings group (VSG). Although individuals who participate in VSGs are in the minority, participation in these groups gives individuals a bit more economic security than those who do not have access to such groups. For example, a respondent from Abim stated, “I can borrow money from this VSG if I [am] in a fix, when I cannot sell my foodstuff very fast to pay [expenses for] the children at school.” Those individuals who live in villages that have savings groups but do not earn enough to save would participate if they had sufficient income to do so. On a few occasions, when respondents were asked what types of programs or projects they wanted in their community, they mentioned VSGs. A small number of individuals mentioned saving money in an informal way, such as storing it in their homes. Beyond savings groups, key informants indicated a need for better infrastructure, such as roads, wells, reliable water systems, and consistent access to electricity, to help generate income for local community members.

### **C.3 Financial Roles, Responsibility, and Decision Making**

Women contribute financially to households but are not always in charge of making decisions about how money is spent. When a male heads a household, he ultimately decides how to spend money, how much to save, and for what purpose. A key informant confirmed this arrangement and shared the following observation about how the male’s decision-making power influences a household’s uptake of health care:

I think from experience and what I have heard, in most cases the men make the decisions. And most of the decisions are made based on whether the man has the money to take the family to the health center or not, and sometimes the decisions are made late because those are the persons that have money. So sometimes decisions that are not good are made because they feel like they don’t have the money to take the person to the health center. So, those are some of the issues.

While this response indicates that men often decide when to seek health care for household members because they control household money—and that men often make poor decisions with regard to health care because they feel the household lacks adequate resources—some respondents indicated that women weigh in on financial decisions. Several men spoke of discussing financial decisions with their wives or consulting their wives on what crops and animals the household should cultivate to generate income.

### **D. Household Sanitation Practices**

Household sanitation practices were assessed based on three standard FFP indicators: (1) percentage of households using an improved drinking water source, (2) percentage of households using improved sanitation facilities, and (3) percentage of households with a cleansing agent and water available at a hand washing station. Table 4.2d presents the results for these indicators, and Table A10.2 in Annex 10 provides a further breakdown of the components for each indicator. Poor sanitation practices are associated with increased morbidity and mortality, particularly for diarrheal diseases. Worldwide, it is estimated that improved water sources reduce diarrhea morbidity by 21%; improved sanitation reduces diarrhea morbidity by 37.5%; and the simple act of washing hands at critical times can reduce the number of diarrhea cases by as much as 35%.<sup>52</sup> Results for children’s diarrhea indicators in the survey population are provided in Section 4.5B.

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<sup>52</sup> World Health Organization, Facts and Figures: Water, sanitation and hygiene links to health, retrieved from [http://www.who.int/water\\_sanitation\\_health/publications/factsfigures04/en/print.html](http://www.who.int/water_sanitation_health/publications/factsfigures04/en/print.html)

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### D.1 Drinking Water

About 40 percent of the households surveyed use an improved drinking water source. Improved drinking water sources include piped water into the dwelling or yard, public tap water, tube wells or boreholes, protected dug wells or springs, or rainwater collection. The majority of households (85 percent) using an improved drinking water source reported using a tube well or borehole as their primary source. Survey responses indicate that the majority of households (77 percent) do nothing to make water safer to drink, 15 percent let water stand and settle before drinking it, and 7 percent boil drinking water.

	Total	Northern Karamoja	Southern Karamoja
<b>WASH (All Households)</b>			
Percentage using an improved drinking water source	39.4	37.4	41.9
Percentage using improved sanitation facilities <sup>1*</sup>	8.9	12.7	4.0
Percentage with cleansing agent and water available at hand washing station*	8.1	11.0	4.0
Number of responding households	4,766	2,399	2,367

<sup>1</sup> Daytime sanitation facility.  
\* Difference between program areas is statistically significant at  $p < .05$

Most individuals interviewed for the qualitative component of the study indicated that they use water from an improved source: a borehole. However, respondents indicated that pumps break down often and that water sources are far from where people live. In fact, when asked to name one of the village's greatest needs, respondents frequently said "new boreholes" or closer access to water. A potential beneficiary in Nakapiripirit, for example, said this:

Our access roads should be repaired. The boreholes and grinding mills should be brought nearer to the people because the water we take is from the springs and it's not safe. We also need a school; the school our children attend is too far.

When boreholes are inaccessible, broken, or dried out, individuals within a community draw water from other sources, such as natural springs or rivers. In most cases, these sources are farther away than the boreholes. The distance individuals had to travel to reach a water source varied. However, according to the qualitative data, most respondents said it takes one to two hours to fetch the water, including the time it takes to travel to the source, wait, collect the water, and return home. In one community, it takes nearly five hours to collect water. The shortest amount of time reported was 10 minutes.

Not everyone in every village has access to the borehole. In some villages, a cost is associated with borehole use to cover maintenance. If an individual does not pay maintenance dues, that person is not permitted to use the borehole and must seek water from other sources. Respondents named rainwater as an alternative water source. A man in Napak explained:

Borehole water is our main source of drinking water, both in the rainy and dry season. And, in most cases in rainy season we collect rainwater for washing, bathing, and cleaning home utensils. But that work is being done by my wives, not me.

Women, often a daughter, are most commonly responsible for collecting water for all household purposes. Fetching water involves risks such as encounters with snakes or other animals; fights that might break out at the borehole; and violent physical attacks en route, including rape. Violent attacks on women while fetching water were described primarily by respondents in the northern district of Kaabong. While reports have been filed, according to respondents, little has been done to protect women or to respond to

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their reports. One potential beneficiary gave the following response when asked about the risks associated with fetching water:

Hot sun and waiting. Since there are many people, there are occasions when the water runs out. Rape and defilement of young girls and women occurs at the hands of men at the water sources. We have reported to police and LCs [local councils].

Respondents interviewed for the qualitative study indicated that water from boreholes is used for bathing, drinking, and tending to animals. The majority do not sanitize their water. Yet when asked about sanitation, some individuals stated that they do not sanitize their water but boil it, which indicates they might not understand that boiling is a form of sanitation. As in the household survey, some individuals in the qualitative study also stated that once they collect the water in jerry cans, they let it settle before they drink it.

### **D.2 Sanitation Facilities**

The second component of WASH indicators is use of an improved sanitation facility. Although about 28 percent of households reported having access to a sanitation facility of any type, only 9 percent of households reported using an improved sanitation facility during the daytime—either a ventilated pit latrine or a pit latrine with a slab. Use of improved sanitation facilities is higher in the northern Karamoja area (13 percent) than in the southern Karamoja areas (4 percent), and access to a sanitation facility of any type is higher in the northern Karamoja program area (41 percent) than in the southern Karamoja program area (11 percent).

On the other hand, most respondents from the qualitative study stated that they do use latrines. A few indicated that while they personally do not have a latrine, they use a neighbor's or one at a community building. Only a small minority of respondents said they do not use the latrine and go to the bush instead. When asked why they do not use the latrine, the majority stated it is because they do not have one. Others reported not using latrines due to their condition (dirty or unsafe). Another indicated that women avoid using latrines so as not to give birth there:

We have a pit latrine made from grass. Both men and women use it. And it is only when someone is far from home that is when he/she can't use latrine. Young children also don't use the latrine. Nor do pregnant women because they have doubts and believe that she might deliver in the latrine.

The responses of key informants align with the household survey findings but not with responses obtained during qualitative interviews. Key informants indicated a low level of latrine use. One key informant went so far as to say the rate of open defecation is “about 100 percent.”

### **D.3 Hand Washing**

The third component of the WASH indicators is the percentage of households with a cleansing agent observed at the place of hand washing. Interviewers from the household survey observed the presence of water and soap, detergent, or another cleansing agent at the place for hand washing in only 8 percent of households. When asked about the most important times to wash their hands, 70 percent of household survey respondents named three of five critical moments for hand washing, with nearly all (98 percent) correctly reporting “before eating” (98 percent) and 64 percent reporting “before preparing food” and “after defecation.” Only about a fourth of households named critical moments for hand washing related to child care, including “after cleaning a child” (26 percent) and “before feeding a child” (24 percent).

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Table 4.2e Program-specific Indicators, Hand Washing and Sanitation			
Program-specific indicators by program area [Uganda, 2013]			
	Total	Northern Karamoja	Southern Karamoja
<b>Handwashing, Sanitation (Household respondents)</b>			
Percentage who know 3 of 5 critical moments for handwashing <sup>1</sup>	70.2	69.6	71.0
After defecation	63.5	64.4	62.2
After cleaning a child*	26.4	21.7	32.6
Before preparing food	64.2	66.5	61.2
Before feeding a child	24.2	23.7	24.9
Before eating	97.9	97.3	98.6
Percentage with access to a sanitation facility of any type*	27.8	40.5	11.3
Number of responding households	4,766	2,399	2,367

<sup>1</sup> Critical moments for handwashing include (1) after defecation, (2) after cleaning a child, (3) before preparing food, (4) before feeding a child, and (5) before eating.

\* Difference between program areas is statistically significant at  $p < .05$

Qualitative data indicate that the lack of soap might be due to cost and to its being lower on potential beneficiaries' list of priorities. In addition, as described in the previous section of this report, collecting water is burdensome and sometimes dangerous, which may explain why soap and water are not always present.

Key informants and household survey data indicate that most do not wash their hands and bathe infrequently. According to one key informant, the lack of proper hygiene leads to other health problems and is a difficult issue to tackle, requiring behavioral change:

So the health problems are a high level of dietetic diseases. This is caused largely by poor hygiene within the households. There is not widespread use of latrines or other more appropriate, more sanitary methods of defecation, and there are not strong practices of hand washing and, in general, body hygiene. For instance, [the] reasoning for that which is coming up is that people perceive that if you are clean that means you are lazy because you are not working. While this is a perception, it is not necessarily a held belief. But as a perception, it's driving some behavior for people to behave as they do, and of course poor hygiene leads to ready transmission of diarrheal diseases and of course impacts the child's nutrition.

Yet qualitative interview data suggest that people bathe regularly and wash hands during key moments in the day. When asked when they wash their hands, respondents most frequently said after returning from work or the garden, prior to eating, and after using the latrine. When asked what they used, respondents said either water only or water with local plant substances or sand. Few said they had access to soap. A key informant stated, "Resources for a household to buy soap are very limited. It's a luxury, not [a] necessity, and there is a wide range of alternatives to soap for hand washing, such as ashes or other plant substances."

The qualitative team did not visit latrines, nor did the team inspect hand washing or bathing facilities as the household survey team did. Yet qualitative findings illustrate a high level of social desirability to responding positively about latrine use, regular bathing, and hand washing. In one community, an individual was observed walking around wearing a vest that read "Clean Hand Patrol." He was responsible for ensuring that individuals wash their hands. While the percentages are likely lower than what was self-reported, it is an important finding that individuals are aware of favorable hygienic practices (bathing, hand washing, etc.).

### 4.3 Agricultural Indicators

Agriculture and agricultural production are key features of both the household survey and the qualitative component of the baseline study. During qualitative interviews, potential beneficiaries and key informants discussed matters related to agricultural production, including animals/livestock, market access, pest management, farming techniques, income and subsistence farming, and hired labor. As indicated earlier in this report, the traditional Karamojong economy was based on livestock, with opportunistic cultivation of sorghum and other crops. Historically, women's roles and responsibilities revolved around cultivation of food to feed the family, and men's roles revolved around taking care of the animals. According to a key informant, with the decimation of the herds over the past decades, there has been an increasing shift toward cropping as a mainstay. Therefore, men as well as women are increasingly involved in producing crops. Presented below are the results of the agricultural indicators from the household survey and the qualitative data regarding individuals' roles and responsibilities with regard to farming. The final part of this section examines the practices farmers use when producing crops as a source of income.

The agricultural component of the household survey was completed by 5,820 farmers—2,750 in the northern Karamoja program area and 3,070 in the southern Karamoja program area. Of these farmers, 54 percent are female and 46 percent are male. The majority of farmers (91 percent) reported raising crops, and 28 percent reported raising animals. The average number of crops produced per household is 2.6. The most commonly planted crops are red sorghum (65 percent), white sorghum (25 percent) maize (44 percent), and beans (27 percent). The most commonly raised animals are goats (19 percent), cattle (14 percent), and chickens (9 percent).

The household survey data were used to calculate FFP agricultural indicators for financial services, value chain activities, and use of agricultural and storage practices. Table 4.3a provides the results for these agricultural indicators. Tables A10.3 to A10.6 in Annex 10 provide breakdowns of the individual components of the FFP agricultural indicators.

About 30 percent of farmers reported accessing financial services in the past 12 months—savings (13 percent), credit (12 percent), or insurance (18 percent). Agricultural credit included village savings groups, farmers associations, government or private institutions, non-cash loans (i.e., saved seeds), and inputs from buyers.

The value chain activities included as part of the survey were purchase of inputs; tillage of land; sorting produce; grading produce; drying or processing produce; and trading or marketing (wholesale, retail, or export). Overall, 80 percent of farmers reported practicing at least two of these value chain activities. More farmers in the northern Karamoja program area practice at least two of the activities (82 percent) than farmers in the southern Karamoja program area (77 percent). The most common value chain activities practiced are tillage of land (49 percent) and purchase of inputs (46 percent).

Sustainable agricultural practices were categorized as (1) crop practices, (2) livestock practices, or (3) natural resource management (NRM) practices. Overall, 17 percent of farmers reported using at least two sustainable crop practices, and 12 percent reported using at least two sustainable livestock practices (for goats and cattle). Although most farmers still prepare their soil by hand (89 percent), soil preparation with ox plow (23 percent of farmers) and intercropping (20 percent of farmers) are the most commonly reported sustainable practices. About 16 percent of farmers reported using at least one sustainable NRM practice. For NRM, "management of watershed" or "reforestation and agroforestry or cultivation of fruit trees" were the two most frequently reported practices.

About half of farmers who raised livestock reported using animal shelters and vaccinating or deworming their animals; 65 percent reported accessing government or private veterinary care for their livestock, as shown in Table 4.3b.

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Table 4.3a Food for Peace Indicators - Agriculture

FFP agricultural indicators by program area [Uganda, 2013]

	Total	Northern Karamoja	Southern Karamoja
Percentage using financial services (past 12 months) <sup>1</sup>	29.5	31.6	27.1
Male farmers	30.3	33.7	26.3
Female farmers	28.9	29.9	27.7
Percentage practicing at least two value chain activities (past 12 months) <sup>2*</sup>	80.0	82.1	77.4
Male farmers*	81.5	85.9	76.3
Female farmers	78.7	79.0	78.4
Percentage using three sustainable agricultural practices (past 12 months)	17.7	16.7	19.0
Male farmers	21.8	20.8	22.9
Female farmers	14.3	13.3	15.5
Percentage using two sustainable agricultural (crop) practices (past 12 months) <sup>3</sup>	16.5	19.2	13.2
Percentage using two sustainable agricultural (livestock) practices (past 12 months) <sup>4</sup>	12.4	10.5	14.9
Percentage using one sustainable agricultural (NRM) practice (past 12 months) <sup>5</sup>	16.2	16.4	15.9
Percentage using improved storage practices (past 12 months) <sup>6</sup>	50.3	48.7	52.3
Male farmers	53.5	56.3	50.2
Female farmers*	47.6	42.4	54.1
Number of responding farmers	5,834	2,754	3,080
Male farmers	2,674	1,256	1,418
Female farmers	3,160	1,498	1,662

<sup>1</sup> Financial services include savings, credit, and insurance.

<sup>2</sup> Value chain activities include purchase inputs, tillage of land, sorting produce, grading produce, drying or processing produce, trading or marketing (wholesale, retail, or export).

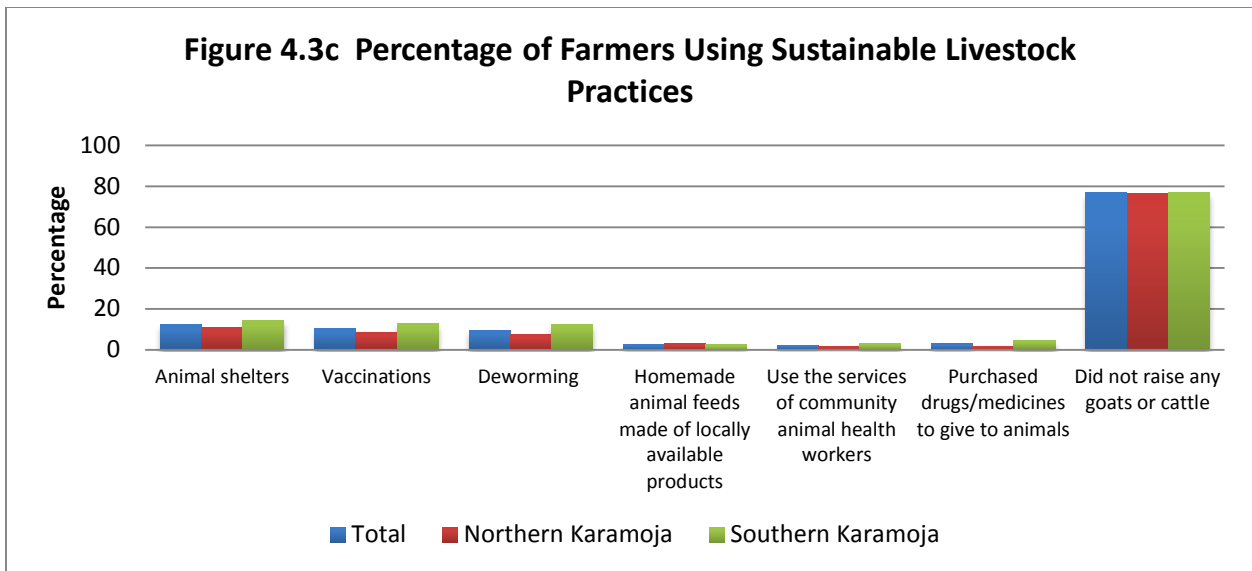
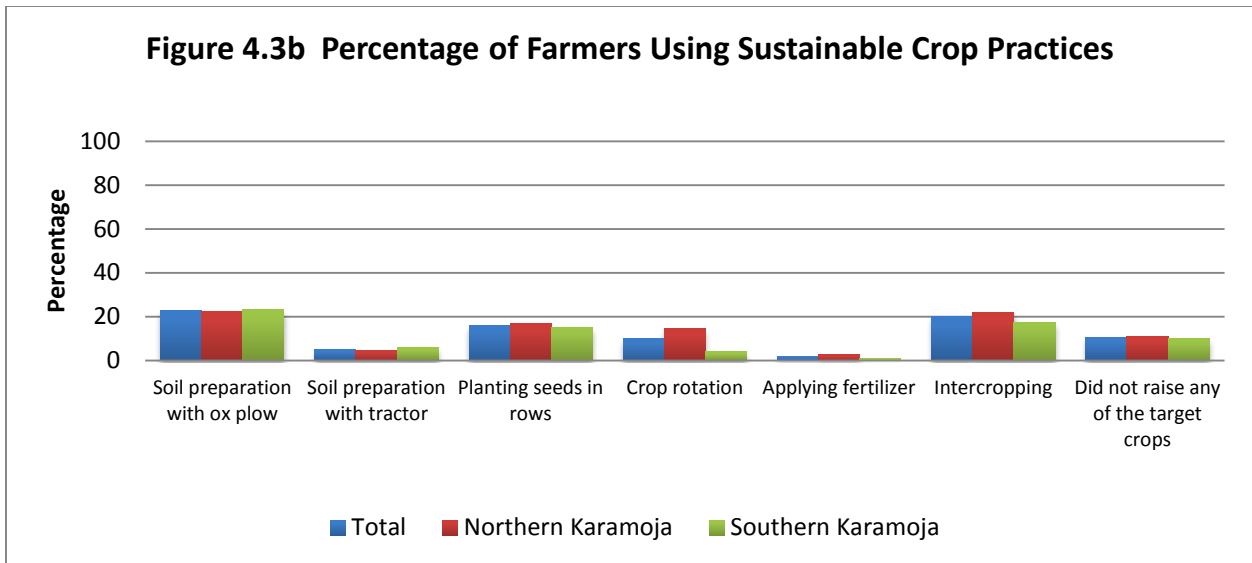
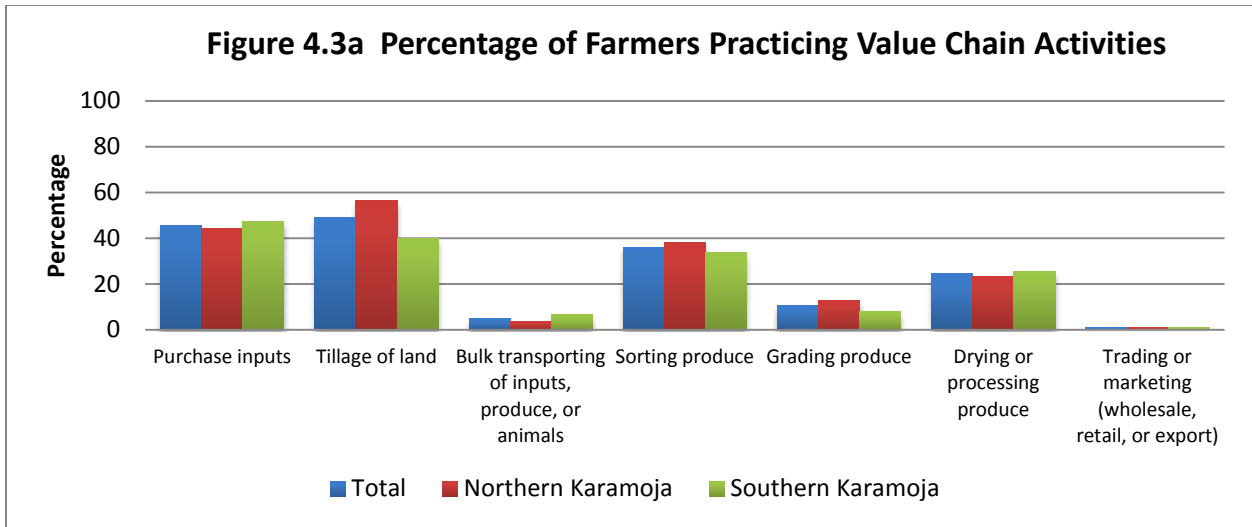
<sup>3</sup> Sustainable agricultural practices for crops include soil preparation by ox plow, planting seeds in rows, crop rotation, use of fertilizer, and intercropping. This subindicator is based on all farmers, not just those that reported raising crops.

<sup>4</sup> Sustainable livestock practices include use of animal shelters, vaccination, deworming, homemade animal feeds made of locally available products, use the services of community animal health workers, and purchased drugs/medicines to give to animals. This subindicator is based on all farmers, not just those that reported raising livestock.

<sup>5</sup> Sustainable NRM practices include agroforestry or cultivation of fruit trees, management of natural regeneration, soil conservation on hillsides, and construction of water catchments.

<sup>6</sup> Improved storage practices include cereal banks, silos, and granaries.

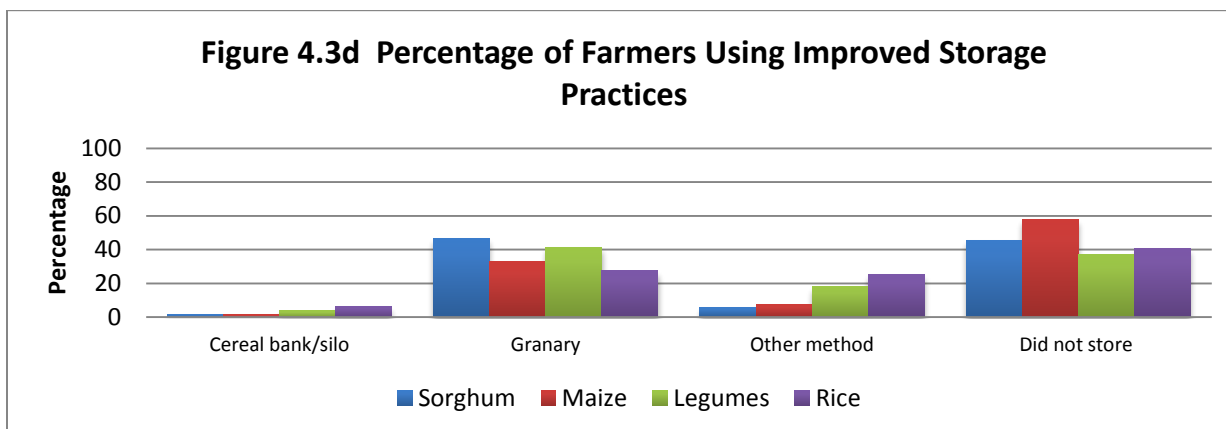
\* Difference between PVO program areas is statistically significant at  $p < .05$



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Table 4.3b Program-specific Indicators - Agricultural Practices and Veterinary Care			
Program-specific indicators by program area [Uganda, 2013]			
	Total	Northern Karamoja	Southern Karamoja
<b>Agricultural Practices (Farmers)</b>			
Average number of crops produced - past 12 months	2.6	2.6	2.5
Percentage adopting farmer managed natural regeneration practices - past 12 months	16.2	16.4	15.9
Number of responding farmers	5,834	2,754	3,080
<b>Veterinary Care (Livestock owners)</b>			
Percentage accessing government or private sector veterinary care - past 12 months	65.6	63.1	69.3
Number of responding livestock owners	1,734	791	943

As shown in Figure 4.3d, half of the interviewed farmers reported using improved storage practices, most using cereal banks/silos or granaries. More farmers who cultivated legumes use improved storage practices (63 percent) than those who cultivated sorghum (55 percent) or maize (42 percent).



Qualitative data indicate that the majority of decisions about agriculture are made either solely by men or jointly by men and women. When women and men make decisions jointly, women’s input tends to focus on the storage of crops for future use, and men tend to decide which crops the household will cultivate. In cases of female-headed households, where males either are not present or are unable to contribute to the household, women are the primary decision makers for all aspects of agriculture.

Although, traditionally, women were primarily responsible for farming, both men and women reported that males are increasingly involved in activities such as digging and weeding. Both men and women reported participating in farming, but the division of labor within households can vary, as illustrated by the following statements:

- Female farmer from Nakapiripirit: “If it is weeding, a man is supposed to do that, but when it comes to digging, we all dig.”
- Female farmer from Napak: “We apportion work in [the] following ways: clearing the land for cultivation before cultivation and weeding, that’s my work and my daughter’s, while my sons do the harvesting.”



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- Male farmer, in a focus group interview in Abim: “The work of the men is to cut trees, burn them; the woman is to clean the small shrubs and when it is done then digging is done together.... Weeding is for women but today, you leave weeding for the women, and then you will not get anything at the end.”
- A male farmer from Napak: “It depends on the existing work, and I portion work according to people’s abilities. When my wife is pregnant she deserves less work and sometimes I employ external labor to do the work. As per now I have a person I trained to work in the fruit garden.”

In some cases, respondents hire individuals to help with the duties, yet in cases where animals are used to tend crops, the primary responsibilities are still in the hands of the men.

### A. Agriculture as a Livelihood

The shift to agriculture as a primary form of livelihood is a recent trend in Karamojong. According to one key informant, because of limited indigenous knowledge on cropping, fundamental errors are made that result in significant or catastrophic losses. Further, the reliance on crop production also increases vulnerability, particularly in the event of extended dry periods or droughts. The decimation of the herds has also affected potential agricultural outputs. The household survey data identified soil preparation through handheld tools as the most common practice (89 percent of farmers); only 23 percent of farmers reported using an ox plow. As one female farmer from Nakapiripirit stated,

I practice farming, but I do not have oxen because that time when raids were persistent, all the animals I had were raided. So in the case of livestock, I do not have any animal kept at home, but before I did.

Limited access to land and small plot sizes is a factor in utilizing agriculture as a form of livelihood. Respondents stated that land is something they either inherit from their grandparents or borrow. As one key informant describes it,

Generally, land is communally owned.... The elders just allocate land. Therefore, accessing it for cultivation is not a problem, but if you wanted to own that land, then I think that is a problem .... The limitation normally [is in] not having enough of an area to plow and get enough food to feed them for beyond the three to four months. Because they just have about two to three acres.

Although most respondents stated that they are able to access land, they usually mentioned having to travel long distances or migrate in order to access the land.

All three categories of respondents to the qualitative study (i.e., heads of household, farmers, and caregivers) reported participation in subsistence farming. Yet the extent to which respondents rely on farming as a primary form of subsistence varies; the majority said they find it necessary to supplement through food purchases or food assistance programs.

Discussion with the groups of farmers and heads of household showed patterns similar to those found in the household survey. In addition to planting crops, some of these respondents mentioned rearing animals; those most commonly mentioned were goats, sheep, cattle, and chickens, with one respondent mentioning pigs and another mentioning turkeys. Even when they cited farming as the primary form of income, respondents indicated that fluctuating crop yields result in reliance on additional sources of income to meet household needs. The following exchange with a female farmer from Napak exemplifies this trend:

**Respondent:** Farming is the primary source of income in my household, and besides that, there are also sources which include casual labor and animal rearing. It is the father and the mother who are the ones who are responsible for bringing in this source of income.

**Interviewer:** Is the income you, or in combination with others in the household, bring in sufficient in sustaining the basic needs of the family?

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**Respondent:** It does only if harvesting period has been done because part of that food is being sold and even sometimes I brew alcohol hence raising some income which can help to sustain the family.

Individuals who participate in farming as their primary form of income generation tend to diversify their crop selection, although the majority does not distinguish between what is cultivated for consumption and what they sell. Even respondents who self-identified as farmers said the primary objective is subsistence, with sales occurring in the event of excess yields. As a female farmer from Abim stated,

We grow crops for consumption and sale together. When the yield is good, we do sell some, but if the yield is poor, we eat everything because it would not be enough for the family.... When a good yield has been realized we divide some and sell.

A male farmer from Kaabong gave a similar account:

We do subsistence farming and rear animals like goats, sheep, and cattle. We both consume and sell foods like maize, sorghum, millet, and bulrush. We just sell a little percentage of the produce and keep the rest for our own consumption. Yes, it varies; when we harvest a lot, we sell a lot, but when it's little we hardly sell anything. We also use our produce for other purposes; for example, sorghum is used for making local brew.

As reflected in the household survey, sorghum is the most common crop raised by farmers. However, respondents mentioned the importance of diversifying crops to generate more income. A female head of household from Abim stated,

You see, you don't need to grow for consumption; only when you cultivate you need to get something that can bring for you some little money—for example, millet, simsim (sesame), cassava, and even maize. These are what I see that can generate some income because if I grow only sorghum its market may not be there.

Although respondents mentioned farming as a form of income, the amount of income generated varies greatly and is largely dependent on excess yield. Farmers who do well tend to have formal or semiformal training in farming techniques. They also use the methods discussed in Section 4.3, such as distinguishing which crops are for sale versus which are to be consumed, diversifying crop type, storing food for consumption separate from goods for sale, and putting money into a VSG. For example, one male farmer from Napak stated,

I deal in fruit growing and as per now I have 400 trees of oranges. I also grow other fruits like bananas, mangoes, and recently I acquired some seedlings of apples and they are also doing well. Not only that, I also do some subsistence farming for home consumption where I grow crops like maize, sorghum, beans, sunflower. Lastly, I rear some animals like sheep, goats, and a few cows.

The Napak farmer, however, seems to represent a minority. With limited farming techniques, unstable climate conditions, limited numbers of animals or mechanized plowing techniques, and small plot sizes, the majority of respondents are unable to produce enough through agriculture to comfortably meet all household needs.

### **4.4 Women's Health and Nutrition Indicators**

#### **A. General Health Issues in the Community**

Before examining women's health in particular, it is important to examine some of the qualitative findings about the types of illnesses encountered within the villages, the types of health care services utilized, access to health care, and perceptions about it. The majority of respondents to the qualitative survey acknowledged an improvement in the general health of the community over the past few years. Overall, potential beneficiaries reported trust in all health service providers and mentioned an improvement in health care services. Still, discussions about community needs frequently included health facilities, medication, and illness prevention measures. Respondents and key informants alike identified health care as a primary concern for the residents of Karamoja.

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Across all regions, the most commonly mentioned illnesses were malaria, diarrhea, and cough/cold. Also mentioned were chest pain, cholera, headaches, human immunodeficiency virus (HIV), injuries (i.e., snake bites and falls), jiggers, measles, pneumonia, trachoma, typhoid, and yellow fever.

When discussing causes of disease, respondents stated limited or difficult access to health care facilities; lack of proper hygiene practices; and specifically, with regard to malaria, the rainy season/stagnant waters and limited use of prevention mechanisms such as mosquito nets.

Malaria was a topic of concern for many respondents. Although a male farmer from Abim mentioned a decrease in malaria due to the widespread distribution of mosquito nets, the only other respondent who mentioned receiving a mosquito net resided in Kaabong and received the net from the hospital when his child was admitted for malaria. Respondents who mentioned the need for mosquito nets reside in Nakapiripirit, Napak, and Kaabong.

### **B. Access and Use of Health Care Services**

During the qualitative interviews, respondents mentioned several sources of health care services, including health centers, private clinics, the village health team/village health trainees (VHTs), traditional birth attendants, midwives, and traditional healers and herbalists. Of these sources of care, VHTs were said to be the most accessible. VHTs are community volunteers trained by the Ministry of Health to extend the health center's reach for preventative and basic curative services to the community levels. According to one key informant, because VHTs are located within the *manyattas*, they are able to help identify community-level health needs and administer medication for some of the common illnesses. VHTs serve as a bridge between individuals needing health care and the health centers. Respondents described VHTs as the individuals they go to before seeking other forms of care. VHTs then provide the needed treatment or refer the individual to the health center. Respondents described VHTs' services as effective, mainly with regard to children's health and the treatment of common diseases through the distribution of medication. A female farmer from Nakapiripirit stated, "These village health providers are reliable and I trust them and also appreciate them for their efforts when they provide health services."

However, respondents from Nakapiripirit and Kaabong stated that VHTs are either no longer available or do not have an adequate supply of medication. For example, one male caregiver said, "Drugs were distributed to village health teams [VHTs], but since this program stopped, diseases are now common and we are to go to hospital, which is far." The respondent said his only option for care was a hospital located far from his residence.

The majority said the greatest hindrance to receiving care is the distance to the health centers. Cost was also cited as a barrier. A female farmer from Nakapiripirit stated,

We get health services mainly from the health centers but in some cases we are referred to clinics to buy if you have money, and we also get some service from the traditional healers but they demand some money or sorghum for payment.

Access to traditional healers seems to vary. Some respondents described them as being very accessible or more accessible than health care facilities; while others said no traditional healer was located in their village. A few respondents reported that negative experiences at health facilities caused individuals to seek care from other sources such as traditional healers or herbalists. For example, a male caregiver from Kaabong stated,

One day, my child fell sick. My wife reported the issue to me, and I had to respond positively. We went together up to the Kocolo Health Centre II. We waited for the health worker for more than eight hours. I made up my mind and went to the traditional herbalist, the child became okay, and from there and then I started trusting [the] traditional herbalist. I believe health workers are just working for money but not for people.

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**C. Women’s Health and Nutrition**

The household survey focused on health and nutrition indicators in two populations: women and children. The women’s module of the household survey was administered to one woman between the ages of 15 and 49 in each household. A total of 4,452 women were interviewed; 2,246 in the northern Karamoja program area and 2,206 in the southern Karamoja program area. Anthropometry measurements were taken for all women except those who were pregnant or postpartum. The average age of all women ages 15-49 was 29.1 years, and the average age of pregnant or postpartum women was 28.8 years. Valid anthropometry measurements were taken for 3,554 women. The results for the two FFP indicators, prevalence of underweight women and women’s dietary diversity, are presented in Table 4.4a.

	Total	Northern Karamoja	Southern Karamoja
Prevalence of underweight women <sup>1</sup>	23.4	20.9	26.8
Number of eligible women (15-49 years) with valid measurements	3,554	1,776	1,778
Women's Dietary Diversity Score*	2.3	2.1	2.6
Number of responding women (15-49 years)	4,452	2,246	2,206

<sup>1</sup> Excludes pregnant and postpartum (birth in the preceding 2 months) women.  
\* Difference between PVO program areas is statistically significant at  $p < .05$

The Women’s Dietary Diversity Score is computed based on nine critical food groups. This validated indicator aims to measure the micronutrient adequacy of the diet and reports the mean number of food groups consumed in the previous day by women of reproductive age (15-49 years). The indicator is tabulated by averaging the number of food groups consumed (of the nine food groups) across all women. The survey results indicate that women consume, on average, 2.3 of the nine basic food groups. Grains, roots, and tubers (90 percent) and green leafy vitamin A-rich vegetables (52 percent) are the most frequently consumed food groups, while organ meat (5 percent) and eggs (3 percent) are the basic food groups that women consume least often.

The nutritional status of women was further assessed with two anthropometric indicators: BMI and height. These indices were derived from the height and weight measurements of women ages 15-49 who were not pregnant. Short stature reflects poor socioeconomic conditions and inadequate nutrition during childhood and adolescence. A woman is considered to be at risk if her height is below 145 cm. Only 1.7 percent of the women in the survey population are less than 145 cm tall.

BMI, expressed as the ratio of weight in kilograms to the square of height in meters ( $\text{kg}/\text{m}^2$ ), was used to measure the prevalence of underweight women. A BMI below 18.5 indicates underweight or acute malnutrition, and a BMI of 25.0 or above indicates overweight or obesity. A BMI below 17 indicates moderate and severe malnutrition and is associated with increased mortality. The majority (72 percent) of women in the survey population have a BMI within the normal range (18.5-24.9); 23 percent can be considered underweight ( $\text{BMI} < 18.5$ ), and 7 percent are in the moderately to severely underweight range ( $\text{BMI} < 17.0$ ). Table 10.8 in Annex 10 provides results for height and BMI measurements.

Additional data were collected during the household survey to explore decision-making practices by women with regard to health care, family planning, antenatal care, infant and young feeding practices, and maternal child care (MCC) practices. Table 4.4b provides the results for these indicators.

Female caregivers of children under five years of age who are married or in a union were asked about decision making for their own health care and for that of their children under five years of age. Overall,

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77 percent of these women reported that they make decisions about health care for themselves and for their children either alone or jointly with their partner.

Female caregivers of children under five years of age were asked to give as many examples as they could of important infant and young child feeding (IYCF) and MCC practices. A total of 23 percent were able to identify at least seven of 15 important IYCF and MCC practices.

When asked about family planning, responses from 43 percent of women ages 15-49 indicated an awareness of where to get family planning services.

Of the 1,805 mothers of children 0-23 months asked about antenatal care during their last pregnancy, 60 percent reported attending four or more antenatal visits. More women in the southern Karamoja program area (75 percent) reported attending four or more antenatal visits than women in the northern Karamoja program area (49 percent).

<b>Table 4.4b Program-specific Indicators - Women's Health Care Decision Making and Practices</b>			
Program-specific indicators by program area [Uganda, 2013]			
	Total	Northern Karamoja	Southern Karamoja
<b>Health Care Seeking Decision Making (Female caregivers of children 0-59 months - married or in a union)</b>			
Percentage making decisions about health care for themselves <sup>1*</sup>	77.2	79.6	74.1
Percentage making decisions about health care for children 0-59 months <sup>1*</sup>	77.4	79.9	74.1
Number of responding female caregivers of children 0-59 months that are married or in a union	3,234	1,653	1,581
<b>IYCF and MCC Practices Awareness (Female caregivers of children 0-59 months)</b>			
Percentage of caregivers who know at least 7 of 14 IYCF and MCC practices*	22.8	13.6	35.5
Number of responding female caregivers of children 0-59 months	3,545	1,825	1,720
<b>Family Planning Awareness (Women 15-49)</b>			
Percentage who are aware of where to go for family planning services*	43.1	48.5	35.5
Number of responding women (15-49 years)	4,531	2,320	2,211
<b>Antenatal Care (Mothers of children 0-23 months)</b>			
Percentage attending 4 or more antenatal care visits with youngest child*	60.0	49.2	75.2
Number of responding mothers of children 0-23 months	1,806	944	862
<sup>1</sup> Includes joint decision making.			
* Difference between PVO program areas is statistically significant at $p < .05$			

#### D. Antenatal Care and Delivery

Both the household survey and qualitative findings indicate that women make decisions about their own antenatal care and delivery. Respondents described an increasing number of women going to health centers for delivery. Health centers and antenatal clinics were described not only as facilities where women give birth, but also as places where women receive supplemental food; postpartum care; and information about breastfeeding, children's nutrition, and immunizations. Some women stated that although they used to give birth at home, due to the increased availability and reliability of the hospitals,

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they now deliver at health centers. The following exchange with a female caregiver in Nakapiripirit illustrates this trend:

**Moderator:** Where do you give birth from?

**Respondent:** We give birth in the Nakapiripirit Health Center and [for] one of my children I gave birth in Lolachat Health Center.

**Moderator:** Who advised you to go and give birth at the health facility?

**Respondent:** When we go for antenatal care, the health workers advise us to always be giving birth at the health facility, and they even inform us to be coming to the health facility 3 days before the day of giving birth.

When women are unable to deliver at the health center, usually because of distance, respondents mentioned the availability of traditional birth attendants, midwives, or VHTs to aid in the delivery process. Even when deliveries take place at home, the majority of respondents still go to health centers for postpartum care and for their child's immunizations. The next section of this report discusses children's health and nutrition indicators.

### 4.5 Children's Health and Nutrition Indicators

#### A. Stunting and Underweight

Anthropometric indicators for children under five years of age provide outcome measures of nutritional status. Height (length) and weight measurements are taken using standardized procedures and compared with the 2006 WHO Child Growth Standards, which are based on an international sample of ethnically, culturally, and genetically diverse healthy children living under optimum conditions conducive to achieving a child's full genetic growth potential. Use of the 2006 WHO Child Growth Standards is based on the finding that well-nourished children of all population groups for which data exist follow similar growth patterns before puberty.

Weight-for-age takes into account both chronic and acute malnutrition and is often used to monitor nutritional status on a longitudinal basis. Children who are less than two standard deviations (SDs) below the median of the WHO Standards population in terms of weight-for-age may be considered underweight.

The height-for-age index provides an indicator of linear growth retardation (stunting) among children. Children who are less than two SDs below the median of the WHO Standards population in terms of height-for-age may be considered short for their age ("stunted") or chronically malnourished. Severe linear growth retardation ("stunting") reflects the outcome of a failure to receive adequate nutrition over a number of years and is also affected by recurrent and chronic illness. Height-for-age, therefore, represents a measure of the long-term effects of malnutrition in a population and does not vary appreciably according to the season of data collection.

Age, height, and weight measurements were obtained for a total of 5,335 children ages 0-59 months—2,747 in the northern Karamoja program area and 2,588 in the southern Karamoja program area. These measurements were used to calculate two indicators:

- Prevalence of underweight children 0-59 months (weight-for-age)
- Prevalence of stunted children 0-59 months (height-for-age)

Table 4.5a provides the results for the anthropometric indicators.

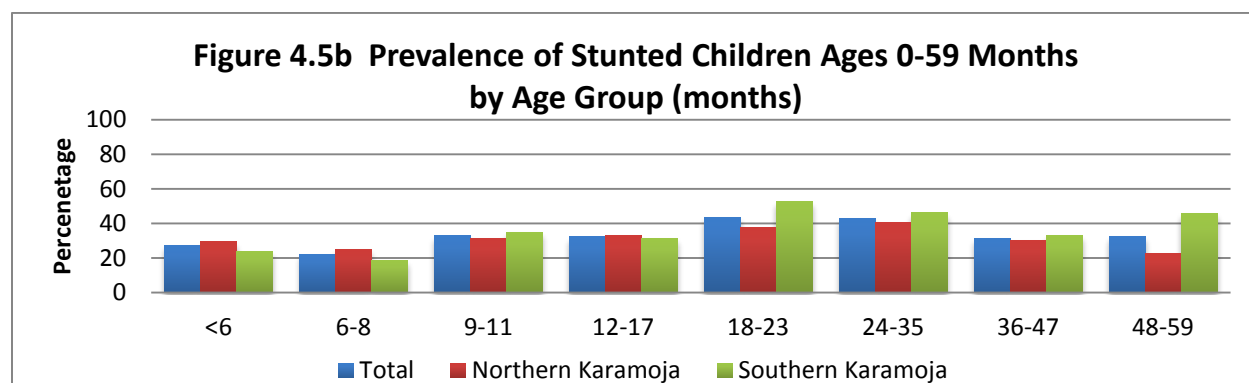
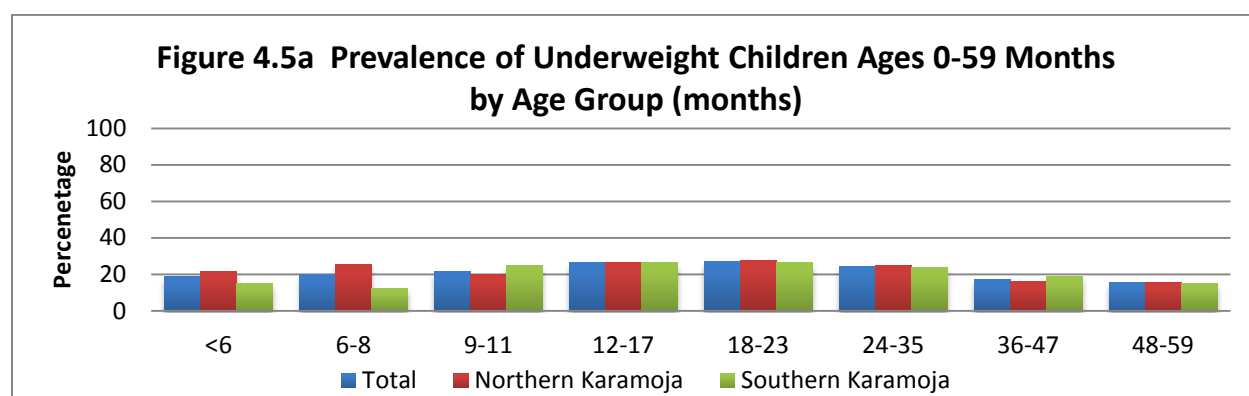
A total of 21 percent of children under five years of age in the survey population show signs of being moderately or severely underweight (less than two SDs below the median). As shown in Figure 4.5a, the proportion of underweight children is lowest among children 48-59 months old (17 percent) and highest among those 18-23 months old (27 percent). Male children are slightly more likely to be underweight than female children (24 percent versus 19 percent).

A total of 35 percent of children under five years of age in the survey population show signs of being moderately or severely stunted (less than two SDs below the median). The prevalence of stunting is

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higher in male children (37 percent) than in female children (32 percent). As shown in Figure 4.5b, the prevalence of stunting increases as the age of the child increases, with the highest prevalence of chronic malnutrition found in children ages 18-35 months (43 percent) and the lowest in children 6-8 months (22 percent).

Table 4.5a Food for Peace Indicators - Children's Nutritional Status			
Child-level FFP indicators by program area and sex [Uganda, 2013]			
	Total	Northern Karamoja	Southern Karamoja
<b>Children's Nutritional Status (Children 0-59 months)</b>			
Prevalence of underweight children			
Male	23.5	23.8	23.1
Female	18.7	19.2	17.9
Total	21.0	21.5	20.4
Number of children (0-59 months)	5,335	2,747	2,588
Prevalence of stunted children			
Male	37.3	33.7	42.6
Female	31.7	30.4	33.6
Total	34.5	32.0	38.0
Number of children (0-59 months)	5,335	2,747	2,588



### A.1 Predictors of Stunting

To understand factors that might influence stunting, OLS regression models were run for HAZ scores of children under five years of age for the overall Karamoja region and separately for each program area. Table A9.2 in Annex 9 shows statistical results for these models. Table A9.2 also shows the  $\beta$  coefficients

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for each individual predictor. In a multiple OLS regression model, the  $\beta$  coefficient indicates the change in the outcome for a unit increase in the predictor, with all other predictors in the model held constant.

HAZ is a continuous variable that indicates the difference, in SDs, between the child's height and the median height for children of the same sex and age in the reference population used for the WHO anthropometry standards. Children are considered "moderately and severely stunted" when they are two SDs below the WHO standard height for their age. Thus, even though "stunting" is a categorical variable and HAZ is a continuous variable, the two are related so that when HAZ scores increase, stunting rates decrease. Independent variables in the model include the following:

- Demographic characteristics of the child: Sex, age, age squared, a sex-by-age interaction term, and diarrhea status in the last two weeks
- Household composition: Number of prime-aged adults (15-49 years old), number of elder dependents (50 or older), number of young dependents (5-14 years), number of children (0-4 years)
- Demographic characteristics of the head of household: Sex, age
- Education level of primary caregiver
- Socioeconomic status: Household hunger, household poverty, and food consumption
- Household water and sanitation: Improved source of drinking water, water treatment prior to drinking, improved, not shared sanitation facility, cleansing agent and water available at hand washing station
- Household agricultural status: Raised crops in the last 12 months, number of farmers in the household, used at least two sustainable livestock practices, used at least two sustainable crop practices, used at least one sustainable NRM practice, practiced value chain activities, used improved storage practices
- District

The overall model showed that the models were significantly different between program areas; therefore predictors are presented separately for each program. Both the northern Karamoja and southern Karamoja models show a low explanatory power, with  $R^2 = .06$  (Mercy Corps) and  $R^2 = .05$  (ACDI/VOCA), indicating that the independent variables in the models explain 5 to 6 percent of the variance in HAZ.

Significant predictors for the northern Karamoja HAZ model include the following:

- Number of young dependents (5- to 14-year-olds): Each additional young dependent living in the household is associated with an increase in HAZ of 0.10.
- Education level of primary caregiver: Having a primary caregiver with a postsecondary education level increases HAZ by 0.56, relative to the remaining groups.
- Natural resource management: Practicing at least one sustainable NRM practice in the past 12 months is associated with an increase in HAZ of 0.57. Post hoc analyses indicate that the only NRM practice associated with higher HAZ scores is agroforestry ( $\beta = -.42$ ,  $p = .01$ ).
- District: Living in Abim is associated with a 0.42 increase in HAZ, relative to children in the Kotido and Kaabong program areas.

For the southern Karamoja program areas, significant predictors include the following:

- Sex of child: Being female increases HAZ by 0.38.
- Child diarrhea: Child diarrhea in the last two weeks is associated with a decrease in HAZ of 0.31.
- Daily per capita food consumption (log): Each additional log of UGX spent on food is associated with a decrease of 0.20 in HAZ. Using untransformed food consumption, the decrease in HAZ is 0.01 for every additional 1,000 UGX daily per capita, or 0.02 for every additional USD in constant 2010 prices, a fairly modest effect, considering that average daily per capita expenditures in the southern Karamoja areas are \$0.52 USD in constant 2010 prices.



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- Number of prime-aged adults (15-49): Each additional prime-aged adult living in the household is associated with an increase in HAZ of 0.09.
- Raised crops in the last 12 months: Holding other factors in the model constant, average HAZ is 0.27 lower for children living in households that raise crops.
- District: Other factors in the model held constant, children in Nakapiripirit have higher HAZ than those in other districts.

**B. Diarrhea and ORT**

Dehydration caused by severe diarrhea is a major cause of morbidity and mortality among young children, although the condition can be easily treated with oral rehydration therapy (ORT). Exposure to diarrhea-causing agents is frequently related to the use of contaminated water and to unhygienic practices in food preparation and disposal of excreta. Caregivers were asked whether any children under five years of age had diarrhea at any time during the two-week period preceding the survey. If the child had diarrhea, the caregiver was asked about feeding practices during the diarrheal episode, whether they sought advice or treatment, and whether ORT was given to the child. Types of ORT type included fluids made from a special packet (Zinkid or RESTORE), reconstituted ORT liquid provided through government health facilities, and a government-recommended homemade fluid. Caregivers were also asked whether there was blood in the child's stools. Diarrhea with blood in the stools is a more urgent condition that should be treated differently from diarrhea that is not accompanied by blood in the stools.

Table 4.5b shows the results for the two FFP indicators—the percentage of children with diarrhea in the past two weeks and the percentage of children with diarrhea treated with ORT. Overall, 22 percent of all children under five years of age had diarrhea in the two weeks preceding the survey. Of the children with diarrhea, caregivers reported that 31 percent had blood in their stools. No differences were found in the prevalence of diarrhea between the two program areas.

Caregivers reported seeking advice or treatment for 85 percent of the children with diarrhea, and 88 percent of those children were treated with ORT. More children in the northern Karamoja program area were treated with ORT (93 percent) than children in the southern Karamoja program area (83 percent). ORT treatment of Zinkid or RESTORE was used for 73 percent of children, reconstituted ORT fluids were used for 40 percent of children, and government-recommended homemade fluids were used for 17 percent of children.

**Table 4.5b Food for Peace Indicators - Children's Diarrhea and ORT**

Child-level FFP indicators by program area and sex [Uganda, 2013]

	Total	Northern Karamoja	Southern Karamoja
<b>Children's Diarrhea and ORT (Children 0-59 months)</b>			
Percentage of children who had diarrhea in the last two weeks			
Male	22.7	22.6	22.9
Female	21.3	20.1	22.9
Total	22.0	21.3	22.9
Number of children (0-59 months)	5,662	2,903	2,759
Percentage of children with diarrhea treated with ORT <sup>1</sup>			
Male	89.3	92.9	84.0
Female	87.5	92.4	81.7
Total	88.4	92.7	82.8
Number of children (0-59 months) with diarrhea	1,166	581	585

<sup>1</sup> Includes oral rehydration salts (ORS) (e.g., Zinkin or RESTORE); ORS liquid provided through government health facilities, government-recommended home fluids (RHF) or increased fluids.

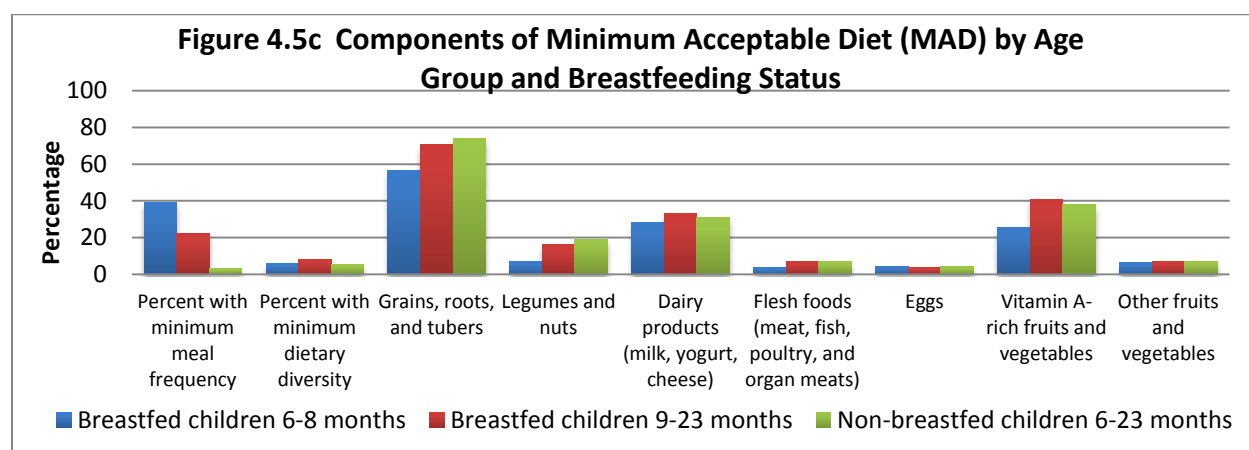
### C. Minimum Acceptable Diet (MAD)

Adequate nutrition during the period from birth to two years of age is critical for a child’s optimal growth, health, and development. This period is one marked for growth faltering, micronutrient deficiencies, and common childhood illnesses such as diarrhea and acute respiratory infection (ARI). Adequate nutrition requires a minimum dietary diversity, which is measured in terms of seven key food groups. In addition to dietary diversity, feeding frequency (i.e., the number of times the child is fed) and consumption of breast milk (or other types of milk or milk products) needs to be considered. All three dimensions are aggregated in the MAD indicator. This indicator measures the percentage of children 6-23 months of age who receive a MAD, apart from breast milk. The MAD indicator measures both the minimum feeding frequency and minimum dietary diversity, as appropriate for various age groups. If a child meets the minimum feeding frequency and minimum dietary diversity for his or her age group and breastfeeding status, the child is considered to be receiving a MAD.

Table 4.5c shows the results for the MAD indicator. A total of 1,725 children ages 6-23 months were included in the survey—859 in the northern Karamoja program area and 866 in the southern Karamoja program area. Overall, only 4 percent of these children are receiving a MAD. More children in the southern Karamoja program area (7 percent) are receiving a MAD than in the northern Karamoja program area (2 percent).

As Figure 4.5c shows, the percentage of breastfed children 6-8 months of age with a minimum meal frequency of two or more meals is higher (39 percent) than the percentage of breastfed children 8-23 months of age with a minimum meal frequency of three meals (22 percent) and the percentage of nonbreastfed children 6-23 months of age with a minimum meal frequency of four meals plus two servings of milk (3 percent). The proportion of children 6-23 months of age with a minimum dietary diversity of four or more food groups is low: 6 percent for breastfed children 6-8 months, 8 percent for breastfed children 8-23 months, and 6 percent for nonbreastfed children 6-23 months of age.

	Total	Northern Karamoja	Southern Karamoja
<b>Minimum Acceptable Diet (Children 6-23 months)</b>			
Prevalence receiving a minimum acceptable diet			
Male	4.2	2.3	6.9
Female	4.2	1.9	7.1
Total	4.2	2.1	7.0
Number of children (6-23 months)	1,725	859	866

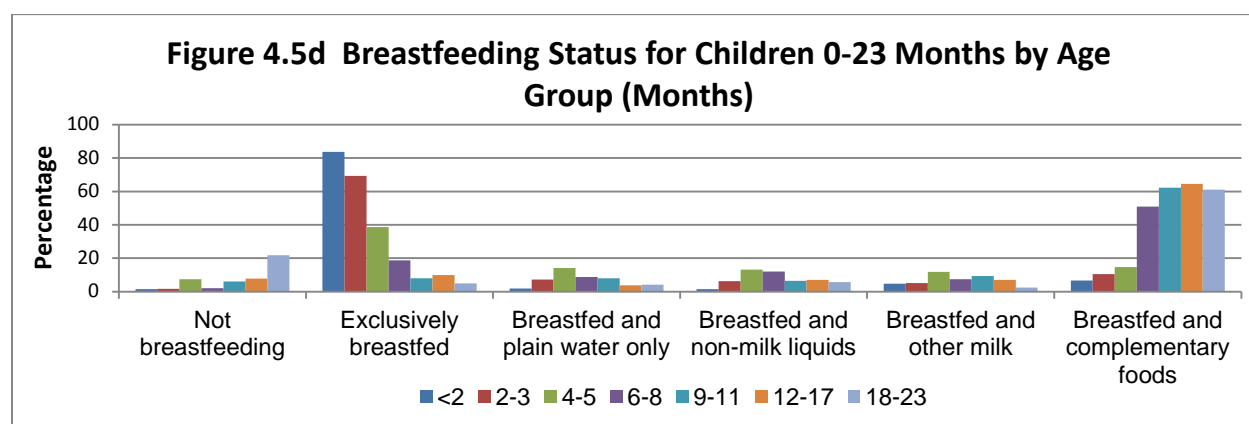


### D. Breastfeeding

Breastfeeding is an important factor in predicting the future health of children. Research indicates a strong link between breastfeeding and the development of a child's immune system.<sup>53</sup> UNICEF and WHO recommend that children be exclusively breastfed (no other liquid or solid food or plain water) during the first six months of life and that children be given solid/semisolid complementary food in addition to continued breastfeeding beginning when the child is six months old and continuing to two years and beyond. Introducing breast milk substitutes to infants before six months of age can contribute to limiting breastfeeding, which has negative implications for a child's health and development. Substitutes such as formula, other kinds of milk, and porridge are often watered down and provide too few calories. The lack of appropriate complementary feeding may lead to malnutrition, frequent illnesses, and possibly death.

Table 4.5d shows the results of the household survey for the prevalence of exclusive breastfeeding. Of the 602 children 0-6 months in the survey households, 60 percent are exclusively breastfed. No differences were noted between program areas or between male and female children. As Figure 4.5d shows, the prevalence of exclusive breastfeeding is highest in the 0- to 2-month range (82 percent) and gradually decreases with each age group thereafter. About 20 percent of children 18-23 months of age are not breastfed. At six months and older, 50 to 60 percent of children are breastfed with the addition of complementary foods.

	Total	Northern Karamoja	Southern Karamoja
<b>Exclusive Breastfeeding (Children 0-5 months)</b>			
Prevalence of exclusive breastfeeding			
Male	59.2	61.4	56.0
Female	60.7	60.1	61.4
Total	59.9	60.8	58.5
Number of children (0-5 months)	602	320	282



<sup>53</sup> See the following for more information on breast milk and the immune system: Slade, H. B., & Schwartz, S. A., Mucosal immunity: The immunology of breast milk, *J Allergy Clin Immunol* 1987 Sep;80(3 Pt 1):348-58; Cunningham, A. S., Jelliffe, D. B., & Jelliffe, E. F. Breast-feeding and health in the 1980s: A global epidemiologic review, *J Pediatr* 1991 May;118(5):659-66; and Goldman, A. S., The immune system of human milk: Antimicrobial, anti-inflammatory and immunomodulating properties. *Pediatr Infect Dis J* 1993 Aug;12(8):664-71.

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During the qualitative interviews, an overwhelming majority of respondents indicated that they breastfeed their children, and those who did not reported being physically unable to do so. It is unclear what physical conditions prevent them from breastfeeding or what factors lead them to use other methods to feed infants. Many respondents indicated breastfeeding is a strong cultural tradition within their community: “Right from our tradition, when a child is born, there is no other food given to an infant born except breast milk because a child can’t eat the food that adults eat.” Men and women alike reported that as soon as the mother gives birth, or shortly thereafter (within the hour), the infant starts to breastfeed. Respondents shared that when there is a delay of an hour or two between the time the woman gives birth and the time she starts breastfeeding, it is either due to the fact that the milk has not yet come in or to time needed to “clean up” after the delivery. One woman describes this process as follows: “When I give birth, now as a mother, I go and bathe, and if there is any porridge made, I take before the baby breastfeeds because by then there is no milk in the breast.”

In most cases, both men and women indicated that the woman makes the decision to breastfeed. Individuals gave three common responses when asked where they learned about breastfeeding. Most frequently, they said that they just knew how to do it or that it had been passed down by family tradition and a mother or mother-in-law had helped with the process. The second most frequent response was that they had learned from village health teams or a traditional birth attendant.

When asked at what age women start introducing other foods, most indicated they begin to introduce soft foods such as porridge when the infant is 4-6 months old. Individuals said they introduce foods when the baby starts to indicate that it is still hungry after eating or when the mother becomes pregnant again. As one father in Kaabong shared,

When a child reaches six months, it will be introduced to porridge because the breast milk may be getting less and less as the child grows. After the porridge, you start giving like simsim (sesame) or groundnut paste to accompany breast milk.

One woman indicated that she starts to introduce foods at four months to prepare the baby’s stomach for the time when she returns to the garden, when someone else in the home will be responsible for feeding the child. While this explanation was reported only in a single case, additional formative research may be necessary to establish the relationship between the age at which infants 0-6 months are introduced to foods other than breast milk and mothers’ work in gardening in farming. Qualitative data confirms the practice of continued breastfeeding of infants while foods are being introduced. When asked when a child stops breastfeeding, most respondents indicated that breastfeeding stops when the child begins to move around on its own through crawling or walking.

### **E. Childhood Illness and Prevention**

During qualitative interviews, questions about childhood illness and prevention focused primarily on illnesses that commonly occur in the villages and measures taken by parents and other family members to prevent childhood illness. As indicated in the section on health care and maternal health, the illnesses most frequently named by respondents are respiratory problems, gastrointestinal problems (commonly referred to as a stomach ache), diarrhea, and malaria. When asked whether children suffer the same ailments as adults, most respondents indicated that they do. The ailments most frequently associated with children are diarrhea and malaria. When asked what treatment their children receive when they become ill, the majority of respondents said they take them either to a health care facility or to the village health team. Some, however, indicated that at times they take children to be treated by traditional healers or through the use of local herbs. Many reported selecting these treatments because a previous visit to the health facility was “unsuccessful,” because the facility is too far away, or because they cannot afford it.

As described in the section on health, access to health care is one of the biggest challenges for all family members, not only the children, though children are, clearly, among the most vulnerable. Aside from mosquito nets and good hygiene, one of the most commonly agreed-upon measures families reported for preventing childhood illness is immunization. Key informants and community members indicate that

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village health teams play a key role in encouraging vaccination and in helping community members understand how vaccinations might benefit their children. For example, when one respondent was asked why he had taken his children to be immunized, he responded, “It is what the community has agreed on, which is from the ministry of health. They mobilize all people to take the children for immunization and I also took mine.” When another woman was asked why she took her children to be vaccinated, she stated,

The reason is to protect my children from killer diseases. Especially when I am pregnant, I have to go for antenatal care to avoid giving birth to crippled children or a baby with complications. Even after giving birth, I still have to continue taking my children for immunization because the child can still be crippled after growing up.

It is clear that community members’ responses to the “why” question reflect messages delivered by the village health teams. Respondents had been taught that vaccinations would help prevent diseases and that it is important to continue with the vaccination cycle, even as the children age, to prevent future illness.

When asked about what diseases vaccinations prevent, some respondents named certain diseases by memory, such as polio, tuberculosis, and measles. However, others responded by providing information about how the vaccine was administered, such as drops or an injection in a particular part of the body. When asked what vaccinations her child had received, one woman responded,

The first time you take the child, the first injection is on the right-arm side, together with a vitamin A dropped in the baby’s mouth. The second time the baby gets the injection on the left leg and also the third one on the same leg.

While quality of care may need to be strengthened and accessibility increased, the interview and focus group data indicate that, overall, respondents are able to seek treatment for their children when needed. Although respondents rarely mentioned the death of a child, it is possible that infrequent mentions of child deaths are due to the sensitivity of the topic; therefore, qualitative research findings should be collaborated with child mortality rates and causes of death in the Karamoja region of Uganda.

### **5. Conclusions**

Data for the baseline study of title II development food assistance programs in Uganda were collected from February to April of 2013 in approximately 4,800 households in the seven districts of Karamoja. The household survey collected data for FFP and program indicators with regard to household hunger and food access; sanitation and hygiene; agriculture, household expenditures, and assets; and dietary diversity and anthropometry among women and children. The qualitative surveys collected additional data through interviews and focus groups with potential beneficiaries and key informants.

In line with the overall objective of the baseline study, key findings and conclusions with respect to the FFP and program-specific indicators are described below. These conclusions are based on findings from the household survey and the qualitative component. Additional analysis of data is possible, and the household survey data files are available to IPs for in-depth analyses to inform program design and monitoring.

#### **5.1 Household Hunger**

The household survey data show that about 73 percent of households suffer from moderate or severe hunger, with a higher prevalence in the northern Karamoja program area (76 percent) compared to the southern Karamoja program area (69 percent). Most of these households suffer from moderate hunger (65 percent), and 8 percent suffer from severe hunger. The prevalence of severe hunger is higher in the northern Karamoja program area (12 percent) than in the southern Karamoja program area (4 percent). The lean season for 2013 came early, with food supplies depleted two to three months before the normal

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start to the lean season in March.<sup>54</sup> Since the prevalence of household hunger is based on the occurrence and frequency of food deprivation experiences within the past four weeks, the early depletion of food supplies may have contributed to these high rates of moderate and severe hunger.

Assuming that the multivariate regression model is causal, results for the southern Karamoja program areas suggest that increasing the use of sustainable agricultural practices, particularly in the case of intercropping; increasing the practice of value chain activities, particularly grading; and the use of improved storage practices might help reduce household hunger. Also, increasing the education level of the head of household may contribute to reducing household hunger. The model identifies several segments in the southern Karamoja program area that activities aimed at reducing household hunger might consider prioritizing. Households with elder dependents, households with younger heads of household, and households in districts other than Amudat are more likely than other households to suffer from hunger.

For the northern Karamoja program area, results from the multivariate models indicate that households in the Kotido and Abim districts are more likely to suffer from household hunger than households in Kaabong and households with a male head of household are more likely to suffer from household hunger than those with a female head of household.

### 5.2 Household Dietary Diversity

The HDDS score of 2.4 indicates that households are typically able to access and consume 2.4 of 12 basic food groups. Diets are primarily composed of cereals and tubers, with some legumes and vegetables. The HDDS is significantly higher in the southern Karamoja program area (2.7) than in the northern Karamoja program area (2.2). Again, the early depletion of food supplies may have impacted the availability and access to foods, leading to a lower HDDS score for the 2013 lean season. The DHO-ACF Nutritional Surveillance Program<sup>55</sup> reported an HDDS of 4.3 for the Karamoja region in the 2012 year lean season, and the World Food Program<sup>56</sup> reported an HDDS of 4.8 for Uganda as a whole (data collected from the UNPS in 2009-2010).

Data from the qualitative study indicate that accessibility of food is variable and is influenced by a number of factors, such as the season (rainy versus dry), the success of crop production, and access to an income that allows for the purchase of food. Wild foods during the rainy season add diversity to the diet that may not be available during the dry season. However, some individuals and families are solely dependent on such foods due to failure to raise their own crops and animals or insufficient economic resources to purchase what they need. How individuals fare during the dry season depends on their success with production and on their access to other sources of livelihood. In times of scarcity, individuals reported consuming one or two meals a day along with local brew to help keep them full.

The majority of food that individuals consume, according to qualitative data, is food they produce or forage. Most interview responses indicate that the primary female in the household, along with other women and girls in the household, makes decisions about what foods to prepare and perform the work of preparing food. Respondents identified three primary drivers for food selection and preparation: (1) availability, (2) taste or preferences, and (3) desire to diversify.

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<sup>54</sup> FEWS NET, Uganda Food Security Outlook, Jan.-June 2013. Retrieved from [http://www.fews.net/docs/Publications/UG\\_OL\\_2013\\_01\\_en.pdf](http://www.fews.net/docs/Publications/UG_OL_2013_01_en.pdf)

<sup>55</sup> DHO-ACF and UNICEF Nutrition Surveillance Report (May 2012) *Nutrition Surveillance Karamoja Region, Uganda, Round 8, 2012*. Retrieved from: [http://www.actionagainsthunger.org/sites/default/files/publications/DHO-ACF\\_Karamoja\\_Nutrition\\_Surveillance\\_Round\\_8\\_-\\_Final\\_Report\\_2012.05.pdf](http://www.actionagainsthunger.org/sites/default/files/publications/DHO-ACF_Karamoja_Nutrition_Surveillance_Round_8_-_Final_Report_2012.05.pdf)

<sup>56</sup> United Nations World Food Program (2013). *Comprehensive Food Security and Vulnerability Analyses (CFSVA): Uganda*. Retrieved from <http://documents.wfp.org/stellent/groups/public/documents/ena/wfp256989.pdf>

## 5.2 Poverty Levels

A total of 94 percent of the population in the survey areas lives in extreme poverty (less than \$1.25 USD per day). Daily per capita expenditures are, on average, \$0.56 USD per day, per person, with similar values in both program areas. The mean depth of poverty in the survey areas is 63.7 percent of the poverty line, with significantly deeper poverty in the southern Karamoja area (67 percent) than the northern Karamoja areas (62 percent).

Data from the Uganda National Household Survey IV<sup>57</sup> (Table 6.8) show that 25 percent of the Uganda population lives under the poverty line.<sup>58</sup> Additionally the UNHS survey data show that 75 percent of the population in the Northeast region (Table 6.9) is reported to live under the poverty line, noticeably higher than any other region of the country. The Northeast region, as defined in the UNHS survey, consists of the entire Karamoja region and a number of neighboring districts.

Analysis of qualitative findings identified six primary sources of income: making charcoal, gathering firewood, producing local brew, engaging in small-scale agricultural production, working as hired labor in private gardens, and “casual labor.” Most of this work, as reported by potential beneficiaries, is inconsistent and undertaken on an as-needed basis. The incomes of those interviewed were generally insufficient to cover all nutritional needs, health care needs, and other necessities.

The qualitative data indicate that, while the man or head of household is named as the primary decision maker for finances in the household, women are beginning to contribute to decision-making responsibilities for the household in conjunction with the male head of household, as well as other members of the household.

## 5.3 Water, Sanitation, and Hygiene

About 40 percent of households reported using an improved drinking water source, mainly boreholes and 77 percent of households said they did nothing to ensure the water was safe to drink. There were no differences between program areas for these indicators. These rates are much lower than those reported in the 2011 DHS,<sup>59</sup> wherein approximately 66 percent of all rural Ugandan households reported using an improved drinking water source and 38 percent of households reported boiling their water.

Qualitative data suggest that a major contributing factor to the low level of hygiene in the program area is lack of access to a water source. Most respondents in the qualitative study indicated that there are not a sufficient number of boreholes, that they break down often, or that they are a substantial distance from where individuals live. In fact, when asked about the greatest needs in the villages, respondents frequently named new boreholes or closer access to water as a basic need.

Only 15 percent of households reported using an improved sanitation facility (non-shared) during the daytime, either a ventilated pit latrine or a pit latrine slab. The majority of households do not use any facility (70 percent) or use an open pit (12 percent). About 28 percent of households reported having access to a sanitation facility of any type. The results for the sanitation indicator are similar to those reported in the DHS survey, with 15 percent of all rural Uganda households using a non-shared improved sanitation facility.

Soap or another cleansing agent was observed at the hand washing station in only 8 percent of households. The 2011 DHS survey reported a rate of 27 percent with water and soap at the hand washing stations for rural Ugandan households and only 1.6 percent with water and soap in the Karamoja region

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<sup>57</sup> Uganda National Household Survey, Socio-economic Module. Abridged Report (November 2011). Retrieved from <http://www.ubos.org/UNHS0910/unhs200910.pdf>

<sup>58</sup> The poverty line in the UNHS is not clearly defined and is likely to differ from the \$1.25/day USD used in the Title II baseline study

<sup>59</sup> Uganda Demographic and Health Survey (2011). Retrieved from <http://www.measuredhs.com/pubs/pdf/FR264/FR264.pdf>

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(note that the DHS survey was conducted in about 22 villages in the Karamoja region, a much smaller sample than that of the Title II baseline study).

The household survey results indicate that 70 percent of household survey respondents are able to name three of five critical moments for hand washing. This finding is supported by the qualitative interviews, during which individuals identified preferable hygiene practices.

### **5.4 Agriculture**

Overall, 91 percent of farmers reported raising crops (mainly maize, sorghum, and beans) and one-quarter reported raising animals (mainly cattle, goats, and chickens). The average number of crops produced per household is 2.6.

According to qualitative findings, agriculture is a major source for generating income and livelihood for the family. The primary objective of farming is subsistence, with sales occurring in the event of excess yields. Because of the fluctuating nature of the crop yield, respondents rely on additional sources of income to meet household needs.

Overall, 17 percent of farmers reported using at least two sustainable crop practices, and 12 percent reported using at least two sustainable livestock practices (for goats and cattle). Although most farmers still prepare their soil by hand (89 percent), soil preparation with ox plow (23 percent of farmers) and intercropping (20 percent of farmers) are the most commonly reported sustainable practices. About 16 percent of farmers reported using at least two sustainable NRM practices, and half of farmers reported using improved storage practices, including cereal banks/silos or granaries.

The qualitative data indicate that the majority of agricultural decisions are made either solely by males or jointly between men and women. In cases where women and men make decisions jointly, women's input tends to focus on the storage and preparation of crops for future use, whereas men tend to decide which crops the household will cultivate. The results for the five domains of empowerment index from the WEAI indicate that 42.4 percent of women are considered empowered in agriculture, compared to 62.3 percent of men.

### **5.5 Women's Health and Nutrition**

The nutritional status of women ages 15-49, as measured by BMI and height, indicate that almost one-quarter (23 percent) are underweight (BMI < 18.5). DHS survey results show 13 percent of woman 15-49 in rural Uganda households are considered underweight, but 33 percent of women ages 15-49 in Karamoja are underweight (only 63 women were measured).

Only 1.7 percent of women ages 15-49 are short in stature (less than 145 cm). Short maternal height has been shown to be a risk factor for poor child health outcomes including stunting, underweight, wasting, low birth weight and intrauterine growth retardation.<sup>60,61</sup>

The household survey results show poor dietary diversity among women, with an extremely low consumption of eggs and organ meats. Women consume, on average, 2.3 of nine basic food groups. Almost all consume grains, roots, and tubers, while only half consume green leafy vitamin A-rich vegetables.

Overall, three-quarters (77 percent) of female caregivers of children ages 0-59 months reported that they make decisions about health care for themselves and for their children either alone or jointly with their partner. When asked about family planning, almost half of women ages 15-49 indicated they are aware of

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<sup>60</sup> Subramanian SV, Ackerson LK, Davey Smith G, John NA. Association of Maternal Height with Child Mortality, Anthropometric Failure, and Anemia in India. *JAMA*. 2009;301(16):1691-1701. doi:10.1001/jama.2009.548.

<sup>61</sup> Maternal anthropometry and pregnancy outcomes: a WHO Collaborative Study. *Bull World Health Organ*. 1995;73:(suppl) 1-98



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where to go to receive family planning services. Less than 25 percent of female caregivers of children under five years of age were able to identify at least seven of 14 important IYCF and MCC practices.

According to the qualitative data, the majority of respondents acknowledged an improvement in the health of the community in recent years, yet discussions about community needs frequently included health facilities, medication, and illness prevention. Across all regions, the most common illnesses discussed were malaria, diarrhea, and cough/cold. In discussing causes of disease, major topics of concern for many respondents were limited access to health care facilities, lack of proper hygiene, and limited prevention mechanisms for diseases like malaria. Overall, respondents have trust in health service providers and mentioned an improvement in health care services; however, they also rely on traditional medicine, including traditional birth attendants and what some respondents refer to as “witch doctors.”

More than half of women (60 percent) reported attending four or more antenatal visits, which is higher than the DHS rate of 46 percent in rural households (includes women who had a live birth within the past five years). This rate may be influenced by other ongoing maternal and child health programs in the areas and possibly over-reporting of a more socially acceptable behavior. More women in the southern Karamoja program area reported attending four or more antenatal visits (75 percent) than women in the northern Karamoja program area (49 percent).

With regard to decision making around antenatal care, the majority of women and men interviewed in the qualitative study, regardless of region, said women are the main decision makers. In cases where women are unable to deliver at the health center, usually because of distance, traditional birth attendants, midwives, or VHTs help in the delivery process. Even when births take place at home, the majority of women interviewed still take their children to the health center for immunizations.

### **5.6 Children’s Health and Nutrition**

More than one-third (37 percent) of children under five years of age in the household survey are moderately or severely stunted, and 21 percent of children under five years of age show signs of being moderately or severely underweight. In comparison, rates of stunting in the 2011 DHS were 36 percent in rural households and 19 percent in urban households, and rates of underweight children were 15 percent in rural households and 7 percent in urban households.

Results from the multivariate regression models indicate that increasing the general education level of primary caregivers might improve stunting rates in the northern Karamoja program area. The model also indicates that stunting rates are higher in the Kotido and Kaabong districts compared to the Abim district.

In the southern Karamoja program area, the regression results indicate that reducing diarrhea in children under five years of age may help to improve stunting outcomes. Children in districts other than Nakapiripirit have higher stunting rates, as well as households that raised crops and those with fewer adults.

Overall, 22 percent of all children under five years of age had diarrhea in the two weeks preceding the survey (similar to the DHS 2011 rate of 24 percent in rural households and 22 percent in urban households). Of the children with diarrhea, caregivers reported that 31 percent had blood in their stools, giving cause for concern at this high level of complicated diarrhea (7 times higher than the DHS rate of 4 percent in rural households). There are no differences in the prevalence of diarrhea between the two program areas.

Caregivers seek advice or treatment for a majority of the children with diarrhea and 88 percent of children with diarrhea are treated with ORT. More children in the northern Karamoja program area with diarrhea are treated with ORT (93 percent) than children in the southern Karamoja program area (83 percent). While these results appear to be high, they are similar to results obtained in the 2011 DHS in the Karamoja region, which found that 77 percent of children under age five who had diarrhea in the two weeks preceding the survey were receiving fluid from ORS packets, and as many as 93 percent were receiving any type of ORT, including increased fluids.

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Overall, 60 percent of children ages 0-5 months are exclusively breastfed (the 2011 DHS rate is 63 percent for all of Uganda). Only 4 percent of children ages 6-23 months are receiving a MAD, with the dietary diversity component contributing more to this result than the feeding frequency component. A higher percentage of children in the southern Karamoja area are receiving a MAD (7 percent) than in the northern Karamoja program area (2 percent). The DHO-ACF and UNICEF Nutrition Surveillance Report (May 2012) reported that 18 percent of children ages 6-23 months in Karamoja were receiving a MAD.<sup>62</sup>

The overwhelming majority of women interviewed in the qualitative study indicated they breastfeed their children. Many indicated that this is a strong cultural tradition within their community. In most cases, both men and women indicated that the woman makes the decision to breastfeed, or implied that it is a natural course of action. This high level of breastfeeding is an important factor in predicting the future health of children, and might possibly be a reason that stunting levels are lowest for children ages 6-8 months. When asked at what age they begin to introduce other foods, most women indicated they begin to introduce soft foods such as porridge when an infant is 4-6 months old. Even as solid foods are introduced, many infants continue to breastfeed until they begin to walk.

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<sup>62</sup> The definition for MAD for the DHS is similar but not directly comparable.