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FINAL REPORT

2018 Baseline Study of Food for Peace Development Food Security Activities (DFSAs) in Uganda

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2018 BASELINE STUDY OF FOOD FOR PEACE DEVELOPMENT FOOD SECURITY ACTIVITIES (DFSAs) IN UGANDA

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Study Team:

- Dr. Ramu Bishwakarma, Lead Writer and Analyst, ICF
- Dr. Benita O'Colmain, Senior Survey Methods Specialist, ICF
- Dr. Daniel Kibuuka, Qualitative Study Research Lead, IRC
- Weicheng Chen, Field Coordinator, ICF
- Genevieve Dupuis, Senior Data Management Specialist, ICF
- Kirsten Zalisk, Analyst, ICF
- Dr. Mark Langworthy, TANGO
- Dr. Lisa Woodson, TANGO
- Dr. Victoria Brown, TANGO

Submitted by:

- ICF Macro, Inc.
- 530 Gaither Rd, Suite 500
- Rockville, MD 20850

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ACRONYMS

ANC	antenatal care
BMI	body mass index
CHN	child health and nutrition
CRS	Catholic Relief Services
DFAP	development food assistance project
DFSA	development food security activity
DHS	Demographic and Health Survey
EBF	exclusive breastfeeding
FAO	Food and Agriculture Organization of the United Nations
FEWS NET	Famine Early Warning Systems Network
FFP	Food for Peace
FGD	focus group discussion
FIES	Food Insecurity Experience Scale
GPS	Global Positioning System
HDDS	household dietary diversity score
IP	implementing partner
IRC	International Research Consortium of Uganda
IT	information technology
JMP	Joint Monitoring Program
KII	key informant interview
MAD	minimum acceptable diet
MC	Mercy Corps
MCHN	maternal and child health and nutrition
MDD-W	minimum dietary diversity—women
MHN	maternal health and nutrition
NGO	nongovernmental organization
NRM	natural resource management
ORT	oral rehydration therapy
PBS	population-based survey
PPP	purchasing power parity
RWANU	Resiliency through Wealth, Agriculture, and Nutrition in Karamoja
ToT	Training of trainers
UNICEF	United Nations Children’s Fund
USAID	United States Agency for International Development
USG	United States Government
WASH	water, sanitation, and hygiene
WHO	World Health Organization

EXECUTIVE SUMMARY

This report describes the baseline study for two recently initiated Food for Peace (FFP) Development Food Security Activities (DFSAs) in Uganda. The DFSAs aim to build resilience to shocks, enhance livelihoods and improve food security and nutrition for vulnerable rural families. Two implementing partners (IPs)—Catholic Relief Services (CRS), and Mercy Corps (MC)—are implementing the new FFP-funded DFSAs in the Karamoja Region of Uganda. CRS and its partners are implementing the Nuyok DFSA in the three western districts of Karamoja: Abim, Nakapiripirit, and Napak. MC and its partners are implementing the Apolou DFSA in the four eastern districts of Karamoja: Kaabong, Kotido, Moroto, and Amudat.

The purpose of the baseline study is to: (1) provide a baseline for key impact and outcome indicators as a point of comparison for a final evaluation; (2) gain a better understanding of the prevailing conditions and perceptions of the populations in the DFSA implementation areas; and (3) inform program targeting and, where possible, program design. The users will be FFP and its IPs, as well as other key stakeholders.

Study Design

The baseline study included a representative population-based survey (PBS) of 2,460 households and a qualitative study. Field work for the PBS was conducted from June 7 through July 6, 2018, during the rainy season and toward the end of the lean season in the Karamoja Region. The PBS sample was selected using a multistage clustered sampling design to provide a statistically representative sample of the two DFSA implementation areas. The PBS questionnaire was developed through a series of consultations with FFP, the Food and Nutrition Technical Assistance III Project, FFP awardees, and the United States Agency for International Development in Uganda/Uganda.

The qualitative study design was based on a purposively drawn sample of seven data collection sites, one in each of the seven districts of Karamoja. Fieldwork for the qualitative study took place from September 30 through October 7, 2018. Findings from the qualitative data were used to provide contextual information and explanations for significant statistical findings from the PBS.

Study Limitations

Effects of prior FFP and other donor programs. There are several other ongoing programs in the DFSA implementation areas that may have direct effects on some indicators. These effects are not directly measurable and may contribute to the overall change in indicators measured over time when the endline evaluation is conducted. In addition, prior FFP development food assistance programs operated in a substantial portion of the new DFSA areas, which may influence baseline indicator results for those households that participated in prior program activities, a fact which partners may want to take into account in their program planning.

Validity and reliability of self-reported data. Much of the data collected for the household PBS were self-reported, which 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. These same limitations may apply to qualitative data collected through key informant interviews and focus group discussions. To reduce the likelihood of these potential effects on validity and reliability, the PBS findings were triangulated with the qualitative study findings and other data sources.

Key Findings

Food Security

The Household Dietary Diversity Score (HDDS), an average count of food groups consumed by a household and a proxy for socioeconomic status, indicates that households in the DFSA areas access and consume an average of 3 of 12 food groups, reflecting poor access to diverse foods. Nine out of ten

households experienced moderate to severe food insecurity in the 30 days prior to the survey (91 percent) and in the past 12 months (94 percent) across both DFSA areas.

Poverty

Based on the World Bank's extreme poverty line of USD \$1.90 per capita per day [2011 Purchasing Power Parity (PPP)], 89 percent of households in the combined DFSA areas are living below the poverty line, with average daily per capita expenditures at USD \$1.04. In both DFSA areas, about two thirds of daily per capita consumption expenditures (65 percent) is devoted to food, followed by non-food expenditures (26 percent) and housing (6 percent). Poverty is not only widespread, it is also deep; on average, poor individuals consume 61 percent less than the daily per capita poverty threshold of USD \$1.90 (PPP 2011) indicating that poor households¹ need to increase their daily per capita expenditures by USD \$1.27 (PPP 2011) to rise above the extreme poverty line.

Relationship between Poverty and Household Food Security

Food security is strongly associated with poverty levels. In both DFSA areas, the HDDS is significantly lower in households below the poverty line, compared to households at and above the poverty line. Households that own more durable assets, participate in local decision-making bodies, and whose household members have a higher level of education tend to have a higher HDDS in both DFSA areas. The Food Insecurity Experience Scale (FIES) indicators are significantly higher in poor households, defined as households living below the \$1.90 per day threshold for extreme poverty, indicating that household food insecurity increases as household poverty levels increase.

Agriculture

Three out of four farmers (more than 73 percent) in the DFSA areas reported owning the farmland over which they make decisions and about one-third of farmers have small plots (less than 0.5 hectares). Adult female-only households are more likely to be sharecroppers or have no land in both project areas, compared to adult male and female households.

About one in five farmers in the DFSA areas use financial services through cash savings, agricultural credit, or agricultural insurance. Male and female farmer focus group participants reported the biggest factor contributing to the low level of use of financial services by farmers and other traders for agricultural produce in the community is ignorance about the availability, use, and importance of agricultural financial services. Farmers who use any type of agricultural financial services tend to be less poor in both DFSA areas.

About 43 percent of farmers in the CRS area and 34 percent of farmers in the MC area reported planting crops or raising and buying livestock with the specific intention to sell or resell to earn income; and 31 percent of these farmers reported practicing at least one of the value chain activities promoted by the DFSAs. Qualitative interviews suggest that women in general do most of the farming but men tend to make key decisions on value chain activities.

Preparation of soil by hand (79 percent in the CRS area, 74 percent in the MC area), broadcasting seed (74 percent in the CRS area, 68 percent in the MC area), and weed control (60 percent in the CRS area, 56 percent in the MC area) are the three most commonly used crop practices in the DFSA areas. Improved shelters (44 percent), vaccinations (39 percent), deworming (35 percent), and kraals (33 percent) are the most commonly used livestock practices in the CRS area. Kraals (61 percent), vaccination and animal shelters (both about 42 percent), and deworming (37 percent) are the most commonly used livestock practices in the MC area. About half of all farmers use improved storage practices in the combined DFSA areas (mainly granaries or super grain bags).

¹ Poor households are defined as those with daily per capita expenditures below the World Bank international poverty line of \$1.90 per day.

Relationship between Agriculture, Food Insecurity and Poverty

Households using financial services tend to be less food insecure in the CRS area when households' background characteristics, such as members' education, household size, and shocks and stresses, are not considered. When these variables are controlled, households using financial services tend to have lower food insecurity in the MC area. Households in which farmers use agricultural value chain practices are likely to have a lower prevalence of poverty in both DFSA areas and a lower depth of poverty in the CRS area. Households practicing sustainable agricultural practices also tend to have a lower prevalence of poverty in both CRS and MC areas, and a lower depth of poverty in the CRS area. Farmers who use improved agricultural storage practices are likely to have a lower depth of poverty and vice versa in the CRS area, but no such association was found in the MC area.

Water, Sanitation, and Hygiene

In the combined DFSA areas, only about two in five households (41 percent) use an improved drinking water source (defined by type of source and water availability). About 86 percent of households in the CRS area and 73 percent of households in the MC area obtain their water from boreholes, but water availability from this source is a major concern. Only 55 percent of households in both DFSA areas reported water being available at source year round, and 30 percent of households reported that water was unavailable for a day or more in the past two weeks. About half of all households can obtain drinking water (regardless of whether the source is improved or not) in less than 30 minutes round trip and about 8 percent of households in the CRS area and 12 percent of households in the MC area reported use of recommended household water treatment technologies.

Sanitation conditions in the DFSA areas are very poor, only about 8 percent of households in the combined DFSA areas have access to a basic sanitation facility and 6 of 10 households practice open defecation. Poor households are less likely to use basic sanitation facilities compared to non-poor households. Other variables, such as household wealth, ownership of durable assets, receipt of humanitarian assistance from nongovernmental organizations (NGOs) or the government, and availability of basic services, are positively associated with basic sanitation, suggesting that households with higher values for any of these variables are more likely to have access to a basic sanitation service in both DFSA areas.

A handwashing station was observed in 29 percent of households in the combined DFSA areas (37 percent in the CRS area and 20 percent in the MC area), but very few households (3 in 100) in the combined DFSA areas were observed with soap or another cleansing agent and water at the handwashing station.

Women's Health and Nutrition

About 39 percent of non-pregnant women 15-49 years of age are underweight in the CRS area, and 31 percent of non-pregnant women 15- 49 years of age are underweight in the MC area. About 13 percent of women 15-49 years of age in the CRS area and 20 percent in the MC area consume a diet of minimum diversity, defined as consuming 5 of 10 nutritionally diverse food groups in the 24 hours preceding the survey. Women mostly consumed grains, roots, and tubers, and other vegetables in both DFSA areas. Few women consume eggs, nuts and seeds, and the consumption of dairy and flesh foods is low in both DFSA areas, and particularly low in the CRS area. Few women (about 7 percent in the CRS area and 11 percent in the MC area) consume targeted nutrient-rich commodities (bio-fortified beans, bio-fortified maize or sorghum, and orange-flesh sweet potatoes).

A majority of women (about 78 percent) who had a live birth in the past five years attended at least four antenatal care (ANC) visits with a skilled health worker during their last pregnancy. Despite a high uptake of ANC services, a small proportion of women (11 percent in the CRS area and 7 percent in the MC area) use modern contraceptive methods in both DFSA areas. Women in poor households are less likely to use modern contraceptive methods and women in educated households are more likely to use modern contraceptive methods, regardless of household poverty status. Women in households that

have linkages to government officials or NGOs (also called linking social capital) are more likely to use modern contraceptives in the MC area, which could be due to knowledge or information transfer from such institutions to women. Women in households that participate in local community groups are more likely to use modern contraceptives in the CRS area. Qualitative study participants indicated that family planning education messages, especially on child spacing, are provided as part of health education during the ANC visits. Despite the high uptake of ANC services, use of family planning is still low mainly due to barriers such as fear of side effects either experienced or hearsay; lack of male partner support and involvement; and inadequate comprehensive knowledge about family planning methods as well as the persistent myths and misconceptions about family planning.

Children's Health and Nutrition

About 29 percent of children under five years of age in the combined DFSA areas are underweight, 38 percent are stunted, and 11 percent are wasted.² Less than 1 in every 10 children between 6-23 months (8 percent) in the combined DFSA areas receives a minimal acceptable diet (MAD). The prevalence of MAD also did not differ between girls and boys. The female household heads from Kotido who participated in the qualitative study emphasized that there was inadequate food to feed the children, and they normally depend on one or two meals just like the adults. As a result, the children are usually hungry and sickly. In addition, qualitative study participants reported that food distributed by food programs targeting malnourished children is often sold to meet more immediate household needs such as paraffin or firewood; or consumed by the male household heads.

In the combined DFSA areas, about 7 in 10 children under 6 months of age (74 percent) are exclusively breastfed. Exclusive breastfeeding is practiced widely in both DFSA areas, especially in the first 3 months after birth but drops significantly for children 4–5 months of age when complimentary foods and other liquids are introduced. Ideally, mothers should exclusively breast feed their babies up to six months but qualitative study participants reported that because they cannot produce enough milk due to inadequate dietary intake, they often give babies four months and older semi solid foods in addition to the little breast milk.

About 32 percent of children under 5 years of age in the combined DFSA areas had diarrhea in the two weeks prior to the survey. Oral rehydration therapy (ORT) is being used to prevent dehydration among most children with diarrhea; about 84 percent of children under 5 years of age with diarrhea were treated with ORT in the combined DFSA areas. Children under 5 years of age in food insecure households are more likely to experience diarrhea in both DFSA areas. In contrast, children under 6 months of age who are exclusively breastfed are less likely to experience diarrhea in both DFSA areas. Community health workers reported that many children under 5 years of age in their communities are affected by diarrhea because of poor hygiene among the households, lack of clean water for domestic use, open defecation, as well as consumption of unsafe food and water.

Gender

About 41 percent of men and women in a union earn cash in both the CRS and MC areas, which signifies the lack of cash-earning opportunities. There are no gender differences in terms of the proportion of men and women in a union earning cash in both DFSA areas.³ Most women participate in decisions related to the use of their self-earned cash (85 percent), and about 58 percent of women participate in decisions related to the use of their spouse's self-earned cash.

More women have knowledge of maternal and child health and nutrition practices than men, and more women make maternal and child health and nutrition related decisions alone in both DFSA areas. More men than women reported making joint decisions with their spouses on maternal and child health and

² Note: The baseline study data were collected toward the end of the lean season.

³ Men and women have approximately the same share of the workforce in agriculture in Uganda. See: UNDP-Uganda Country Gender Assessment, October, 2015. Available at: <http://www.ug.undp.org/content/dam/uganda/docs/UNDPUG2016%20-UNDP%20Uganda%20-%20Country%20Gender%20Assessment.pdf>

nutrition practices. Although use of contraceptives is low, almost all men and women (97 percent) could state at least one health benefit of waiting at least two years after last live birth before attempting the next pregnancy.

Resilience

Households in both DFSA areas experienced an average of five shocks over the past 12 months. The shock experienced most by households was excessive rains (81.8 percent), followed by flooding (59.5 percent), drought (54.4 percent), increasing food prices (49.1 percent), and crop diseases (45.5 percent). Households with higher levels of absorptive, adaptive, and transformative capacity achieve better economic (higher per capita expenditures and lower likelihood of poverty) and food security outcomes. These capacities, however, are not a significant predictor of a household's ability to recover.

Specific components of resilience capacity that are associated with increased expenditures, lower prevalence of poverty, and greater dietary diversity are cash savings, durable assets, livestock assets, human capital (education/training), exposure to information, access to agricultural extension services, shock preparedness and mitigation, access to infrastructure, aspirations/confidence to adapt, and participation in local decision-making.

With respect to the types of coping strategies adopted, households with higher levels of resilience capacities are more likely to use money from savings and sell livestock.

Conclusions

Factors identified by the baseline PBS data that may lead to improvements in widespread poverty and food insecurity include education levels of household members, livelihood diversification, use of financial services, use of improved storage practices, ownership of durable assets, ownership of land and participation in local decision-making bodies. Development activities with a focus on these factors may have more success in reducing poverty and food insecurity in the DFSA areas.

Poor sanitation and hygiene practices are precipitated by low availability of water due to drought, poor infrastructure for latrines and low levels of knowledge among community members regarding proper water, sanitation, and hygiene (WASH) practices despite significant health and WASH campaigns. Participants in the qualitative study suggested there should be WASH awareness campaigns, trainings and sensitization on the impacts of good hygiene, and that by-laws should be put in place for all households to own latrines. They also suggested that more boreholes should be constructed and that additional health facilities be constructed in communities which are lacking.

Poor dietary diversity is a significant contributor to poor nutrition in women and children. Participants in the qualitative study reported that the poor and unreliable weather in the Karamoja Region does not support the growth of many crops, including cereals and fruits. The respondents suggested that the Government should introduce micronutrient supplemented seeds and promote production of bio-fortified, short cycle crops such as beans. In addition, more programs are needed that target climate change in addition to modern fast yielding crops since the major challenge affecting proper yield of the various crops planted is related to weather patterns. More trainings on livelihood and how to generate income in a semi-arid region like Karamoja can raise the income levels of households thus making them self-reliant and more food secure, and able to afford more dietary diverse food for the families.

Traditional economic development activities that are directed to increase household income and wealth—increasing human capital, promotion of value chains, and investment in infrastructure—are also means to enhance household and community resilience capacities. The importance of savings on household economic status and dietary diversity suggests that supporting savings and loans groups and other mechanisms to promote savings can have important impacts on resilience. Strategies that promote bonding and linking social capital formation, for example, through savings and loans groups and other community-based or collective organizations, can also be beneficial. Reduction in poverty can also be supported by investments in shock preparedness and mitigation efforts.

I. INTRODUCTION

I.1 Overview of the Baseline Study

In fiscal year 2017, the United States Agency for International Development (USAID) Office of Food for Peace (FFP), the United States Government (USG) leader in international food assistance, awarded funding for two multi-year development food security activities (DFSAs) in the Karamoja Region of Uganda. The goal of the 2017 DFSA awards is to enhance resilience to shocks and livelihoods, and improve food security and nutrition for rural households vulnerable to food insecurity.

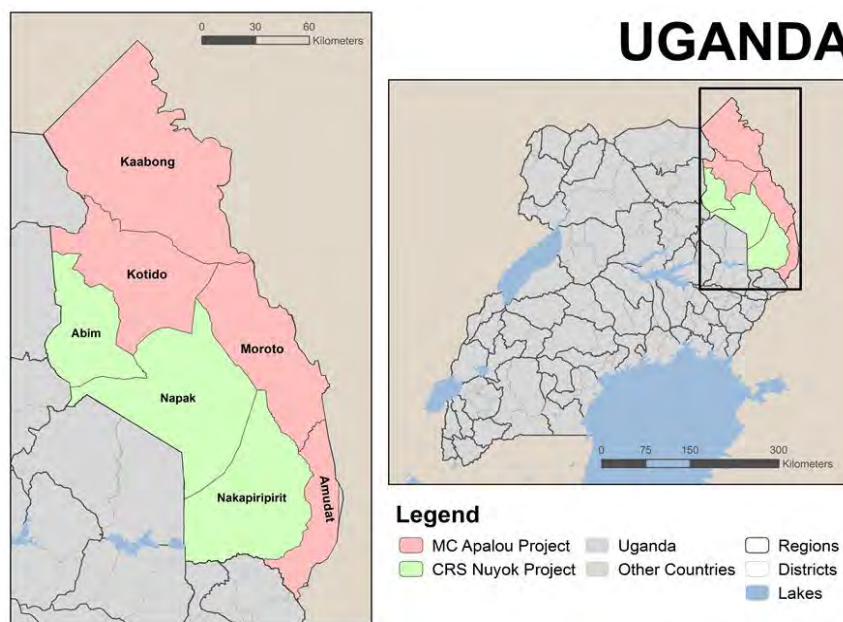
FFP contracted ICF and its partner TANGO International to conduct a baseline study in the DFSA implementations areas (see Annex I for the Scope of Work). The baseline study includes a population-based survey (PBS) and a qualitative component to add context to the PBS findings. ICF is leading overall implementation of the survey—from the initial planning phase through the dissemination of results—and subcontracted International Research Consortium of Uganda (IRC) as the local data collection firm to support field implementation of the PBS and to lead the qualitative component. In addition to a baseline study, the ICF team conducted a final evaluation, including an endline PBS, in the target areas for the prior development food assistance projects (DFAPs) that recently ended.⁴ The joint baseline/endline PBS was designed to represent the implementation areas for the new DFSAs and prior DFAPs, which overlap to a large extent.

The baseline study is the first phase of a pre-post survey cycle for the new DFSA awards. The purpose of the baseline study is to assess the current status of key indicators, serve as a point of comparison with the same indicators that will be collected in a future endline PBS, and gain a better understanding of the prevailing conditions and perceptions of the populations in the DFSA implementation areas. The baseline study results will also be used to further refine program targeting and, where possible, understand the relationship between variables to inform program design.

Implementing Partners (IPs) for the DFSAs

- (1) Catholic Relief Services (CRS) and its partners are implementing the Nuyok DFSA in the three western districts of Karamoja: Abim, Nakapiripirit, and Napak Districts.
- (2) Mercy Corps (MC) and its partners are implementing the Apolou DFSA in the four eastern districts of Karamoja: Kaabong, Kotido, Moroto, and Amudat Districts.

Figure 1: DFSA Implementation Areas, Uganda 2018



⁴ The GHG DFAP ended in January 2018, and the RWANU DFAP ended in August 2017. FFP contracted with ICF to conduct a final performance evaluation of the two DFAPs. The results from the endline PBS will be provided as part of the Final Evaluation Report for the DFAPs.

The DFSAs build on the prior FFP-funded DFAP awards that were implemented from 2012 through 2017/2018 in the same areas. The current DFSAs are fostering resilience to shocks, enhancing livelihoods, and improving food security and nutrition for vulnerable rural families.

The USG global food security strategy established the following definition for food security: “access to—and availability, utilization, and stability of—sufficient food to meet caloric and nutritional needs for an active and healthy life” (USG, 2016; 10). This underscores the four pillars of food security: availability, access, utilization, and stability defined by the Food and Agriculture Organization of the United Nations (FAO).⁵ The PBS, designed to provide information on all four elements of food security, investigates the following: food insecurity and food access; expenditures and assets; water, sanitation, and hygiene (WASH) practices; agriculture; women’s and children’s health and nutrition; gender differences in decision-making for cash earners and parents of children under two; and resilience.

This report begins with an overview of the current food security situation in Uganda, followed by a description of the methods used for the population-based household survey and qualitative study. The findings from the PBS are presented and integrated with the qualitative study results, followed by conclusions and recommendations based on key findings.

1.2 Overview of the Current Food Security Situation

Uganda is a landlocked country in eastern Africa that is bordered to the north by South Sudan, to the west by the Democratic Republic of Congo, to the east by Kenya, and to the south by Rwanda and Tanzania. The country includes a sizable portion of Lake Victoria in the southeast and sits in the Nile Basin, with much of the country on a plateau at an average altitude of 1,400 meters. The climate is tropical and rainy with two dry seasons (December to February and June to August) throughout most of the country, but it is semiarid in the northeastern Karamoja sub-region where the FFP-funded projects operate, with one rainy season that runs from April through October.

Uganda, including the Karamoja sub-region, has a number of natural resources, such as copper, cobalt, hydropower, limestone, salt, gold, and arable land.^{6,7} Uganda is also working to tap its oil reserves and start commercial oil production by 2020.⁸ Yet the country is among the poorest in the world and is ranked 163 out of 188 countries in the United Nations Development Program’s human development index.⁹

Uganda is one of the most densely populated countries on mainland Africa and is estimated to have a population of nearly 45 million in 2018, yet comprises only 197,100 km² of land. Nearly 80 percent of Uganda’s population resides in rural areas, although most of the population is concentrated in the central and southern parts of the country. The Karamoja sub-region has the smallest percentage of the population (3 percent) and also the lowest population density (35 individuals per km²).

Uganda has one of the youngest and fastest growing populations in the world, with a median age of 15.9 years and a 3.0 percent population growth rate according to the national 2014 census.¹⁰ The

⁵ Food and Agriculture Organization of the United Nations (FAO). 2009. Declaration of the World Food Summit on Food Security. Rome: FAO. http://www.fao.org/fileadmin/templates/wsfs/Summit/Docs/Final_Declaration/WSFS09_Declaration.pdf

⁶ CIA. 2018. Accessed on: August 7, 2018.

⁷ Baleke TS. 2015. Uganda’s Karamoja; where abundant natural resources haven’t transformed lives. Afrika Reporter. Retrieved at: <http://www.afrikareporter.com/ugandas-karamoja-where-abundant-natural-resources-havent-transformed-lives/>

⁸ Musisi F. 2018 June 5. Uganda’s slow pace towards oil production. Daily Monitor. Retrieved at: <http://www.monitor.co.ug/Business/Prosper/Uganda-slow-pace-towards-oil-production/688616-4594748-742undz/index.html>

⁹ United Nations Development Programme. 2016. 2016 Human Development Report: Human Development for Everyone. Retrieved at: http://hdr.undp.org/sites/default/files/2016_human_development_report.pdf

¹⁰ UBOS. (2017b).

average life expectancy in the country is 60 years,¹¹ with the leading causes of death across all age groups being communicable diseases, such as HIV/AIDS, malaria, and lower respiratory infections, and with malnutrition and WASH being two of the top four risk factors driving death and disability.¹² The country's total fertility rate in 2014 was 5.8 children per woman—a decrease from 7.0 children per woman in 2002,¹³ but still one of the highest rates globally. In the Karamoja sub-region, the fertility rate (7.5 children per woman in 2014) is much higher than the national average.¹⁴

Other indications that Karamoja lags behind the rest of the country developmentally include the sub-region's higher-than-average poverty and child mortality rates and low literacy rate. The sub-region has the highest prevalence of poverty (61 percent compared to 27 percent nationally) and the highest under-5 mortality rate in the country (102 deaths per 1,000 live births compared to 64 deaths per 1,000 live births nationally).¹⁵ Although nearly 7 in 10 females (68 percent) and 8 in 10 males (77 percent) from age 10 years and above are literate in Uganda,¹⁶ only 25 percent of them are literate in Karamoja, which is the lowest among all the sub-regions.¹⁷ The sex disaggregated data shows that about 31 percent of males and 19 percent of females are literate in Karamoja.

Approximately 70 percent of land in Uganda is used for agriculture, including 34 percent that is arable, 11 percent that has permanent crops, and 25 percent that is permanent pasture.¹⁸ Agriculture employs 70 percent of the workforce¹⁹ and accounts for about one-quarter of the gross domestic product.²⁰ Subsistence farming is the main source of earnings for 43 percent of households.²¹ Cassava, cooking bananas, dry beans, maize, millet, rice, sweet potatoes, and sorghum are the main staple foods in Uganda.²² Coffee, cotton, cut flowers, maize, processed fish, and tea are among the main agricultural products exported.²³ Because Uganda has two harvest seasons and benefits from decent amounts of rain throughout much of the country, the country is able to produce sufficient amounts of staple foods and has a large role in regional food supply and trade. However, agricultural production in Karamoja is more

¹¹ The World Bank Group. 2018. Uganda. World Bank Open Data. Retrieved at: <https://data.worldbank.org/country/uganda>. Accessed on: August 8, 2018.

¹² Institute for Health Metrics and Evaluation. 2018. Uganda Country Profile. Retrieved at: <http://www.healthdata.org/uganda>. Accessed on: August 7, 2018.

¹³ Uganda Bureau of Statistics (UBOS). 2017. Uganda National Household Survey 2016/2017. Kampala Uganda; UBOS. https://www.ubos.org/onlinefiles/uploads/ubos/pdf%20documents/UNHS_VI_2017_Version_I_%2027th_September_2017.pdf

¹⁴ Uganda Bureau of Statistics (UBOS). 2017. Uganda National Household Survey 2016/2017. Kampala Uganda; UBOS. https://www.ubos.org/onlinefiles/uploads/ubos/pdf%20documents/UNHS_VI_2017_Version_I_%2027th_September_2017.pdf

¹⁵ Uganda Bureau of Statistics. 2017a. The National Population and Housing Census 2014 – National Analytical Report, Kampala, Uganda.

https://www.ubos.org/onlinefiles/uploads/ubos/2014CensusProfiles/National_Analytical_Report_nphc%202014.pdf

¹⁶ Uganda Bureau of Statistics (UBOS) and ICF. 2018. Uganda Demographic and Health Survey 2016. Kampala, Uganda and Rockville, Maryland, USA: UBOS and ICF.

https://www.ubos.org/onlinefiles/uploads/ubos/pdf%20documents/Uganda_DHS_2016_KIR.pdf

¹⁷ Uganda Bureau of Statistics. 2017. The National Population and Housing Census 2014 – National Analytical Report, Kampala, Uganda. https://www.ubos.org/onlinefiles/uploads/ubos/2014CensusProfiles/National_Analytical_Report_nphc%202014.pdf

¹⁸ Central Intelligence Agency (CIA). 2018. The World Factbook 2018. Washington, DC: CIA. Retrieved at: <https://www.cia.gov/library/publications/the-world-factbook/index.html>. Accessed on: August 7, 2018.

¹⁹ The World Bank Group. 2018. Employment in agriculture (% of total employment) (modeled ILO estimate) Indicator. Retrieved at: <https://data.worldbank.org/indicator/SL.AGR.EMPL.ZS>. Accessed on: August 10, 2018.

²⁰ The World Bank Group. 2018. Agriculture, forestry, and fishing, value added (% of GDP) in 2017. Retrieved at: <https://data.worldbank.org/indicator/NV.AGR.TOTL.ZS>. Accessed on: August 10, 2018.

²¹ Uganda Bureau of Statistics. 2017. The National Population and Housing Census 2014 – National Analytical Report, Kampala, Uganda. https://www.ubos.org/onlinefiles/uploads/ubos/2014CensusProfiles/National_Analytical_Report_nphc%202014.pdf

²² Famine Early Warning Systems Network (FEWS NET). 2017. Uganda Staple Food Market Fundamentals. Retrieved at: <http://fewsn.net/east-africa/uganda/market-fundamentals/march-2017/>. Accessed August 7, 2018.

²³ Famine Early Warning Systems Network (FEWS NET). 2017. Uganda Staple Food Market Fundamentals. Retrieved at: <http://fewsn.net/east-africa/uganda/market-fundamentals/march-2017/>. Accessed August 7, 2018.

limited because of its climate; it has only one main harvest annually, and inhabitants rely on surpluses cultivated in other areas of the country.²⁴

The Karamoja sub-region makes up 10 percent of the total land in Uganda, and 50 percent of the land is reserved for wildlife reserves and other protected areas, including areas in the wetter “green belt”.²⁵ It is reported that the area of land under cultivation increased by tenfold from 2001 to 2014.²⁶ Households owning livestock have been reported to be better in dealing with shocks and stresses. Despite this, livestock ownership is decreasing in the region. Between 1959 and 2002, the per capita livestock holdings decreased, from 2.7 Tropical Livestock Units per person to 1.3 Tropical Livestock Units per person. The decrease in livestock ownership could be attributed to various factors, such as conflict and shortage of water. Shortage of water has led to scarcity of pasture, especially in the dry season.²⁷

Although Uganda can produce sufficient amounts of staple foods, the country still experiences food security challenges, which are reflected in the country’s hunger and nutrition indicators.²⁸ Nearly one in three women (32 percent) have anemia.²⁹ Almost one-third (29 percent) of children who are under 5 years of age are chronically malnourished (stunted), 11 percent are underweight, and 4 percent suffer acute malnutrition (wasting).³⁰ In Karamoja, children are more likely to be malnourished than in other parts of Uganda. The 2016 Demographic and Health Survey (DHS) showed that 35 percent of children under 5 years of age in surveyed areas of Karamoja were stunted and 26 percent were underweight. WASH practices in Karamoja contribute to malnutrition through infectious disease. Almost two-thirds of households (65 percent) reported using the bush for human waste disposal; and only 2 percent of households had water and soap at a handwashing station.³¹

Food security in Uganda is also affected by the substantial number of refugees in the country. Although the number of internally displaced persons has decreased substantially over recent years after a period of violent civil unrest, estimates indicate that the country has some 1.15 million refugees, primarily from South Sudan.³²

Although good weather and market prices contributed to a substantial portion of the decrease in poverty between 2006 and 2013,³³ poverty increased from 20 percent in 2012/13 to 27 percent in

²⁴ Famine Early Warning Systems Network (FEWS NET). 2017. Uganda Staple Food Market Fundamentals. Retrieved at: <http://fewsn.net/east-africa/uganda/market-fundamentals/march-2017>. Accessed August 7, 2018.

²⁵ Cullis, A. 2018. Agricultural Development in Karamoja, Uganda: Recent Trends in Livestock and Crop Systems, and Resilience Impacts. Karamoja Resilience Support Unit, USAID/Uganda, UK aid, and Irish Aid, Kampala.

²⁶ <https://resilience.igad.int/index.php/hierarchical-list/studies/18-krsu-karamoja-livestock-review-1/file>, retrieved on December 5, 2018

²⁷ Aklilu, Y. 2016. Livestock in Karamoja: A Review of Recent Literature. Karamoja Resilience Support Unit, USAID/Uganda, Kampala. Available at <https://resilience.igad.int/index.php/hierarchical-list/studies/18-krsu-karamoja-livestock-review-1/file--citation>.

²⁸ USAID. 2017. Climate Risk Screening for Food Security, Karamoja Region, Uganda. Retrieved at: <https://www.climatelinks.org/resources/climate-change-risk-profile-climate-risk-screening-food-security-karamoja-region-uganda>

²⁹ Uganda Bureau of Statistics (UBOS) and ICF. 2018. Uganda Demographic and Health Survey 2016. Kampala, Uganda and Rockville, Maryland, USA: UBOS and ICF. https://www.ubos.org/onlinefiles/uploads/ubos/pdf%20documents/Uganda_DHS_2016_KIR.pdf

³⁰ Uganda Bureau of Statistics (UBOS) and ICF. 2018. Uganda Demographic and Health Survey 2016. Kampala, Uganda and Rockville, Maryland, USA: UBOS and ICF. https://www.ubos.org/onlinefiles/uploads/ubos/pdf%20documents/Uganda_DHS_2016_KIR.pdf

³¹ Uganda Bureau of Statistics (UBOS) and ICF. 2018. Uganda Demographic and Health Survey 2016. Kampala, Uganda and Rockville, Maryland, USA: UBOS and ICF. https://www.ubos.org/onlinefiles/uploads/ubos/pdf%20documents/Uganda_DHS_2016_KIR.pdf

³² The World Factbook 2018. Washington, DC: Central Intelligence Agency, 2018. <https://www.cia.gov/library/publications/the-world-factbook/index.html>, <https://data2.unhcr.org/en/country/uga>

³³ The World Bank Group. 2016. The Uganda Poverty Assessment Report 2016. Washington, DC, USA: The World Bank. Retrieved at: <http://pubdocs.worldbank.org/en/381951474255092375/pdf/Uganda-Poverty-Assessment-Report-2016.pdf>

2016/17,³⁴ which may be at least partially attributed to severe drought and army worm infestations among crops. Food production is challenged by the use of unimproved cultivating and post-harvest management practices, crop and livestock pest and disease infestations, a weak market information system, and limited market access.³⁵

Because of Karamoja's climate, the sub-region has three main livelihood zones: agricultural in the west, agro-pastoral in the center, and pastoral in the east.³⁶ It is prone to climate-related shocks that include droughts, floods, outbreaks in livestock disease and changing crop pest dynamics, high food prices, and livelihood insecurity.³⁷ In the 2014 FFP household survey, most farmers (91 percent) reported growing crops, and one-quarter reported raising animals.³⁸ Farmers rely on rain to raise their crops—primarily sorghum, maize, and beans, although farmers also grow groundnuts, cassava, and sweet potatoes.³⁹ Most farming is subsistence farming. Only 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).⁴⁰ In Karamoja in particular, challenges to crop farming include poor soil fertility, poor soil moisture, reliance on rainfall, small plot sizes, lack of draft animals (oxen), lack of improved seeds and tools, general lack of water, transportation challenges, and inefficient crop drying and storage practices.⁴¹

The November/December 2017 harvest season was above average and resulted in a decrease in staple food prices, which resulted in large amounts of exports to neighboring countries, although exports to South Sudan decreased due to trade-related insecurities and lower demand.⁴² Prices were also low across markets in Karamoja, and the retail price of sorghum is approximately 60 percent below 2016 and 30 percent lower than the five-year average.

Information from the Famine Early Warning Systems Network (FEWS NET) indicates average-to-above average harvests throughout much of Uganda through January 2019 because the country benefited from above-average rainfall from March to May.⁴³ In some areas, however, heavy rainfall has led to flooding and waterlogging, which delayed planting or destroyed crops and may substantially decrease yields. In Karamoja, the lean season was extended because harvests have been delayed until September, but relative to other lean seasons in the sub-region, very poor households have better food access.⁴⁴ Surplus staple production has increased overall market supply, keeping prices below 2017 prices and

³⁴ Uganda Bureau of Statistics (UBOS). 2017b. Uganda National Household Survey 2016/2017. Kampala Uganda; UBOS. https://www.ubos.org/onlinefiles/uploads/ubos/pdf%20documents/UNHS_VI_2017_Version_I_%2027th_September_2017.pdf

³⁵ Famine Early Warning Systems Network (FEWS NET). 2017. Uganda Staple Food Market Fundamentals. Retrieved at: <http://fews.net/east-africa/uganda/market-fundamentals/march-2017>

³⁶ USAID. 2017. Climate Risk Screening for Food Security, Karamoja Region, Uganda.

<https://www.climatelinks.org/resources/climate-change-risk-profile-climate-risk-screening-food-security-karamoja-region-uganda>

³⁷ USAID. 2017. Climate Risk Screening for Food Security, Karamoja Region, Uganda.

<https://www.climatelinks.org/resources/climate-change-risk-profile-climate-risk-screening-food-security-karamoja-region-uganda>

³⁸ ICF International. 2014. Baseline Study for the Title II Development Food Assistance Programs in Uganda.

<https://www.usaid.gov/sites/default/files/documents/1866/Uganda%20Baseline%20Study%20Report%2C%20March%202014.pdf>

³⁹ ICF International. 2014. Baseline Study for the Title II Development Food Assistance Programs in Uganda.

<https://www.usaid.gov/sites/default/files/documents/1866/Uganda%20Baseline%20Study%20Report%2C%20March%202014.pdf>

⁴⁰ ICF International. 2014. Baseline Study for the Title II Development Food Assistance Programs in Uganda.

<https://www.usaid.gov/sites/default/files/documents/1866/Uganda%20Baseline%20Study%20Report%2C%20March%202014.pdf>

⁴¹ USAID. 2017. Climate Risk Screening for Food Security, Karamoja Region, Uganda.

<https://www.climatelinks.org/resources/climate-change-risk-profile-climate-risk-screening-food-security-karamoja-region-uganda>

⁴² FEWS NET. 2018. Uganda Food Security Outlook June 2018 to January 2019. Retrieved at: <http://fews.net/east-africa/uganda/food-security-outlook/june-2018>

⁴³ FEWS NET. 2018. Uganda Food Security Outlook June 2018 to January 2019. Retrieved at: <http://fews.net/east-africa/uganda/food-security-outlook/june-2018>

⁴⁴ FEWS NET. 2018. Uganda Key Message Update July 2018. Retrieved at: <http://fews.net/east-africa/uganda/key-message-update/july-2018>

contributing to above-average food access for purchase-dependent households. Livestock body conditions and milk production are better than usual.

Government Policy and Programs

The Government of Uganda has developed a range of key policies, strategies, and guidelines that aim to strengthen food availability and access. The foundational legal document is the Uganda Food and Nutrition Policy, which was adopted in 2003 to promote the nutritional status of the people of Uganda through multi-sectoral and coordinated interventions that focus on food security, improved nutrition, and increased incomes.

The country benefits from many international organizations, projects, and donors intervening in several fields. These international organizations and donors are intensifying efforts to meet the goals of the “Zero Hunger” challenge launched by United Nations Secretary-General Ban Ki-moon in 2012. Donors’ and organizations’ activities are aimed at assisting refugees, building resilience among food insecure populations, training smallholder farmers on improved farming techniques, building local capacity to coordinate food security and respond to shocks, and supporting supply chains.

A comprehensive list of nongovernmental organizations (NGOs), donors, and projects that were operational in Karamoja in 2016 is available in the *Karamoja NGO Mapping Report*.⁴⁵ Several projects funded by the USG operate in the country in a number of sectors, such as agriculture, education, human rights and governance, health, economic development, environment, and conflict mitigation and prevention. USG-funded food security programs are implemented in Uganda through USAID’s Feed the Future and FFP programs. Other ongoing programs include the following:

- **Fostering Sustainability and Resilience for Food Security in the Karamoja Region:** A five-year Government-led initiative that began in 2018 and focuses on improving food security and environmental sustainability in the sub-region. It is funded by the Global Environment Fund, the United Nations Development Program, and FAO.
- **Drylands Integrated Development Project:** A five-year program, funded by the Islamic Development Bank and the Government of Uganda, that started in 2014 to increase income and reduce poverty among the pastoral populations in Uganda
- **Driving Youth-led New Agribusiness and Microenterprise:** A five-year program funded by the MasterCard Foundation to ensure that out-of-school and economically disadvantaged young people have the skills and access to support systems to secure entry-level jobs or start their own businesses in agriculture
- **Project for Financial Inclusion in Rural Areas:** A three-year program funded by the International Fund for Agricultural Development that started in 2016 to sustainably increase the access to and use of financial services by the rural poor through savings and credit cooperatives and community savings and credit groups

⁴⁵ <https://www.karamojaresilience.org/what-s-new/item/karamoja-ngo-mapping-report>

2. METHODOLOGY AND LIMITATIONS

2.1 Methods for the Population-Based Household Survey

2.1.1 Study Design and Objectives

The baseline study serves as the first phase of a pre-post evaluation cycle for the DFSA awards. The second phase will take place at the end of the DFSA cycle, during which a final evaluation, including an endline PBS, will be conducted. This pre-post design allows for the determination of statistically significant change in indicators between the baseline and endline surveys; however, it does not support conclusions about attribution or causation relating to DFSA impact.

The objectives of the baseline study for the DFSAs are to assess the current status of key indicators, gain a better understanding of the prevailing conditions and perceptions of the populations in the DFSA implementation areas, and serve as a point of comparison for a future endline final evaluation in the DFSA implementation areas. Results will also be used to further refine program targeting and, where possible, understand the relationship between variables to inform program design.

2.1.2 Sample Design

The target population for the joint baseline/endline PBS consists of two components: (1) all households in the areas where the prior DFAPs were implemented, and (2) all households in the areas where the new DFSAs will be implemented. These target populations overlap to a great extent, because the DFSAs are being implemented in most of the same geographic areas where the prior DFAPs were implemented. The sampling frames for the baseline and endline PBSs were constructed to take into account these overlapping geographies. ICF used the list of target areas provided by the IPs and the most recent census data for constructing the sampling frame.⁴⁶

The sample size for the joint baseline/endline PBS was derived by these steps: (1) calculating the sample size needed for the baseline PBS for the current DFSAs; (2) calculating the sample size needed for the endline PBS for the prior DFAPs; and (3) deriving a joint sample size based on these sample size calculations, taking into account the overlap between the current DFSA and prior DFAP implementation areas. The sample size calculation for (1) and (2) are based on a multi-stage clustered sample designed to adequately power a test of differences between the baseline and endline estimates for the FFP stunting indicator for each DFSA (stunting is a key FFP indicator).

Table 1 shows the areas covered and derived sample size by IP for the joint baseline/endline PBS.⁴⁷ A stratified multi-stage clustered sample design was used with three stages of sampling: (1) selection of clusters (census enumeration areas), (2) selection of households (30 households per enumeration area),⁴⁸ and (3) selection of individuals. Each DFSA represented one stratum, and the sampled villages were allocated to districts in each stratum based on the number of households in each district (see Annex 2, Uganda Joint Baseline/Endline PBS Protocol, for more details on the sample design and allocations).

⁴⁶ The most recent Ugandan Census was conducted in 2014 by the Uganda Bureau of Statistics.

⁴⁷ It is worth noting that the overall sample size for the joint baseline/endline PBS (3,360 households) is substantially less than the sum of the sample sizes of the two individual PBSs (2,440 + 2,460 = 4,900 households); this comparison highlights the sample size (and related cost) savings realized by the joint administration of the two surveys, as compared to that had the two PBSs been administered separately.

⁴⁸ Because this is a population-based survey, all sampled households will not necessarily participate in the DFSA activities.

Table 1: Sampled Households by Implementing Partner, Uganda 2018

DFSA	Districts in DFSA Area*	Number of Sampled Households for 2013 BL Study	Number of Households Needed for 2018 EL Study	Number of Households Needed for 2018 BL Study	Joint BL/EL Sample Size Requirement
MC Apolou	Kaabong, Kotido, Moroto, and Amudat	2,400	1,220	1,230	1,680
CRS Nuyok	Abim, Nakapiripirit, and Napak	2,400	1,220	1,230	1,680
TOTAL		4,800	2,440	2,460	3,360

BL=baseline, EL=endline

* The 2012 Resiliency through Wealth, Agriculture, and Nutrition in Karamoja DFAP included the southern districts of Amudat, Moroto, Nakapiripirit, and Napak; the 2012 Growth, Health, and Governance DFAP included the northern districts of Abim, Kaabong, and Kotido. The districts were divided differently for the new DFSAs. The CRS Nuyok DFSA included the districts of Abim, Nakapiripirit and Napak, and the MC Apolou DFSA included the districts of Amudat, Kaabong, Kotido, and Moroto.

2.1.3 Questionnaire

The questionnaire for the PBS (see Annex 3) was developed based on the core FFP and resilience indicators. All questionnaire modules follow FFP and Feed the Future guidelines, as described in the *FFP Indicators Handbook* (April 2015)⁴⁹ and the *Feed the Future Indicator Handbook* (September 2016).⁵⁰ The ICF team revised the questionnaire from the 2013 baseline survey so that new indicators could be included for the 2018 PBS. Information was gathered before, during, and after the baseline planning workshop (January 2018) to tailor the newly added questions to the context of Uganda. The resilience module was contextualized by TANGO based on prior work in Uganda.

The questionnaire was translated into three local languages (Ngakarimojong, Pokot, and Lepthur) and consisted of separate modules covering the following topics:

- Module A: Household Identification and Informed Consent
- Module B: Household Roster
- Module C: Household Food Security
- Module CC: Mobility, Local Government Responsiveness, and Poverty Probability Index⁵¹
- Module D: Children's Nutrition and Health
- Module E: Women's Nutrition and Health
- Module F: Water, Sanitation, and Hygiene
- Module G: Agriculture
- Module H: Poverty
- Module J: Gender—Cash
- Module K: Gender—Maternal and Child Health and Nutrition
- Module L: Gender—Household Decision-Making, Access to Credit, and Group Participation
- Module R: Resilience

⁴⁹ Food and Nutrition Technical Assistance III Project. 2015. *FFP Indicators Handbook Part I: Indicators for Baseline and Final Evaluation Surveys*. April 2015. Washington, DC. [A newer version of the FFP Indicators Handbook is pending release in 2018.](#)

⁵⁰ Available at https://feedthefuture.gov/sites/default/files/resource/files/Feed_the_Future_Indicator_Handbook_Sept2016.pdf

⁵¹ The 2018 baseline study will include questions to calculate the Innovations for Poverty Action (IPA) Poverty Probability Index (PPI), which will be used to construct two poverty indicators: prevalence of poverty and depth of poverty. These two indicators will be compared to the same two indicators constructed using the Living Standards Measurement Study (LSMS) methodology. This is a pilot study for the PPI to test its viability as a replacement methodology for the LSMS variants for calculating the poverty indicators. The analyses for the PPI will be conducted by IPA with support from ICF and presented in a separate report.

2.1.4 Field Procedures

Listing Exercise

The local data collection subcontractor (IRC) conducted a household listing and mapping of the selected clusters. Household listers were trained to locate a cluster, identify its geographical boundaries, draw sketch maps, identify locations of the households on the sketch map, and measure and record Global Positioning System (GPS) coordinates at the center of the cluster. The listing exercise was conducted from January 22 to 25, 2018, by 20 trained listers in the 112 selected clusters located in the 7 districts of Karamoja. The results from the household listing operation were used for the second-stage sampling of households in each selected cluster.

Training

The ICF team developed training manuals based on FFP and Demographic and Health Survey guidelines for training and for use in the field. These included a supervisor manual, an interviewer manual with a question-by-question guide, and an anthropometry manual. The supervisor and interviewer manuals contained instructions on how to operate the tablet computers in their respective roles.

Training of trainers (ToT): Before the interviewer training, a group of 6 field coordinators and 12 selected experienced supervisors received an intensive questionnaire training from January 22 to February 15, 2018, at the IRC office. The purpose was to familiarize this group with the approved questionnaire. After the questionnaire training, this select group of individuals supported the main interviewer training. There was a time lag of about two months between the completion of the ToT session and the commencement of the main interviewer training, so a refresher ToT was conducted for two days during May 9 to 11. This was done to ensure that all the field coordinators understood the questionnaire, how to use the tablets, and all the field procedures.⁵²

Main training: The main survey training took place from May 12 to 31 at Makerere University in Kampala. Combined and separate trainings were conducted for interviewers, supervisors, and anthropometry specialists. The training covered the study design and objectives, key roles and responsibilities for supervisors and interviewers, rules and regulations, ethics, fieldwork preparations, quality control requirements and procedures, guidelines for implementation of the survey, interviewing techniques, procedures for completing the questionnaires, and detailed explanation and instructions for each question. Trainees were also given different quizzes to assess their level of comprehension of the key concepts and modules. In addition, an events calendar was developed for Karamoja to help in estimating ages for the survey respondents for cases in which dates of births could not be ascertained. Staff from USAID/Uganda and the IPs attended parts of the training to provide technical assistance as needed.

Anthropometry training and standardization: Twenty anthropometrists were trained from May 16 to 31 at the IRC offices. Training was interactive and participatory with practice, testing, and discussions. The training covered the following topics:

- The importance of taking accurate measurements, types of measurement errors, reading and recording measurements, reading and recording systems
- Definitions of measurements, derived anthropometry indices (i.e., stunting, wasting, underweight)
- Understanding weighing and measuring instruments
- Introduction to standing height and weight of children 2–5 years of age
- Recumbent length and weight of children under 2 years of age
- Hands-on practice to measure height/length and weight of children under 2 years of age, children 2–5 years of age, and women on separate days

⁵² A pre-test of the survey questionnaire was not conducted since it was essentially the same as that used for the 2013 Baseline Study which was pre-tested in 2013.

- Use of the quality control sheet and Z-score tables
- Bilateral pedal edema training
- Age assessment training
- Anthropometry questionnaire training and completion

The standardization testing was undertaken to ensure that all anthropometry specialists acquired the skills necessary to collect high-quality data. For standardization testing, anthropometry specialists' measurements were compared to the measurements taken by the anthropometry trainer. The testing included comparing repeated measurements that were taken by the anthropometry specialists to check the consistency of their own measurements. The purpose of standardization testing was to detect differences in measurements, identify possible causes, and correct them. The exercises were repeated as many times as necessary until none of the measurements recorded by the anthropometry specialists differed significantly from those of the anthropometry trainer.

Pilot Test

Upon completion of the trainings, all survey staff participated in a pilot exercise in pre-selected, non-sampled villages in the Moroto District from June 2 to 4. The pilot was conducted to test the soundness of the questionnaire and identify any potential problem areas, such as issues with skip patterns, wording, sequencing of questions, instructions to interviewers, and clarity of the questionnaire for coding. The pilot was further used to test the programming of the questionnaire flow and skips, and use of the tablets in the field, including data transmissions. The pilot provided the survey team practice on the following:

- Location of selected villages by supervisors
- Respondent selection routines by interviewers
- Appropriate interviewing behavior
- Questionnaire proficiency
- Completion of field control sheets by supervisors
- GPS data collection at the household level
- Team dynamics
- Distribution of work assignments and coordination by supervisors

Each interviewer completed at least three full interviews using the tablet during the pilot test. The total time for completing the survey in each household was approximately three to four hours, depending on the size of the household. Supervisors observed the interviewers in their teams during the pilot test and took notes on their performance. IRC's survey management team, the ICF survey coordinator and the local survey monitor, the ICF information technology (IT) expert and the IRC IT counterpart, the anthropometry trainer, and the local anthropometry counterpart also participated in the pilot test. On June 5–6, the management team, together with the supervisors, debriefed the team. They provided feedback and clarified all issues encountered during the pilot study.

Fieldwork

Data collection started immediately after the pilot study and was conducted from June 7 to July 6. There were 18 teams involved in data collection: 4 consisted of 7 field team members (1 supervisor, 5 interviewers, and 1 anthropometry specialist), and 14 consisted of 6 field team members (1 supervisor, 4 interviewers, and 1 anthropometry specialist). IRC hired a total of 76 interviewers, 18 anthropometry specialists, and 18 supervisors. In addition, IRC's field staff included the principal investigator, 5 field coordinators, and 2 IT specialists, for a total of 120 field staff for the survey.

In addition to the IRC staff, the ICF survey coordinator and local survey monitor were in the country throughout all critical phases of the survey—including the training, pilot test, and fieldwork—to coordinate and supervise activities. Throughout fieldwork, the ICF survey coordinator received frequent updates from the field coordinators assigned to each of the DFSA areas.

2.1.5 Data Processing and Analysis

Sampling Weights

Sampling weights were computed and used in the data analyses. Weights were computed separately for the baseline PBS data analyses according to the unique sampling scheme that was relevant for the associated sampled household or individual. This involved computing an overall sampling weight for each distinct sampling group by taking the inverse of the product of the probabilities of selection from each stage of sampling. Weights were calculated for the following distinct sampling groups:

- Households (used for indicators derived from Modules C, CC, F, H, L, and R)
- Children under 5 years of age (Module D and children's anthropometry)
- Women 15–49 years of age (Module E)
- Non-pregnant women 15–49 years of age (women's anthropometry)
- Farmers (Module G)
- Cash-earning adults (Module J)
- Parents of children under 2 years of age (Module K)

Weights were calculated separately for each of the DFSA areas and adjusted to compensate for household- and individual-level non-response, as shown in Table 2.

Table 2: Joint Baseline/Endline PBS Response Rates, Uganda 2018

Sampling Groups	Number Sampled	Number Interviewed	Response Rate (%)
Households (Modules C, CC, F, H, L, and R)	3,326	3,135	94.3
Children 0–59 months of age (Module D) ^a	3,235	3,098	95.8
Women 15–49 years of age (Module E) ^b	3,259	2,670	81.9
Non-pregnant women 15–49 years of age (anthropometry)	2,243	2,095	93.4
Farmers (Module G)	4,286	4,122	96.2
Male cash earners, married or in a union (Module J)	975	769	78.9
Female cash earners, married or in a union (Module J)	1,032	954	92.4
Fathers of children under two (Module K)	830	633	79.9
Mothers of children under two (Module K)	1,114	1,034	92.8

^a The portion of Module D pertaining to exclusive breastfeeding was administered for children under 6 months of age, and the portion of Module D pertaining to minimum acceptable diet was administered for children under 6–23 months of age.

^b The portion of Module E relating to contraception was administered only to women 15–49 years of age who are currently married, and the portion related to antenatal care was administered only to women 15–49 years of age who had a live birth in the past five years.

Indicator Definitions and Tabulations

Definitions and methods for tabulation of all FFP indicators are presented in the Data Treatment and Analysis Plan (see Annex 4). The World Health Organization (WHO) child growth standards and associated software (WHO, 2011) are the basis for tabulating the child stunting, underweight, and wasting indicators. Consumption aggregates for computing the poverty indicators follow the World Bank's Living Standards Measurement Study methodology. Results for all indicators are weighted to represent the full target population in the DFSA-identified areas of implementation. Variance estimates for each indicator were computed using Taylor series expansion, taking into account the design effect associated with the complex sampling design. Depending on the indicator, differences in estimates by age, sex, and gendered household type were tested for statistical significance, taking into account the clustered sample design.⁵³ Additional bivariate and multivariate analyses were conducted to explore

⁵³ Differences are considered statistically significant based on the p-value for the significance test. P-values of <.10 are considered marginally significant, p-values of <.05 are significant, and p-values <.01 are highly significant.

relationships between indicators. Only those differences that are statistically significant are cited in the report; the results of all analyses are provided in Annexes 8 and 9.

Handling of Missing or Erroneous Data

Missing data points were excluded from the denominator and numerator for indicator calculations. The denominator included “Don’t Know” responses, recoded to the null value. For example, the denominator for the contraceptive prevalence rate included “Yes,” “No,” and “Don’t Know” responses, but the numerator included only “Yes” responses. For poverty indicators, there are special methods for handling missing data (see Appendix C of Annex 4).

2.2 Methods for Qualitative Study

2.2.1 Study Objectives and Design

The overarching objective of the baseline qualitative data collection was to interpret and contextualize data derived from the baseline PBS. The design of the qualitative study draws on key informant interviews (KIIs) and focus group discussions (FGDs) in a purposive sample of data collection sites based on a specific set of guiding research questions designed to help interpret and contextualize specific results from the baseline PBS (see Table 3). The interview questions and topic guides for KIIs and FGDs were related to one or more modules in the PBS questionnaire. Annex 5 provides a detailed description of the study protocol and the interview guides.

Table 3: PBS Quantitative Findings and Key Qualitative Study Questions

Quantitative PBS Findings	Guiding Research Questions
Nutrition and Food Security	
The average household dietary diversity score (HDDS) is low (less than 4 out of 12 food items) in both the CRS and MC areas.	Why is the HDDS so low in the project areas? What are the issues and challenges associated with low dietary diversity? How could the households improve their dietary diversity?
Nine out of 10 households experience moderate or severe food insecurity in both project areas.	- What are the community perceptions about food security in Karamoja region? - Is the food insecurity situation in the project areas as dire as the quantitative PBS data show? - What factors contribute to the high levels of food insecurity in the project areas? - What are the cultural, social, and economic challenges of food security within the households, among children under 5 years of age, and among women of reproductive age?
Nearly 40 percent of children are chronically malnourished (stunted) in both project areas.	- What are the barriers of child malnutrition within the households and in the communities? How could they be improved? - Why are male children more stunted than female children? - What kind of foods are typically consumed by male and female children? Are male children more exclusively breastfed than female children? - What are the typical foods provided to children 0–5 months of age, 6–23 months of age, and 24–59 months of age? How adequate are these foods? - What are the differences in feeding practices between male and female children? - What has been done by communities and development agencies in the past five years to improve children’s diets and address child malnutrition in Karamoja? What still needs to be done? What should be done differently?
More male children compared to female children are stunted in both project areas.	
Only about 10 percent of children 6–23 months of age consume a minimally accepted diet.	

Quantitative PBS Findings	Guiding Research Questions
- About a quarter of women of reproductive age are underweight. - Less than 20 percent of women consume a diet with minimum diversity.	- What factors contribute to malnutrition among adult women? - What has been done to decrease women's malnutrition in the last three to four years, and what still needs to be done? What should be done differently?
Poverty	
- About 9 in 10 households are below the poverty line in both project areas. - The depth of poverty among the poor is also remarkably high, around 60 percent. This indicates that households are not just below the poverty line, but that their per capita expenditures is way below the poverty line of USD 1.90 per day (purchasing power parity 2010). - Despite this, nearly 90 percent of men and women in a union reported earning cash in the past 12 months.	- Why do many households fall below the poverty line in spite of many development efforts, including Resiliency through Wealth, Agriculture, and Nutrition in Karamoja (RWANU) and Growth, Health, and Governance (GHG), which have been implemented in the Karamoja region over the last 10 years? - What has been the effect of GHG and RWANU on the livelihoods and income sources of community members and households? - Why are household per capital expenditures still below USD 1.90 per day in spite of previous support from development projects, including the FFP projects? - What are households doing differently to cover their nutritional needs and health care compared to five years ago? - Are there obvious improvements in the capacity of households to cover their nutritional needs, health care needs, and other necessary expenses over the last five years? If so, what are they? - How best can communities be supported to improve their livelihoods and income sources?
WASH	
- About 65 percent of households practice open defecation in the both project areas. - Less than 5 percent of households have soap and water in their handwashing station. - About 20 percent of households use basic drinking water sources. - A quarter of children under 5 years of age had diarrhea within two weeks before the survey took place.	- Why do communities still engage in open defecation? - What innovative approaches should be used to eradicate open defecation in the Karamoja region? - What factors contribute to the low levels of use and availability of WASH services and commodities in the region? - What gender norms influence the use of WASH services in the community? - Why do many households fail to use basic drinking water sources? - What factors contribute to the high prevalence of diarrhea among children under 5 years of age? - What factors contribute to the low levels of hygiene and sanitation practices in the communities? - How can communities address challenges related to access and utilization of WASH services? What kind of support is needed from the local government and implementing partners?
Agriculture	
- About 20 percent of farmers used financial services in the past 12 months. - Less than 50 percent of farmers used improved storage practices in the past 12 months.	- What factors contribute to the low level of use of financial services by farmers and other traders for agricultural produce in the community? - How can access to financial services be scaled up among farmers? - What factors contribute to the low level of use of improved storage practices among farmers in the community? - How can the use of improved storage practices be scaled up among farmers?

2.2.2 Site Selection and Study Participants

Qualitative data were collected in seven villages (one in each district) that were purposively selected (see Table 4) based on the following characteristics:

- They were included in the joint baseline/endline PBS and are currently targeted by Apolou and Nuyok.
- They feature interventions in agriculture/livelihoods, WASH, and maternal and child health and nutrition.
- They were located in places that could easily be accessed within the time allocated for the research.

Table 4: Villages and Participants for the Baseline Qualitative Study, Uganda 2018

District	Village	FGDs		KIIs	
		Number Planned	Number Completed	Number Planned	Number Completed
Kotido	Nakapelimoru	8	7	4	2*
Kaabong	Losongolo	8	8	4	1*
Abim	Abim S/C	8	8	4	4
Napak	Lopeii	8	6	4	4
Moroto	Tapac	8	4	4	4
Nakapiripirit	Kakomangole	8	8	4	4
Amudat	Namosing	8	7	4	1*
Total		56	48	28	20

*Missing key informant as not available during the data collection period

The study participants included key informants and community members.⁵⁴ Key informants were purposively selected because of their expert knowledge in food security and nutrition, agriculture/livelihoods, WASH, and maternal and child health and nutrition. For each district, the following key informants were targeted: district production officer, subcounty agriculture extension officer, representative of a micro finance institution (MFI), and maternal and child health nurse or in-charge of a nearby health facility. In addition, FGDs were conducted with the following community members at the household level in each district:

- **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 spouse, and may or may not participate in farming activities. Preference will be given to individuals who have children under 5 years of age in the household; however, this will not be 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 over the type of food to eat and items to purchase in the household. 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 activities. Preference will be given to individuals who have children under 5 years of age in the household; however, this will not be a requirement.
- **Male farmer:** A man who undertakes and has decision-making authority over farming activities either on his own property or on someone else's (community plot). 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.

⁵⁴ Key informants are individuals who have important information and insights to offer regarding the local context and socio-economic situation because of their position in the project activities, community, and government or private institutions.

- **Female farmer:** A woman who undertakes and has decision-making authority over farming activities on her own property or someone else's (community plot). 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 and female young people/teenagers:** These are male and female young people/teenagers 15–20 years of age.
- **Community health workers:** These are members of the village health teams as identified by the village local council chairpersons.
- Members of the **village water service committees**

2.2.3 Data Collection Procedures

Data collection for the qualitative study took place from September 30 to October 7 and was conducted by a team comprising a lead qualitative researcher and six field assistants (three males, three females). The qualitative researcher provided leadership in the design, implementation, analysis, and reporting for the qualitative study. He trained and closely supervised the field assistants in data collection, transcription, and translation. The field assistants were selected based on their experience in conducting KIIs and FGDs and fluency in the local dialects or languages.

The entire field team was comprehensively oriented on the study methodology and data collection tools before the start of the actual fieldwork through a pre-test, after which any necessary corrections were made. All field assistants were closely supervised by the qualitative researcher for the entire duration of field data collection. All interviews were conducted using the most suitable language for the study respondents. In addition, all interviews were digitally recorded with permission from the participants.

2.2.4 Data Processing, Management, and Analysis

The FGDs and KIIs were audio-recorded and later transcribed verbatim by the field assistants. All typed transcripts were reviewed by the qualitative researcher, double-checked for completeness, and uploaded in a Dropbox folder for storage. Access to the Dropbox folders was restricted with a password that was provided to only those with access rights. In addition, all the collected information was printed and stored as hard copies in a secure locked cabinet at the IRC offices.

The audio-taped data were transcribed verbatim by the field assistants and were analyzed manually using content analysis.⁵⁵ Data were read and re-read by the qualitative researcher to identify emerging themes from the transcripts.⁵⁶ To provide an understanding of the quantitative indicators derived from the results of the household survey, content analysis was used to identify themes or trends in responses, both within and across respondent groups, and then the findings from the quantitative PBS were triangulated with the findings from the qualitative data collection. Direct quotations from the KIIs and FGDs were also used to support the interpretations. Typical quotes were selected and included in this report to emphasize the reasons for the reported quantitative performance.

2.3 Data Limitations and Fieldwork Challenges

2.3.1 Data Limitations

Effects of prior FFP and other donor programs. There are several other ongoing programs in the DFSA implementation areas that may have direct effects on some indicators. These effects are not directly measurable and may contribute to the overall change in indicators measured at endline. In addition, the prior DFAPs operated in a substantial portion of the new DFSA areas, which may influence indicator results for those households that participated in the prior DFAP activities.

⁵⁵ Riley, J. 1990. "Getting the most from your data." London, King's Fund.

⁵⁶ Glaser, B. G., and Strauss, A. L. 1967. "The discovery of grounded theory." Chicago IL. Aldine.

Validity and reliability of self-reported data. Much of the data collected for the household PBS were self-reported, which 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. These same limitations may apply to qualitative data collected through KIIs and FGDs. To reduce the likelihood of these potential effects on validity and reliability, the analysts triangulated the PBS findings with the qualitative study findings.

2.3.2 Fieldwork Challenges

- The road network in most of the districts was very poor and was worsened by flooding in districts like Amudat, Abim, Napak, and Nakapiripirit. Some teams struggled over long distances, which had an impact on the output per day in some of the clusters. In some cases, teams had to travel for more than 10km to access the clusters. The coordinators and supervisors worked with local authorities to establish areas that were relatively dry and could be accessed. This required modifications to the travel plan. Despite the heavy rains and long distances to some selected clusters, the teams managed to reach out to the clusters and carried out 95 percent of household interviews. A few clusters were replaced because the sampled ones were inaccessible in the rainy season.
- Some tablets would freeze during the interview. The IT support team worked in real time to provide support to the interviewer teams that reported challenges. They installed the Team Viewer application on all the tablets to enable them to troubleshoot challenges on specific tablets without necessarily travelling physically everywhere in the field. Replacements were made for a few tablets whose issues could not be resolved in the field. This saved time and prevented data loss.
- Supervisors were required to upload data daily, but in some cases this was not possible due to low network bandwidth. Supervisors were advised to move to the nearest towns or elevated areas where they could access the internet and upload the data.
- Interviewers experienced difficulties in obtaining the required 30 interviews in a few clusters. Despite these problems the overall PBS household-level response rate was close to 95 percent.
 - Specific to Napak District, there were floods in Iriri Subcounty, which led to migration in some areas. This presented a challenge because there were 11 vacant households in one of the clusters.
 - Specific to Nakapiripirit District, in Moruita Subcounty, at the Moruita trading centre, a number of different languages are spoken because of the mixture of people from different districts. The team was only able to conduct 19 household interviews (of 30 needed for the cluster) with the help of translators. Fifteen of the interviews were Bantu-speaking households and four were Pokot-speaking households.
 - Specific to Kaabong District, the major reason for call backs was the respondents' engagement in cash for work activities (through a project with the Northern Uganda Social Action Fund), so they left their homes very early in the morning and returned very late in the evening. This was a challenge if a call back fell on the third or fourth day in a cluster, because it would cause logistical challenges and impact on the daily output of the affected team.

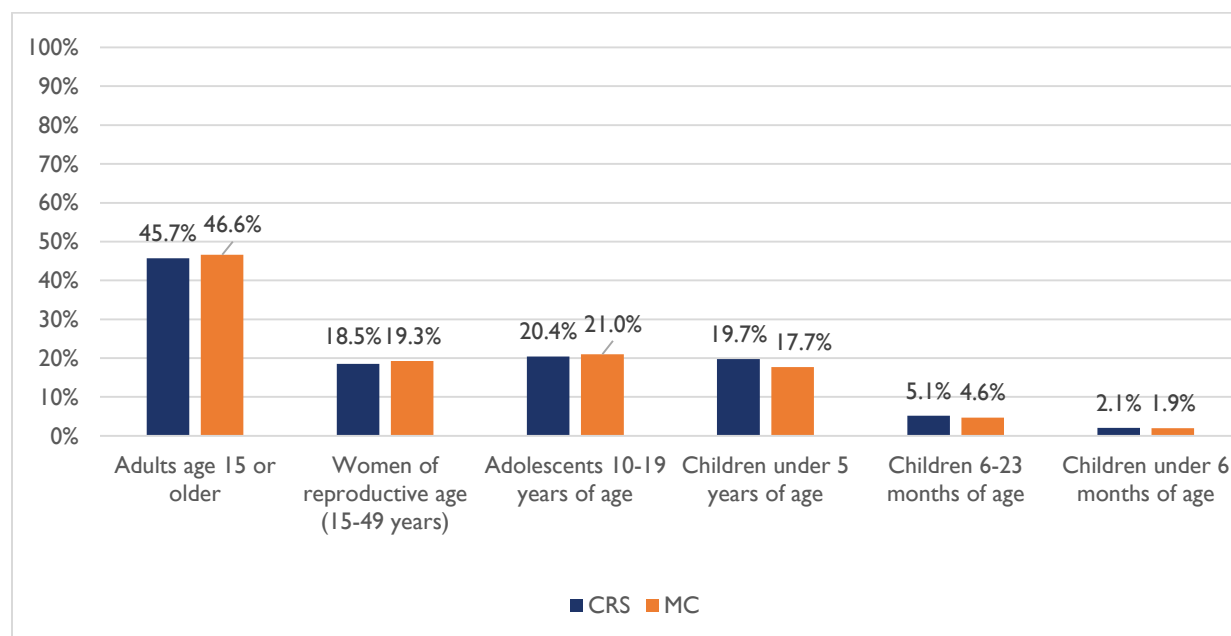
3. FINDINGS

The baseline PBS findings are described in the following sections: (1) characteristics of the population, (2) food security and poverty, (3) WASH, (4) agriculture, (5) women's health and nutrition, (6) children's health and nutrition, (7) gender, and (8) resilience. Each section discusses the findings from the household survey and the qualitative study as related to the relevant FFP indicators. Annex 6 provides a tabular summary of all indicators and indicator disaggregations along with sampling statistics.

3.1 Characteristics of the Study Population

The current population of Uganda is estimated to be 44,703,000 people.⁵⁷ The population of the combined DFSA areas was estimated at 723,726 people,⁵⁸ or about 1.6 percent of the total population of Uganda. Adults 15 years of age and older comprise 46.2 percent of that population. More than one-half of adults (55.0 percent) are farmers. Women of reproductive age comprise 18.9 percent of the population, and children under 5 years of age comprise 18.6 percent of the population. In addition, 78.2 percent of women of reproductive age are married, and 65.1 percent of all women of reproductive age had a live birth in the past five years. The demographic characteristics of the population are similar across the two DFSA areas, as shown in Figure 3.1a. See Table A7.1, Annex 7 for further details on estimated population sub-groups in the DFSA areas.

Figure 3.1a: Select Characteristics of the Population in the DFSA Areas, Uganda 2018



The combined DFSA areas have an estimated 132,832 households, and the average household includes 5.4 household members. Households have an average of 2.5 adults 15 years of age and older. About three-quarters of households in the combined DFSA areas (77.1 percent) include at least one adult male and female, 18.6 percent of the households include at least one adult female but no adult male, and 3.6 percent of households include at least one adult male but no adult female.

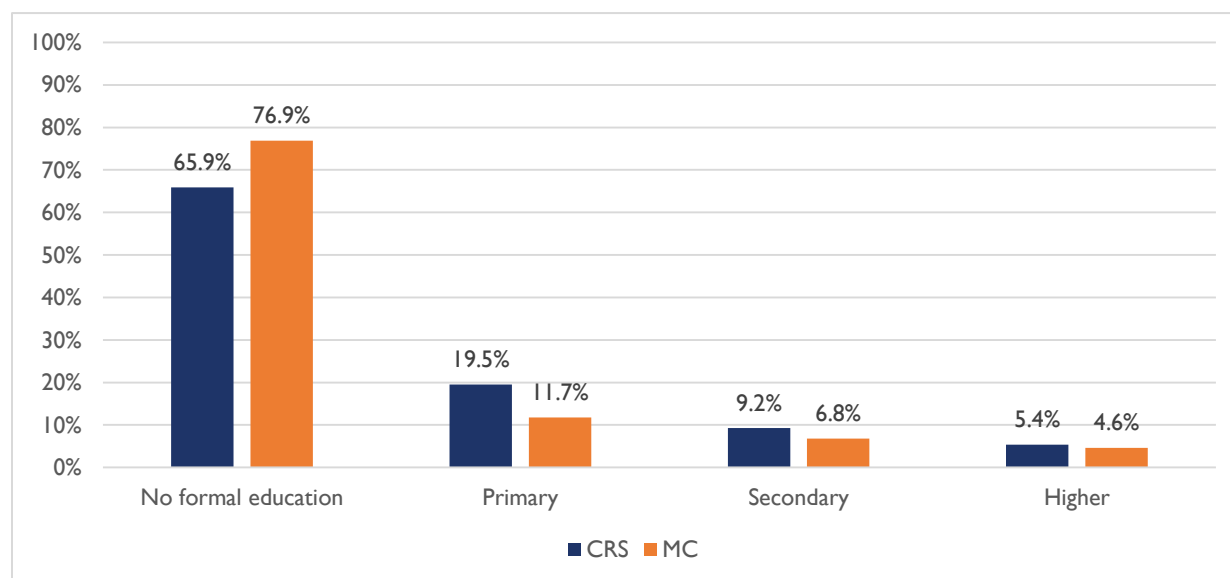
Three of five households in the DFSA areas are headed by males. More than 70 percent of all heads of households (71.7 percent) have no formal education, 15.4 percent have a primary education, 7.9 percent have a secondary education, and 5.0 percent have a higher education. Education levels are slightly higher

⁵⁷ United Nations Department of Economic and Social Affairs: Population Division, 2018

⁵⁸ This is the estimated number of people based on the weighted results from the baseline PBS.

in the CRS DFSA area compared to the MC DFSA area (see Figure 3.1b). Among all households in the combined DFSA areas, 61.5 percent have children under 5 years of age. See Annex 7, Table A7.2, for more details on household characteristics in the DFSA areas.

Figure 3.1b: Education Levels of Household Heads in the DFSA Areas, Uganda 2018



3.2 Household Food Security and Poverty

This section uses data from the household survey and the qualitative study that can provide insights for program targeting and design related to food security and poverty. Food security indicators include the HDDS and prevalence of moderate or severe food insecurity based on the Food Insecurity Experience Scale (FIES) using two reference periods, 30-day recall and 12-month recall.⁵⁹ Poverty indicators include daily per capita expenditures, prevalence of poverty, and depth of poverty of the poor.

Table 3.2.1 provides the baseline indicator estimates for food security and poverty indicators in the combined DFSA areas and for the CRS and MC DFSA areas separately. In the sections that follow, these indicators are examined through bivariate and multivariate analyses to identify factors that are closely associated with food insecurity and poverty and are triangulated with qualitative data where appropriate.

Table 3.2.1: Food Security and Poverty Indicators, FFP Baseline Study, Uganda 2018

Indicator	Overall	CRS	MC
Average HDDS	3.3	3.1	3.6
Prevalence of moderate and severe food insecurity based on 30-day recall (FIES)	91.0	90.4	91.6
Male and female adults	91.0	90.7	91.3
Female adults only	92.1	90.7	93.7
Male adults only	85.2+	80.7*	89.2
Children only (no adults)	N/A	N/A	N/A
Prevalence of moderate or severe food insecurity based on 12-month recall (FIES)	93.7	94.0	93.4
Male and female adults	93.6	94.3	93.0
Female adults only	94.7	94.1	95.4
Male adults only	90.4	88.0	92.6
Children only (no adults)	N/A	N/A	N/A

⁵⁹ FIES is a new indicator recently formulated by FAO and adopted by FFP in 2017. FAO-prescribed methodology was used to compute the FIES indicator. Details about FIES calculation can be found at: [The Food Insecurity Experience Scale-Development of a Global Standard for Monitoring Hunger Worldwide](#).

Indicator	Overall	CRS	MC
Per capita expenditures (as a proxy for income) of USG-assisted areas ^a	\$1.04	\$0.99	\$1.09
Male and female adults	\$1.04	\$0.98	\$1.10
Female adults only	\$1.00	\$0.99	\$1.01
Male adults only	\$1.64+	NA	\$1.48
Children only (no adults)	N/A	N/A	N/A
Prevalence of poverty: Percent of people living on less than \$1.90/day 2011 purchasing power parity ^b	88.8	88.0	89.5
Male and female adults	88.8	88.1	89.4
Female adults only	90.4	89.3	91.6
Male adults only	74.3**	NA	76.6+
Children only (no adults)	N/A	N/A	N/A
Depth of poverty of the poor: Mean percent shortfall relative to the \$1.90 poverty line ^c	61.4	60.2	62.5
Male and female adults	61.1	60.5	61.6
Female adults only	62.3	57.9	66.7**
Male adults only	67.1+	N/A	68.1
Children only (no adults)	N/A	N/A	N/A
Number of responding households	2,770	1,235	1,535
Male and female adults	2,169	953	1,216
Female adults only	499	240	259
Male adults only	98	42	56
Children only (no adults)	N/A	N/A	N/A

^a Daily expenditures expressed in constant 2010 USD

^b Poverty estimates are computed based on the purchasing power parity derived from 2011 International Comparison Program market surveys.

^c Expressed as percentage of poverty line

N/A=Not available

*** p<0.001, ** p<0.01, * p<0.05, + p<0.10; Reference group=Male and female adults households

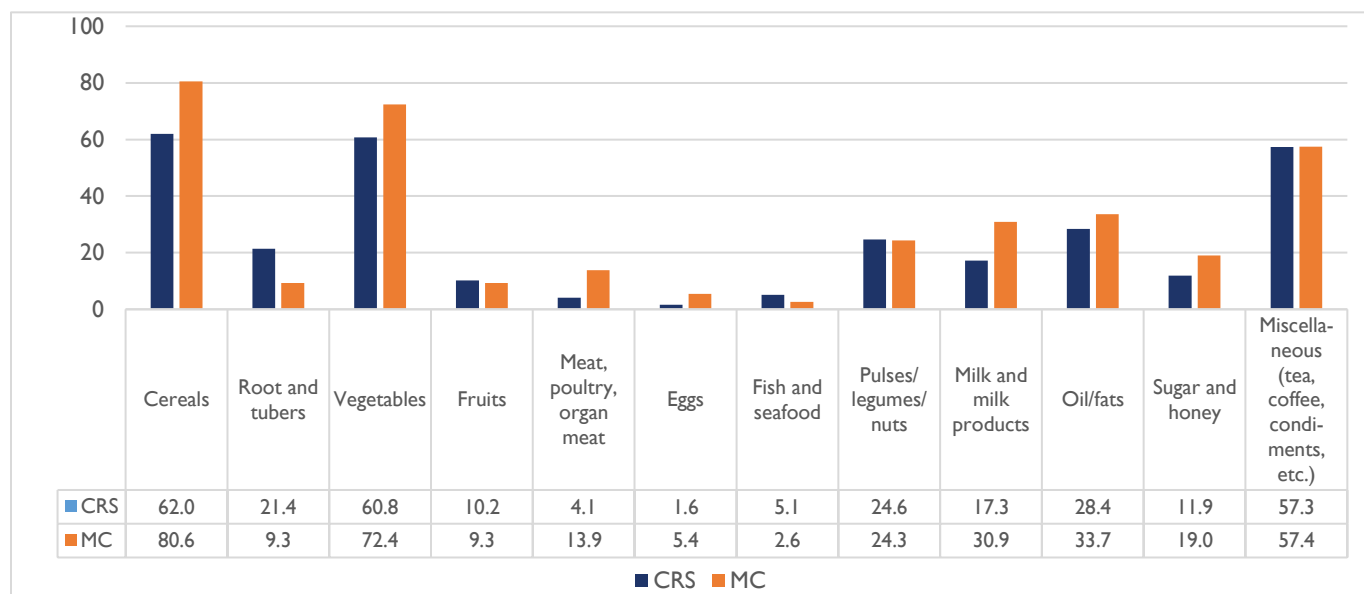
3.2.1 Food Security

The FIES indicator measures the percentage of households that experienced food insecurity at moderate or severe levels during the reference period. Nine out of ten households in both project areas experienced moderate to severe food insecurity in terms of quality and quantity due to lack of money or other resources in the past 30 days.

The poor food security situation is also reflected in the HDDS indicator; on average, households accessed and consumed 3.3 of 12 basic food groups. Among the 12 food groups, cereals (62 percent), vegetables (61 percent), miscellaneous items such as tea, coffee and condiments (57 percent), and oil and fats (28 percent) were the most commonly consumed food groups in the CRS area. In the MC area, cereal (81 percent), vegetables (72 percent), miscellaneous items such as tea, coffee and condiments (57 percent), and oil and fats (34 percent), and milk and milk-products (31 percent) were the most commonly consumed food groups (see Figure 3.2.1 and Table A7.3, Annex 7). Household consumption of meat, poultry and organ meat, eggs, and fruits is minimal in both DFSA areas.

Note that the baseline study was conducted during the month of June and the first week of July; at the height of the rainy season and the end of the typical lean season in Karamoja. The FIES 30-day recall and the HDDS thus reflect the food security situation during the time when food is most scarce in the DFSA areas.

Figure 3.2.1: Percentage of Households Consuming HDDS Food Groups in the DFSA Areas, Uganda 2018



The qualitative study also showed that the food insecurity situation was dire and communities only depend on the limited food which is available in their households for survival. Most respondents in both DFSA areas cited that poor and unreliable weather conditions do not support the growth of many highly nutritious food crops. The Karamoja Region experiences long dry spells that lead to drying up of most food crops and heavy rains which wash away the planted crops in the fields.

“The main threats of food security in our community remains to be the poor performance of rainfall in terms of variations, low amounts received and poor distribution in space and time that leads to near total crop failure.” Female youth, Abim

In addition, many of the community members do not know how to time the seasons especially when cultivation should start resulting in delayed planting of food crops.

“People don’t know how to time the season for the case of Karamoja, rain sometimes come early and disappears. As a result; people will end up not cultivating and this leads to food insecurity.” Male household head, Kotido

Many qualitative respondents reported that the seeds which were provided to communities are not drought resistant and are frequently affected by pests and diseases resulting in smaller harvests.

“Pests and diseases like the thread worm are very alarming. Immediately you start planting, the thread worm pops up as well. Even last year it was a terrible threat but we reported the issue only that the government takes long to respond. We just advised the farmers to maybe use other simple control measures. The other one which is becoming a threat is stringer weed and it affects mostly the cereals,” Napak local government official

Due to high levels of poverty; communities cannot afford modern farming equipment like tractors, or ox ploughs to cultivate larger pieces of land. In addition, the small harvest is usually diverted to make local brew by some of the community members and yet the monetary returns are very limited. A common habit of selling food meant for household consumption to purchase other household items like soap also increases household food insecurity. Another reason cited for food insecurity is inadequate labor at the household level caused by the cultural practice of leaving only women to cultivate land while the men look after cattle. Many qualitative respondents also mentioned that many families have many small children who do not provide labor in land cultivation.

3.2.2 Poverty

The main objective of FFP DFSAs is to improve nutrition and food security for vulnerable households in their implementation areas. Poverty indicators, based on household expenditures, are used as a proxy for income.⁶⁰ Poverty indicators include per capita expenditures calculated in constant USD 2010, percentage of people living on less than USD \$1.90/day,⁶¹ and depth of poverty of the poor relative to the USD \$1.90 poverty line.⁶² Daily per capita expenditures are calculated using purchasing power parity (PPP) 2011 and adjusted for inflation between 2010 and the survey month.⁶³ Percentage of people living below the poverty line, also called prevalence of poverty, is calculated as the share of the population whose consumption (combining food, non-food, and housing) is below the poverty threshold of USD \$1.90 per day. Depth of poverty of the poor is computed by subtracting each poor household's per capita expenditure value from the poverty threshold of USD \$1.90 to obtain the household shortfall from the poverty line. Households that have per capita expenditure values above the poverty threshold are not included in this indicator. The mean depth of poverty for the poor is expressed as a percentage of the per capita per day poverty line.

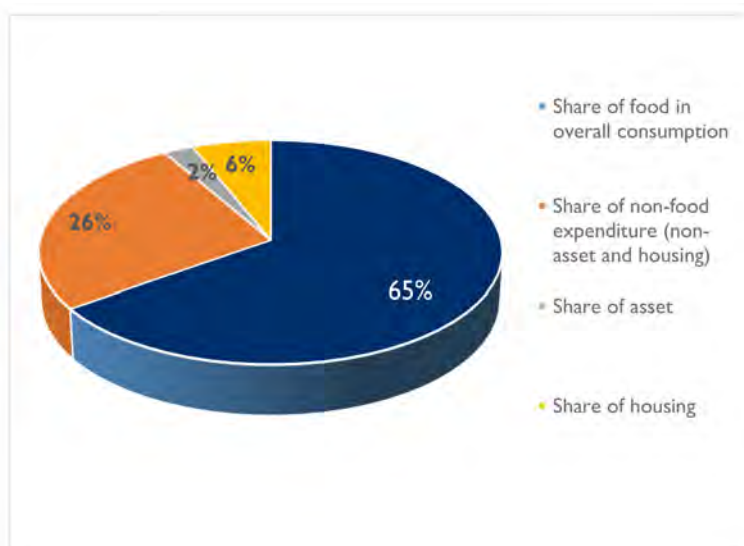
Based on the international poverty line of USD \$1.90 per capita per day (2011 PPP), 89 percent of households in the combined DFSA areas are poor, with average daily per capita expenditures at USD \$1.04 PPP 2011 (USD \$0.99 for CRS and USD \$1.09 for MC, see Table 3.2.1).

The share of different food and non-food sources in total per capita expenditures for the combined DFSA areas is presented in Figure 3.2.2. Food is the greatest source of expenditures (65 percent), followed by non-food (non-asset and non-housing) expenditures (26 percent). A large share of household expenditures concentrated on food, especially in the rural context, indicates households' poor economic status.

Depth of poverty among the poor in the combined DFSA areas is 61.4 percent of the USD \$1.90 poverty line (PPP 2011), indicating that on average, each poor individual in the combined DFSA areas would need to increase his or her income by 0.614 times USD \$1.90 or \$1.17 (PPP 2011) in order to move above the poverty line.

Table 3.2.1 shows poverty indicators disaggregated by gendered household type. The adult male-only households have a lower prevalence of poverty relative to households with male and female adults and

Figure 3.2.2: Sources of Average Per Capita Expenditures, Uganda, 2018



⁶⁰ Income in most developing countries and rural areas is difficult to measure due to the limited and often seasonal nature of cash-earning opportunities. In comparison, expenditure data are typically less prone to recall error and more evenly distributed over time than income data.

⁶¹ In October 2015, the World Bank announced a new international poverty line of USD \$1.90 per capita per day using 2011 purchasing power parity.

⁶² The methods used to estimate poverty indicators are described in detail in Appendix C of the Data Treatment and Analysis Plan (see Annex 4).

⁶³ Daily per capita expenditures are reported in constant 2010 USD to allow cross-country comparisons because the U.S. consumer price inflation is calculated with 2010 as a base year. International agencies such as the World Bank generally report countries' indicators, such as per capita expenditure and gross domestic product per capita, in constant 2010 USD.

adult female-only households across both DFSA areas. Among the poor households, the adult female-only households in the MC area have a higher depth of poverty compared to households with male and female adults, but no such difference was found for the male adult-only households. Unlike in the MC area, no significant differences were found between the female adult-only households and households with male and female adults in the CRS area.

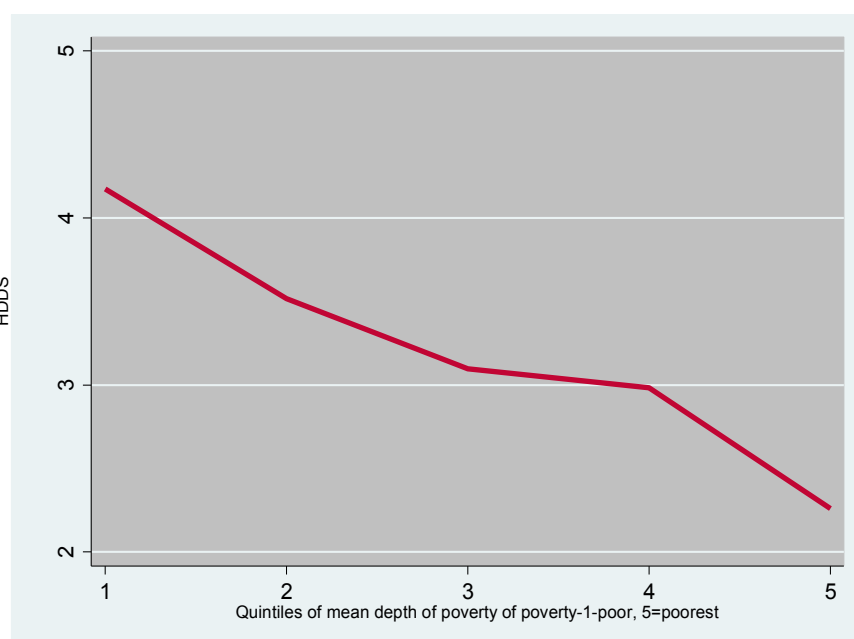
Relationships between Food Security and Poverty

A significant positive relationship between moderate to severe food insecurity and prevalence of poverty was found in the combined DFSA areas, indicating that household food insecurity increases as household poverty level increases. This relationship was found only in the MC area but not in the CRS area.

Depth of poverty among the poor was also found to be significantly positively associated with household's food insecurity experience in the MC area.

The HDDS is found to be significantly inversely associated with prevalence of poverty in the combined DFSA areas and in the CRS and MC areas separately. A similar association is found between the depth of poverty among the poor and the HDDS score (see Figure 3.2.3). The results are consistent across the DFSA areas and indicate that an increase in the prevalence of poverty or the depth of poverty may lead to reduced access to diverse foods at the household level.

Figure 3.2.3: Relationship between HDDS and Depth of Poverty of Poor, Uganda, 2018



Potential Drivers of Food Insecurity and Poverty

The food security and poverty situation in Karamoja region is complex and intertwined with various local, national, and even international political, social, economic and geographic factors. Exploring all those factors is beyond the scope of this report. Nonetheless, some relevant household-level variables available in the baseline data are likely to be associated with food security or poverty indicators. These variables are identified for simple bivariate correlation analyses (see Annex 8 for the list and definition of each variable). Variables found to be statistically significantly associated with indicator variables are considered for multivariate regressions to examine the tenacity and direction of the associations when other background characteristics as represented by other associated variables are controlled for. The bivariate and multivariate regression results are presented in Tables CT10.1–RT10.8, Annex 9.

Potential drivers of HDDS: Tables 10.1a–10.1d, Annex 9, present bivariate correlation results between the household HDDS score and select household-level variables. In the CRS area, the HDDS score is moderately⁶⁴ positively associated with households in which at least one farmer uses agricultural financial

⁶⁴ Following the standard statistical practice, this report considers all bivariate associations (correlations) with correlation coefficient (r) greater than 0.50 as strong association, moderate if r is equal to or greater than 0.30 and less than 0.50; and weak if r is less than 0.30.

services such as credit, savings, or agricultural insurance; households with cash savings; households with durable assets; households receiving or exposed to external information; and households participating in and making decisions in local community groups. In the MC area, the HDDS score is moderately associated with households owning durable assets. Other variables, such as households with educated household members, an adult cash earner, a higher wealth quintile, and linkages with government officials and NGOs, are also positively associated with the HDDS score in both DFSA areas, but the degree of association is not as strong.

All the variables significantly associated with the HDDS score, regardless of their strength of association and direction, were then considered for multivariate regression models developed separately for each DFSA (see Table T10.2, Annex 9).⁶⁵ The results showed a robust association of three household variables with the HDDS in both DFSA areas even after controlling for other background variables: (1) households with durable asset ownership, (2) households who participate in local decision-making bodies, and (3) households with educated adult members (see Table 3.2.2).

These associations are significantly positive, indicating that an improvement in these characteristics would likely lead to an improvement in the HDDS score, regardless of the households' poverty status, exposure to shocks, and other variables as controlled for in the regression models. The results also showed that the relative advantage of adult household members' education on HDDS is observed at the secondary and tertiary/university level of education only. The regression results showed a few other variables associated with HDDS, although the associations are not consistent across each DFSA area.

Potential drivers of FIES: The same set of variables used to examine the correlation with HDDS is used to examine the correlation with the FIES score (based on 12-month recall).⁶⁶ The correlation results presented in Table 10.2, Annex 9 indicate that two variables in particular—households with

Table 3.2.2: Variables Significantly Associated with HDDS Based on Regression Models

Variables	Relationship with HDDS	
	CRS	MC
Households with durable asset ownership	+	+
Households that participate in local decision-making bodies	+	+
Households with educated adult members	+	+
Adult female-only households relative to both male and female adult households	+	
Households with access to land for sharecropping relative to HHs that own the land		-
Households with access to no land relative to households that own the land		-
Households with more than three hectares of land compared to households with less than one hectares	-	
Households with at least one adult ≥ 15 years of age and earn cash or cash and in-kind payment	+	
Households in the fourth wealth quintile relative to first wealth quintile (poorest wealth quintile)		+
Households with higher level life aspirations/confidence to adapt		+
Households linkages to government officials and NGOs	+	
Households exposed to external information	+	
Households with access to financial institutions		-
Households experiencing climate shocks		+
Households experiencing conflict shocks	+	
Households' ability to recover from shocks		+

⁶⁵ As noted earlier, the purpose of the regression models is to check the tenacity of association shown by the bivariate analysis when other associated variables are controlled for. The multivariate regression models also help examine how much variation in the outcome variable is explained by the select set of variables and how each of the explanatory variables influence the outcome variable. Two sets of Poisson regression models were developed because of the zero truncated ordinal nature of the outcome variable—HDDS.

⁶⁶ The 12-month recall-based FIES indicator is more realistic to analyze household food insecurity because it encompasses households' experience throughout the year, including different agricultural seasons—lean and harvest times.

educated adult members and households experiencing biological shocks in the past 12 months—are associated with the FIES score in both the CRS and MC areas. Households with educated adult members tend to have less food insecurity, and households experiencing biological shocks in the past 12 months tend to have more food insecurity in both DFSA areas. Other variables, such as household size (+), households' access to natural resources (-), economic shock (+), and exposure to conflicts (+), are also associated with FIES score but only in the CRS area in the direction as pointed by the (+) or (-) symbols after each variable. In the MC area, HDDS (-), households with a farmer using agricultural financial services (-), poverty households saving cash (-), access to remittance (+), households receiving humanitarian assistance (+), social bonding (+), bridging (+), higher livelihood strategies (+), using agricultural extension services (-), biological shocks (+), and higher severity of shocks (+) are associated with the FIES.

All the variables that are significantly associated with FIES were then included in a multivariate linear regression for each DFSA area separately. Complete regression results are presented in Table T10.4, Annex 9, and a summary of the key findings is provided in Table 3.2.3.

After controlling for other variables, regression results show that households with access to communal natural resources tend to be less food insecure in the CRS area and more food insecure in the MC area. Compared to households with no education, households with any member with a primary or secondary education are less food insecure, even after controlling for other household-level variables in the CRS area. In the MC area, households with any member with a tertiary education are less food insecure. Households experiencing any of the three shocks in the past 12 months—biological, climate, or conflict—are more food insecure in the CRS area, and no such association was found in the MC area.

Table 3.2.3: Variables Significantly Associated with FIES Based on Regression Models

Variables	Relationship with FIES	
	CRS	MC
Households with access to communal natural resources	-	+
Household size	+	
Households with at least one member with a primary-level education relative to no education	-	
Households with at least one member with a secondary-level education relative to no education	-	
Households with at least one member with a tertiary-level education relative to no education		-
Households with a farmer using agricultural financial services		-
Prevalence of poverty		+
Availability of humanitarian assistance from government or NGO		+
Households with higher livelihood diversification	-	+
Households experiencing biological shocks	+	
Households experiencing economic shocks	+	
Households experiencing conflict shocks	+	

Poor households tend to be more food insecure in the MC area, even after controlling for household members' education level, exposure to shocks, access to natural resources, and access to agricultural financial services. No such relationships were found in the CRS area. Interestingly, households that have higher livelihoods diversification tend to be more food insecure in the MC area—somewhat counter-intuitive findings and a contrast to the findings in the CRS area. More diversified livelihoods options, higher poverty, and better access to communal natural resources indicate more food insecure households in the MC area.

Potential drivers of poverty: The same set of background variables considered for the HDDS are also used to examine bivariate associations with household poverty in both DFSA areas, and the results are presented in Table CT10.5, Annex 9. Only two variables—households with educated household members and households with ownership of durable assets—are found to have moderate inverse association with poverty in the MC area, and only one variable—households with ownership of durable assets—is found to have a moderate inverse association with poverty in the CRS area. Other variables that are associated with poverty in both the CRS and MC areas include households in which farmers have access to larger plot of agricultural land (-), households with farmers using agricultural financial services (-), save cash (-), prepared to mitigate and adapt shocks (-), have higher aspirations (-), have linkages with government officials and NGOs (-), have exposure to external information (-), use agricultural extension services (-), have linkage to livestock extension services (-), participate in local community groups (-), experience climate shocks (-), experience economic shocks (-), and experience conflict shocks (-). In addition to these, there are variables that are associated with poverty in the CRS area only and variables that are associated with poverty in the MC area only.

Table 3.2.4: Variables Significantly Associated with Poverty Based on Regression Models

Variables	Relationship with Poverty	
	CRS	MC
Households with at least one member with a tertiary-level education relative to no education	-	-
Household size	+	
Households with at least one member with a primary-level education relative to no education		-
Households with at least one member with a secondary-level education relative to no education		-
Households with a farmer using agricultural financial services		-
Households that are in the second quintile of household wealth index in relation to households in the first quintile		+
Households with higher livelihoods diversification	-	
Households exposed to external information	-	
Households with access to financial information		+
Households with access to communal natural resources		-
Households with access to livestock services	-	
Households experiencing climate shocks		-
Households experiencing conflict shocks	-	

The bivariate relationships can be affected or moderated by different variables, including, but not limited to, the ones presented in Table CT10.5, Annex 9. To identify which of the variables retain their strength of association with poverty when other variables are controlled for, multivariate logistic regression models were developed for the two DFSA areas separately (see Table RT10.6, Annex 9). Only one variable—households with tertiary-level education—is found to have an association with lower household poverty in both DFSA areas, even when all other variables in the model remain constant. Few other variables retain the strength of association but not consistently across the DFSA areas. Table 3.2.4 summarizes the variables associated with poverty based on the regression results.

Potential drivers of the depth of poverty of the poor: Bivariate analyses were conducted between the depth of poverty among the poor and the same sets of variables considered for similar bivariate analyses for HDDS and household poverty. The bivariate analyses followed by multivariate analyses could help identify factors that contribute in reducing the depth of poverty of the poor. The bivariate results are presented in Table CT10.7, Annex 9. Household ownership of durable assets is the only variable that has moderate negative association ($r \geq .30$) with the depth of poverty of the poor in both DFSA areas. Most of the variables that are associated with poverty are also associated with the depth of poverty in both DFSA areas. However, although household with increased livelihoods strategies, households owning livestock, and households with an adult member earning cash or in-kind payments were only associated with poverty in the CRS area, they are associated in both areas with the depth of

poverty. Households experiencing climate shocks was associated with poverty for both DFSA areas, but it was associated with the depth of poverty in the MC area only.

All the variables that are associated with the depth of poverty of the poor in bivariate analyses are included in the multivariate regression. The regression results are presented in Table RT10.8, Annex 9. A summary of the significantly associated variables is presented in Table 3.2.5.

Controlling for other variables, households with bigger household size and adult male-only households compared to adult male and adult female households are found to have a higher depth of poverty among the poor in both DFSA areas. In contrast, households with farmers using agricultural financial services are found to have a lower depth of poverty among the poor in both areas.

Interesting results are found for households with access to land for sharecropping. These households tend to have a lower depth of poverty among the poor in the CRS area, but a higher depth of poverty among the poor in the MC area relative to the households that own the land. A similar result was found for adult female-only households, which were found to have a lower depth of poverty among the poor in the CRS area and a higher depth of poverty among the poor in the MC area.

Several other variables also retain their association with depth of poverty, albeit separately in each DFSA area. Households accessing rented and sharecropping land compared to households owning the land are more likely to have higher depth of poverty in the MC area. These results are also reflected in households' access to size of land, because the households accessing a larger plot of land (more than three hectares) relative to households accessing less than one hectare are likely to have a lower depth of poverty in the MC area. This relationship was not found for the CRS area.

In the CRS area, controlling for other variables in the model, households with a higher level of social bonding, households with exposure to external information, and households with access to livestock services are likely to have a lower depth of poverty among the poor. This was not the case in the MC area. A lower depth of poverty was also found in households experiencing climate shocks in the MC area, and households with improved bridging social capital tend to have higher depth of poverty among the poor in the CRS area.

Qualitative respondents were asked to explain why many households are still poor despite the previous investments in the region through the GHG, RWANU and other development projects. Study respondents strongly reported that GHG and RWANU have had notable impacts in their society

Table 3.2.5: Variables Significantly Associated with Depth of Poverty Among the Poor Based on Regression models

Variables	Relationship with Depth of Poverty among Poor	
	CRS	MC
Adult female-only households relative to adult male and adult female households	-	+
Adult male-only households relative to adult male and adult female households	+	+
Household size	+	+
Households' access of land for sharecropping relative to owning	-	+
Households with at least one member with a secondary-level education relative to no education		-
Households with access to rented land relative to owned land		+
Households with access to sharecropping land relative to owned land		+
Household with more than 3 hectares of land relative to no land		-
Households with farmer using agricultural financial services	-	-
Households with higher bonding social capital	-	
Households with higher bridging social capital	+	
HHs exposed to external information	-	
HHs with access to livestock services	-	
HHs experiencing climate shocks		-

ranging from health, women rights, food security and agricultural production. Farmers greatly benefited from these programs through acquisition of farming tools, inputs and knowledge. There has been a great reduction in cases of domestic violence which was rampant in the past. The projects also improved livelihood of community members and also increased access to food and non-food items from the nearby markets. Many respondents cited that these projects significantly contributed to reductions in childhood malnutrition and also equipped individuals with knowledge and skills on how to save using the village saving and loan association (VSLA) strategy. However, according to the community members, these programs have also had some negative impacts.

“Food aid supplies have rescued households in emergency. Awareness campaigns, trainings and sensitization on the importance of farming have raised the ability of communities to produce their own food breaking the ugly norm of depending on handouts.” Female youth, Kotido

“Most of the effects of RWANU were positive and the beneficiaries appreciated the program because it was contributing a lot to their livelihoods. The officials from the program were close to the beneficiaries because even the facilitators who were trained were just within the area.” District key informant, Napak

Most respondents cited that many households still fall below the poverty line despite the previous project investments because of poor attitudes and mindset towards poverty and work. Many people in the region do not value hard work and have become highly dependent on hand outs from development partners. Local leaders also strongly believe that their region is unique and totally different from other regions and therefore, they strongly pointed out the need to review and totally the approach to development work in Karamoja

“I think their attitude is the one that makes them fall below the poverty line. They know, some of them believe that they cannot do much beyond what they can do. They think that there is a certain magic which others can do which can make them to go up.” Agricultural extension officer, Moroto

“There programs in a way have encouraged the attitude of our community of relying on handouts. This mentality of free support is partly facilitated by these development programs. The programs have also facilitated over producing among women since food aid is only given to pregnant, breastfeeding mother and children under 5 years of age.” Female youth, Kaabong

3.3 Agriculture

The agricultural component of the household survey was completed by 3,664 farmers in the combined DFSA areas (1,651 farmers in the CRS area and 2,013 farmers in the MC area). All individuals in the household who met the definition of a farmer⁶⁷ were interviewed. Of these farmers, about 45 percent were male and 55 percent were female.

3.3.1 Crops, Livestock, and Land

Types of Crops Planted by Farmers

A majority of farmers (97 percent in the CRS area and 93 percent in the MC area) reported planting at least one crop in the past 12 months. The top three crops planted by farmers in both the CRS and MC areas include sorghum (86 percent in the CRS area, 79 percent in the MC area), maize (43 percent in the CRS area, 66 percent in the MC area), and legumes (44 percent in the CRS area, 36 percent in the

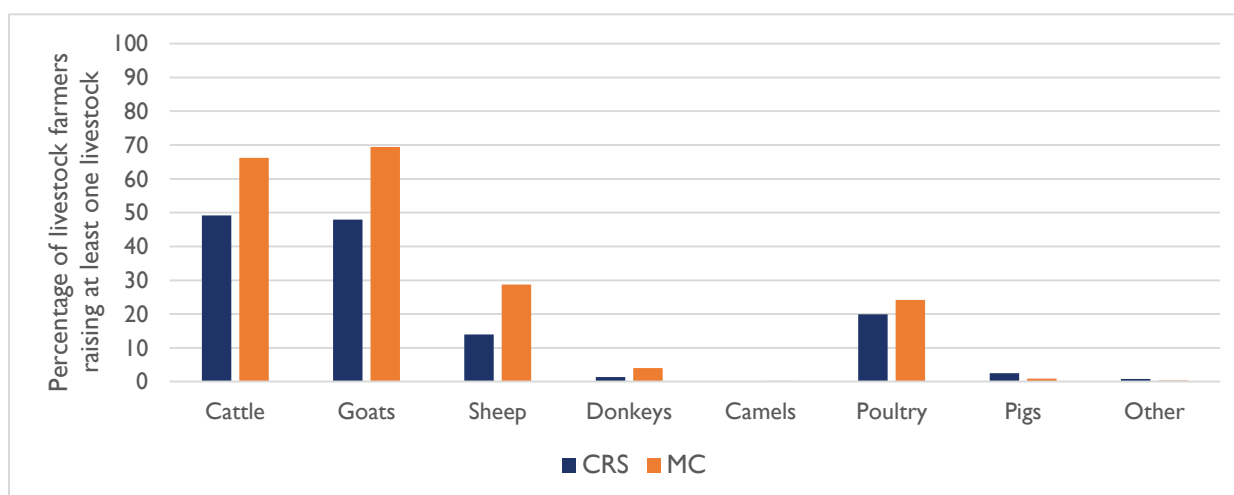
⁶⁷ Farmers, including herders and fishers, are defined as: (1) men and women who have access to a plot of land (even if very small) over which they make decisions about what will be grown, how it will be grown, and how to dispose of the harvest; or (2) men and women who have animals or aquaculture products over which they have decision-making power; or both. 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), and animal and aquaculture products, as well as natural products (e.g., non-timber forest products, wild fisheries). These farmers may engage in the processing and marketing of food, feed, and fiber and may reside in settled communities, mobile pastoralist communities, or refugee or internally displaced person camps. An adult member of the household who does farm work but does not have decision-making responsibility over the plot or animals would not be considered a farmer.

MC area) (see Table A7.4, Annex 7). Oilseeds, which include sunflower, mustard, and sesame, are the fourth most planted crops in the CRS area (29 percent), and groundnuts is the fourth most planted crop in the MC area (12 percent). All other crops, such as wheat, millet, barley, soybean, fruits, potato, vegetables, and chat, are produced by very few farmers in both DFSA areas. No clear pattern is observed about the types of crops grown by male and female farmers in either DFSA area. Among the most popular crops (sorghum, maize, and legumes), more female farmers tend to plant sorghum than male farmers in the CRS area. More female farmers compared to male farmers tend to plant vegetables in the MC area (see Table A7.5, Annex 7).

Types of Livestock Raised by Farmers

Livestock and livestock production are integral to the household economy and an important source of income, food, and dairy products. Farmers use oxen or cattle for ploughing their fields. About 25 percent of farmers in the CRS area and 42 percent in the MC area reported that they have animals and/or aquaculture products over which they make decisions about. Among the farmers who have animals and/or aquaculture products, goats (69 percent), cattle (66 percent), sheep (29 percent), and poultry (24 percent) are most commonly raised by livestock farmers in the MC area. Cattle (49 percent), goats (48 percent), poultry (20 percent), and sheep (14 percent) are most commonly raised by livestock farmers in the CRS area (see Figure 3.3.1 and Table A7.6, Annex 7).

Figure 3.3.1: Livestock Farmers by Type of Livestock Raised and DFSA Area, Uganda 2018



Land Ownership and Farm Size

A majority of farmers (more than 73 percent) in all DFSA areas reported owning the farmland over which they make decisions (see Table 3.3.1). Analysis of the size of farmland over which farmers make decisions indicates that almost one-third of farmers have very small plots of farmland (less than 0.5 hectares) in the CRS and MC areas. In the CRS area, farmers tend to have slightly smaller plots; about 32 percent of farmers reported land size greater than one hectare in the CRS area, compared to 39 percent of farmers who reported land size greater than one hectare in the MC area. Status of land ownership and farm size vary significantly by the sex of the farmer. Fewer female farmers use rented land in the CRS area, and more female farmers have no land ownership of any type compared to male farmers. A similar situation is found in the MC area, where fewer female farmers own the land, and more of them are sharecroppers, compared to male farmers (see Table A7.7, Annex 7). Similar results are found when looking at gendered household type. Adult female-only households are more likely to be sharecroppers in both the CRS and MC areas, compared to adult male and female households, and they also tend to have no land, compared to adult male and female households.⁶⁸

⁶⁸ Relevant bivariate analyses of these results are available upon request.

Most FGD and KII participants (mainly in the MC area) reported that women have limited land rights in the Karamoja region in general and that land is predominantly owned by men. In addition, decisions on land usage, including renting and sharecropping, are predominantly made by men, as best illustrated by a FGD participant in a Kotido village:

“In my community, men own most of the land and they also make decisions on how it will be used by the household.” Female FGD participant, Kotido

Table 3.3.1: Land Ownership and Farm Size by DFSA Area, Uganda 2018

Land Ownership and Farm Size	Overall	CRS	MC
Status of land ownership			
Own	74.1	75.2	73.1
Rent	8.3	10.3	6.5
Sharecrop	13.0	10.8	15.1
None of these	4.5	3.7	5.3
Size of land			
Less than 0.5 hectares	34.8	38.2	31.5
0.5 to 1 hectare	29.7	30.2	29.3
Greater than 1 hectare	35.5	31.6	39.2
Number of responding farmers	3,664	1,651	2,013

3.3.2 Use of Financial Services, Value Chain Activities, Sustainable Agricultural Practices, and Improved Storage Practices

The baseline PBS collected agriculture-related data primarily to estimate FFP agricultural indicators for financial services, value chain activities, the use of sustainable agricultural practices [for crops, livestock, and natural resource management (NRM)], and improved storage practices (see Table 3.3.2).

These services and practices are expected to directly benefit households and lead to increased food security. The indicator values for value chain activities, sustainable crop practices, sustainable livestock practices, and sustainable NRM practices are derived based on specific value chain and agricultural practices promoted by each DFSA.⁶⁹ Each DFSA set thresholds for the minimum number of required practices to be included for calculation of the indicator values for sustainable crop, sustainable livestock, and sustainable NRM practices separately; an overall threshold was set to compute the overall sustainable agricultural practice indicator (these thresholds are noted in Table 3.3.2).

Table 3.3.2: Agriculture Indicators, Uganda 2018

Indicator	Overall	CRS	MC
Percentage of farmers who used financial services in the past 12 months ^a	20.5	21.7	19.4
Male	21.1	21.5	20.7
Female	20.0	21.8	18.3
Percentage of farmers who practiced value chain activities promoted by the project in the past 12 months	31.0	35.0	27.4
Male	35.2	38.7	32.1
Female	27.8***	32.2*	23.6***
Percentage of farmers who used at least [3 in CRS, 5 in MC] sustainable agriculture (crop, livestock, and NRM) practices and/or technologies in the past 12 months	28.1	41.7	15.4
Male	31.6	46.0	18.5
Female	25.5***	38.6*	12.9***

⁶⁹ These specific project-promoted value chain and sustainable agricultural practices are provided in Annex 7, Tables A7.9 and A7.10.

Indicator	Overall	CRS	MC
Percentage of farmers who used at least [3 for both CRS and MC] sustainable crop practices and/or technologies in the past 12 months	43.7	34.1	52.6
Male	46.1	36.4	54.9
Female	41.8**	32.3†	50.9*
Percentage of farmers who used at least [3 in CRS, 4 in MC] sustainable livestock practices and/or technologies in the past 12 months	7.6	8.1	7.1
Male	11.9	11.8	12.1
Female	4.2***	5.3**	3.1***
Percentage of farmers who used at least [2 for both CRS and MC] sustainable NRM practices and/or technologies in the past 12 months	1.8	2.6	1.1
Male	2.2	3.2	1.3
Female	1.5†	2.2	0.9
Percentage of farmers who used improved storage practices in the past 12 months ^b	49.9	50.5	49.3
Male	47.8	48.0	47.6
Female	51.5*	52.4†	50.6
Number of responding farmers	3,664	1,651	2,013
Male	1,631	737	894
Female	2,033	914	1,119

Male/female group differences: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, † $p < 0.10$

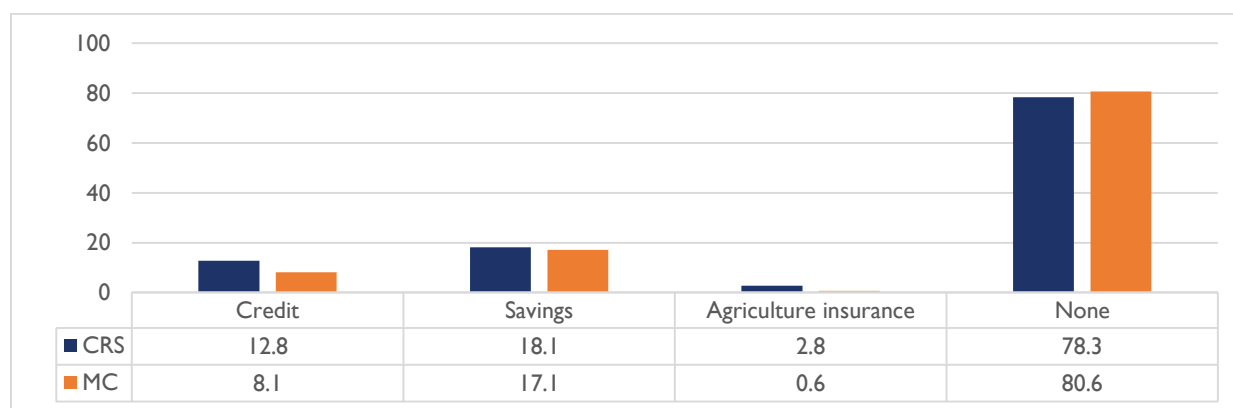
^a Financial services include savings, agricultural credit, or agricultural insurance.

^b Improved storage practices include cereal bank, granary, super grain/PICS bags, and manufactured silo.

Financial Services

Increased use of financial services can help farmers to access inputs and other resources to improve agricultural productivity. About 80 percent of farmers in the combined DFSA areas do not use any financial services (credit, savings, or agricultural insurance). No significant differences were found between farmers' gender with respect to use of financial services in either of the DFSA areas. In the CRS area, use of credit is 13 percent and use of agricultural insurance services is 3 percent; in the MC area, use of credit is 8 percent and use of agricultural insurance is 0.6 percent (see Figure 3.3.2 and Table A7.8, Annex 7).

Figure 3.3.2: Percentage of Farmers Using Financial Services by DFSA Area, Uganda 2018



Relationships between use of agricultural financial services and value chain, sustainable crop, livestock, and NRM practices were further explored for each DFSA. Farmers' use of financial services is positively associated with the use of value chain activities in both DFSA areas. There is a positive association between the use of financial services and use of sustainable agricultural practices, including sustainable crop, livestock, and NRM practices, in both the CRS and MC areas. This indicates that farmers who use financial services are more likely to use sustainable value chain practices and sustainable agricultural practices, including crop, livestock, and NRM practices, and vice versa.

Male and female farmer FGD participants from the qualitative study reported limited access to financial services like credit, saving and agricultural insurance to boost farming. They cited the following factors which contribute to the low level of utilization of financial services: (1) Ignorance about the availability, use and importance of agricultural financial services by farmers and traders of agricultural produce; (2) Unpredictable seasons; (3) Bureaucratic and tedious process involved in processing loans; (4) Lack of collateral; and (5) Fear of taking risks with financial institutions.

“There are many farmers and traders of agricultural produce who reported that they were not aware about where and how to access small loans to boost their activities and yet some were asking for government support to set up milling stations for their produce. Agricultural extension officer, Moroto

Representatives of microfinance institutions also cited the failure by many farmers of not being registered as members of financial institutions, as a contributory factor to the limited access and utilization of financial services in the community. They also reported that farmers who accessed loans were able to engage in better livelihood activities and also increased their farm produce during the year of loan acquisition.

“We have some farmers here in Moroto who properly used the loans acquired to open up more farmland for simsim and maize production. One farmer bought a small maize mill for commercial flour production and was able to pay his loan back on time.” Microfinance institution representative, Moroto

Qualitative study respondents indicated that access to financial services among farmers can be scaled up through the following ways: (1) Creating awareness on the availability and benefits of financial services; (2) Lowering interest rates on loans to support agricultural production; (3) Forming groups (with representatives) that link and network with financial institutions; (4) Using successful farmers to train others; and (5) Helping farmers to access markets for their produce as a way of motivating them to look for financial services.

Value Chain Activities

Agricultural value chain activities promoted by the DFSAs include, but are not limited to, pre- and post-harvest activities such as a purchase of inputs for crops, purchase of inputs for livestock, tillage of land, bulk transporting of inputs produced, bulk transporting of animals,⁷⁰ sorting produce, grading produce, drying or processing produce, trading or marketing, use of supplements, and feed production. The PBS data show that about 43 percent of farmers in the CRS area and 34 percent of farmers in the MC area reported planting crops or raising and buying livestock with the specific intention to sell or resell to earn income (see Table A7.9, Annex 7). Those farmers who reported raising crops or livestock with the specific intention to sell were then asked about the value chain activities in which they participate. Overall, about 31 percent of all farmers reported practicing at least one of the value chain activities that were promoted by the DFSAs. More male farmers, compared to female farmers, practice project-promoted value chain activities in both DFSA areas. Qualitative interviews suggest that women in general do most of the farming but men tend to make key decisions on value chain activities.

Among the farmers who practice any value chain activities (either project-promoted or not) in the DFSA areas, tillage of land (27 percent in the CRS area, 20 percent in the MC area), procurement of inputs for crops (27 percent in the CRS area, 13 percent in the MC area), and sorting of produce (18 percent in the CRS area, 9 percent in the MC area) are the most commonly practiced value chain activities (see Table A7.9, Annex 7).

Sustainable Agricultural Practices

The baseline PBS asked farmers about a series of sustainable crop, livestock, and NRM practices. Depending upon the local context of each implementation area, the IPs selected specific crop, livestock, and NRM practices to promote (see Table A7.10, Annex 7). Approximately 42 percent of farmers in the CRS area reported using at least three project-promoted sustainable agricultural practices or

⁷⁰ Bulk transporting of animals is not a project-promoted value chain activity for the CRS area.

technologies, and about 15 percent of farmers in the MC area reported using at least five project-promoted sustainable agricultural practices or technologies (see Table 3.3.2). Fewer female farmers use sustainable agricultural practices or technologies, compared to male farmers in both DFSA areas.

Sub-indicators were calculated for crop, livestock, and NRM practices separately according to the project-defined minimums for each type of practice (see Table 3.3.2). Overall, about 44 percent of farmers who raise crops use the project-defined minimum number of sustainable crop practices in the combined DFSA areas (34 percent in the CRS area, 53 percent in MC area). A small percentage of all farmers (about 8 percent in the CRS area and about 7 percent in the MC area) practice the project-defined minimum number of sustainable livestock practices. Less than 3 percent of farmers in the CRS area and 1 percent of farmers in the MC area practice sustainable NRM practices. Compared to men, fewer women practice sustainable crop and livestock practices in both DFSA areas. For sustainable NRM practices, these gender differences are not observed in either DFSA area. The low levels of use of sustainable agricultural practices are challenges for local agriculture, but also present an opportunity for the IPs to improve these areas over the course of the DFSAs.

Crop practices: Proper use of crop practices is important to improve agricultural yield. The PBS asked farmers about 14 different types of sustainable crop practices that they may have used in the past 12 months (most of these practices are promoted by the DFSAs). The data show that almost all farmers used one or more crop practices in the past 12 months (see Table A7.10, Annex 7). Preparation of soil by hand (79 percent in the CRS area, 74 percent in the MC area), broadcasting seed (74 percent in the CRS area, 68 percent in the MC area), and weed control (60 percent in the CRS area, 56 percent in the MC area) are the 3 most commonly used crop practices. Intercropping (43 percent in the CRS area, 29 percent in the MC area) and soil preparation with ox plow (43 percent in the CRS area, 38 percent in the MC area) are also popular sustainable crop practices in the DFSA areas.

Each DFSA is promoting a specific set of crop practices in their activity area. In the CRS area, weed control, pest and diseases control, soil preparation with ox plow, and planting seeds in rows are the most popular practices among the nine total promoted crop practices.⁷¹ In the MC area, soil preparation by hand, weed control, soil preparation with ox plow, intercropping, and planting seeds in rows are the most popular practices among 11 total promoted practices.⁷²

Livestock practices: The PBS asked farmers who raise livestock about 10 different types of livestock practices that they may have used in the past 12 months—most of these practices are promoted by the DFSAs. The results indicate that about 9 percent of farmers who raise livestock in the CRS area and 13 percent of farmers who raise livestock in the MC area did not use any of these livestock practices in the past 12 months (see Table A7.10, Annex 7).⁷³ Improved shelters (44 percent), vaccinations (39 percent), and deworming (35 percent) are the most commonly used promoted livestock practices in the CRS area. Vaccination and animal shelters (both about 42 percent), and deworming (37 percent) are the most commonly used promoted livestock practices in the MC area.⁷⁴

NRM practices: Proper management of natural resources that are related to on-farm production is important for sustainable and improved on-farm production. The PBS asked farmers who raise crops or livestock about seven different types of NRM practices that they may have used in the past 12 months. The results indicate that a large majority of farmers (83 percent) do not use NRM practices in the CRS and MC areas (see Table A7.10, Annex 7). Among those who do, construction of water catchments is

⁷¹ Soil preparation with ox plow, soil preparation with tractor, planting seeds in rows, crop rotation, fertilizer application, intercropping, pest and diseases control, weed control and mulching are the CRS promoted sustainable crop practices.

⁷² Soil preparation by hand, soil preparation with ox plow, soil preparation with tractor, planting seeds in rows, crop rotation, fertilizer application, intercropping, pest and diseases control, weed control, mulching, and thinning are the MC promoted sustainable crop practices.

⁷³ As noted in Section 3.3.1, about 25 percent of farmers in the CRS area and 42 percent of farmers in the MC area raise livestock.

⁷⁴ Table A7.10 in Annex 7 shows the DFSA promoted or not promoted livestock, crop and NRM practices.

the most common promoted NRM practice in the CRS area (8.5 percent), and soil conservation on hillsides is the most common promoted practice in the MC area (6 percent). Given these results, there is a good opportunity for the IPs to promote the use of NRM practices in both DFSA areas.

Improved Storage

About half of all farmers use improved storage practices in the combined DFSA areas (see Table 3.3.2). More female farmers, compared to male farmers, use improved storage practices in the CRS area, although no such differences were found in the MC area. Granary is the most popular improved storage practice used by the farmers both in the CRS (51 percent) and MC (49 percent) areas, followed by super grain/PICS bags (29 percent in the CRS area, 23 percent in the MC area). Cereal banks and manufactured silos are used by very few farmers in both DFSA areas (see Table A7.11, Annex 7). Maize and legumes are the top edible staple crops produced in both areas, so proper storage could help households meet their food needs, especially during the agricultural lean period.

Qualitative study respondents indicated that farmers are aware of modern storage methods such as silos and improved modern granaries but their acquisition was limited by lack of funds and the low scale of commercial farming. Agricultural extension workers noted that improved storage practices could be used more often if farmers were trained and supported to engage in commercial farming.

“Our farmers here are still practicing subsistence farming. Very few farmers are for commercial farming. With subsistence farming, which things can you take to the store? There is no bulk. So all of it gets consumed. Next year they also consume all of it. It is only very few people who have gone commercial.”
Agricultural extension officer, Abim

“Most households store produce in local granaries. Others store in sacks, buckets, or jerry cans. We would like to use silos and improved modern granaries. However, silos are very expensive to purchase and we do not have knowledge on how to make modern granaries with rat guards.” Female farmer, Moroto

Many NGOs constructed community stores but these have not been adequately utilized because farmers do not have surplus produce to store (as a result of the poor weather conditions). Farmers also cited lack of leadership over the stores and suggested the need for leadership to manage the community stores and also motivate farmers to store their produce collectively.

Relationship Between Agriculture and HDDS, Food Insecurity and Poverty

Simple bivariate correlation analyses were implemented to analyze the relationships between HDDS, moderate to severe food insecurity, prevalence of poverty and depth of poverty with the four agricultural indicators (use of financial services, use of value chain practices, use of sustainable agricultural practices, and use of improved storage practices) for each DFSA area (see Table 3.3.3).

Table 3.3.3: Relationship of Agricultural Indicators with Food Insecurity and Poverty Indicators

Agricultural Indicators	Relationship with HDDS		Relationship with Food Insecurity (12 months)		Relationship with Prevalence of Poverty		Relationship with Depth of Poverty of Poor	
	CRS	MC	CRS	MC	CRS	MC	CRS	MC
Use of financial services	Improved	Improved	Improved		Improved	Improved	Improved	Improved
Use of value chain practices	Improved	Improved			Improved	Improved	Improved	
Use of sustainable agriculture practices	Improved	Improved			Improved	Improved	Improved	
Use of improved storage practices							Improved	

Households using financial services tend to be less food insecure in the CRS area. Households in which farmers use agricultural value chain practices are likely to have a lower prevalence of poverty in both DFSA areas and a lower depth of poverty in the CRS area (see Annex 9, Tables 10.17a–10.17b). Households practicing sustainable agricultural practices also tend to have a lower prevalence of poverty in both DFSA areas, and a lower depth of poverty in the CRS area. Farmers who use improved agricultural storage practices are likely to have a lower depth of poverty and vice versa in the CRS area.

There are a few other interesting relationships with respect to farmers and land ownership (see Tables 10.17a–10.17b, Annex 9). Farmers who own land are less likely to be poor, and farmers who sharecrop are more likely to be poor and their depth of poverty is higher in the MC area. Farmers who have no land are more likely to be poor in both the CRS and MC areas, and farmers who use rented land tend to have a higher depth of poverty in the MC area. This result is also reinforced by the size of land to which farmers have access. For example, farmers who have access to less than 0.5 hectares of land are more likely to be poor in the CRS area and have a higher depth of the poverty in the MC area. In contrast, farmers who have access to one or more hectares of land tend to have a lower depth of poverty in both the CRS and MC areas.

3.4 Water, Sanitation, and Hygiene

Adequate WASH practices help improve child and adult nutrition, health, and overall well-being. Conversely, poor WASH practices can lead to increased malnutrition, morbidity, and mortality. A fecal-contaminated environment is associated with chronic undernutrition, poor gut health, and suboptimal absorption of nutrients, especially among the children.⁷⁵ Worldwide, it is estimated that improved water sources reduce diarrhea morbidity by 21 percent, improved sanitation reduces diarrhea morbidity by 37.5 percent, and the simple act of washing hands at critical times can reduce the number of diarrhea cases by as much as 35 percent.⁷⁶

Household WASH practices were assessed based on six FFP indicators as shown in Table 3.4.1. Table A7.12 of Annex 7 provides more details on the types of drinking water sources and types of sanitation facilities used by households.

Table 3.4.1: WASH Indicators, Uganda 2018

WASH Indicators	Overall	CRS	MC
Percentage of households using an improved drinking water source	40.7	40.4	41.0
Available on premises	2.6	3.5	1.8
Available in 30 minutes or less	26.4	25.3	27.3
Available in more than 30 minutes	11.7	11.6	11.8
Percentage of households practicing correct use of recommended household water treatment technologies	10.0	7.9	12.0
Chlorination	1.8	2.0	1.7
Flocculent/disinfectant	0.2	0.2	0.2
Filtration	1.1	1.3	1.0
Solar	0.0	0.0	0.0
Boiling	7.8	5.4	9.9
Percentage of households that can obtain drinking water in less than 30 minutes (round trip) ^a	45.1	47.8	42.8
Percentage of households with access to a basic sanitation facility	8.4	6.7	10.0
Male and female adults	9.1	6.9	11.1

⁷⁵ USAID. (January 2015) *WASH and Nutrition: Water and Development Strategy Implementation Brief*. Available at https://www.usaid.gov/sites/default/files/documents/1865/WASH_Nutrition_Implementation_Brief_Jan_2015.pdf.

⁷⁶ WHO. (2004). *Facts and Figures: Water, Sanitation and Hygiene Links to Health*. Available at http://apps.who.int/iris/bitstream/10665/69489/1/factsfigures_2004_eng.pdf.

WASH Indicators	Overall	CRS	MC
Adult female, no adult male	5.6+	5.3	5.8**
Adult male, no adult female	9.9	10.2	9.7
Child, no adults	N/A	N/A	N/A
Percentage of households in target areas practicing open defecation	65.6	66.9	64.4
Percentage of households with soap and water at a handwashing station commonly used by family members	3.5	3.9	3.1
Number of responding households	2,835	1,259	1,576

*** p<0.001, ** p<0.01, * p<0.05, + p<0.10

N/A=not available

^a From improved and unimproved drinking water sources

3.4.1 Drinking Water

Improved drinking water sources, as defined by the Joint Monitoring Programme (JMP) for Water Supply and Sanitation are sources that are protected by the nature of their construction or through an active intervention from outside contamination, in particular, contamination from fecal matter (WHO/United Nations Children's Fund [UNICEF], 2016). These sources include the following: water piped into the dwelling, plot, or yard; a public tap or standpipe; a tube well or borehole; a protected dug well; a protected spring; or rainwater collection. An "improved" drinking water source means that a household can access water from one of these sources year-round without experiencing interruptions of a day or longer in a two-week period (USAID, 2015).

In the combined DFSA areas, only about two in five households (41 percent) use an improved drinking water source (see Table 3.4.1). These include households that use an improved drinking water source and have access to water year round and have not experienced interruptions in this access in the two weeks preceding the survey. Among those households that use an improved drinking water source, tubewells or boreholes are the most common sources; 86 percent of households in the CRS area and 73 percent of households in the MC area obtain their water from tubewells or boreholes (see Table A7.12, Annex 7). Although most households that have access to improved drinking water use tubewells or boreholes, water availability is a major concern. Only 55 percent of households in both DFSA areas reported water being available at source year round, and 30 percent of households reported that water was unavailable for a day or more in the past two weeks (see Table A7.12, Annex 7).⁷⁷ The majority (about 75 percent) of households using an improved drinking water source have water on their premises or can obtain their water in 30 minutes or less round trip. Qualitative study participants reported that water was unavailable at many boreholes during the long dry spells when the wells would dry up and during times when boreholes had broken down.

About half of all households can obtain drinking water (regardless of whether the source is improved or not) in less than 30 minutes round trip. According to the JMP, if people in rural places can reach a source of water and get back within 30 minutes, they will fetch enough drinking water to satisfy their basic needs for direct ingestion, cooking, and hygiene. Of those households that reported taking more than 30 minutes, 50 percent reported taking anywhere from 30 minutes to one hour, 33 percent reported taking one to two hours, and about 9 percent reported taking two to three hours.

Examination of poverty status with drinking water indicators yields some interesting results (see Table 3.4.2). Poor households, compared to non-poor households, are more likely to use an improved water source in the CRS area, and poor households, compared to non-poor households, are more likely to be closer to any kind (improved or unimproved) of drinking water source in the MC area. Disaggregation of water sources by poor and non-poor (see Table 7.20, Annex 7) shows that about 57 percent of poor households in the CRS and MC areas reported availability of water year round, while about 53 and 47 percent of non-poor households reported year round water availability in the CRS and

⁷⁷ These water sources may or may not be chlorinated for safety. The baseline questionnaire did not ask this question.

MC area respectively. About 26 percent of poor households in the CRS area and 32 percent of poor households in the MC area reported water being unavailable for a day or more in the last two weeks, while 33 and 36 percent of non-poor households reported so in the CRS and MC area respectively. These differences could potentially explain why poor households in the CRS area are positively associated with improved water sources. However, further investigation is needed to confirm this.

Separate bivariate analyses conducted between the depth of poverty among the poor with use of an improved water source or availability of water in less than 30 minutes (round trip) showed no significant association in either of the DFSA areas (see Tables CT10.9a and b, Annex 9). This means that all poor households (regardless of how poor they are) are similar in terms of use of an improved drinking water source or whether the water source is available within 30 minutes or more.

About 8 percent of households in the CRS area and 12 percent of households in the MC area reported use of recommended household water treatment technologies. Boiling is the most common method of treating water in both DFSA areas (5 percent in the CRS area, 10 percent in the MC area). Examination of the relationship between poverty indicators and use of water treatment technologies indicates that households that use recommended water treatment technologies are likely to be better off economically in both DFSA areas. Although fewer poor households use recommended water treatment technologies in both DFSA areas, the depth of poverty among the poor is found to be associated with households' use of recommended water treatment technologies in the MC area only.

With the exception of Abim, community health workers from the qualitative study reported that most community members typically boil and cool their water before storing it in the water pot. In the past, some communities were using water guard but now it's no longer seen. The community members also complained about the quality of the water and that borehole water is salty and hard. The community health workers of Abim reported that they believe the water from the borehole is safe for drinking, and so they do not boil it.

3.4.2 Sanitation

Sanitation conditions in the DFSA areas are very poor, and about 8 percent of households in the combined DFSA areas have access to a basic sanitation facility. Basic sanitation facilities include flush or pour/flush facility connected to a piped sewer system, septic system or a pit latrine with slab, composting toilet, or ventilated improved pit latrine with slab that is not shared with other households (see Table A7.12, Annex 7). No significant differences were found in access to a basic sanitation facility across different gendered household types in either of the DFSA areas, except that in the MC area, where adult female-only households are less likely to have access to a basic sanitation facility compared to households with adult males and females. There could be many socio-economic reasons why fewer of the female-headed households may have access to basic sanitation than the households with adult males and females. For example, adult female-adult only households may not have enough financial resources,

Table 3.4.2. Water Use by Household Poverty Status

Project and Water Sources	Non-poor	Poor	Sig
CRS			
Use of an improved water source	28.8	42.5	+
Proximity (on premise)	2.6	3.7	
Proximity (30 minutes or less)	19.5	26.3	
Proximity (more than 30 minutes)	6.6	12.5	
Households that can obtain drinking water in less than 30 minutes round trip	43.3	48.6	
MC			
Use of an improved water source	33.3	42.0	
Proximity (on premise)	2.5	1.8	
Proximity (30 minutes or less)	19.9	28.3	
Proximity (more than 30 minutes)	10.9	11.9	
Households that can obtain drinking water in less than 30 minutes round trip	34.5	43.9	+

*** p<0.001, ** p<0.01, * p<0.05, + p<0.10

education, or labor resources to build proper sanitation facilities. Qualitative data suggest that mainly men build the sanitation facilities.

Poor sanitation status is also reflected in the high prevalence of open defecation in both DFSA areas. More than 6 in 10 households practice open defecation (use of open field or bush area or hanging toilets). Among those households with access to a sanitation facility, pit latrine with slab and latrine without slab/open pit are most commonly used in both DFSA areas (see Table A7.12, Annex 7).

Identifying specific factors that are significantly associated with basic sanitation and open defecation can help design activities for effective targeting of the problem. Hence, a set of relevant household-level characteristics⁷⁸ were considered for bivariate correlation analyses with basic sanitation and open defecation. Results are presented in Tables CT10.9c and d, Annex 9.

A number of variables are found to be associated with households' access to basic sanitation in the CRS and MC areas. Poverty is inversely associated with basic sanitation in the CRS area, indicating that poor households are less likely to use basic sanitation services there, compared to non-poor households. Other variables, such as ownership of durable assets and participation in local community groups, are positively associated with basic sanitation, suggesting that households with higher values for each of these variables are more likely to have access to a basic sanitation service in the CRS area. In the MC area, households with larger household size, higher education level, and availability of basic service institutions (such as health centers, schools etc.) are positively associated with basic sanitation. The relationships of these variables with basic sanitation remained intact even after controlling for each other (Table RT 10.10, Annex 9).

Regarding open defecation, poor households are likely to have a higher prevalence of open defecation in both activity areas, and households with educated household members and with durable assets have a lower prevalence of open defecation in both activity areas. Households that participate in local decision-making bodies and earning cash tend to have lower open defecation in the CRS area, and households with basic service institutions nearby tend to have lower open defecation in the MC area. Overall, poverty and household ownership of durable assets appear to be important variables in the CRS area, and cash earning, household size, and availability of basic service institutions remain important variables even after controlling for other variables (Table 10.11, Annex 9).

Results from the qualitative study indicate a general consensus that the communities in the region still practice open defecation irrespective of the education status of household members. Key informants indicate that open defecation is common; however respondents argued that there has been a marked improvement, and that although cases of open defecation still exist, these are few and isolated. Some people engage in open defecation because of traditional beliefs and customs, out of ignorance, or because they do not have latrines.

"Of course they believe that putting feces in a place, it becomes smelly and they look at it as unhygienic. The other thing is that looking at the in-laws, sharing the same latrine is culturally not allowed. Pregnant women fear to go to the pit latrine for fear of them dropping their baby in the pit latrine," Agricultural extension officer, Moroto

"These people are only lazy to construct latrines. Those ones who don't have latrines are the ones still doing open defecation." Water service committee member, Kaabong

⁷⁸ The complete list of characteristics considered for correlational analysis is as follows: household size; household with educated household members (1—one or more family members have attended formal school, 2—one or more family members have completed secondary-level or higher education, 3—one or more family members have completed tertiary-level education); cash earning status (1—adult male or female has earned cash or cash/kind in the past 12 months, 2—household head has earned cash or cash/kind in the past two months); household wealth quintiles; poverty status; ownership of durable assets; receipt of humanitarian assistance in the past 12 months; participation in local community groups; time to obtain any kind of drinking water within 30 minutes; and number of basic services index. Discussion of each of these characteristics is beyond the scope of this report, but all of them can be expected to have an association with use of basic sanitation facilities.

“The percentage of latrine coverage is very low. In the villages, the communities were educated about the use of latrines but utilization of them is very low. Some fear to go to the toilets thinking they would fall into the pit or the toilet would sink.” Nutrition focal person, Napak

There were also reports that the geographical nature of the land also places the people of Karamoja at a disadvantage when it comes to constructing latrines. For example, some places are rocky so the households find it hard to dig, and other places have soft soil, which is very porous.

“We blame these people but when you look at most sub-counties here in Nakapiripirit, they are very rocky, and even others, a place like Namar is water logged, the water table is very high, you just dig like two three feet and the water is already there. Then other places are just very rocky, you cannot dig deep which is also another big challenge.” Nutrition focal person, Nakapiripirit

The district agricultural extension officers confirmed that many community members still feel that digging the latrines is not necessary and is against cultural norms. They would rather go to the bush, despite all the proper WASH communication that they have received. For example, there are beliefs that latrines are *muzungu* (white man) things and that a pregnant woman should not use the latrine, among others. Although this was reported to be a cultural issue, the respondents added that this was gradually changing and that things are not as bad now as they were before.

The Karamoja region has received a lot of health education and meetings with stakeholders targeting improved latrine coverage and use, as well as elimination of open defecation. However, it has been difficult to substantially change behavior.

“Even last week we had a meeting and we were asking that ‘why is it that we are having poor latrine coverage?’ We have done health education, everybody knows why latrines are good and so forth, but now we are resorting to using law. We are going to give households without latrines ultimatums of about one month to dig a latrine and if you fail, then we arrest.” Nutrition focal person, Nakapiripirit

Qualitative study key informants from the district local government offices proposed the following approaches which can be used to reduce open defecation: (1) Creating by-laws requiring every household to own a latrine and these by-laws should be enforced by local leaders by imposing monetary fines on offenders; (2) Constructing public toilets for the lazy or those that cannot afford to construct latrines for themselves; (3) Orienting poor households on how to construct simple latrines using locally available construction materials; (4) Awareness campaigns, trainings and sensitization; and (5) Conducting more rigorous research to understand why open defecation has persisted despite the investments in health educations and community support.

3.4.3 Handwashing Practices

A handwashing station was observed in 29 percent of households in the combined DFSA areas (37 percent in the CRS area and 20 percent in the MC area). Water was observed in only 15 percent of all households in which a handwashing station was observed in the combined DFSA areas (12 percent in the CRS area and 20 percent in the MC area). Soap⁷⁹ was observed in only 9 percent of all households in which a handwashing station was observed in the combined DFSA areas (7 percent in the CRS area and 12 percent in the MC area). Very few households (3 in 100) were observed in the combined DFSA areas with soap and water at the handwashing station. Lack of adequate hygiene and sanitation practices is pronounced in both DFSA areas, suggesting plenty of opportunities to improve these practices.

Qualitative study participants indicated that poor sanitation and hygiene practices can mainly be attributed to low availability and poor access to water and sanitation facilities. However, community members were happy that there has been some relative improvement from the past WASH situation and this has been a result of numerous water and sanitation awareness campaigns. Community members reported that they must pay for water services. At the borehole each household pays a monthly fee of

⁷⁹ Soap includes any type of soap or detergent or other cleaning agents, such as ash, mud, or sand.

1000/= to cater for maintenance. Once the borehole breaks down, every household is expected to contribute 2000/= towards the repairs. Other commonly used water sources are wells, although these were reported to often dry up during the dry season leading to severe water scarcity. During rainy seasons, households tend to fetch rain water and reduce the burden of paying for water.

The qualitative respondents reported that they have a few boreholes which serve as the main source of water to the majority of the population both during the rainy and dry seasons. One borehole is usually shared among up to six villages in some districts. Water is usually fetched in the morning and in the evenings, although sometimes this occurs several times a day depending on the water needs at home. As a result of the large numbers of people being served, the queues at the borehole are often very long and these result in delays to access water which could last up to several hours. Community members also reported that the boreholes break down very frequently, and yet they do not have adequate technical knowledge on the borehole repair and maintenance.

“There is also a borehole nearby but there is huge population fetching from that borehole. People who can afford do have taps close to their yards or plots but there is a public tap which is opened between 8 – 10 am and between 5 – 6:30 pm. Sometimes, fights erupt when people are struggling to fetch and sometimes containers are stolen in the process of waiting.” Community health worker, Kotido

“Here in Kololo we are almost 900 households, but sharing one water source (borehole) we request and appeal to government and or any development agency to come to our rescue to improvise another alternative source of water or another borehole.” Female household head, Napak

3.5 Women’s Health and Nutrition

The women’s module of the household survey was administered to 2,422 women 15–49 years of age (1,062 in the CRS area, 1,360 in the MC area). Valid anthropometry measurements were taken for 1,888 women 15–49 years of age who were not pregnant. Results for all women’s indicators are presented in Table 3.5.1.

Table 3.5.1: Women’s Health and Nutrition Indicators, Uganda 2018

Women’s Health and Nutrition Indicators	Overall	CRS	MC
Prevalence of underweight women ^a	34.6	38.6	31.0
Prevalence of women of reproductive age consuming a diet of minimum diversity ^b	16.4	12.5	19.6
Contraceptive prevalence rate ^c	13.8	14.5	13.1
Modern methods	9.1	11.3	7.2
Traditional methods	4.9	3.3	6.3
Percentage of births receiving at least four antenatal care visits during pregnancy ^d	78.4	77.9	78.8
Prevalence of women of reproductive age who consume targeted nutrient-rich commodities	8.7	6.7	10.5
Bio-fortified beans	3.0	1.6	4.1
Bio-fortified maize or sorghum	7.3	5.0	9.3
Orange-flesh sweet potatoes	1.1	1.3	1.0
Number of responding women (15–49 years of age)	2,422	1,062	1,360
Number of responding women (15–49 years of age) who are not pregnant	1,888	872	1,016
Number of responding women (15–49 years of age) with live birth in the past five years	1,639	746	893
Number of responding women (15–49 years of age) who are married or in a union	1,381	636	745

^a Percentage of non-pregnant women with a body mass index (BMI) less than 18.5. BMI is defined as weight in kilograms divided by height in meters squared (kg/m²).

^b Minimum dietary diversity is defined as consumption of 5 or more of 10 food groups in the past 24 hours.

^c The percentage of women of reproductive age (married or in a union) who are currently using, or whose sexual partner is currently using, at least one contraceptive method, regardless of the method used.

^d Antenatal care visits are reported for the most recent birth for all women who have had a live birth in the last five years.

3.5.1 Women's Nutritional Status

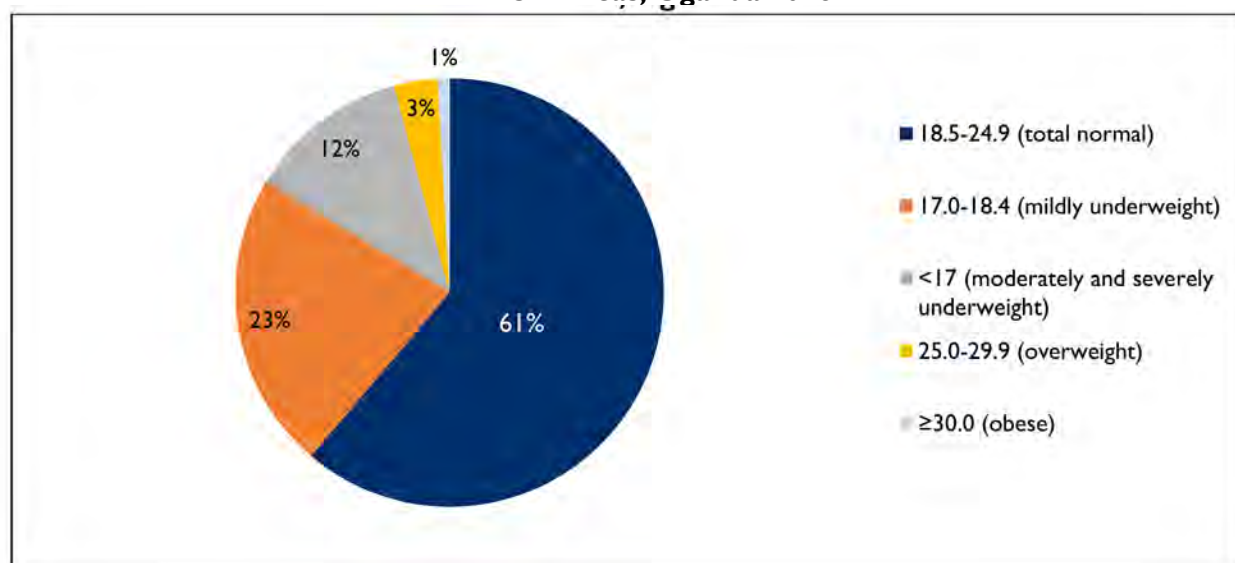
Body mass index (BMI), expressed as the ratio of weight in kilograms to the square of height in meters (kg/m²), was used to evaluate the nutritional status of women. A BMI below 18.5 indicates underweight or acute malnutrition and is associated with increased mortality. A BMI between 18.5 and 24.9 is considered normal, a BMI above 24.9 is considered overweight, and a BMI above 30.0 is considered obese.

This indicator frames the extent to which women's diets meet their caloric requirements. Undernutrition among women of reproductive age could lead to physical weakness, poor immune system, and being prone to infections and diseases. This can also contribute to adverse birth outcomes in future pregnancies. Improvements in women's nutritional status are expected to increase their productivity, which may also have benefits for agricultural production.

As shown in Table 3.5.1, about 35 percent of non-pregnant women 15–49 years of age in the combined DFSA areas have a BMI of less than 18.5 and, therefore, are classified as underweight. In the CRS area, about 39 percent of non-pregnant women are underweight, and in the MC area, about 31 percent of non-pregnant women are underweight.

Figure 3.5.1 illustrates the distribution of women's BMI in the combined DFSA areas. Sixty-one percent of women have a normal BMI, 3 percent are overweight, and 1 percent are obese (see Table A7.13, Annex 7 for distribution of women's BMI by DFSA area).

Figure 3.5.1: BMI Levels of Non-Pregnant Women of Reproductive Age in the Combined DFSA Areas, Uganda 2018



3.5.2 Minimum Dietary Diversity for Women

The improvement of women's dietary diversity and the maintenance of a healthy weight contribute to several other positive factors, including improved pregnancy and child health and nutrition outcomes.^{80,81} Minimum dietary diversity—women (MDD-W)⁸² is defined as the proportion of women of reproductive

⁸⁰ FAO and FHI 360. 2016. *Minimum Dietary Diversity for Women: A Guide for Measurement*. Rome: FAO.

⁸¹ Lee, S.E., Talegawkar, S.A., Meriardi, M. & Caulfield, L.E. 2013. Dietary intakes of women during pregnancy in low- and middle-income countries. *Public Health Nutr.* 16(8): 1340–53.

⁸² Introducing the Minimum Dietary Diversity—Women (MDD-W) Global Dietary Diversity Indicator for Women. Available at: http://www.fao.org/fileadmin/templates/nutrition_assessment/Dietary_Diversity/Minimum_dietary_diversity_-_women_MDD-W_Sept_2014.pdf.

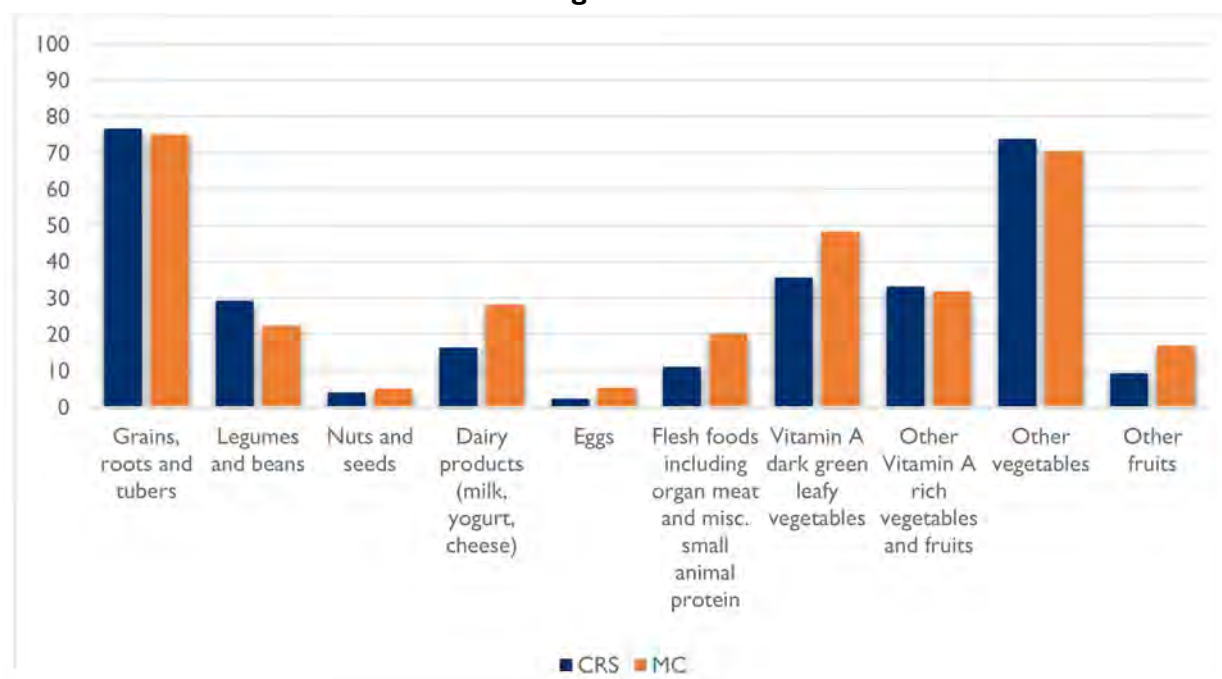
age who are consuming a minimum dietary diversity, based on consumption of 5 out of 10 nutritionally diverse food groups.

About 16 percent of women of reproductive age in the combined DFSA areas consume a diet of minimum diversity (see Table 3.5.1). As shown in Figure 3.5.2, most women (more than 70 percent) consume grains, roots, and tubers, and other vegetables. Followed by these two food groups, vitamin A-rich dark green leafy vegetables, other vitamin A-rich vegetables and fruits, and legumes and beans are the most commonly consumed food groups. Few women consume nuts and seeds, eggs, and flesh foods, including organ meat and small animal protein (see Table A7.14, Annex 7). Variations in the consumption of animal flesh and dairy products such as milk, yogurt, and cheese is evident between the DFSA areas.

The qualitative study showed that the nutrient rich foods such as eggs, chicken, etc. which are supposed to be eaten mainly by children, lactating and pregnant women are either sold off or offered to men.

“When you go to other parts of Moroto, Nakapiripirit, or Kaabong, the belief is that the lion’s share should be eaten by the man, then the children and the woman eat the leftover food. Some of the nutrient-rich foods like eggs, chicken, offals, are not given to the children and the mothers, they instead give these foods to the man.” Nutritionist, Moroto, Regional Referral Hospital

Figure 3.5.2: Food Groups Consumed by Women 15–49 Years of Age by DFSA Area, Uganda 2018



3.5.3 Consumption of Targeted Nutrient-Rich Commodities

In addition to the 10 food groups used to compute the minimum dietary diversity indicator, the baseline PBS also collected information on the consumption of nutrient-rich food items (commodities) that will be promoted by the IPs (see Table 3.5.1). These nutrient-rich food items include bio-fortified beans, bio-fortified maize or sorghum, and orange-flesh sweet potatoes.

In the MC area, about 11 percent of women 15–49 years of age consumed targeted nutrient-rich food items, and in the CRS area, about 7 percent of women 15–49 years of age consumed these food items. In the combined DFSA areas, among the nutrient-rich items, foods made from bio-fortified maize or sorghum are consumed by 7 percent of women, foods made from bio-fortified beans are consumed by 3 percent of women, and orange flesh sweet potatoes are consumed by 1 percent of women.

Relationships Between Women's Dietary Diversity, Household Characteristics, and Other Indicators

Analysis of relationships between MDD-W, household demographic variables, and other indicators can help us better understand factors associated with women's consumption of diverse nutrient-rich foods. The same set of variables considered for correlation analysis with HDDS is used to examine the correlation with MDD-W. Correlation analysis is also conducted with HDDS to examine how closely MDD-W and HDDS are related to each other, and the results are presented in Tables 10.12a–10.12d in Annex 9.

Household consumption of diverse foods (HDDS) is strongly positively associated with MDD-W across both DFSA areas, suggesting that increased access to the 12 food groups that comprise the HDDS at the household level would likely mean increased women's dietary diversity. In the CRS area, a weak but notable positive association is also found with household wealth index, cash saving, ownership of livestock, increased livelihood diversification, and household exposure to outside information. In the MC area, a positive association is found between women's minimum dietary diversity and households with educated household members, households with aspirations and confidence to adapt to new shocks, higher livelihood strategies, and ability to recover from shocks. Household poverty is inversely associated with MDD-W in both DFSA areas, indicating that women in poor households are more likely to have poor dietary diversity.

These results are also corroborated by the qualitative data. Some district production officers reported that communities in which the government promoted micronutrient-supplemented seeds and production of bio-fortified, short-cycle crops such as beans have access to better diets. The community health workers said that they sensitize the community members on how to consume a balanced diet using locally available resources. They also educate the communities and encourage them to farm food that has all food groups, especially vitamins, cereals, and legumes to feed their children and themselves to maintain good health. More practical trainings and awareness sessions on the dangers of malnutrition and how households can fight malnutrition are needed, however.

"Communities need to be trained and sensitized on how to use locally available foods to form a balanced diet. In addition, they should be told which foods to prioritize in their gardens." Health Worker, Abim

Many youth suggested that more trainings on livelihoods and how to generate income in a semi-arid region like Karamoja can raise the income levels of households, thus making them self-reliant, more food secure, and able to afford more dietary diverse food for their families.

3.5.4 Antenatal Care and Use of Contraceptives

Antenatal Care

WHO recommends that pregnant women attend a minimum of four antenatal care (ANC) visits with a trained health care professional during their pregnancy. About 65 percent of women of reproductive age reported having a live birth in the past five years. Of those women, about 78 percent attended at least four ANC visits with a skilled provider during their pregnancy in the combined DFSA areas (see Table 3.5.1).⁸³ About 40 percent of pregnant women receive ANC from nurses in both DFSA areas; 38 percent of pregnant women in the CRS area receive ANC services from midwives, and 32 percent of pregnant women in the MC area receive ANC services from midwives.

Correlation analyses between poverty and pregnant women's minimum number of ANC visits indicate that poor households in the CRS area are more likely to achieve the minimum required ANC visits. This relationship is not found in the MC area. This rather counterintuitive association between poverty and pregnant women's ANC visits in CRS area could mean that the poor women may be making health

⁸³ The 2016 Demographic and Health Survey reported that 60 percent of women did not attend at least four ANC visits during their pregnancy, but this is for the entire country of Uganda.

center visits more frequently due to other health reasons and may have received ANC care while they are in the health centers.

Some of the female FGD participants in both the CRS and MC areas reported that they received a lot of health education from the women's community groups and also during home visits by community health workers. This has increased their understanding of the importance of receiving ANC during pregnancy and delivering at a health facility.

Contraceptive Use

The contraceptive prevalence rate among women 15–49 years of age is the most important proximate determinant of total fertility, and contraceptive knowledge and use is positively associated with women's education (Westoff & Bankole, 2001; Gordon et al., 2011; Buyinza & Hisali 2013). The contraceptive prevalence rate⁸⁴ serves as a proxy measure of access to reproductive health services and is considered to be useful for tracking progress toward improved access to reproductive health services and the quality of family planning. The baseline survey data show that about 14 percent of women in the combined DFSA areas who are married or in a union reported using either modern or traditional contraceptive methods (see Table 3.5.1). A majority of women who use contraceptives reported using modern contraceptives (14 percent in the CRS area and almost 13 percent in the MC area) such as female sterilization, male sterilization, intrauterine device, injectables, implants, pills, male and female condoms, emergency contraception, standard days method, and the lactational amenorrhea method, among others.⁸⁵ In the CRS area, 14.2 percent of adolescents (15–19 years of age) and 12.7 percent of youth (20–24 years of age) use contraception, and in the MC area, 18.5 percent of adolescents and 13.4 percent of youth use contraception. The most common methods used, which are at the lower end of use, that is about 2 percent of women, are implants and injectables (see Table A7.15, Annex 7).

The minimal use of modern contraception could be due to many reasons. Qualitative study participants indicated that family planning education messages, especially on child spacing, are provided as part of health education during the ANC visits. Despite the high uptake of ANC services, use of family planning is still low mainly due to barriers such as fear of side effects either experienced or hearsay; lack of male partner support and involvement; and inadequate comprehensive knowledge about family planning methods as well as the persistent myths and misconceptions about family planning.

To further explore factors that may contribute to contraceptive use, a set of bivariate analyses was implemented with different relevant variables for each DFSA: household members' education, prevalence of poverty, lack of connection to external members outside of one's own family—bridging social capital and linking social capital, lack of institutions that provide basic services such as health and education, and lack of households' participation in community activities. The results are presented in Table 10.13, Annex 9.

A positive association is found between women's use of modern contraception and households with educated members and households' exposure to external information in both DFSA areas. This means that women in households where there are educated household members tend to use modern contraception methods. Similarly, women in households that receive or are exposed to external information tend to use modern contraception. In contrast, women in poor households are less likely to use modern contraceptives in both DFSA areas. In the MC area, women in households that have linkages to government officials or NGOs are more likely to use modern contraceptives, and in the CRS area, women in households that participate in local community groups are more likely to use modern contraceptives.

⁸⁴ For a given year, contraceptive prevalence rate measures the percentage of women of childbearing age who are married or in a sexual union who use any form of contraception (FFP Indicators Handbook Part I, 2015).

⁸⁵ The 2014 Demographic and Health Survey reported that 13 percent of women used any modern method and 8 percent used any traditional contraception at the national level.

To test the strength of household members' education on women's modern contraception use, a simple set of logistic regression models was implemented.⁸⁶ The regression results show that in the CRS area, women in the households that have educated adult members at the secondary level are more likely to use a modern contraception method than the women in households in which adult members are not educated, even after controlling for poverty. In the MC area, women in households with educated adult members—either at the primary, secondary, or university level—are more likely to use modern contraceptive methods than women in households with no educated adult members, regardless of whether the household is poor.

3.6 Children's Health and Nutrition

Protein-energy malnutrition is a major contributor to deaths among children under 5 years of age in Uganda.^{87,88,89} This section reviews child health and nutrition (CHN) indicators, which include stunting, underweight, wasting, healthy weight, diarrhea and oral rehydration therapy (ORT) minimum acceptable diet (MAD), exclusive breastfeeding (EBF), and consumption of nutrient-rich commodities. Table 3.6.1 provides the baseline PBS results for these indicators. Among these, the first three indicators measure the status of chronic and acute child malnutrition. Prevalence of diarrhea is measured based on diarrheal incidences among children under 5 years of age in the past two weeks, and ORT measures the percentage of children with diarrhea treated with ORT. MAD measures both feeding frequency and dietary diversity of children 6–23 months of age by their breastfeeding status. EBF calculates the percentage of children under 6 months of age who are exclusively breastfed in the past 24 hours prior to the baseline survey.

Table 3.6.1: Children's Health and Nutrition Indicators, Baseline PBS, Uganda 2018

Children's Health and Nutrition Indicators	Overall	CRS	MC
Prevalence of healthy weight (WHZ ≤ 2 and ≥ -2) among children under 5 years of age (0-59 months)	87.9	87.6	88.2
Male	86.5	86.7	86.3
Female	89.2+	88.4	90.0+
Age 0–23 months	84.0	83.5	84.4
Age 24–59 months	90.3	89.9	90.6
Prevalence of underweight children under 5 years of age	29.0	27.8	30.3
Male	34.2	34.8	33.5
Female	24.4***	21.3***	27.4**
Prevalence of stunted children under 5 years of age	38.1	35.7	40.5
Male	43.2	42.7	43.7
Female	33.5***	29.2***	37.7*
Prevalence of wasted children under 5 years of age	11.2	11.5	10.8
Male	12.4	11.7	13.2
Female	10.0+	11.4	8.6*
Percentage of children under 5 years of age who had diarrhea in the last two weeks	31.6	31.6	31.5
Male	30.6	31.6	29.7
Female	32.4	31.7	33.1
Percentage of children under 5 years of age with diarrhea treated with ORT	84.1	83.3	84.9
Male	82.1	82.3	81.9

⁸⁶ Regression results are available upon request.

⁸⁷ World Bank. 2006. Repositioning Nutrition as Central to Development: A Strategy for Large-Scale Action. Washington, DC.

⁸⁸ World Food Program, <https://reliefweb.int/report/uganda/malnutrition-major-problem-uganda>, accessed on October 18, 2018.

⁸⁹ UNICEF, https://www.unicef.org/uganda/media_16947.html, accessed on October 18, 2018.

Children's Health and Nutrition Indicators	Overall	CRS	MC
Female	85.8	84.2	87.3
Prevalence of exclusive breastfeeding of children under 6 months of age	73.5	72.6	74.3
Male	76.7	82.7	72.4
Female	70.5	65.4+	76.4
Prevalence of children 6–23 months of age receiving a MAD	8.4	6.6	10.2
Male	8.4	5.6	11.0
Female	8.5	7.6	9.3
Prevalence of children 6–23 months of age who consume targeted nutrient-rich commodities	11.4	8.6	14.1
Male	12.3	11.6	12.9
Female	10.6	5.6+	15.5
Bio-fortified beans	3.7	2.2	5.2
Bio-fortified maize or sorghum	10.8	7.5	14.2
Orange-flesh sweet potatoes	1.8	2.5	1.2
Number of children under 5 years of age	2,779	1,264	1,515
Male	1,349	624	715
Female	1,430	640	790
Number of children under 6 months of age	301	135	166
Male	147	61	86
Female	154	74	80
Number of children 6–23 months of age	757	355	402
Male	385	180	205
Female	372	175	197

*** p<0.001, ** p<0.01, * p<0.05, + p<0.10; Reference group= Male

WHZ = weight-for-height z-score

3.6.1 Stunting, Underweight, and Wasting

Child undernourishment can lead to serious short-term and long-term consequences, impaired cognitive development, and a higher risk for mortality. Children who are stunted (height-for-age), underweight (weight-for-age), or wasted (weight-for-height) are considered undernourished. Underweight status reflects either chronic (as tracked by the stunting indicator) and acute (as tracked by the wasting indicator) malnutrition or both and is often used to monitor nutritional status longitudinally. Child underweight status, especially for newborns, is associated with mortality. Severe linear growth retardation (stunting) reflects the outcome of a failure to receive adequate nutrition over a number of years (chronic malnutrition) and the effect of recurrent and chronic illness. Stunting, 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. Wasting, on the other hand, varies significantly seasonally and is generally used as an indicator of an acute food shortage or disease.

The prevalence of stunted children under 5 years of age is high—38 percent—in the combined DFSA areas, with 36 percent in the CRS area and 41 percent in the MC area (see Table 3.6.1).⁹⁰ Rates for underweight are similar for children in the CRS (about 28 percent) and MC (about 30 percent) areas.⁹¹

⁹⁰ Stunting rates greater than or equal to 40 percent are considered “very high” by WHO standards.

⁹¹ Underweight rates in the range of 20–29 percent are considered “high” by WHO standards, and rates greater than or equal to 30 percent are considered “very high.”

The prevalence of wasted children under 5 years of age is high, about 12 percent in the CRS area and about 11 percent in the MC area.^{92,93}

The female household heads from Kotido who participated in the qualitative study emphasized that there was inadequate food to feed the children, and they normally depend on one or two meals just like the adults. As a result, the children are usually hungry and sickly. In addition, food distributed by food programs targeting malnourished children is often sold to meet more immediate household needs such as paraffin or firewood; or consumed by the male household heads.

“Food distributed by these programs is usually sold off to pay off the debts which the household could have incurred some time back. The other part of it, if the food remained for the child, women tend to value more of their husband; they feed their husband more with the food of the child. And sometimes, the husband dictates. Women cannot control utilization in the household.” Agricultural extension officer, Moroto

“Children sometimes stay without food from morning to evening. They eat one meal and, in most cases, they depend on soya from NGOs.” Female household head

Soil and weather conditions do not support growth of legumes in many of the DFSA areas, which could be very beneficial for the growth of the children; however, with irrigation practices and modern seeds and fertilizers, there is a high chance that the situation can be improved. This would help alleviate the nutrition status of children within the households. Community health workers in Amudat reported that poor water, sanitation, and hygiene with increased use of unsafe water and absence of sanitary facilities has increased the occurrence of water-borne diseases, which are among the underlying causes of malnutrition among the children in the community.

Except for wasting in the CRS area, all three malnutrition indicators—stunting, underweight, and wasting—are more prominent among male children compared to female children in both DFSA areas.⁹⁴ This is also reflected in the healthy weight indicator in the MC area, and a higher proportion of female children compared to male children have a healthy weight in that area.

The female household heads interviewed for the qualitative study in both DFSA areas reported that male children were more stunted than the female children because the former eat a lot more than the latter. Food is generally scarce in the community and therefore, females who eat little get satisfied even with less food while the male children don’t get satisfied with the little food offered.

“Male children need a lot of food because they eat a lot but the females eat little because they get satisfied very fast.” Female household head, Kotido

Comparisons with the 2016 Demographic and Health Survey (DHS) rates for rural households (see Table 3.6.2) indicate that the 2018 stunting rate of 38 percent in the FFP areas is slightly higher than the 2016 DHS rate of 35 percent in Karamoja.⁹⁵ The prevalence of wasting and underweight are also slightly higher than the DHS rates in the combined DFSA areas.

⁹² In the absence of aggravating circumstances, wasting prevalence of 5–9 percent is “poor,” and 10–14 percent is “serious.”

⁹³ Disaggregation by districts showed that except for Abim and Amudat, all other districts—Kotido, Moroto, Nakapiripirit, Kaabong, Napak—have wasting rates of more than 10 percent indicating that wasting is widespread and not concentrated in only one area.

⁹⁴ Higher rates of stunting in male children compared to female children have been reported in other sub-Saharan African countries. See <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1865375/>

⁹⁵ Uganda Bureau of Statistics (UBOS) and ICF. 2018. Uganda Demographic and Health Survey 2016. Kampala, Uganda and Rockville, Maryland, USA.

Table 3.6.2: 2018 FFP DFSA Children's Anthropometry Indicators Compared with 2016 DHS for Rural Households

Area	Underweight	Stunting	Wasting
FFP CRS DFSA	27.8	35.7	11.5
FFP MC DFSA	30.3	40.5	10.8
Combined 2018 FFP DFSAs	29.0	38.1	11.2
DHS 2016, Karamoja Region	25.8	35.2	10.0

Rates of stunting, underweight, and wasting by six-month age groups are shown in Table A7.16, Annex 7. For stunting and underweight, the lowest rates are found in the first six months of a child's life, which is typical according to the nutritional literature. The stunting rate in general tends to increase as the age of the child increases. In the CRS area, the highest stunting rate is found in children 54–59 months of age (47 percent), and in the MC area, the highest stunting rate is found in children 30–35 months of age. The prevalence of underweight fluctuates but gradually increases as age increases, with the highest rates found in children more than 54–59 months of age in the CRS area (44 percent) and 12–17 months of age in the MC area (38 percent). In the MC area, rates of wasting are highest between 12 and 17 months of age, and then gradually decrease. In the CRS area, rates of wasting remain constant and even spike after children cross 42–47 months of age.

Relationship Between Child Malnutrition Indicators and Other Variables

A set of variables (41 total) that may be associated with child malnutrition according to existing literature and also based on theoretical intuition was selected for correlation analyses. These variables come from a wide range of household characteristics, such as food insecurity, poverty, drinking water, cash income, education, shocks, and agricultural practices. Correlation results for stunting are presented in Table T10.14, Annex 9.

Only a few variables are associated with child stunting in the CRS and MC areas. In the CRS area, households with educated members and households with access to financial services have fewer stunted children; children with diarrhea have a higher rate of stunting. In the MC area, poverty and diarrhea are positively associated with child stunting; and households accessing larger plots of agricultural land, that are able to save cash, have access to remittances, have ownership of durable assets, and have higher aspirations to adapt with shocks, as well as children consuming a MAD are less likely to have child stunting. Households participating in local community groups are less likely to have child stunting in the MC area, but no such association was found in the CRS area.

To determine which variables are associated with wasting (acute malnutrition), the same set of variables considered for stunting is used in correlation models. As in the case of stunting, households with educated members and households with access to financial services are found to have lower child wasting rates in the CRS area. A number of other variables are also found to be associated with wasting in the CRS area: household wealth quintile (-), poverty (+), households saving cash (+), ownership of livestock (-), ownership of durable assets (-), exposure to external information (-), households increased livelihood strategies (-), household's exposure to conflict (-) and children's consumption of MAD (-). In the MC area, fewer variables are associated with wasting. Households owning durable assets and households using correct water treatment technologies are likely to have a lower prevalence of child wasting. On the other hand, households receiving humanitarian assistance in the form of emergency food or cash from the government or NGOs, and households with children with diarrhea are likely to have a higher prevalence of child wasting.

In summary, household members' education and households' access to financial services appear to be important variables to investigate further when considering both stunting and wasting in the CRS area. There are other variables that are associated with stunting and wasting separately in the CRS area as discussed above, which should also be considered when addressing child malnutrition in that area.

Households' asset ownership and children's exposure to diarrhea are two important variables that are consistently associated with both stunting and wasting in the MC area. These, along with other variables that are independently associated with stunting and wasting as discussed above, should be further investigated to effectively address malnutrition in the MC area.

3.6.2 Exclusive Breastfeeding

Breastfeeding is an important factor in contributing to the future health of children. Research indicates a strong link between breastfeeding and the development of a child's immune system. Breastfeeding can protect against conditions such as diarrhea that lead to other diseases and respiratory infections, such as pneumonia, and breastfeeding lowers the chances of infant mortality and morbidity (Debes et al., 2013; Khan et al., 2015; Lamberti et al., 2011). Breastfeeding has also been linked to child cognitive development (Kramer et al., 2008).

UNICEF and WHO recommend that children be exclusively breastfed, that is, no other liquid or solid food or plain water, during the first six months of life and that children be given solid or semi-solid complementary food, in addition to continued breastfeeding, beginning when the child is 6 months of age and continuing to 2 years of age. Introducing breastmilk substitutes to infants before 6 months of age can contribute to limited breastfeeding, which has negative implications for a child's health and development. The lack of appropriate complementary feeding may lead to malnutrition, frequent illnesses, and, in some cases, death.

The indicator for EBF is based on the last 24 hours and is considered a proxy for long-term behavior. In the combined DFSA areas, about 7 in 10 children under 6 months of age (74 percent) are exclusively breastfed. Compared to male children, fewer female children are exclusively breastfed in the CRS area, and gender differences were not found in the MC area. Table A7.17, Annex 7 provides further details with respect to breastfeeding status. Figures 3.6.1 and 3.6.2 show the breakdown of breastfeeding status by children's age in months in the CRS and MC areas.

EBF is practiced widely in both DFSA areas, especially in the first 3 months after birth. EBF drops significantly for children 4–5 months of age in both DFSA areas as complimentary foods and other liquids are introduced. Ideally, mothers should exclusively breast feed their babies up to six months but qualitative study participants reported that because they cannot produce enough milk due to insufficient dietary intake, they often give babies four months and older semi-solid foods in addition to the little breast milk.

Figure 3.6.1: Breastfeeding Status for Children 0–23 Months by Age in Months, CRS, Uganda 2018

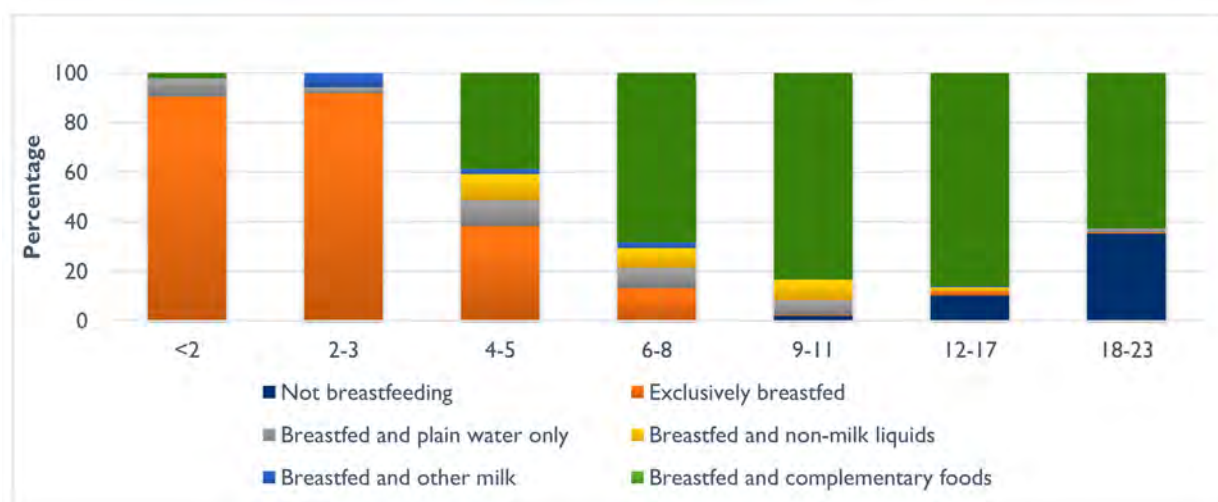
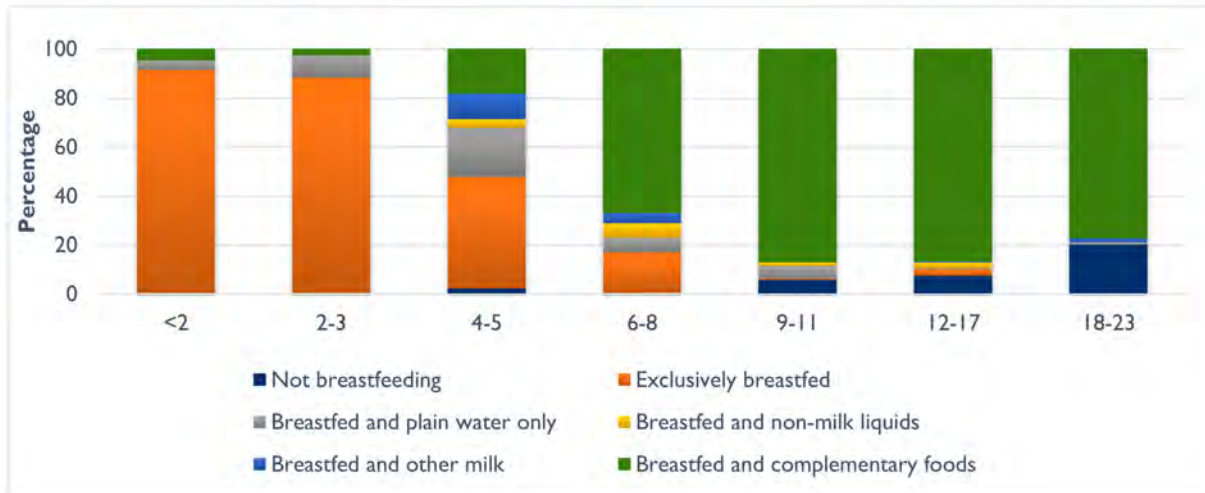


Figure 3.6.2: Breastfeeding Status for Children 0–23 Months by Age in Months, MC, Uganda 2018



Qualitative study respondents did not express any belief to show that male children are more exclusively breastfed than female children. All children are entitled to being breastfed at any time. In Kaabong and Amudat, local communities believe that babies should not be breastfed for prolonged periods of time because they think it increases the likelihood of acquiring HIV.

“Yes, there are some beliefs that can interfere with breast feeding like; people with HIV are not supposed to breastfeed their children for long because of fear of transmitting the virus to their children,” Female household head, Kotido

3.6.3 Minimum Acceptable Diet

Adequate nutrition from birth to 2 years of age is critical for a child’s optimal growth, health, and development. During this period, growth faltering, micronutrient deficiencies, and common childhood illnesses, such as diarrhea and acute respiratory infection, are likely to occur. Adequate nutrition requires a minimum dietary diversity, which is measured in seven key food groups. In addition to dietary diversity, feeding frequency—the number of times a child is fed—and the consumption of other types of milk or milk products, apart from breastmilk, are considered. All three dimensions are aggregated in the MAD indicator—which measures the percentage of children 6–23 months of age who receive a MAD—by breastfeeding status. The MAD indicator measures both the minimum feeding frequency and minimum dietary diversity as appropriate for various age groups and whether the child is breastfed, because both of these characteristics will influence how often the child should be fed and what to feed the child. If a child meets the minimum feeding frequency⁹⁶ and minimum dietary diversity⁹⁷ for his or her age group and breastfeeding status, the child is considered to be receiving a MAD.

The baseline PBS results indicate that only 8 percent of children 6–23 months of age are receiving a MAD in the combined DFSA areas. About 7 percent of children 6–23 months of age receive a MAD in the CRS area, and 10 percent receive a MAD in the MC area (see Table 3.6.1).

⁹⁶ Minimum meal frequency for breastfed children is defined as two or more feedings of solid, semi-solid, or soft food for children 6–8 months of age and three or more feedings of solid, semi-solid, or soft food for children 9–23 months of age. Minimum meal frequency for non-breastfed children is defined as four or more feedings of solid, semi-solid, or soft food, or milk feeds for children 6–23 months of age, with at least two of these feedings being milk feeds.

⁹⁷ Minimum dietary diversity for breastfed children 6–23 months of age is defined as four or more food groups out of seven food groups. Minimum dietary diversity for non-breastfed children is defined as four or more food groups out of six food groups.

Figures 3.6.3–3.6.4 and Table A7.18, Annex 7 present the status of minimum meal frequency and minimum dietary diversity, along with consumption of the seven food groups by children’s breastfeeding status. Among breastfed children, those meeting the minimum meal frequency requirement decrease from 51 percent to 16 percent in the CRS area and from 50 percent to 20 percent in the MC area when they age from 6–8 to 9–23 months. In the CRS area, 20 percent of breastfed children 9–23 months of age are found to consume a minimum dietary diversity, which is 7 percentage points higher compared to breastfed children 6–8 months of age. In the MC area, 24 percent of breastfed children 9–23 months of age consume a minimum dietary diversity, which is 4 percentage points higher compared to breastfed children 6–8 months of age. Consumption of a minimum dietary diversity for non-breastfed children 6–23 months of age is about 20 percent in both the CRS and MC areas. Overall, children in both DFSA areas have low dietary diversity, similar to the poor dietary diversity of women of reproductive age.

Among the seven different groups that are considered to be important for children’s dietary diversity, the most popular food items for non-breastfed children 6–23 months of age and for breastfed children 9–23 months of age in the CRS and MC areas are as follows: grains, roots, and tubers; other fruits and vegetables; and vitamin A-rich fruits and vegetables. Protein-rich foods such as eggs, flesh foods, dairy products, and legumes and nuts are least consumed by children in all age groups in both DFSA areas.

Figure 3.6.3: Components of MAD by Age Group and Breastfeeding Status, CRS, Uganda 2018

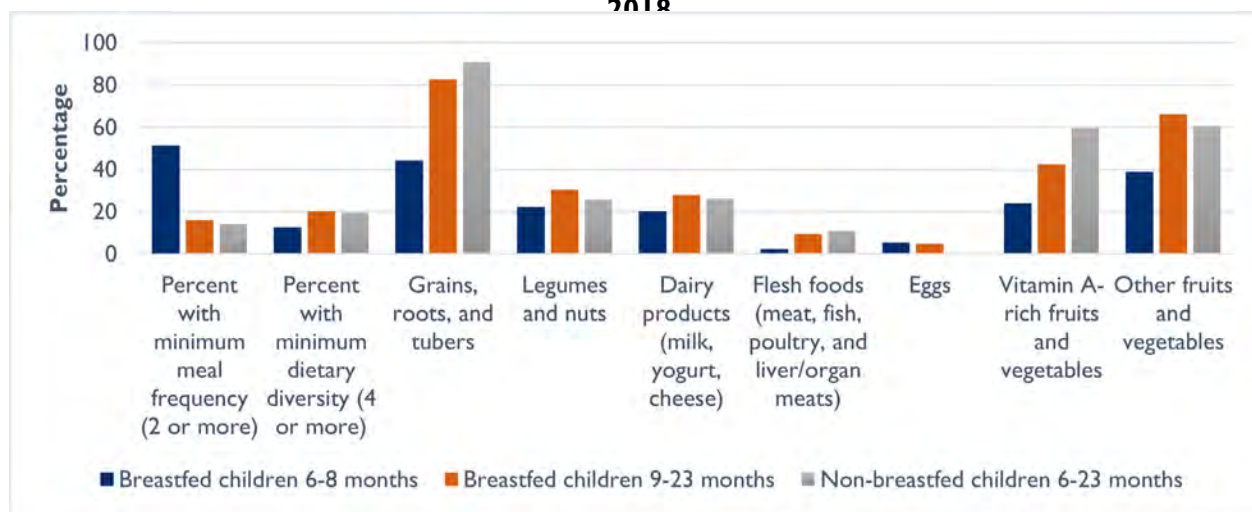
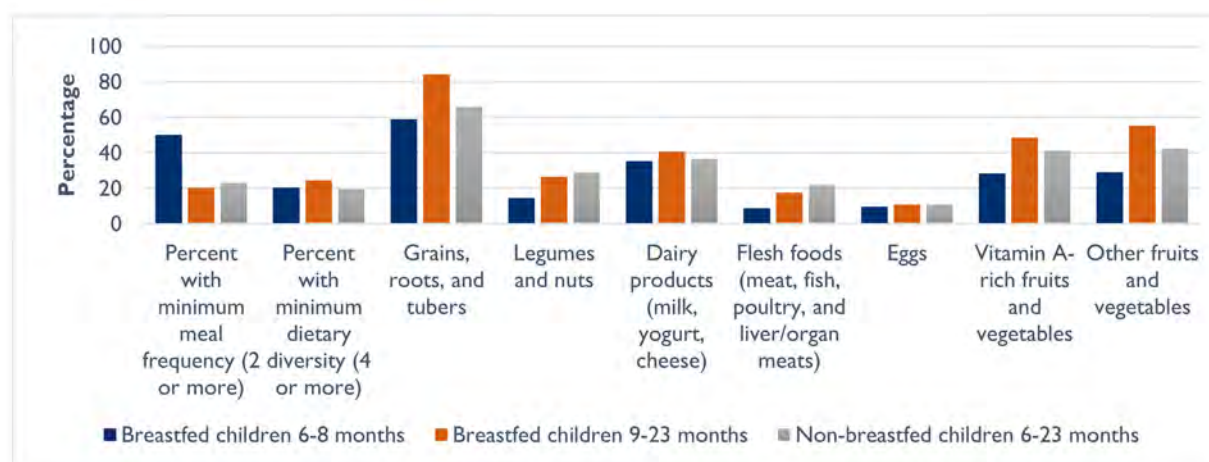


Figure 3.6.4: Components of MAD by Age Group and Breastfeeding Status, MC, Uganda 2018



The qualitative study explored the different types and adequacy of typical foods provided to children age 0-5 months, 6-23 months and 24-59 months. All the participants acknowledged that there was inadequate food to feed their families including the children. The caretakers mostly buy food from the markets to feed their families, and most times it isn't enough for the whole family.

The children under 5 months were mostly being breastfed, those of 6-23 months were mainly being fed on soup of beans, sorghum porridge and juice in addition to breast-feeding, while those between 24-59 months were fed beans, greens like 'boo', and any other food prepared for the family that day.

"A child of 0 – 5 months is given only breast milk, 6 – 23 months a child is introduced to semi solid and solid foods beginning with water, soup, porridge and Irish potatoes then a child of 24 – 59 months is given porridge and other nutritious foods to balance the diet," Community Health Worker, Kotido district.

Then from seven months on wards up to twenty-three months there are foods which they give to these children and there is a special nutrient rich food which is called "omunya" in Karamojong. They have fermented milk and they put herbs in order for it not to get spoilt or bad and it can stay up to six months."
Nutritionist, Moroto Regional Referral Hospital

The nutritional officers who were interviewed cited inadequate knowledge among community members on the relevancy of diversifying the children's diet by the mothers/caretakers as one of the contributory factors to the low dietary diversity in both DFSA areas. Many community members think that what is important for the children, is to get satisfied irrespective of what food groups they have consumed.

3.6.4 Targeted Nutrient-Rich Commodities

The baseline PBS collected information on targeted locally available, nutrient-rich food items (commodities) to be promoted by the projects. Both DFSAs identified the same set of commodities to be promoted as part of their activities.⁹⁸ Children's consumption status on each of the three different commodities within the past 24 hours was collected.

Table 3.6.1 provides the baseline PBS results for targeted nutrient-rich commodities for children 6–23 months of age. Only about 11 percent of children consume targeted nutrient-rich foods in the combined DFSA areas. In the CRS area, about 9 percent of children consume targeted nutrient-rich commodities, and about 14 percent do so in the MC area. Compared to female children, a higher proportion of male children consume such food items in the CRS area, and no significant sex-specific differences were observed in the MC area. Among the targeted nutrient-rich foods, foods made with bio-fortified maize or sorghum are the most commonly consumed nutrient-rich items in the CRS and MC areas.

3.6.5 Diarrhea and Oral Rehydration Therapy

Dehydration as a result of severe diarrhea is a major cause of morbidity and mortality among young children. Diarrhea can lead to short-term malnutrition among children. About 32 percent of children under 5 years of age in the combined DFSA areas had diarrhea in the two weeks prior to the survey. The rates of diarrhea are almost identical in the MC and CRS areas (see Table 3.6.1). ORT is being effectively used to prevent dehydration among children; more than 83 percent of children under 5 years of age with diarrhea were treated with ORT in the combined DFSA areas (see Table 3.6.1).

A set of correlation analyses were implemented to check the association between children's diarrhea and household hygiene practices, such as open defecation, use of an improved drinking water source, and availability of soap and water at their handwashing station,⁹⁹ as well as other variables, such as poverty and household members' education (see Table 10.16, Annex 9). Children under 5 years of age in food insecure households are more likely to experience diarrhea in both DFSA areas. In contrast,

⁹⁸ Both projects are promoting bio-fortified beans, bio-fortified maize or sorghum, and orange-flesh sweet potatoes.

⁹⁹ These variables have been identified as some of the main causes of child diarrhea (UNICEF, 2009: https://www.unicef.org/media/files/Final_Diarrhoea_Report_October_2009_final.pdf, accessed on Dec 14, 2016)

children under 6 months of age who are exclusively breastfed are less likely to experience diarrhea in both DFSA areas. Children in households that have basic service institutions (schools and health posts) nearby are less likely to have diarrhea in the CRS area, but these children are more likely to have diarrhea in the MC area. Households' socio-economic status, such as poverty, education, and cash earners, produce counter-intuitive associations with children's diarrhea in the CRS area. For example, household poverty is negatively associated with diarrhea, and households with educated members and households with cash-earning adults are positively associated with diarrhea. These results indicate that there may be other underlying reasons for children's diarrhea in the CRS area than the households' socio-economic characteristics as reflected through these variables.

Households experiencing economic shocks and conflicts are also likely to have higher rates of diarrhea among their children in the CRS area. No such association was found in the MC area. In general, relative to the CRS area, not many variables are statistically associated with children's diarrhea in the MC area. This could mean that the drivers of diarrhea in the MC area may not be among the measured variables compared to those in the CRS area.

None of the related variables, such as improved water sources, correct use of water treatment technologies, and time to collect water in 30 minutes round trip, are associated with diarrhea. Hygiene and sanitation-related variables, such as open defecation and having a handwashing station with soap and water present, did not show a significant association with diarrhea (see Table C10.16, Annex 9). This is not to suggest that these variables are not important, because they are sensitive to weather seasons, among many other things. For example, open defecation is more likely to contaminate the water sources and increase diarrheal incidence, especially in the rainy seasons.¹⁰⁰

Community health workers interviewed for the qualitative study reported that many children under 5 years of age in their communities are affected by diarrhea because of poor hygiene among the households, lack of clean water for domestic use, open defecation, and consumption of unsafe food and water.

"Because of the open defecation, flies come from the stool out on the food and causing diarrhea. Others also because of dirty compounds and utensils used at home also gives the diarrhea. Some parents are also very lazy to keep the food of their children clean leading to diarrhea also." Community health worker, Kaabong

"Many of the adults live without bathing and eat without washing their hands. So in such a situation if they cannot wash their hands after using the toilets, then they are not expected to wash the hands of the children." Nutritionist, Moroto

There were also reports that the water quality at the boreholes may be acceptable; however, the containers used for water collection and storage are usually dirty, and this could be one of the causes of diarrhea among children.

"People have water, the only challenge we get in these people is a problems concerning collection containers, storage and others. These people use very dirty containers but concerning safe water, safe water is there." Nutrition focal person, Nakapiripirit

3.7 Gender

To evaluate gender equality in the DFSA areas, FFP developed two sets of cross-cutting gender indicators related to self-earned cash and maternal and child health and nutrition (MCHN) decision-making practices. These indicators are described in this section. Because gender is a cross-cutting theme, gender dimensions are explored for other indicators as appropriate, and significant gender differences are highlighted in the indicator tables and the text throughout the Findings section of the report.

¹⁰⁰ The baseline PBS was conducted during the rainy season when diarrhea is more frequent.

3.7.1 Cash Earning and Decision-Making

Many FFP DFSAs promote men's and women's access to income-generating opportunities and activities that allow them to earn cash. Measuring the extent to which men and women earn cash is important because cash can provide a relatively rapid pathway to women's empowerment and gender equality. As women gain access to greater income, their household financial contribution increases, potentially resulting in increased household decision-making authority. In a variety of country contexts, women's control over earned income, or household spending, is associated with expenditure and consumption patterns that tend to favor children, such as increased spending on health care, child care, and children's clothing and education.^{101,102} In other contexts, women may be permitted to earn cash but do not have control over spending. In such instances, there is a need to promote women's control over their income.

The FFP indicators on cash earning and decision-making are presented in Table 3.7.1.

Table 3.7.1: Cash Decision-Making, Uganda 2018

Indicator	Combined	CRS	MC
Percentage of men and women in union who earned cash in the past 12 months ^a	41.4	47.4	36.3
Men	41.7	47.2	37.2
Women	41.0	47.6	35.4
Percentage of women in union and earning cash who report participation in decisions about the use of self-earned cash	85.0	86.6	83.3
Percentage of women in union and earning cash who report participation in decisions about the use of spouse/partner's self-earned cash	58.0	64.8	50.1
Percentage of men in union and earning cash who report spouse/partner participation in decisions about the use of self-earned cash	48.8	56.6	40.2
Number of men and women (age 15 or older)	7,891	3,142	4,040
Men	3,630	1,431	1,879
Women	4,261	1,711	1,161
Number of men and women in union and earning cash in the past 12 months	4,604	1,993	2,611
Men	2,169	931	1,238
Women	2,435	1,062	1,373

^a Includes all household members who are 15 years of age or older, have worked in the past 12 months, and were usually paid in cash (or cash and in-kind) for this work during the 12-month period

*** p<0.001, ** p<0.01, * p<0.05, + p<0.10; Reference group= Male

Cash-earning opportunities for men and women 15 years of age and older who are in union (or married) are limited in the combined DFSA areas, and only about 41 percent reported working and earning cash in the past 12 months. There are no differences in cash-earning between men and women in either DFSA area (see Table 3.7.1).

Among the women in a union who earned cash, 87 percent in the CRS area and 83 percent in the MC area reported participating in decisions about the use of self-earned cash, indicating that most women are involved in the decisions pertaining to their self-earned income. Nearly 65 percent of women in a union participate in decisions about the use of their spouse's income in the CRS area, and about 50 percent do so in the MC area. Women's interpretation of their participation in spouse's income is also corroborated by men's responses; about 57 percent of men in the CRS area and 40 percent of men

¹⁰¹ Gitter, Seth R., and Bradford L. Barham. 2008. Women's power, conditional cash transfers, and schooling in Nicaragua. *The World Bank Economic Review*, 22(2):271-90.

¹⁰² Quisumbing, Agnes R., and John A. Maluccio. 2000. Intra-household allocation and gender relations: New empirical evidence from four developing countries. Washington, DC: International Food Policy Research Institute.

in the MC area who are in union and earn cash reported their spouse participating in decisions about the use of their own self-earned cash. Compared to women, fewer men felt that their spouse participated in the decision-making of men's self-earned cash in both DFSA areas. This difference could be due to a difference in perceptions about the meaning of participation by men and women. Regardless, based on these three indicator estimates, women's participation in decision-making about the use of their self-earned cash is high, and more than half participate in decisions about their spouse's self-earned cash.

Factors Associated with Cash Income

To better understand the different factors that may be associated with adults' cash-earning opportunities, a set of variables likely to be associated with cash earning is selected and used for correlation analysis. These variables include household poverty, farmers' use of agricultural financial services, value chain activities, access to different types and sizes of agricultural land, household members' education, access to markets, access to natural resources, livelihoods strategies, and household size. Correlation results are provided in Table 10.18, Annex 9.

The correlation results show that two variables—farmers' use of agricultural financial services and households with a higher number of livelihoods strategies—are consistently positively associated with married or in-union men and women cash earners in both DFSA areas. This means that households using agricultural financial services and households with diverse livelihoods strategies are more likely to have cash-earning couples in both the CRS and MC areas.

Other variables that are positively associated with couples' cash income in the CRS area are agricultural value chain practices and no access to land or access to less than 0.5 hectares of land. This means that households in which farmers use value chain practices and households with little or no access to land are more likely to have a cash-earning couple. In contrast, poor households are less likely to have couples who earn cash.

In the MC area, households that have access to markets tend to have a cash-earning couple, and households with higher educated household members also tend to have a cash-earning couple. Households with deeper poverty as defined by the depth of poverty also tend to have fewer cash-earning couples in the MC area. Couples who earn cash tend to use fewer improved storage practices in the MC area. This might indicate a better food security situation in the households using improved storage practices, which could suggest less of a requirement for a couple to look for work.

3.7.2 Maternal and Child Health and Nutrition Decision-Making

The DFSAs provide education and training to improve knowledge and skills of specific behaviors and practices, such as MCHN. The four MCHN practices that contribute to components of the knowledge of MCHN practices indicator are as follows: (1) making at least four ANC visits during pregnancy, (2) eating more nutritious foods during pregnancy, (3) initiating breastfeeding early, and (4) introducing complementary foods to children at 6 months of age. The practices in these focus areas are not intended to be comprehensive; instead they represent a selection of practices that are relevant to the 1,000-day window from pregnancy to a child's second birthday.

About 85 percent of in-union or married mothers and fathers of children under 2 years of age have knowledge of MCHN practices in the CRS area, and 76 percent of in-union or married mothers and fathers of children under 2 years of age have knowledge of MCHN practices in the MC area (see Table 3.7.2). This is also reflected through nearly the universal understanding of men and women with children under two years (97 percent in both DFSA areas) about the health benefits of waiting at least two years after the last live birth before attempting the next pregnancy.

Knowledge of MCHN practices is higher among women compared to men in both DFSAs, and the gender gap of knowledge is wider in the MC area. This could be partly because women are generally more involved in daily aspects of MCHN than men. Community health workers participating in the

qualitative study reported that women are the predominant participants in the health education and awareness sessions provided in the community and health facilities which offers them a greater opportunity to acquire more knowledge on MCHN.

Table 3.7.2: Maternal and Child Health Decision-Making, Uganda 2018

Gender Indicators	Combined	CRS	MC
Percentage of men and women in union with children under 2 who have knowledge of MCHN practices ^a	80.6	85.0	76.3
Male	70.8	79.0	63.5
Female	88.3***	89.4**	87.1***
Percentage of men in union with children under 2 who make maternal health and nutrition decisions alone	22.4	26.1	19.0
Percentage of women in union with children under 2 who make maternal health and nutrition decisions alone	42.5***	45.4***	39.5***
Percentage of men in union with children under 2 who make maternal health and nutrition decisions jointly with spouse or partner	42.5	41.8	43.2
Percentage of women in union with children under 2 who make maternal health and nutrition decisions jointly with spouse or partner	34.5***	36.3+	32.7**
Percentage of men in union with children under 2 who make child health and nutrition decisions alone	12.8	15.7	10.3
Percentage of women in union with children under 2 who make child health and nutrition decisions alone	36.8***	39.7***	33.8***
Percentage of men in union with children under 2 who make child health and nutrition decisions jointly with spouse or partner	49.0	51.1	47.1
Percentage of women in union with children under 2 who make child health and nutrition decisions jointly with spouse or partner	41.5***	42.1**	41.0*
Number of men and women with children under 2	1,944	821	908
Men	830	342	397
Women	1,114	479	511
Number of men/women in union with children under 2	1,431	664	767
Men	592	269	323
Women	839	395	444
Custom Indicator			
Percentage of target population (all men and women with children under 2 years) who can state at least one health benefit of waiting at least two years after last live birth before attempting the next pregnancy	96.8	96.8	96.9
Male	96.6	97.0	96.3
Female	97.0	96.6	97.4
^a Correctly answered at least three of four MCHN questions *** p<0.001, ** p<0.01, * p<0.05, + p<0.10; Reference group=Male			

There is not much variation in MCHN (refers to both maternal health and nutrition [MHN] and CHN) decision-making practices across the DFSA areas (see Table 3.7.2). In both DFSAs, twice as many women in union with children under 2 years of age make MCHN decisions alone, compared to men alone. For example, about 26 percent of men and 45 percent of women in a union with children under 2 years of age reported making MHN decisions alone in the CRS area, compared to 19 percent of men and 40 percent of women in the MC area. A similar gender pattern is observed for men's and women's decisions related to CHN, except that the proportion of men who report making CHN decisions alone is much lower, compared to those who report making MHN decisions alone. In contrast, a higher proportion of men in a union with children under 2 years of age report making joint decisions with their spouse on both MHN and CHN practices, compared to women in a union with children under 2 years of age. For example, about 42 percent of men in the CRS area and 43 percent of men in the MC area

reported making joint decisions on MHN, and only 36 percent of women in the CRS area and 33 percent of women in the MC area report making similar decisions. Similar patterns are also observed for men's and women's joint decision-making on issues related to CHN.

The overall findings of this section can be summarized as follows: (1) less than 50 percent of men and women in a union earn cash in both the CRS and MC areas, which signifies the lack of cash-earning opportunities; (2) there are no gender differences in terms of the proportion of men and women in a union earning cash in both DFSA areas, and most women do participate in the decisions related to the use of their self-earned cash and their spouse's cash income; (3) more women have knowledge of MCHN practices than men, and more women make MHN- and CHN-related decisions alone in both CRS and MC areas; and (4) more men than women reported making joint decisions with their spouses on MHN and CHN.

3.8 Resilience Analysis Summary

Resilience and resilience capacity are both key concepts on which the resilience analyses are based. It is thus important to understand what each concept is and, importantly, the distinction between them.

According to the USAID definition, resilience is *“the ability of people, households, communities, countries, and systems to mitigate, adapt to, and recover from shocks and stresses in a manner that reduces chronic vulnerability and facilitates inclusive growth.”* Based on this definition, household resilience is the ability of a household to mitigate, adapt to, and recover from shocks and stresses.

Resilience itself is an ability to manage or recover from shocks, and resilience capacities are a set of conditions that are thought to enable households to achieve resilience in the face of shocks. At the household level, resilience capacities can be classified into three categories:

- Absorptive capacity is the ability to minimize exposure to shocks and stresses (ex-ante) where possible and to recover quickly when exposed (ex-post).
- Adaptive capacity involves making proactive and informed choices about alternative livelihood strategies based on changing conditions.
- Transformative capacity relates to governance mechanisms, policies and regulations, infrastructure, community networks, and formal safety nets that are part of the wider system in which households and communities are embedded. Transformative capacity refers to system-level changes that enable more lasting resilience.

Given their complexity, measuring the resilience capacities requires combining a variety of indicators of the underlying concepts relevant to a particular setting into one overall indicator. Details on the measurement of absorptive, adaptive, and transformative capacities are described in detail in Annex 10.

Key findings from the preliminary quantitative analysis are summarized in this section. The mean values of the resilience capacities (absorptive, adaptive, and transformative) and their individual components for the baseline survey are provided, disaggregated by DFSA area.

Key Findings

Households across both DFSA areas experienced an average of 5.0 shocks over the past 12 months, as shown in Table 3.8.1. The shock experienced most by households was excessive rains (81.8 percent), followed by flooding (59.5 percent), drought (54.4 percent), increasing food prices (49.1 percent), and crop diseases (45.5 percent). The perceived severity of these shocks is measured by their impact on food consumption and income security at the household level (index ranges from 1–144). The mean impact across both DFSA areas is 27.4.

The absorptive capacity index (ranging from 0–100) is constructed using 10 variables and measures the ability of households to minimize their exposure to shocks through preventive measures and appropriate coping strategies to avoid permanent, negative impacts of shocks. The mean absorptive

capacity across the two DFSA areas is 23.2.¹⁰³ Of the components, a small percentage of households have access to agricultural insurance, remittances, and humanitarian assistance. Households also report low bonding social capital (defined as the bonds between community or group members), limited ability to prepare for and mitigate the effects of shocks, and relatively low availability of informal safety nets. Asset ownership is also relatively low across the productive, livestock, and durable goods categories. In contrast, one-quarter of households have access to cash savings. In comparing the DFSA areas, the CRS area has the greatest availability of humanitarian assistance, agricultural insurance, and informal safety nets, as well as the greatest bonding social capital and assets (durable and productive). This may account for CRS having a higher level of absorptive capacity at 25.0.

Adaptive capacity measures the ability of households to make proactive and informed choices about alternative livelihood strategies based on an understanding of changing conditions. It contains 11 variables.¹⁰⁴ With an index ranging from 0–100, the mean adaptive capacity across the two DFSA areas is 37.0, with CRS having the greatest value at 38.1, as shown in Table 3.8.1. Livelihood diversification indicates that households were engaged in an average of 3.1 income-earning activities over the last year. Most households were engaged in farming/crop production and sales (67.0 percent), followed by agricultural wage labor (46.1 percent), and selling of wild/bush products such as charcoal and firewood (40.9 percent). Of the other components, households have low scores for bridging and linking social capital, which measure the bonds between members of other communities or groups and the bonds between households and government officials or NGO leaders. In contrast, households tend to score higher on the aspirations index (which measures the extent to which household members consider that they have some direct control over achieving their aspirations—and are not subject only to fate) and access to financial institutions for credit and/or savings. Finally, nearly all households adopted improved agricultural practices.

Table 3.8.1: Resilience Capacity Indexes and Their Components, by DFSA Area, Uganda 2018

Resilience Capacities and Components	Overall	CRS	MC
Recovery from most salient shocks^a			
Excessive rain (%)	5.7	3.4	8.4
<i>n</i>	1860	943	917
Flooding (%)	7.4	4.7	11.3
<i>n</i>	1437	801	636
Drought (%)	10.8	12.3	8.7
<i>n</i>	1177	622	555
Increase food price (%)	8.5	10.1	6.2
<i>n</i>	1193	632	561
Crop disease (%)	3.5	2.2	4.6
<i>n</i>	1078	443	635

¹⁰³ Given the way in which the resilience capacity indexes are computed, it is not meaningful to compare the values across indexes to conclude, for example, that the transformative capacity is “higher” than absorptive capacity because the index value is higher. A high value (greater than 50) means that the distribution of the index is skewed to the right—that there are a higher proportion of the sample with index values above the mean value than below the mean. An overall value below 50 means that a greater proportion of sample values are below the mean. However, values can be compared across project areas.

¹⁰⁴ Note that some indicators are components of more than one index (e.g., asset scores are a component of both the absorptive and adaptive capacity indexes).

Resilience Capacities and Components	Overall	CRS	MC
Shock Exposure/Severity			
Shock exposure index (mean, 0–18)	5.0	5.5	4.4
<i>n</i>	2,799	1,251	1,548
Cumulative impact of shock exposure (mean, 1–144)	27.4	31.9	23.3
<i>n</i>	2,726	1,226	1,500
Absorptive Capacity Index (mean, 0–100)	23.2	25.0	23.2
Availability of informal safety nets (mean, 0–6)	2.0	2.1	1.9
Bonding social capital (mean, 0–6)	2.3	2.4	2.3
Access to cash savings (%)	24.2	23.6	23.5
Access to remittances (%)	9.2	9.2	9.2
<i>Asset ownership</i>			
Productive asset index (mean, 0–24)	4.9	5.0	4.9
Livestock asset index (mean, 0–7)	1.4	0.8	1.7
Durable goods asset index (mean, 0–22)	2.4	2.5	2.2
Shock preparation and mitigation (mean, 0–4)	0.6	0.7	0.5
Access to agricultural insurance (%)	2.0	3.7	1.0
Availability of humanitarian assistance (%)	8.6	11.5	7.1
Adaptive Capacity Index (mean, 0–100) ^b	37.0	38.1	36.1
Aspirations/confidence to adapt (mean, 0–16)	10.7	10.8	10.6
Bridging social capital (mean, 0–6)	2.2	2.4	2.2
Linking social capital (mean, 0–4)	0.9	1.0	0.9
Education/training (mean, 0–3)	0.7	0.8	0.6
Livelihood diversification (mean, 0–17)	3.1	3.1	3.0
Exposure to information (mean, 0–19)	4.7	5.4	4.4
Adoption of improved practices (%)	81.1	84.8	79.6
Access to financial institutions (mean, 0–2)	1.2	1.2	1.3
Transformative Capacity Index (mean, 0–100) ^c	37.2	40.9	33.9
Availability of formal safety nets (mean, 0–3)	0.1	0.1	0.0
Availability of markets (mean, 0–3)	1.7	1.8	1.6
Access to communal natural resources (mean, 0–4)	1.9	1.7	2.0
Access to basic services (mean, 0–3)	1.8	1.7	1.9
Access to infrastructure (mean, 0–4)	1.1	1.2	0.8
Access to ag extension services (%)	25.7	31.3	16.4
Access to livestock services (%)	44.3	53.4	31.8
Collective action (mean, 0–10)	0.3	0.3	0.2
Local government responsiveness (%)	87.2	82.8	91.1
Participation in local decision-making (%)	54.4	50.9	53.6
<i>n</i>	2,779	1,251	1,548

^a Only for those households who experienced and were impacted by a shock in the last 12 months.

^b The asset ownership index is not shown under adaptive capacity because it is listed under absorptive capacity.

^c Bridging social capital is not shown under transformative capacity because it is listed under adaptive capacity.

The transformative capacity index comprises 12 variables that measure governance mechanisms, policies, infrastructure, community networks, and formal and informal social protections that enable systemic change.¹⁰⁵ The mean value for the transformative capacity index across the DFSA areas is 37.2 (on a scale of 0–100). Data from Table 3.8.1 show that communities have little access to formal safety nets and infrastructure; however, nearly all communities report high local government responsiveness, half of communities have access to agricultural extension services, and one-quarter of communities have access to livestock services. Interestingly, households report low levels of engagement in collective activities that benefit the village, but a high percentage report participation in local decision-making.

Annex 10 provides a more detailed analysis of the relationships among resilience capacities and household well-being outcomes (per capita expenditures, poverty, household dietary diversity, ability to recover), and adoption of coping strategies. The key findings of this analysis are as follows:

- Households with higher levels of absorptive, adaptive, and transformative capacity achieve better economic (higher per capita expenditures and lower likelihood of poverty) and food security outcomes. Adaptive capacity, however, is the only significant predictor for recovery across the five most salient shocks, whereas greater absorptive capacity is associated exclusively with recovery from excessive rain, flooding and drought.
- Specific components of resilience capacity that are associated with increased expenditures, lower prevalence of poverty, and greater dietary diversity are cash savings, durable assets, livestock assets, human capital (education/training), exposure to information, access to agricultural extension services, shock preparedness and mitigation, access to infrastructure, aspirations/confidence to adapt, and participation in local decision-making.
- With respect to the types of coping strategies adopted, households with higher levels of resilience capacity are most likely to get food on credit, use money from savings, and take out a loan from MFI or village savings groups.

These findings suggest some implications with respect to programming to enhance resilience. First, traditional economic development activities that are directed to increase household income and wealth—increasing human capital, promotion of value chains, and investment in infrastructure—are also means to enhance household and community resilience capacities. The importance of savings on household economic status and dietary diversity suggests that supporting savings and loans groups and other mechanisms to promote savings can have important impacts on resilience. Strategies that promote bonding and linking social capital formation, for example, through savings and loans groups and other community-based or collective organizations, can also be beneficial. Reduction in poverty can also be supported by investments in shock preparedness and mitigation efforts.

¹⁰⁵ Note that some indicators are components of more than one index (e.g., bridging social capital is a component of both the adaptive and transformative capacity indexes).

4. CONCLUSIONS

This section provides concluding comments and preliminary recommendations by sector.

4.1 Food Security and Poverty

A majority of people in the DFSA areas are food insecure due to lack of financial resources. This reality is reflected in the poverty indicator: nearly 9 in every 10 individuals are below the international extreme poverty line. Poverty is not only widespread, it is also deep; on average, poor individuals consume 61 percent less than the daily per capita poverty threshold of \$1.90 (PPP 2011). Bivariate analysis showed a positive association between food insecurity and poverty in the MC area. The other food security indicator, HDDS, is very low (3 in the score of 1–12), indicating a poor socio-economic situation of the households in general. As expected, the HDDS is inversely associated with poverty and depth of poverty in both the CRS and MC areas, suggesting that the higher and deeper the poverty, the lower the HDDS.

Households with a tertiary-level educated family member are less likely to be poor in both the CRS and MC areas. Households in which farmers use at least one of the agricultural financial services (credit, savings, or agricultural insurance) tend to be less poor in both DFSA areas. Households' food insecurity is associated with access to communal natural resources and higher livelihoods diversification in both DFSA areas, but negatively in the CRS area and positively in the MC area. The counterintuitive positive associations in the MC area may indicate a higher concentration of food insecure households near the communal natural resources and their greater need to diversify livelihoods due to poverty or other socio-economic situations.

Households with higher durable assets ownership, participation in local decision-making bodies, and higher education of their members tend to have higher HDDS in both DFSA areas. A number of other factors are associated with HDDS, poverty, and food insecurity, but not consistently across the DFSA areas, which suggests that each DFSA area has unique drivers of food security and poverty. The factors that are associated with these three outcome indicators for each DFSA as presented in Section 3 are worth considering for further research and while designing the interventions.

4.2 Agriculture

Sustainable Agricultural Practices and Value Chain Practices

Slightly less than half of farmers practice the project-defined minimum number of sustainable agricultural practices (crop, livestock, or NRM) in the CRS area, and only about one out of seven farmers practice project-defined practices in the MC area.¹⁰⁶ About one in three farmers in the CRS are and one in four farmers in the MC area practice the value chain activities promoted by the project. Both of these practices are used more by male farmers compared to female farmers, although female farmers are generally more involved in day-to-day agricultural activities, as observed through the qualitative data.

About 43 percent of farmers in the CRS area and 34 percent of farmers in the MC area plant crops or raise and buy livestock with the specific intention to sell or resell to earn income. The low uptake of value chain practices could indicate poor return on farmers' investment and lack of efficiency in farming. This could also indicate the lack of awareness among the farmers, lack of markets, and the need for agriculture extension offices to focus more on trade-oriented farming activities. All of these are missed opportunities to improve farmers' economic well-being because bivariate analyses indicated that households using improved sustainable agricultural practices and practicing value chain activities are less likely to be poor in both DFSA areas.

¹⁰⁶ Project-defined minimum number is three for CRS is three and five for MC.

Use of Agricultural Financial Services

About 22 percent of farmers in the CRS area and 19 percent of farmers in the MC area used any kind of agricultural financial services (credit, savings, or agricultural insurance). Easy access to and use of credit services are considered critically important for economic development in general, but less than 13 percent of farmers in the CRS area and only about 8 percent of farmers in the MC area used agricultural credit services. Farmers who used any type of financial services were also likely to practice value chain activities and sustainable agricultural practices in both DFSA areas. Farmers using financial services tend to be less poor in both DFSA areas and less food insecure in the CRS area.

Use of Improved Storage Practices

About half of farmers use at least one improved storage practice in the combined DFSA areas. Non-short-term perishable crops—sorghum, maize, and legumes—are the most commonly produced crop items in both areas, and proper storage of crops can help households meet their food needs, especially during the agricultural lean period, and can also potentially help them engage in some of the value chain activities (such as drying, processing, and trading or marketing). Bivariate analysis indicated that households using improved storage practices are less likely to be poor in the CRS area.

Most farmers (more than 73 percent) in both DFSA areas own the agricultural land that they make decisions over. Among those who have access to land, about 38 percent in the CRS area and 32 percent in the MC area have less than 0.5 hectares. Fewer female farmers compared to male farmers tend to own the land, but in the MC area, more female farmers tend to sharecrop the land, compared to male farmers. Farmers who have no land or less than 0.5 hectares of land are more likely to be poor in the CRS area, and the poverty seems to be deeper among such farmers in the MC area.

4.3 Water, Sanitation, and Hygiene

Drinking Water

About 41 percent of households in the combined DFSA areas use improved drinking water sources. About 48 percent of households in the CRS area and 43 percent of households in the MC area are able to obtain drinking water in less than 30 minutes. On the whole, the availability of water, regardless of whether the source is improved or not, is a challenge in the DFSA areas. The use of recommended water treatment technologies is fairly low in both areas (8 percent in the CRS area and 12 percent in the MC area), and this could be due to the fact that most households use a borehole or tube well and consider this a safe drinking water source.

Sanitation and Hygiene

Less than 7 percent of households in the CRS area and about 10 percent of households in the MC area use basic sanitation facilities. Fewer adult female-only households, compared to adult male and female households, have basic sanitation facilities in the MC area, but no such difference was observed in the CRS area. A large percentage of households (more than 64 percent) practice open defecation in both DFSA areas, and about 4 percent of households in the CRS area and 3 percent of households in the MC area have a handwashing station with soap and water available.

Poor households are more likely to use open defecation and less likely to have basic sanitation facilities. Interestingly, despite what the existing literature suggests, household members' education is not associated with open defecation in either of the DFSA areas.

4.4 Maternal Health and Nutrition

Nutrition

About 39 percent of non-pregnant women between 15 and 49 years of age are underweight in the CRS area, and 31 percent of non-pregnant women between 15 and 49 years of age are underweight in the MC area. About 13 percent of women 15-49 years of age in the CRS area and 20 percent in the MC

area consume a MDD-W, defined as consuming 5 of 10 nutritionally diverse food groups. Women mostly consumed grains, roots, and tubers, and other vegetables in both DFSA areas. Few women consume eggs and nuts and seeds, and the consumption of dairy and flesh foods is low in both DFSA areas, and particularly low in the CRS area. Few women (about 7 percent in the CRS area and 11 percent in the MC area) consume targeted nutrient-rich commodities (bio-fortified beans, bio-fortified maize or sorghum, and orange-flesh sweet potatoes).

Women in poor households tend to consume less diverse foods, and households that consume less diverse foods tend to have less diverse foods for women as well in both DFSA areas. In addition, women in households with diverse livelihoods strategies and exposure to external information tend to have more diverse diets in the CRS area, and women in households with diverse livelihoods strategies and educated household members tend to have more diverse diets in the MC area.

Health Care

A majority of women (about 78 percent) who had a live birth in the past five years attended at least four ANC visits with a skilled health worker during their pregnancy. Despite a high uptake of ANC services, a small proportion of women (11 percent in the CRS area and 7 percent in the MC area) use modern contraceptive methods in both DFSA areas. Overall, about 1 in 7 women use any kind of contraceptive method. Poor use of modern contraception can lead to large household sizes, which could result in inadequate maternal and child health care and overall economic well-being.

Women in poor households are less likely to use modern contraceptive methods in both DFSA areas. Women in educated households, however, tend to use modern contraceptive methods, regardless of household poverty status. Women in households that have linkages to government officials or NGOs are more likely to use modern contraceptives in the MC area, and women in households that participate in local community groups are more likely to use modern contraceptives in the CRS area. Overall, education, exposure to and interaction with external stakeholders such as government officials and NGOs and local community groups should be considered while designing and implementing activities targeted to promote women's health care and health services.

4.5 Children's Health and Nutrition

About 28 percent of children under 5 years of age are underweight in the CRS area, and about 30 percent are underweight in the MC area. About 36 percent of children under 5 years of age are stunted in the CRS area, and about 41 percent are stunted in the MC area. About 12 percent of children under 5 years of age are wasted in the CRS area, and about 11 percent are wasted in the MC area. More male than female children are underweight and stunted in both areas. Because wasting is more than 10 percent, both DFSA areas have serious acute malnutrition, and immediate services should be delivered to save the critically undernourished children. Less than 1 in every 10 children 6–23 months of age (9 percent) in the combined DFSA areas receives a MAD.

A majority (about 74 percent) of the children under 6 months of age are exclusively breastfed in the combined DFSA areas. EBF begins to decrease as early as 2–3 months, and by 4–5 months only about 38 percent of children in the CRS area and 46 percent of children in the MC area are exclusively breastfed. In addition, the introduction of complementary foods begins before the UNICEF/WHO-recommended age of 6 months and as early as 2 months. Close to one-third (30 percent) of children under 5 years of age in the combined DFSA areas experienced diarrhea in the two weeks preceding the survey, but most of them (84 percent) were treated with ORT.

Bivariate analyses suggests that children in households in which there are educated household members are less likely to be stunted. Children in households that have access to financial services are less likely to be stunted and wasted in the CRS area. Households that own durable assets tend to have less stunted and wasted children in the MC area. Children who are exposed to diarrhea tend to be more wasted in the MC area. Based on the results presented in this report, CHN is clearly a cross-cutting issue and is associated with several factors, such as education, poverty, and WASH practices.

4.6 Gender and Household Decision-Making

About 47 percent of men and women in a union reported earning cash in the past 12 months in the CRS area, and 36 percent of men and women in union reported earning cash in the past 12 months in the MC area. Adults in a union who are in households that use agricultural financial services and have diverse livelihoods strategies are more likely to have men and women in a union that earn cash in both DFSA areas. No gender differences were found between men and women in cash earning.¹⁰⁷

A majority of women (87 percent in the CRS area, 83 percent in the MC area) reported participating in decision-making related to their self-earned cash in the DFSA areas. Women's participation in decision-making related to their spouse's cash is relatively high; 65 percent of women in the CRS area and 50 percent of women in the MC area reported participating in such decisions. This is also corroborated by men; about 57 percent of men in the CRS area and about 40 percent of men in the MC area reported their spouses' participation in the decision-making of their self-earned cash income.

About 85 percent of adults in a union have MCHN knowledge in the CRS area, and 76 percent of adults in a union have MCHN knowledge in the MC area. More women reported having MCHN knowledge than men in both areas, because women are more involved in domestic work, including taking care of children. More women make MCHN decisions alone compared to men in both DFSA areas. Gender inequalities come into play when men and women make joint decisions on MCHN; more men than women reporting making such decisions, despite more women having the MCHN knowledge.

4.7 Shocks and Resilience

Households were exposed to an average of five types of shocks in the year prior to the survey. The shock experienced most by households was excessive rains (81.8 percent), followed by flooding (59.5 percent), drought (54.4 percent), increasing food prices (49.1 percent), and crop diseases (45.5 percent). A majority of resilience capacity indicators and sub-indicators are low in both DFSA areas. For example, households' absorptive capacity score is 25 in the CRS area and 23 in the MC area (out of 0–100). The adaptive capacity index is 38 in the CRS area and 36 in the MC area (out of 0–100), and transformative capacity is 41 in the CRS area and 34 in the MC area (out of 0–100).

Analyses suggest that households with higher levels of absorptive, adaptive, and transformative capacities tend to have better economic (higher per capita expenditures and a lower likelihood of poverty) and food security outcomes. Some specific components of resilience capacities are associated with increased expenditures, lower prevalence of poverty, and greater dietary diversity. These components are cash savings, durable assets, livestock assets, human capital (education/training), exposure to information, access to agricultural extension services, shock preparedness and mitigation, access to infrastructure, aspirations/confidence to adapt, and participation in local decision-making.

¹⁰⁷ Men and women have approximately the same share of the workforce in agriculture in Uganda. See: UNDP-Uganda Country Gender Assessment, October, 2015. Available at: <http://www.ug.undp.org/content/dam/uganda/docs/UNDPUg2016%20-UNDP%20Uganda%20-%20Country%20Gender%20Assessment.pdf>

Annex I: Uganda Baseline Study Statement of Work

Statement of Work

Population-Based Baseline Study of Food for Peace Development Food Security Activities in Uganda

Introduction

A. General

FFP uses a population-based survey for its baseline and endline studies, with the baseline study being the first step in a two-part evaluation process and the final evaluation with an endline survey as the second step. Since 2012, FFP has externally contracted an independent firm to conduct mixed-method PBS. FFP requires a representative PBS to collect data for required impact and outcome indicators for the FFP activity implementation areas. The 2017 PBS comprises 11 modules that explore household food security, nutrition and health, WASH, agriculture, poverty, gender and resilience. There is also a module on anthropometry. The study will also include a purposively sampled qualitative study to capture insights and community perceptions about practices and behaviors, as well as information on risks and resilience capacities. It is preferred that the quantitative survey and qualitative research are conducted sequentially, allowing the quantitative results to help inform qualitative inquiry. Ideally, the baseline study occurs during the hunger season and before the partners have begun significant implementation. Given that the lean season often coincides with the rainy season in many countries, rain may make access to certain areas of data collection difficult. The second part of the evaluation process, the performance evaluation, will be conducted near the time of DFSA expiration, with the endline PBS conducted as close as possible to the timeline of the baseline PBS.

B. Overview of 2017 development food security activities (DFSA)

The Office of Food for Peace (FFP) uses Title II and/or community development funds to support multi-year development food security activities (DFSA) around the world that improve and sustain the food and nutrition security of vulnerable populations. DFSAs implement activities across technical sectors, layering and sequencing interventions at both the individual and household levels. FFP's partners improve food access and incomes through agriculture and other livelihoods initiatives; enhance natural resource and environment management; combat under nutrition, especially for children under two and pregnant and lactating women; and mitigate disaster impact through early warning and community preparedness activities. Development activities are intended to build resilience in populations vulnerable to chronic hunger and repeated hunger crises, and to reduce their future need for ongoing or emergency food assistance. FFP's efforts are increasingly integrated with other USAID efforts to promote resilience and reduce

extreme poverty, and the DFSAs support the President's Feed the Future initiative (FTF), as well as the Global Food Security Strategy (GFSS).

Based on analyses of key indicators of food security; nutritional and health status; educational and water and sanitation deficiencies; historical need for humanitarian assistance; and other considerations, FFP selected the seven districts of Karamoja, Uganda as the geographic focus for multi-year assistance beginning in 2017. Catholic Relief Services (CRS) and Mercy Corps (MC) each received DFSA awards, with a combined value of approximately \$75 million over five-years, to improve food and nutrition security and economic well-being in the sub-region. CRS and its consortium implement the DFSA Nuyok in the districts Abim, Nakapirit, and Napak. Over the LOA, Nuyok will reach 355,121 people through its efforts in governance, resilience, livelihoods, nutrition and water, sanitation and hygiene (WASH). MC and its consortium implement the DFSA Apolou in Kotido, Kaabong, Morotu and Amudat. Over the LOA, Apolou will reach 310,000 Ugandans through governance, nutrition, WASH and livelihoods activities.

C. FFP Approach to PBS in Uganda

The approach to the household survey in 2018 will be unique for three reasons. First, the opportunity exists to combine the baseline survey of the new DFSAs with the endline survey for the prior development food security projects (DFAPs). Second, indicator estimates will be calculated at both population and beneficiary levels. Third, poverty estimates will be calculated using the standard DHS format, as well as using the Poverty Probability Index (PPI).

FFP has determined that combining the baseline/endline surveys will increase efficiency in data collection, minimize the time burden for respondents, and is financially prudent. In 2013, ICF International carried out a PBS on the Growth, Health, and Governance (GHG) project in northern Karamoja implemented by MC, and the Resiliency through Wealth, Agriculture, and Nutrition (RWANU) project in southern Karamoja implemented by ACDI/VOCA. The geographic overlap between the DFAPs (GHG and RWANU) and the 2017 DFSAs (Nuyok and Apolou) is very high, and as the DFAPs expired in 2017, and the DFSAs are just starting up, the endline survey and baseline survey can occur simultaneously. Therefore, **the timeline for the 2018 baseline/endline PBS must align with the timeline of the baseline survey conducted in 2013; data collection must commence as close to mid-February 2018 as possible¹.**

In addition to understanding changes in population-level estimates, FFP seeks to learn about changes in beneficiary-level estimates between baseline and endline. The same household survey will be used to achieve both ends. FFP determined that this will not increase the sample size

¹ *Baseline Study for the Title II Development Food Assistance Programs Uganda*

<https://www.usaid.gov/sites/default/files/documents/1866/Uganda%20Baseline%20Study%20Report%20C%20March%202014.pdf>.

because majority of the people² in Karamoja is potential project participants or eligible to be a direct project participant.

With the goal of minimizing the length of future surveys and the corresponding time burden of survey respondents, poverty estimates will be calculated in the traditional manner, as well as using the PPI. FFP will instruct the firm on data to collect and share with an external contractor to facilitate such calculation.

2018 Uganda PBS

A. Purpose and Objectives

The Uganda PBS has the following purposes:

1. Provide baseline estimates for population-level impact, outcome, and resilience capacity indicators for the 2017 awards to serve as a point of comparison for a final evaluation;
2. Provide endline estimates and analyze endline survey data to assess the performance of RWANU and GHG³;
3. Provide baseline estimates for direct beneficiary-level impact, outcome, and resilience capacity indicators/indices to serve as a point of comparison for a final evaluation⁴; and
4. Provide evidence to refine DFSA interventions (where appropriate).

The specific objectives of the baseline study are the following:

1. Determine baseline values of key impact, outcome, and resilience capacity indicators/indices stratified by awardee and disaggregated by sex and gendered household type as appropriate in implementation areas. In addition to baseline values, provide demographic information and household composition data from sampled households;
2. Conduct bivariate and multivariate analyses for select impact, outcome, and resilience capacity indicators/indices for the overall area of FFP's investments and for each award's implementation area (the plan for bivariate and multivariate analyses should be presented in the data analyses plan); and
3. Interpret data and present an analysis of food insecurity; resilience capacities and social capital; disaster risks and risk management strategies; perceptions about key practices and behaviors; and quality of and access to community infrastructure, extension services, organizations, systems, and safety nets, in order to provide DFSA partners with an

² Approximately 94 percent of the people are extremely poor, living below \$1.90/day, and 76 percent of the households have at least one child age 5 years or below – the two key eligibility criteria to participate in the project

³ The SoW for the final evaluation provides more information about both the specific objectives of the endline survey, as well as the analytical requirements for the endline survey data.

⁴ FFP and the IPs will compare baseline/endline beneficiary-level estimates to understand the changes in outcomes among direct beneficiaries.

understanding of how well their proposed theories of change align – or don't – with the demonstrated needs of their target populations.

While the firm will design and lead the study and report on findings, staff from FFP, the USAID Mission in each country, implementing partners, and the Food and Nutrition Technical Assistance III (FANTA) Project⁵ will provide input and be involved during all stages. The firm must consult FFP/Uganda and FFP awardees to better understand the country's food security context, the DFSA approaches, strategies, and theories of change, and properly develop data collection, sampling, and logistics plans. In discussion and coordination with FFP, the firm will provide draft and final versions of specific deliverables to the awardees for review and information.

B. Indicators for Collection

The firm will be responsible for collecting data on the following **42** FFP indicators:

- Prevalence of moderate or severe food insecurity in the households (FIES)
- Average Household Dietary Diversity Score (HDDS)
- Prevalence of Poverty: Percent of people living on less than \$1.90/day
- Depth of Poverty: The mean percent shortfall relative to the \$1.90 poverty line
- Daily per capita expenditures (as a proxy for income) USG-assisted areas
- Prevalence of underweight children under five years of age
- Prevalence of wasted children under five years of age
- Prevalence of stunted children under five years of age
- Percentage of children 6-23 months of age receiving a minimum acceptable diet (MAD)
- Prevalence of exclusive breastfeeding of children under six months of age
- Prevalence of children 6-23 months who consume targeted nutrient-rich value chain and/or non- value chain commodities
- Prevalence of underweight women of reproductive age
- Prevalence of women of reproductive age consuming a diet of minimum dietary diversity
- Prevalence of women of reproductive age who consume targeted nutrient-rich value chain and/or non- value chain commodities
- Percentage of births receiving at least 4 antenatal care (ANC) visits during pregnancy
- Contraceptive Prevalence Rate (CPR)
- Percentage of households using basic drinking water services
- Percentage of households using a basic sanitation facility
- Percentage of households with soap and water at a handwashing station commonly used by family members
- Percentage of households in target areas practicing correct use of recommended household water treatment technologies

⁵ The Food and Nutrition Technical Assistance III (FANTA) Project provides technical support to FFP on monitoring and evaluation.

- Percentage of households that can obtain drinking water in less than 30 minutes (round trip)
- Percentage of households in target areas practicing open defecation
- Percentage of children under age five who had diarrhea in the prior two weeks
- Percent of children under five years old with diarrhea treated with Oral Rehydration Therapy (ORT)
- Percentage of men and women who earned cash in the past 12 months
- Percentage of men/women in union and earning cash who make decisions alone about the use of self-earned cash
- Percentage of men/women in union and earning cash who make decisions jointly with spouse/partner about the use of self-earned cash
- Percentage of men and women with children under two who have knowledge of maternal and child health and nutrition (MCHN) practices
- Percentage of men/women in union with children under two who make maternal health and nutrition decisions alone
- Percentage of men/women in union with children under two who make maternal health and nutrition decisions jointly with spouse/partner
- Percentage of men/women in union with children under two who make child health and nutrition decisions alone
- Percentage of men/women in union with children under two who make child health and nutrition decisions jointly with spouse/partner
- Percentage of farmers who used at least [a project-defined minimum number of] sustainable agriculture (crop, livestock, and/or NRM) practices and/or technologies in the past 12 months
- Percentage of farmers who used improved storage techniques in the past 12 months
- Percentage of farmers who used financial services (savings, agricultural credit, and/or agricultural insurance) in the past 12 months
- Percentage of farmers who practiced the value chain activities promoted by the project in the past 12 months
- Absorptive Capacity Index (resilience):
 - Bonding social capital
 - Shock preparedness and mitigation
 - Access to informal safety nets
 - Availability of hazard insurance
 - Household ability to recover from shocks
- Adaptive Capacity Index (resilience):
 - Human capital
 - Bonding social capital
 - Linking social capital
 - Exposure to information
 - Diversity of livelihoods
 - Access to financial resources
 - Asset ownership
 - Aspirations and confidence to adapt

- Transformative Capacity Index (resilience):
 - Access to formal safety nets
 - Availability of communication networks
 - Access to markets
 - Access to infrastructure
 - Access to basic services
 - Access to communal natural resources
 - Access to livestock services
 - Bridging social capital
 - Linking social capital
- Shock Exposure Index
- Cumulative Impact of Shock Exposure Index

Note: The list of indicators for each resilience capacity index are illustrative. Data collected on poverty estimates will be shared with an external contractor who will be tasked with conducting poverty estimates using the PPI.

In advance of data collection, it will be necessary to contextualize the resilience module to the Karamoja context. The objectives of the contextualization are to: a) identify the shocks and stressors that have the greatest impact on the food security and well-being of most vulnerable individuals, households and communities and/or occur with the greatest frequency, b) identify the capacities that are critical to absorb and adapt to the impact of the shocks and stressors and fill critical gaps in the existing knowledge on resilience along three dimensions: absorptive, adaptive, and transformative capacities, c) determine the minimum set of indicators needed to develop absorptive, adaptive and transformative capacity indices that will be integrated into the baseline survey, and d) to develop appropriate questions that will allow for these indicators and indices to be collected and calculated. Note: an effort should be made to **reduce the number of indicators** in the indices for each of these capacity measures.

Most of the indicators listed above conform to FFP's September 2017 list of indicators. Performance indicator reference sheets are available in the April 2015 "FFP Indicators Handbook - Part I: Indicators for Baseline and Final Evaluation Surveys," which should be consulted for definitions, collection methodology, and analysis of the indicators listed above.⁶ The firm may need to refer to the source documents used to develop the indicator reference sheets for instructions on adapting questionnaires to the local context, and other important details on data collection and tabulation. As the indicators comprising the resilience indices may vary by country, **FFP requests that the firm provide the Uganda specific PIRS for resilience indices with the report.**

In addition to FFP's standard indicators, the firm may be asked to collect data for a limited number of additional Mission and project-specific (custom) indicators selected by each awardee.

⁶ The FFP Indicators Handbook can be found at <http://www.usaid.gov/what-we-do/agriculture-and-food-security/food-assistance/guidance/implementation-and-reporting>. Several indicators are currently being updated to align with State indicators and the Global Food Security Strategy, and the firm will be apprised of changes to PIRS and the addition of any new indicators on a rolling basis - with the understanding that new questions cannot be added to the household survey following the completion of the second phase of programming (post-pilot).

The firm will work closely with the awardees to refine the PIRS, and also develop questionnaires and tabulation instructions for any additional project-specific indicators not specified in the FFP Indicators Handbook. *The final list of indicators to be collected must be discussed and agreed upon in consultation with FFP, the USAID Mission in each country, and FFP awardees. Note that this list may evolve in step with USAID's engagement in the Global Food Security Strategy and other US- or global initiatives.*

Baseline Study Design and Methodology

The baseline study will consist of the following data collection activities: a representative population-based household survey⁷ and purposively-sampled qualitative research.

A. Representative, Population-based Quantitative Survey

The firm must design and execute all aspects of a representative, population-based household survey. These include developing a sampling plan, questionnaires, and field procedure manuals for enumerators and supervisors; training enumerators, supervisors, and anthropometrists to administer the questionnaires and take anthropometric measures; piloting and refining questionnaires; arranging logistics for field work; pre-testing the survey rollout; supervising data collection; and ensuring data entry, cleaning, tabulation, and analyses. The PBS must be designed to generalize the results to both the DFAPs – RWANU and GHG – and the DFSAs - Nuyok, and Apolou - target areas. The design should take into account the designs of the 2013 baseline survey as well as the baseline survey for the newly awarded activities. Discrepancies between the two surveys' sampling frame and questions should be identified and discussed with FFP.

Sampling Plan: The firm must consult the FANTA Sampling Guide (1997)⁸ and Addendum (2012)⁹ to develop the sampling strategy and estimate sample size. The former provides an overview of design features recommended for FFP baseline and final evaluation surveys, while the 2012 Addendum provides important corrections to the guide, which the firm must follow closely. The sampling frame for the survey is the population living in geographic areas where the development projects will be implemented, i.e., the FFP implementation areas.

The firm must use a multi-stage cluster design with each awardee's implementation area representing a stratum in the design. FFP requires that the final evaluation for most projects—which will be implemented between four and five years after the baseline study—be a performance

⁷ The BBS will derive from the same questions and survey as the PBS.

⁸ Although the FANTA Sampling Guide presents random walk as an acceptable sampling method, it is no longer considered acceptable and will not be accepted as a proposed second-stage method.

⁹ The FANTA Sampling Guide and Addendum can be found at <http://www.fantaproject.org/publications/sampling.shtml>.

evaluation, rather than an impact evaluation. This implies that a simple pre-post design without control groups or randomization will be used at baseline and final evaluation.

Since the PBS will be designed to generalize the results to the target communities of RWANU and GHG *and* the target communities of Nuyok and Apolou, the sampling design *must* take into account the 2013 sampling frame used for the baseline, the communities in which RWANU and GHG projects *were actually implemented*, the list of communities in which Nuyok and Apolou will be implemented, and the geographical overlaps between RWANU and GHG implementation communities and Nuyok and Apolou target communities. Even though the firm will be designing and implementing one PBS, to ensure adequacy and required precision, sample sizes must be estimated separately using parameters from the 2013 baseline and parameters for the 2017 baseline. The sample size to produce beneficiary level estimates requires using a different set of parameters, and must consider both the targeting criteria of the two awards and the level of poverty in Karamoja. However, FFP has determined that the sample size for PBS will have enough potential direct beneficiaries to produce beneficiary level estimates with the desired level of precision. Therefore, the firm does not have to make any additional adjustments to its sample size estimation.

The firm must submit a sampling design protocol before beginning the survey. The sampling design protocol must include all of the following:

- A base sample size at both the awardee and country overall levels. FFP requires that the firm use the equation for proportions presented in the FANTA Sampling Guide and Addendum to estimate sample size. When estimating the sample size for the PBS, the firm should use the prevalence of stunting and the following parameters:
 - o 95 percent confidence level for one tailed test;
 - o 80 percent power;
 - o 6 percentage point reduction to estimate the sample size for the endline;
 - o 8 percentage point reduction to estimate the sample size for the baseline; and
 - o Design Effect of 2.

When estimating the sample size for direct-beneficiary level estimates, the firm should use

- o 95 percent confidence level for one tailed test;
 - o 80 percent power;
 - o 10 percentage point reduction in the prevalence of stunting; and
 - o Design Effect of 2.
- A description of how the base sample sizes for target groups of individuals are translated to the number of households that must be visited to ensure that the desired number of target individuals is reached, considering that:
 - o Households may contain more than one or no eligible members from the target group. See the FANTA 2012 Addendum for more details.

- Some households will not respond. The firm must indicate by how much the number of households to be sampled will be pre-inflated to account for household non-response.¹⁰
- An explanation on the source of the information for the sampling frame, e.g., census lists or national or internationally sponsored surveys, such as the Demographic Health Surveys (DHS). the firm must indicate the date and perceived reliability of this information.
- Geographic or other stratification. At a minimum, the sample will be stratified by awardee in countries where multiple awards are made. Additional strata are not required but may be considered. Note that estimates must be produced at both the awardee and combined FFP country project level. However, when additional stratification is included in the design, sample sizes do not have to allow for precise estimates at the level of the lower strata.
- The number of stages of sampling to be used.
- An explanation of how the numbers of clusters and households per cluster in the sample will be determined.
- The Probability Proportionate to Size (PPS), PPS systematic or another appropriate first-stage sampling mechanism must be used to randomly select the clusters.
- An indication that the firm will use systematic sampling (or another probability-based sampling technique such as Simple Random Sampling) to select dwellings within clusters. This implies that a list of all households, with household and location identifiers, must be obtained for the sampled clusters through either a mapping and listing operation in the cluster prior to interviewing (preferred), or through other existing reliable sources.
- An indication of how the firm will treat cases where there are multiple households per dwelling. the firm must include an explanation of how the Census office defines households and how polygamous households will be treated.
- An indication that the firm will adopt a “take-all-individuals” approach to collect data for all individuals within sampled households.

The firm must undertake a dwelling listing exercise of all sampled clusters within all the project implementation areas, unless recent high-quality cluster level frames already exist and are readily available. The firm must collect geographic information system (GIS) data using GPS equipment to locate dwellings during the listing process. During the household surveys, the firm must use GPS units to capture the precise longitude and latitude of the households.

Questionnaire: The firm must develop a questionnaire in English and ensure accurate translation to key local languages in the areas in which the survey will be conducted and back translation from the local languages to English. The questionnaire must incorporate all modules specified in the “FFP Indicators Handbook” (referenced above) that are relevant to the FFP

¹⁰ To account for household non-response, the firm must pre-inflate the sample size by 5 percent or the DHS non-response rate in rural areas, whichever is higher.

development projects in the country and USAID's needs. Some of the modules associated with various FFP indicators, such as HDDS, MAD, TNRVCC for women and children, poverty, resilience and agriculture, will require country-specific adaptation, which must be done in consultation with FFP, the USAID Missions, and the awardees. Note that questionnaire modules for most FFP indicators have been developed and are readily available.¹¹

The questionnaire must include an informed consent statement for each respondent and must begin with questions to establish a household roster. The informed consent should note that their identity will not be released publicly, and only shared for professional and learning purposes. The questions within the questionnaire must be organized by respondent type¹² and questions must follow international standard format, e.g., DHS, wherever possible. In general, the firm must ensure that questions follow established questionnaire design principles and that rigorous practices are used to collect, tabulate, and analyze indicator data. The firm must ensure that the questionnaire is piloted and validated in communities not included in the sample frame prior to commencement of data collection.

Unless otherwise infeasible, FFP requires the use of an electronic data collection instrument, e.g., tablets. If paper-based data collection is proposed, the firm must provide a solid justification. If paper-based data collection is used, each page and module of the questionnaire(s) must include sufficient identifiers, such as cluster number, household number, and respondent identification number (line number from household roster). This will help ensure that pages related to a given individual or household can be correctly associated and enable the derivation of household-level sampling weights and household non-response adjustments in all data analyses.

Field Procedure Manuals for Enumerators and Supervisors: The firm will develop two field manuals as part of the training materials and as reference material for field staff conducting the survey: one for enumerators, and one for supervisors of enumerators. The enumerator field manual must explain in detail how to properly administer each question in the questionnaire, recommend best practices for conducting interviews, and suggest ways to handle challenging situations.

The supervisor field manual may contain some of the same material as the enumerator manual, but must also describe the roles and responsibilities of field staff and outline the chronology of field work, including training, piloting of questionnaires, pre-testing of the survey, field protocol, and data collection. The manual must include instructions for mapping and listing clusters; adding identifiers to dwellings, households, and individuals; using GPS equipment; sampling dwellings within clusters, households within dwellings (if applicable), individuals within households;

¹¹ Questionnaires used in recent baseline studies of FFP development projects conducted in Bangladesh and Mali are available in the final study reports, which can be found at USAID's Development Experience Clearinghouse (DEC) (dec.usaid.gov).

¹² Note that a respondent is an individual or set of individual(s) identified as most appropriate to respond to a set of questions on behalf of a specific target group. Such respondents can be the actual sampled members of the target group themselves (e.g., adults providing direct responses on behalf of themselves) or can be individuals not part of the target group providing proxy responses on behalf of sampled individuals in the target group (e.g., caregivers on behalf of young children).

monitoring enumerators for quality assurance; procedures for editing questionnaires and re-interviewing; and any administrative and logistics responsibilities. If using a paper-based questionnaire, instructions for editors must be included in one of the two manuals or in a separate manual.

Note that field procedure manuals and training materials developed for the baseline studies of FFP development projects recently conducted in DRC and Ethiopia are available to the firm.

Anthropometry: Prior to quantitative data collection, the firm will ensure that an anthropometry specialist properly trains and conducts standardization testing of the anthropometrists who will be taking the measurements required for the stunting and underweight indicators. The anthropometry expert must provide oversight and feedback to the anthropometrists in the field during a portion or the entire period of data collection. The firm will provide a short guide and/or other materials to support this training.

The training will include instructions on how to take measurements on height/length and weight for women and children under five years of age, citing a reference for the methodology to be used. It will also include instructions on developing methods, e.g., event calendars, which will be used to ascertain the age of individuals whose measurements are being taken. The training must include standardization testing of trainees' measurements, including assessments of each individual trainee's precision and accuracy of each type of measure. A standard for performance must be established in agreement with FFP, and trainees who are unable to reach high performance standards must not be included in the survey teams. Finally, the training must include procedures for the anthropometrists to identify children suffering from wasting or exhibiting bilateral pitted edema and make referrals to appropriate health clinics.

The firm will provide the equipment necessary for accurate anthropometric measures (height/length and weight) of women and children under five years of age. The equipment must be portable and of sufficient durability to withstand the survey process and difficult terrain conditions.

Data Treatment and Analysis Plan: The firm will prepare a data treatment and analysis plan to address the following elements:

- Indication of how and when data will be entered into the database. (If the firm uses a paper-based questionnaire, double-data entry is required);
- Descriptions of data quality checks that will be built into the data entry processes; of tests and edits (data cleaning) planned to ensure logical consistency and coherence within and across records; and of manipulations, conditional tests, and combinations of data to create new variables. A data dictionary must include definitions of all the variables created from the raw data that describe how they were derived;
- Sampling weights to be applied in the separate analyses of each awardee's implementation area and the aggregate data base. The formulae used to calculate the sampling weights must be included as part of a data dictionary document. A household non-response adjustment must be made to the base sampling weights as part of the final weighting system. In addition, there must be a separate adjustment to compensate

- for individual non-response for all different target groups, e.g., children 0-5 months, children 6-23 months, and children 24-59 months;
- Indicator tabulation plan. Estimates must be produced for all indicators including resilience indicators/indices for each awardee stratum and for the overall level;
 - Descriptions of sub-groups, e.g., age, sex or other geographic breakdowns, if any, for which the firm will produce estimates, with an indication of the associated precision levels;
 - Planned data analyses. The firm must specify all methods of intended bivariate and multivariate analyses including an overview of model definition for key indicators including resilience indicators/indices.
 - Computed Design Effect of the survey based on data from field work;
 - Confidence intervals associated with the indicator estimates that takes into account the design effect;
 - Identification of the software to be used for all steps of data entry, cleaning, and analysis (either STATA or SPSS are recommended), including the software used to convert anthropometric data into Z-scores (WHO's Anthro is recommended but not mandatory);
 - Specification of how location data will be stored to protect personally identifiable information in accordance with the research protocol submitted to the Institutional Review Board (IRB). Note that the firm will be responsible for adhering to and obtaining all necessary US and host country IRB approvals; and
 - Specification of how the datasets will be anonymized to protect individual confidentiality, given that these datasets will be available to the public through the USAID Open Data warehouse.

The firm will ensure that the labeling and architecture of all datasets is consistent to facilitate meta-analyses of datasets across FFP development projects and countries at a later date. FFP will provide the firm specific details about the requested architecture of the datasets. To the extent possible, the firm must follow the same database architecture used for baseline studies conducted in Guatemala, Niger, and Uganda in FY 2013, and in Haiti and Zimbabwe in FY 2014. The meta-analysis is not part of this SOW. In addition, the firm will provide a report indicating the average completion time for each of the survey modules in each of the countries upon completion of the household surveys.

B. Qualitative Research

The firm must design the qualitative study as an integral part of a mixed-method baseline study¹³ that will address a mutually agreed upon topic (e.g. implementation areas' food insecurity context;

¹³ Similar to the joint PBS, the qualitative component of the baseline study will draw upon data gathered through the qualitative component of the performance evaluations. This approach necessarily requires close

disaster risks; risk-management strategies; perceptions about key practices and behaviors; and quality of and access to community infrastructures, extension services, organizations, systems, and safety nets). The study will use key informant interviews and focus groups discussions to answer identified questions. The firm must submit for approval a proposed plan of inquiry prior to beginning the study. The information from the interviews and discussions will be reviewed and incorporated into the baseline study.

It is FFP's preference that the qualitative study follows the quantitative survey to allow qualitative research to be informed by the quantitative results. However, qualitative research can be implemented concurrently with the quantitative household survey. The qualitative study described in this SOW is not expected to replace any in-depth qualitative assessments or formative research that FFP awardees may conduct to inform specific aspects of project design. The firm is responsible for the design and execution of the qualitative study, including methods and questions to understand the context and community perceptions about key practices and behaviors.

The firm must submit for approval a proposed plan of inquiry prior to beginning data collection.

Approximate numbers and types of informants who will be addressed to answer each study question, ways in which they will be engaged, e.g., individual or group interviews, focus groups, etc., and how they will be selected;

Plans for triangulation to verify the information received from informants; Description of the purposeful sampling approach for selecting the number and locations of sites for interviews, discussions, and observation; Timeline for data collection, and analysis.

Sample site selection: The firm must indicate the site selection methodology for the qualitative interviews and group discussions, which is not required to be a probability sampling strategy.

Analysis plan: The firm must prepare an analysis plan indicating how the qualitative data will be analyzed and integrated with the quantitative data. The plan is to be submitted along with the proposed plan of inquiry.

Baseline Study Deliverables and Report Outline

A. Deliverables

collaboration with FFP, but also the evaluation team. Additional detail on the qualitative methodology and expectations is presented in the Uganda evaluation SoW.

Deliverable	Timeline
Work Plan includes a brief synthesis and timeline for the Uganda baseline study, with the timeline including major activities throughout the study, including dates by which field guides and training materials will be completed. <i>Only one work plan detailing both baseline study and final evaluation activities is required</i>	TBD
PBS Data Treatment and Analysis Plan - details how the data will be cleaned, weighted, and analyzed and must include: programming specifications and editing rules for cleaning data, data dictionary codebook, SPSS syntax and output for all analyses and variable transformations into indicators; and - includes a descriptive, inferential, and econometric analyses plan. <i>Only one DTAP that serves both the baseline study and final evaluation is required, but it must clearly differentiate between the different analytical approaches used for each.</i>	TBD
PBS Protocol (a combined protocol that discusses both baseline/endline surveys.) - identifies indicators to be collected; - introduces the local partner (data collection firm); - discusses the quantitative analysis methods and plan; - includes sampling frame; - presents PBS sample size, design and plan, survey design, questionnaire design; and - presents the fieldwork plan (including trainings and field support/supervision, data management, quality control, recording, analysis and reporting).	TBD
Pertinent Permissions and approvals demonstrate official approval from all relevant institutional review boards and from host country institutions to collect data, conduct the evaluation, and release data and reports, as required, as well as a statement affirming adherence to all requirements specified in USAID's Scientific Research Policy.	TBD
PBS Quantitative Survey Instrument comprises both English and Ngakarimojong versions of the combined baseline/endline household survey (<i>note: the instrument must be back-translated to English via a second translator to ensure accurate translation. Following the pilot of the survey, any modifications based on field experience will again require translation and back translation to ensure accuracy</i>);	TBD <pre>[preliminary estimates submitted in advance to support qualitative research]</pre>
Qualitative Sites and Key Questions Describe site selection methodology and factors used to select sample communities for qualitative interviews and discussions;	TBD

Statement of Work for Baseline Study of FY 2017 FFP Development Food Security Activities

• list sample communities; • discusses groups to be interviewed; and • explain criteria used to select respondents.	
Draft Baseline Study • will be no more than 50 pages; • includes as annexes ○ tables for FFP indicator estimates; and ○ resilience analysis.	October 2018
In-country briefings to USAID/Uganda and FFP stakeholders in Uganda • Two 60-minute presentations of the major findings of the baseline study to provide an opportunity for immediate stakeholder feedback that can be considered for the revision (as appropriate and without compromising the validity or independence of the evaluation): ○ One presentation to USAID/Uganda; ○ One presentation to FFP stakeholders in Uganda, including the DFSA partners, donors, and Government of Uganda (invited by USAID/Uganda and the partners), via a 60-minute PowerPoint presentation • One utilization workshop to USAID/Uganda and DFSA partners to discuss baseline indicator estimates, applicability of findings to activity design, and document conclusions/lessons learned	November 2018
Briefing to FFP/Washington • comprises a 60-minute PowerPoint presentation on the baseline study, major findings, lessons learned, and recommendations	November 2018
Final Baseline Study Report • includes items identified in the draft report, additional annexes, as well as a three- to five-page executive summary of the purpose, background of the activities, methods, findings, conclusions and recommendations, and the following annexes: the scope of work, tools used in conducting the baseline study (questionnaires, checklists, and discussion guides), and any substantially dissenting views by any Team member, USAID or the PVOs on any of the findings or recommendations; and • must be 508 compliant and uploaded to the Development Clearinghouse following COR approval	December 2018
Data (to be submitted at the time of the final report*) • include a separate electronic file of all quantitative data in an easily readable format that is organized and fully documented so as to facilitate use by those not fully familiar with the project or the evaluation; • provides cleaned data, sampling weights at each stage, final sampling weights, and all derived indicators; • includes a second final data set in CSV format that has been anonymized to protect individual confidentiality for use as a public data file in the USAID Open Data; and	December 2018

include a separate file detailing GPS coordinates of households that participated in the PBS. <i>*FFP may request data sets earlier for internal use only</i>	

B. Outline of Baseline Study Report

The recommended outline for each country's baseline study report, which must not exceed 50 pages (excluding the annexes), is the following:

Cover page, Table of Contents, List of Acronyms;

Executive Summary must be a clear and concise stand-alone document that states the most salient findings, conclusions, and recommendations of the study and gives readers the essential contents of the baseline report in three to five pages. The Executive Summary helps readers to build a mental framework for organizing and understanding the detailed information within the report;

Introduction must include purpose, audience, and synopsis of task;

Methodology and Study Design must describe the methodology and design of the household survey and qualitative component, constraints and limitations to the study process and rigor, and issues in carrying out the study;

Overview of the Current Food Security Situation must provide a brief overview of the current food security situation in each country related to food availability, access, and utilization; current and anticipated programs funded by other USAID offices and donors; and stakeholders. A desk review of information already available will suffice;

Tabular summary of quantitative survey results must present findings of the household survey in table form for all the indicators by awardee and for the aggregate FFP development project area in each country. Results of bivariate analysis undertaken must also be included;

Resilience analysis: While a summary of key findings should be presented in the main body of the report, the detailed analysis with interpretation should be attached as Annex.

Findings must present results from the household quantitative survey and qualitative study. Results must be analyzed and discussed, using findings from the qualitative and quantitative investigations in a complementary fashion. In addition, the findings from the community questionnaires must be analyzed and presented. The source of each finding must be clearly identified;

Conclusions must provide high-level conclusions about the food security situation, vulnerabilities, and capacities of the population and sub-groups, and contextual, cultural, and individual factors that influence the current situation. All conclusions must be based solidly on the presented findings. If information from other sources is used to reach these conclusions, references must be provided, and reference documents or Internet links to these included.

Limitations must provide a list of key technical and/or administrative limitations, if any, that the FFP projects should consider; and

Annexes must document the following and be succinct, pertinent, and readable:

- a. Resilience Analysis
- b. Baseline study SOW;

- c. Quantitative survey instruments in English and applicable local languages;
- d. Sampling Plan for the PBS surveys;
- e. Data Treatment and Analysis Plan for the quantitative survey and analysis plan for qualitative research;
- f. Results of bivariate and multivariate analysis undertaken;
- g. Quantitative data sets and qualitative data transcripts in electronic format;
- h. Data dictionary and project files used to process the data in electronic format;
- i. Qualitative study methodology and questions used;
- j. Expanded details of qualitative findings, including photos, as appropriate;
- k. List of data collection activities, including meetings, interviews, focus group discussions, observations, and other activities with dates and numbers of participants;
- l. References, including bibliographical documentation; and
- m. Other special documentation identified as necessary or useful.

Team Composition and Qualifications

For planning purposes, the team for this study will consist of key personnel with defined technical expertise, a mix of consultants with extensive experience in household survey, anthropometric measurements, qualitative research, and support staff. The expertise for PBS needed includes design, implementation, supervision, strategies to minimize non-sampling errors¹⁴, and execution of population-based household surveys; analysis of complex survey data. The expertise for qualitative research would include training on and experience in qualitative inquiry/research, hands on experience in in-depth interviews using semi structured tools, group and focus group discussions, key informant interviews, transect walk, and other interactive qualitative tools, understand non probability sampling, deep knowledge about various sources of bias, and analyzing and interpreting qualitative information. Please refer to the SOW in the RFTOP for more information on key personnel.

Baseline Study Management and Logistics

FFP will provide overall direction to the firm, identify key documents, and assist in facilitating a work plan. Staff from FFP in Washington and the USAID Missions in Uganda will assist in arranging meetings with key stakeholders as identified by USAID prior to the initiation of fieldwork. The firm is responsible for arranging other meetings as identified during the course of this study and advising FFP prior to each of those meetings. The firm is also responsible for making all logistical and administrative arrangements, such as vehicle rental and drivers as needed for site visits and fieldwork, lodging, work/office space, computers, Internet access, printing, and photocopying. The firm will be required to make its own payments. Staff from FFP, FANTA, and the USAID Missions in Uganda will be made available to the team for consultations regarding sampling, geographical

¹⁴ Spot check, randomly check the GPS code to ensure that the enumerator interviewed the right households, check the interview time, re-interview a subsample of the households, review the data on a daily basis, perform data consistency checks, and review skip pattern.

targeting, sources, and technical issues before and during the baseline study process. It is strongly recommended that the firm consult with the Mission on reputable car-rental firms.

Intellectual Property

USAID shall, solely and exclusively, own all rights in and to any work created in connection with this agreement, including all data, documents, information, copyrights, patents, trademarks, trade secrets or other proprietary rights in and to the work. The firm is not allowed to withhold any information related to this agreement, as this will become public information.

Annex 2: Uganda Joint Baseline/Endline Population-Based Survey Protocol



USAID
FROM THE AMERICAN PEOPLE

Uganda Joint Baseline/Endline Population-Based Survey Protocol - FINAL

Office of Food for Peace (FFP)

Contract #: GS-00F-I89CA/7200AA I8M00002

June 28, 2018

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Abbreviations

BL	Baseline
CAPI	Computer-assisted personal interview
CRS	Catholic Relief Services
DFAP	Development food assistance program
DHS	Demographic and Health Survey
DFSA	Development food security activity
EL	Endline
FANTA	Food and Nutrition Technical Assistance Project III
FFP	Office of Food for Peace
FIES	Food insecurity experience scale
GHT	Gendered household type
HDDS	Household dietary diversity score
IFSS	Internet file streaming system
IP	Implementing partner
IPA	Innovations for Poverty Action
MCHN	Maternal and child health and nutrition
MC	Mercy Corps
PBS	Population-based survey
PPI	Poverty probability index
PPS	Probability proportional to size
USAID	U.S. Agency for International Development
WASH	Water, sanitation, and hygiene

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Annex 1 – Joint BL/EL PBS Indicators

Annex 2 – Training Agendas

I. BACKGROUND AND PURPOSE

USAID's Office of Food for Peace (FFP) is the U.S. Government leader in international food assistance. In 2018, FFP awarded ICF International a contract to conduct a joint baseline (BL)/endline (EL) population-based household survey (PBS) in the Karamoja region of Uganda. The BL survey is for two newly funded development food security activities (DFSAs), beginning in fiscal year (FY) 2017 which will be implemented by Catholic Relief Services (CRS) and Mercy Corps (MC) in seven districts of Karamoja. The EL survey is for two development food assistance programs (DFAPs) that were implemented by ACDI VOCA and MC in the same seven districts of Karamoja. These programs started in FY 2012 and ended in FY 2017.

The implementation areas for the new DFSAs and prior DFAPs overlap to a large extent. For this reason, ICF will administer a joint BL/EL PBS using a common questionnaire in the overlap and non-overlap areas encompassed by the prior DFAPs and current DFSAs. The common questionnaire will be driven by the indicators required for the baseline PBS for the new DFSAs, many of which (but not all) overlap with those required for the DFAPs.

The purpose of the BL PBS for the DFSAs is to assess the current status of key indicators, to serve as a point of comparison with indicators collected at EL and to have a better understanding of the prevailing conditions and perceptions of the populations in the DFSA implementation areas. The study results will also be used to further refine program targeting and, where possible, to understand the relationship between variables to inform program design. The results of the EL PBS for the prior DFAPs will be used to evaluate change over time in the indicators that were collected at BL as part of a performance evaluation of these DFAPs. The fieldwork for the joint BL/EL PBS will be conducted in June-July 2018.

ICF has subcontracted the International Research Consortium of Uganda (IRC), a local data collection firm, to support the field implementation of the joint BL/EL PBS. ICF will work closely with the survey subcontractor in the implementation of the PBS. All deliverables will be approved by ICF and the USAID COR.

Implementing partners and their roles

From 2012-2017, two implementing partners (IPs) conducted the prior DFAPs in the Karamoja region:

- (1) ACDI/VOCA and its partners implemented the Resiliency through Wealth, Agriculture and Nutrition in Karamoja (RWANU) Program in Amudat, Moroto, Napak and Nakapiripirit districts.
- (2) MC and its partners implemented the Growth Health and Governance Program (GHG) Program in Abim, Kotido and Kaabong districts.

In 2017, FFP awarded two new DFSAs in the Karamoja region:

- (1) MC and its partners will implement the Apolou DFSA in Kaabong, Kotido, Moroto, and Amudat districts.
- (2) CRS and its partners will implement the Nuyok DFSA in Abim, Nakapiripirit and Napak districts.

2. DESIGN

The BL component of the joint BL/EL PBS serves as the first phase of a pre-post survey cycle for the new DFSA awards, and the EL component of the joint BL/EL PBS serves as the second phase of a pre-post survey cycle for the DFAP awards. The BL survey for the DFAPs was conducted from late February to end of April of 2013. The pre-post design (using the 2013 BL PBS and the 2018 EL component of the joint BL/EL PBS) allows for the determination of statistically significant change in indicators; however, it does not allow statements to be made about attribution or causation relating to program impact.

2.1 Indicators to be Measured

The PBS will collect data to measure key FFP impact and outcome indicators, resilience indicators and custom indicators developed by the IPs. The FFP indicators are related to food security: poverty; water, sanitation, and hygiene practices; agricultural practices; women's and children's health and nutritional status (including anthropometry); and gender. A definition and full description of each of the key FFP indicators is available in the *FFP Indicator Handbook* (April, 2015).¹ FFP resilience indicators measure household well-being, exposure to shocks, resilience capacities (absorptive, adaptive, and transformative), and responses. Definitions for resilience and custom indicators are provided in the Uganda PBS Data Treatment and Analysis Plan (DTAP). The full list of FFP, resilience and custom indicators is provided in Annex I.

2.2 Sampling Plan

2.2.1 Sampling Frame

The target population for the joint BL/EL PBS consists of two components: 1) all households in the areas where the prior DFAPs were implemented and 2) all households in the areas where the new DFSAs will be implemented. These target populations overlap since the new DFSAs will be implemented in most of the same areas where the prior DFAPs were implemented. The sampling frames for the BL and EL PBSs were constructed taking into account these overlapping geographies. ICF used the list of target areas provided by the IPs and the most recent census data for constructing the sampling frame. The most recent Ugandan Census was conducted in 2014 by the Uganda Bureau of Statistics. The census administrative geographic levels are as follows:

- District
- County
- Sub-County
- Parish
- Village
- Enumeration Area (EA)

Table 2 provides 2014 census estimates of the number of EAs and households included in the BL and EL sampling frame for each program.

¹ Food and Nutrition Technical Assistance III Project (FANTA III). 2015. *FFP Indicators Handbook Part I: Indicators for Baseline and Final Evaluation Surveys*. April 2015. Washington, DC. A newer version of the FFP Indicators Handbook is pending release in 2018.

Table 2. EAs and Households Included in the Baseline and Endline Sampling Frames

	Number of EAs	Number of Households
Rwanu Endline (ACDI/VOCA)	652	49,540
GHG Endline (MC)	740	48,903
Apolou Baseline (MC)	974	68,263
Nuyok Baseline (CRS)	831	54,741

Note: The 2012 Rwanu DFAP included the southern districts of Amudat, Moroto, Nakapiripirit and Napak, while the 2012 GHG DFAP included the northern districts of Abim, Kaabong and Kotido. The districts were divided differently for the new DFSAs. The Nuyok DFSA included the districts of Abim, Nakapiripirit and Napak, while the Apolou DFSA included the districts of Amudat, Kaabong, Kotido and Moroto.

2.2.2 Sample Size

The sample size for the joint BL/EL PBS was derived by: 1) calculating the sample size needed for the BL survey for the DFSAs (assuming a statistical test of differences will be implemented at EL five years hence), 2) calculating the sample size needed for the EL survey for the prior DFAPs (assuming a statistical test of differences will be implemented at EL relative to the BL five years earlier), and 3) deriving a joint sample size based on these sample sizes taking into account the overlap between the DFSA and prior DFAP implementation areas.

1) BL Sample Size for the DFSAs

The sample size calculation for the BL project areas for the 2017 DFSAs is based on adequately powering a statistical test of differences in the prevalence of stunting because stunting is a key measure of food insecurity. The following criteria were used for deriving the sample size:

- Design effect of 2.0
- Confidence level of 95 percent
- Power level of 80 percent
- Expected reduction in stunting over the life of the project of 8.0 percentage points
- Use of the Stukel/Deitchler inflation and deflation factors (see Addendum to the Feed the Future Population-Based Survey Sampling Guide²) to determine the number of households needed for the required sample of children under five years of age
- 5 percent inflation of the household sample size to adjust for estimated household nonresponse

The formula used for deriving the sample size is based on a statistical test of the difference of proportions (or prevalence) for an indicator (e.g., from BL to EL), as described in Appendix A of the Feed the Future Population-Based Survey Sampling Guide. Table 3 provides the target sample size derived using estimates from the 2011 Uganda Demographic and Health Survey (DHS) for the two input parameters to the sample size calculation: 1) prevalence of stunting in rural households, and 2) number of children per household. The sample size calculation yields a total of 82 clusters (with 30 households per cluster) and 2,460 households (41 clusters and 1,230 households for each of the two DFSAs).

² Stukel, Diana, Feed the Future Population-Based Survey Sampling Guide (2018), Washington, DC, FHI 360/ FANTA. Available at: <https://www.fantaproject.org/monitoring-and-evaluation/sampling>

Table 3. BL PBS Sample Size for each DFSA and Overall

Indicator	Prevalence of Stunting (P ₁)*	Number of Children per Household*	Number of Children Needed	Household Sample Size Needed**	Households Needed with 5 Percent Nonresponse Adjustment	Clusters per DFSA	Overall Sample Size of Households Needed
Prevalence of stunting	0.36	0.98	829	1,157	1,230	41	2,460
*Source: 2011 DHS estimates for rural households (where estimated household size is given as 5.05 and estimated proportion of population under five years of age is given as 0.192)							
**Includes Stukel/Deitchler inflation and deflation factor adjustments							
Assumptions for all calculations: one-sided test, alpha=0.05, beta=0.80, households per cluster=30							

2) EL Sample Size for the DFAPs

The sample size for the EL survey was calculated based on the number of children needed to detect a 6 percent reduction in stunting³ over the life of the program cycle (between BL and EL) in the prior DFAP implementation areas. The BL sample size for the prior DFAPs was 2,400 households in each of the two program areas⁴ and valid height and weight measurements were obtained for a total of 5,335 children under five years of age across both programs. The prevalence of stunting at baseline was 34.5 percent and the design effect for the prevalence of stunting was 4.0.⁵ Using these parameters, the number of children needed at endline is 1,975 across both programs. Inflating to the household level yields a sample size of 2,440 households across both programs (assuming an average household size of 6.3 persons, 19.4 percent of the population is comprised of children under five years of age⁶ and a 5 percent nonresponse rate).

3) Sample Size for the Joint BL/EL PBS

The joint BL/EL sample size was derived by first identifying the number of households in each of 3 areas: 1) the overlapping area between the prior DFAPs and the new DFSAs, 2) those in the prior DFAP area only (old), and 3) those in the DFSA area only (new). Then, the sample size was proportionately allocated among the districts in these three groups relevant to the particular survey in question (BL versus EL), and based on the proportion of households in each group. To elaborate, this allocation was done separately for the prior DFAPs yielding an EL sample size of 1,220 by allocating to “old” and “overlap” EAs, and for the new DFSAs yielding a BL sample size of 1,230 by allocating to “new” and “overlap” EAs. As a result, there were two sample sizes for the “overlap” EAs that had to be simultaneously satisfied – one in relation to the prior DFAPs and one in relation to the new DFSAs. The overall joint BL/EL sample size requirement was then calculated based on: 1) the sample size requirement for the prior DFAPs only; 2) the sample size requirement for the new DFSAs only; and 3)

³ A 6 percentage point reduction in stunting was used here (rather than the 8 percentage point reduction referred to in the paragraph on BL Sample Size for DFSAs) to be consistent with the percentage point drop posited at BL for the DFAPs.

⁴ A detailed description of the sampling for the baseline study for the prior DFAPs can be found in Appendix 2 of the “Baseline Study of Title II Development Food Assistance Programs in Uganda” Report, March 2014. Available at: <https://www.usaid.gov/opengov/developer/datasets/UgandaBaselineReport-March2014.pdf>

⁵ These parameters were obtained from the 2013 FFP baseline survey in Uganda.

⁶ Ibid.

the maximum of the sample size requirement for the overlapping prior DFAP and DFSA implementation areas (see Table 4). This resulted in a total of 56 clusters and 1,680 households per BL DFSA.

Table 4. Sampled Households and Clusters by BL DFSA Implementation Area

Project	Sample Size Requirement (Prior DFAP/EL)	Sample Size Requirement (New DFSA/BL)	Joint BL/EL Sample Size Requirement	Number of Clusters
CRS DFSA	1,220	1,230	1,680	56
Overlap	939	916	990	33
Old	281	0	330	11
New	0	314	360	12
MC DFSA	1,220	1,230	1,680	56
Overlap	1,220	820	1,230	41
Old	0	0	0	0
New	0	410	450	15
TOTAL	2,440	2,460	3,360	112

2.2.3 Sample Selection

The sample for each project was selected using stratified multi-stage cluster sampling with three stages of sampling: (1) selection of clusters (EAs), (2) selection of households, and (3) selection of individuals.

First stage sampling of clusters

Within each project, stratification is done at the district level and the number of EAs to be sampled are proportionately allocated at the district level based on the distribution of households across all districts. EAs are then selected from the sampling frame for each project using probability proportional to size sampling (PPS). The total number of EAs sampled for each project for the joint BL/EL PBS is based on the joint sample size requirement for each project as a proportion of the overall joint sample size requirement (Table 5).⁷

Table 5. EAs and Households Included in the BL and EL Samples

	Number of EAs	Number of Households
Rwanu Endline (ACDI/VOCA)	43	1,290
GHG Endline (MC)	42	1,260
Apolou Baseline (MC)	56	1,680
Nuyok Baseline (CRS)	45	1,350

⁷ The first stage of sampling included two phases due to a recalculation of the sample size after the listing exercise was completed. The original calculation of the sample size did not take into account the number of children with valid height and weight measurements obtained at baseline and was therefore substantially larger than the sample size after adjustment for these children. The first phase of sampling included selection of 95 EAs per project for a total sample size of 2,850 households – this was based on the original sample size calculations. The listing exercise took place in these 95 EAs for each project. The adjusted sample size required 56 EAs per project and these 56 EAs were allocated as described in step 3 above and randomly selected from the previously selected EAs.

Second stage sampling of households: At the second stage of sampling, 30 households are randomly selected per cluster using systematic sampling. Before the selection of households can take place, a listing exercise is conducted to identify and count each household in the cluster. GPS coordinates are taken for each cluster and the name of the head of household is recorded for each household.

For the purposes of the household survey a household is defined as follows:

A person or group of people who live together and share meals (“eating from the same pot”).

This is not the same as a family. A family includes people who are related, but a household includes any people who live together, whether or not they are related. For example, three unrelated men who live and cook meals together would not be considered one family, but they would be considered one household.

For men with more than one wife (polygamous situations), households will be treated in accordance with the below definition:

If the wives live in the same homestead (dwelling structures and adjoining land occupied by family members) and also share the same eating arrangements, they will be treated as the same household. But if the wives live independently and do not share the same eating arrangements they will be treated as separate households.

Third stage selection of individuals within sampled households:

The household roster will be completed at the beginning of the interview, thus identifying all members of the selected household. The selection of individuals within households will be dependent on which questionnaire module (See Section 2.3 below) the individuals are eligible for. The protocol for the selection of individuals within households (and their potential proxy respondents) will be as follows:

- For the modules requiring data about the household (C, CC, F, H), no individuals are sampled since the household is the sampling unit. The head of household or any responsible adult will be interviewed on behalf of the household.
- For the children’s module (D), data and anthropometry measures will be collected for *all* eligible children. The mother or caregiver of the selected children under five years of age will be interviewed as a proxy respondent.
- For the woman’s module (E), *all* woman between the ages of 15-49 will be selected. No proxy respondents are allowed. For women’s anthropometry, only non-pregnant women will be measured.
- For the agricultural module (G), all farmers within the household who have ownership or decision-making power over all plots of land and/or livestock that are part of the “farm” will be interviewed. If a farmer has migrated for an extended period to work outside of the household, the spouse and/or another responsible adult farmer that can answer the agricultural questions can be interviewed as a proxy respondent.
- For the gender modules (J and K), all cash earners that are married or in a union and all parents of children under two years of age that are married or in a union will be interviewed. No proxy respondents are allowed.

2.3 Questionnaire

The questionnaires for the PBS were developed based on the core FFP and resilience indicators. All questionnaire modules follow FFP and Feed the Future guidelines, as described in the *FFP Indicators Handbook* (April 2015) and the *Feed the Future Indicator Handbook* (September 2016).⁸ The ICF team revised the questionnaire from the 2013 BL survey in Uganda, and gathered information before, during, and after the BL planning workshop (January 2018) to tailor the questionnaires to the context of Uganda. The resilience module was contextualized by Tango International based on prior work in Uganda.

The questionnaire consists of separate modules covering the following topics:

- Module A: Household identification and informed consent
- Module B: Household roster
- Module C: Household food security
- Module CC: Mobility, Local Government Responsiveness and Poverty Probability Index (PPI)
- Module D: Children's nutrition and health
- Module E: Women's nutrition and health
- Module F: Water, sanitation, and hygiene
- Module G: Agriculture
- Module H: Poverty
- Module J: Gender – Cash
- Module K: Gender – Maternal and Child Health and Nutrition (MCHN)
- Module L: Gender – Household Decision-Making, Access To Credit And Group Participation
- Module R: Resilience

The questionnaire will be translated into three local languages (Karamojong, Pokot, and Lethur). The total time for completing the survey in each household is expected to be approximately two to three hours, depending on the size of the household.

3. FIELD PROCEDURES

3.1 Data Collection Mode

The data for the joint BL/EL PBS will be collected with tablets using Computer-Assisted Personal Interviewing (CAPI). Tablets will be loaded with a CSPro data entry application developed at ICF for FFP surveys and tailored to fit the Uganda questionnaire. All data will be entered directly into the tablets and edited while interviewing in the field.

3.2 Field Manuals

Prior to the start of training and fieldwork, the ICF team will develop training manuals based on those developed for prior BL surveys and using FFP, Feed the Future, and DHS guidelines. The manuals will be used for household survey training and fielding purposes and will provide guidance to field staff on the survey protocol and procedures. The ICF team will customize the field manuals for Uganda to align with

⁸ Available at https://feedthefuture.gov/sites/default/files/resource/files/Feed_the_Future_Indicator_Handbook_Sept2016.pdf

the final questionnaire and Uganda-specific field protocols. The supervisors' manual will describe the study design and objectives, supervisors' roles and responsibilities, rules and regulations, ethics, fieldwork preparations, and quality control requirements and procedures. The interviewers' manual will include guidelines for implementation of the survey and fieldwork procedures, including interviewing techniques and procedures for completing the questionnaires. This latter manual will also include detailed explanations and instructions for each question. The anthropometry training manual will include detailed instructions for all anthropometry specialists on proper procedures for taking accurate anthropometry measures (height/length and weight) along with procedures to conduct anthropometry standardization testing.

3.3 Training

Using the manuals described above, the ICF team will work together with IRC, the local data collection sub-contractor, to conduct in-depth trainings for supervisors, interviewers, and anthropometry specialists. Prior to the start of training, the field team (ICF survey coordinator, local survey monitors, IRC's country operations manager, and the lead anthropometry specialist) will develop a detailed training curriculum and timeline for supervisors and interviewers' trainings, and the anthropometry training and standardization testing, including local sites where the anthropometry standardization testing activities will take place. These training curriculums are provided in Annex 2. The organization and flow of the training will be adapted to fit the situation and logistics in Uganda.⁹ The training curriculum and timeline and all training manuals will be submitted to FFP for approval prior to the start of trainings.

Interviewer training will involve review of the questionnaire, module by module, along with practical sessions on handling and entering data into the tablets using the CAPI template and transferring data from interviewers' tablets to supervisors' tablets. Interviewers will participate in role playing and mock interviews and the questionnaires will be further checked for content, consistency and flow, as well as validity and reliability. Revisions to the questionnaire will be made at the end of the training as needed.

Supervisor training will cover the topics of supervisors' roles and responsibilities; rules, behaviors, and ethics; household and respondent selection; use of the field control sheet, maps, and GPS; and data collection. It will include a detailed review of the CAPI survey procedures for receiving and transmitting completed interviews.

The anthropometry training will include instruction on taking accurate measurements, types of possible measurement errors, and reading and recording measurements followed by some practical sessions. Anthropometry training will also include a training session for all interviewers as anthropometry assistants, which require them to hold children two to five years of age to ensure that their feet and knees are in the correct position for standing measurement, and to hold children younger than two years of age to ensure that their heads are correctly positioned for recumbent length measurement. Anthropometry standardization testing will be conducted for all anthropometrists after the anthropometry training is completed. This involves objectively testing anthropometrists' accuracy (ability to obtain anthropometric weights and measurements as close to the true weight and measurement as

⁹ Note that the questionnaire was not pretested (to identify problematic questions or contextual changes) because the pretesting was undertaken when the questionnaire was developed at baseline.

possible with minimal variation in comparison to the trainer's weights and measurements), and precision (the ability for an anthropometrist to repeat his/her own weights and measurements with minimal variation).

Upon completion of the trainings, all survey staff will participate in a pilot study in pre-selected non-sampled villages near the project areas. The pilot test will provide the survey team practice on:

- Locating of selected villages and selected households by supervisors
- GPS data collection at the household level
- CAPI data entry and respondent selection routines by interviewers
- CAPI data editing, survey management by supervisor
- CAPI data transmission to control room by interviewers
- Appropriate interviewing behavior
- Team dynamics
- Distribution of work assignments and coordination by supervisors
- Completion of field control sheets by supervisors

Each interviewer will complete at least two full-interviews on paper and with the tablet during the pilot test. Supervisors will observe the interviewers in their teams during the pilot test and take notes on their performance. IRC's survey management team, the ICF survey coordinator and the local survey monitors, the ICF anthropometry trainer will also participate in the pilot test. Together with the supervisors, they will debrief the team members the day after the pilot test is completed. They will provide feedback and clarify/troubleshoot any issues encountered during the pilot study. Based on the discussion at the debrief session, ICF will make final modifications to field procedures and manuals, if required. Table 6 summarizes the sequence of field preparation activities. The ICF survey coordinator will oversee all activities.

Table 6: Field Preparation Activities

Duration	Activities	Participants
15 days	Listing exercise	Listers
15 days	Interviewer training	Interviewers, supervisors
5 days	Anthropometry Training	Anthropometry specialists, interviewers, supervisors
5 days	Anthropometry standardization testing	Anthropometry specialists
3 days	Supervisor/field procedure training	Supervisors, field coordinators
4 days	Pilot test and debrief	IRC survey management team, ICF survey coordinator, local survey monitor, supervisors, interviewers, and anthropometry specialists

Prior to the start of data collection, the field team will ensure that all required permissions and ethical review approvals have been obtained. They will develop a detailed field movement plan that will describe the location and timing for each field team throughout the data collection period. The field movement plan will be submitted to FFP for approval prior to the start of data collection activities.

3.4 Data Collection

Data collection will start immediately after the pilot study. To collect data from the sampled 3,360 households for the joint BL/EL, there will be 18 teams, each consisting of six field team members (one supervisor, four interviewers, and an anthropometry specialist). Accordingly, IRC will hire a total of 72 interviewers, 18 anthropometry specialists, and 18 supervisors. In addition, IRC will engage five field coordinators and two IT Specialists, making the total number of field personnel for the survey to be 115.

Given 112 clusters to cover and 18 teams to undertake the work, each team will, on average, collect data from 7 clusters. Estimating each interviewer can complete two household interviews per day, a total of roughly 35 days will be required to complete the data collection from the 3,360 households, including time for travel.

3.5 Quality Control

Working in close partnership with IRC, the ICF team will ensure high-quality PBS data through a strong focus on training field staff and monitoring data collection. The ICF team will be using CAPI data collection, which allows for real-time editing of data, frequent uploading of collected data, continuous data quality review, and correction of field staff behavior as data collection proceeds. ICF requires that the field teams upload collected data from completed clusters at minimum on a weekly basis. During critical periods, including training, anthropometry standardization testing, piloting, and at the beginning of fieldwork, the ICF survey coordinator will be in-country to coordinate and oversee these activities. When the ICF survey coordinator leaves the country, the local survey monitors will oversee fieldwork activities and closely update the ICF survey coordinator on fieldwork progress or any issues encountered during data collection. Table 7 provides survey procedures and safeguards for field supervision.

Table 7: Procedures and Safeguards for Fieldwork Oversight

Goal	Procedure or Safeguard
Proper fieldwork oversight	• Maximum ratio of one supervisor for every four interviewers and one anthropometry specialist. The subcontractor (IRC) will provide one field coordinator to oversee every four-or-five survey teams.
Proper selection of households and respondent	• Adherence to household and respondent selection methods per ICF protocol
Assurance of questionnaire accuracy	• Complete review of data immediately after the interview is conducted • In the event of errors or omissions, required corrections will be made before the interviewer proceeds to the next household
Prevention of fraud in interviewing	• Spot-checks with households on the day of the interview to ensure honesty on the part of the interviewer. Proper spot-checks involve verifying demographic information of the household respondents and other information to make sure that interviewers are recording data that is accurate and truthful. Fifteen percent of the completed interviews should be randomly selected for spot-checks. • In the event of fabrication or falsification of data collected, the interviewer will be fired from the project immediately
Completion of interviews	• If the entire interview is not completed on the first visit, interviewers will make up to a total of three visits to the household to complete the

Goal	Procedure or Safeguard
	interview. The interviewer will plan one or two follow-up visits with the respondents to successfully complete the interview. • The supervisor will ensure that each household survey is appropriately completed. All interview items should be 100 percent complete.

4. DATA PROCESSING AND ANALYSIS

4.1 Data Transmissions

For transmission of data from the field, IRC will use Internet File Streaming System (IFSS), a cloud-based electronic file delivery web service. The primary objective of the service is to deliver files from one user to another in a way that is fast and secure. The ICF CPro programmer assigned to the project will work in-country to set up and test the cloud-based data transmission system, and to provide technical support during the first week of data collection to ensure that tablets and the IFSS transmission system are operating smoothly. IRC will upload data to the IFSS on a weekly basis. Data transmissions will be on a weekly basis and will begin after interviewers have completed all interviews in their first assigned cluster. For the final dataset, the CPro programmer will develop a program to run quality control checks and convert the raw data exported from the CPro application into the data format needed for analysis using Stata, SPSS or SAS.

4.2 Data Analysis

ICF will generate estimates for all FFP and project-specific indicators, along with additional analyses to explore relationships and plausible determinants for key outcome indicators and a select number of resilience indicators. For indicators that were collected at BL in the old DFSA project areas, a statistical comparison of BL (2013) and EL (2018) estimates will be conducted to determine population-level change over time. All descriptive, bivariate, and multivariate analyses to be conducted will be discussed with FFP and clearly defined in the Data Treatment and Analysis Plan (DTAP) while recognizing that after the analysis begins, there may be other interesting analyses to pursue. Tango International will generate the resilience indicators and conduct the detailed resilience analyses. Innovations for Poverty Action (IPA) will lead the analysis for the PPI. The DTAP will be prepared following completion of the PBS data collection protocol and will be submitted to FFP for approval prior to the start of data analysis.

Final data files and documentation will be delivered to FFP following the completion of the data analysis and vetting of the PBS results with all stakeholders. All personal identifying information will be removed from the datasets prior to delivery to FFP in order to protect the confidentiality of survey respondents.

The final data files will include:

- Sampling frames for each DFSA
- Raw datasets generated from the CPro data entry application
- Edit rules and programming specifications for data cleaning
- Data dictionary/code book for each final dataset
- Syntax for all analyses and variable transformations

- Final analytic datasets, including sampling weights and all derived indicators, in STATA format and comparable datasets in CSV format that have been anonymized to protect individual confidentiality, for use as a public data files in the USAID Open Data warehouse.

4.3 Dissemination of Findings

All of the data is collected at the regional or sub-regional level, and analysis and dissemination of findings will focus on populations rather than on individuals. ICF will prepare three reports—one Baseline Study Report (for newly awarded DFSA programs) and two Endline Evaluation Reports for the two expired DFSA programs. The reports will be reviewed and finalized after USAID approval. Upon approval, the reports and the datasets will be uploaded to the USAID website and made available to the public. Additionally, USAID/FFP will host one to two day in-country briefing sessions with USAID/Uganda, relevant Uganda government agencies and the IP organizations to present the findings. A data utilization workshop will also be conducted with the BL DFSA IPs to further familiarize them with the baseline study results and how these results can be used to support their program planning and target setting.

5. ETHICAL CONSIDERATIONS

5.1 Ethics approval

Ethical approval will be obtained from the ICF Institutional Review Board and the Mildmay Uganda Ethics Review Committee and thereafter the protocol will be registered with the Uganda National Council for Science and Technology. Permission to access the study communities will be obtained after obtaining approval from the offices of the Chief Administrative Officers for the targeted districts as well as the USAID Food for Peace Office in Uganda.

5.2 Verbal Informed Consent

Verbal informed consent will be obtained before each interview after explaining to each respondent the objectives and purposes of the study and other information safeguards. Guidelines for requesting verbal consent are included in Module A of the household survey instrument. The interviewer will read to each eligible respondent a statement of informed consent that clearly outlines the subject's rights.

Participation in the interviews is completely voluntary. If there is any question that the respondent does not want to answer, the respondent can choose to skip to the next question. Additionally, respondents can choose to terminate the interviews at any time during the interview. The interviewer is required to certify that (a) each eligible respondent has given his/her informed consent before being personally interviewed, (b) the adult caregiver in the household has given his/her consent before any child under 5 years of age is measured, and (c) adult guardians of eligible respondents of minors under 18 years of age have given consent before they are interviewed. The adult guardians normally will be the parents or other close family member living in the household (e.g. grandparents or aunts/uncles). All children eight years of age and above will be required to assent to participate in the study and this will be done after obtaining the parent's/guardian's consent. The child's assent or dissent will take precedence over the parent's or guardian's consent.

Risks and benefits: The study presents no direct risks or benefits to the participants as they will not undergo any invasive procedures and they will not be directly compensated for their participation. The study carries a relatively low burden. There are different respondents for each module and therefore no

individual respondent will be interviewed for more than two hours. In addition, respondents will not incur transportation or other costs as a result of participating in the survey.

6. TIMELINE

Table 8 provides the timeline for critical activities for the joint BL/EL PBS.

Table 8. Uganda Joint BL/EL PBS Critical Activities Timeline

Activity	Date
Research protocol submitted to the ethics committee	Jan 31, 2018
Listing training and listing exercise	Jan/Feb, 2018
Questionnaire Finalized for Main Training	May 7, 2018
Refresher training	May 9-10, 2018
Main Training (interviewer and supervisor)	May 11-31, 2018
Anthropometry training and standardization	May 16-31, 2018
Field pilot practice	June 1-4, 2018
Pilot debriefing and procedural adjustments if needed	June 5-6, 2018
Household survey fieldwork starts	June 7, 2018
Household survey fieldwork ends	July 6, 2018
Final clean dataset delivered to ICF	July 15, 2018

Note that the first two activities were completed under the prior EVELYN contract.

ANNEX I – JOINT BL/EL PBS INDICATORS

Indicator	Disaggregation Level	2018 BL	2018 EL
FOOD SECURITY			
1. Average Household Dietary Diversity Score (HDDS)	None	✓	✓
2. Prevalence of moderate and severe food insecurity in the population, based on the Food Insecurity Experience Scale (FIES) [30 day recall]	GHT	✓	✓
3. Prevalence of moderate and severe food insecurity in the population, based on the Food Insecurity Experience Scale (FIES) [12 month recall]	GHT	✓	
POVERTY			
4. Per capita expenditures (as a proxy for income) of USG-assisted areas	GHT	✓	✓
5. Prevalence of Poverty: Percent of people living on less than \$1.25/day 2005 PPP (EL) or \$1.90/day 2011 PPP (BL)	GHT	✓	✓
6. Depth of Poverty: Mean percent shortfall relative to the \$1.25/day (EL) or \$1.90/day (BL) poverty line	GHT	✓	✓
7. Depth of Poverty of the Poor: Mean percent shortfall of the poor relative to the \$1.90/day 2011 PPP poverty line	GHT	✓	
WATER, SANITATION, AND HYGIENE			
8. Percentage of households using an improved drinking water source	None		✓
9. Percentage of households using basic drinking water services	None	✓	
10. Percent of households in target areas practicing correct use of recommended household water treatment technologies	None	✓	
11. Percent of households that can obtain drinking water in less than 30 minutes (round trip)	None	✓	
12. Percentage of households using an improved sanitation facility	None		✓
13. Percentage of households with access to a basic sanitation service	GHT	✓	
14. Percent of households in target areas practicing open defecation	None	✓	
15. Percent of households with soap and water at a handwashing station commonly used by family members	None	✓	✓
AGRICULTURE			
16. Percentage of farmers who used financial services (savings, agricultural credit, and/or agricultural insurance in the past 12 months	Sex	✓	✓
17. Percentage of farmers who practiced the value chain activities promoted by the project in the past 12 months	Sex	✓	✓
18. Percentage of farmers who used at least [a project-defined minimum] sustainable agriculture (crop, livestock and natural resource management) practices and/or technologies in the past 12 months	Sex, type of practice		✓
19. Proportion of producers who have applied targeted improved management practices or technologies*	Sex, type of practice, type of commodity	✓	
20. Percentage of farmers who used improved storage practices in the past 12 months	Sex	✓	✓
WOMEN'S HEALTH AND NUTRITION			
21. Prevalence of underweight (BMI < 18.5) women of reproductive age	None	✓	✓
22. Prevalence of women of reproductive age consuming a diet of minimum diversity	None	✓	
23. Percentage of women of reproductive age who are currently using, or whose sexual partner is currently using, at least one contraceptive method, regardless of the method used	None	✓	
24. Percent of births receiving at least four antenatal care (ANC) visits during pregnancy	None	✓	✓
25. Prevalence of women of reproductive age who consume targeted nutrient-rich commodities	Sex, type of commodity	✓	
CHILDREN'S HEALTH AND NUTRITION			
26. Prevalence of healthy weight (WHZ ≤ 2 and ≥ -2) among children under five (0-59 months)	Sex	✓	

ANNEX I – JOINT BL/EL PBS INDICATORS

Indicator	Disaggregation Level	2018 BL	2018 EL
27. Prevalence of underweight children (WAZ < -2) children under five (0-59 months)	Sex		✓
28. Prevalence of stunted children (HAZ < -2) children under five (0-59 months)	Sex	✓	✓
29. Prevalence of wasted children (WHZ < -2) children under five (0-59 months)	Sex	✓	✓
30. Percentage of children under age five who had diarrhea in the past two weeks	Sex	✓	✓
31. Percentage of children under five years old with diarrhea treated with oral rehydration therapy	Sex	✓	✓
32. Prevalence of exclusive breastfeeding of children under six months of age	Sex	✓	✓
33. Prevalence of children 6-23 months receiving a minimum acceptable diet	Sex	✓	✓
34. Prevalence of children 6- 23 months who consume targeted nutrient-rich commodities	Sex, type of commodity	✓	
GENDER			
35. Percentage of men and women <u>in union</u> who earned cash in the past 12 months	Sex	✓	
36. Percentage of women in union and earning cash who report participation in decisions about the use of self-earned cash	None	✓	
37. Percentage of women in union and earning cash who report participation in decisions about the use of spouse/partner's self-earned cash	None	✓	
38. Percentage of men in union and earning cash who report spouse/partner participation in decisions about the use of self-earned cash	None	✓	
39. Percentage of men and women <u>in union</u> with children under two who have knowledge of maternal and child health and nutrition (MCHN) practices	Sex	✓	
40. Percentage of men/women in union with children under two who make maternal health and nutrition decisions alone	Sex	✓	
41. Percentage of men/women in union with children under two who make maternal health and nutrition decisions jointly with spouse/partner	Sex	✓	
42. Percentage of men/women in union with children under two who make child health and nutrition decisions alone	Sex	✓	
43. Percentage of men/women in union with children under two who make child health and nutrition decisions jointly with spouse/partner	Sex	✓	
RESILIENCE			
44. Shock exposure index	None	✓	
45. Cumulative impact of shock exposure index	None	✓	
46. Absorptive capacity index	None	✓	
47. Adaptive capacity index	None	✓	
48. Transformative capacity index	None	✓	
49. Ability to recover from shocks and stresses index	None	✓	
50. Proportion of households participating in group-based savings, micro-finance or lending programs	None	✓	
51. Index of Social Capital at the household level	None	✓	
CUSTOM INDICATORS			
52. Percentage of respondents reporting increased movement in areas that were previously not accessible due to insecurity	None		✓
53. Percentage of households with access to a sanitation facility – not necessarily improved	None		✓
54. Average number of crops produced per farmer in the past 12 months	None		✓
55. Percentage of farmers adopting farmer managed natural regeneration practices in the past 12 months	None		✓
56. Percentage of livestock owners accessing government or private sector vet care in the past 12 months	None		✓

ANNEX I – JOINT BL/EL PBS INDICATORS

Indicator	Disaggregation Level	2018 BL	2018 EL
57. Average rating of government's ability to be responsive to citizens' needs (including transparency, inclusivity, effectiveness) as measured on scorecard	Sex	✓	
58. Percent of target population who can state at least one health benefit of waiting at least two years after last live birth before attempting the next pregnancy	Sex, Age	✓	

BL = DFSA Baseline Study

EL = DFAP Endline Evaluation

GHT= Gendered Household Type, FIES = Food Insecurity Experience Scale

* Pending confirmation of feasibility with existing data

ANNEX 2 - TRAINING AGENDAS

2018 Food for Peace Population-Based Survey in Uganda Training Agenda for Interviewer and Supervisor (Main) Training

Training Venue:

- May 11-19: Makerere University Senate Building Level 4, Senate Conference Hall
- May 21-31: Makerere University Food Science and Technology Building, Food Science Conference Hall

Date	Time	Discussion Topic	Note
(Day 1) May 11	08:00-09:00	Registration	• Introduction & Overview • Household identification & Consent • Household roster
	09:00-10:30	Introduction of the trainees and resource persons Background of FFP Population-Based Survey Detailed explanation of the objectives of the survey • Personal qualities and performance standards in interviewing • Role of pretest interviewers • Dos and don'ts of interviewing	
	10:30-10:45	Tea-break	
	10:45-12:30	Discussion on field procedures Discussion on survey methodology including sample design Familiarization with questionnaire (Module-by-Module explanation of questionnaires)	
	12:30-1:30	Lunch-break	
	1:30-3:30	Discussion on Module-A (Identification and Consent))	
	3:30-3:45	Tea-break	
	3:45-5:30	Discussion on Module- B (Household roster)	
(Day 2) May 12	8:30:00-10:30	Review of previous day's sessions Discussion on Module- B (Household roster)	• Household Roster
	10:30-10:45	Tea-break	
	10:45-12:30	Discussion on Module- B (Household roster)	
	12:30-1:30	Lunch-break	
	1:30-3:30	Practice and role play: Module A and B	
	3:30-3:45	Tea-break	
	3:45-5:30	Practice and role play: Module A, B Debrief	
(Day 3) May 14	8:30:00-10:30	Review of previous day's sessions Discussion Module C	• Food Access & Food Security • Mobility, Local Government Responsiveness, and Poverty Probability Index
	10:30-10:45	Tea-break	
	10:45-12:30	Discussion on Module C, CC	
	12:30-1:30	Lunch-break	
	1:30-3:30	Discussion on Module F	
	3:30-3:45	Tea-break	

ANNEX 2 - TRAINING AGENDAS

Date	Time	Discussion Topic	Note
	3:45-5:30	Practice and role play: Module C, CC, F Debrief	Water, Sanitation and Hygiene
(Day 4) May 15	8:30:00-10:30	Review of previous day's sessions Discussion of Module D1, D2, E	- Children's Nutritional Status and Feeding Practices - Children's Diarrhea and Oral Rehydration Therapy - Women's Nutrition, Breastfeeding, and Antenatal Care
	10:30-10:45	Tea-break	
	10:45-12:30	Discussion of D1, D2, E	
	12:30-1:30	Lunch	
	1:30-3:30	Practice and role play: Module D1, D2, E	
	3:30-3:45	Tea-break	
	3:45-5:30	Practice and role play: Module D1, D2, E Debrief	
(Day 5) May 16	8:30:00-10:30	Review of previous day's sessions Discussion of Module G	Agriculture
	10:30-10:45	Tea Break	
	10:45-12:30	Discussion of Module G	
	12:30-1:30	Lunch	
	1:30-3:30	Practice and role play: Module G	
	3:30-3:45	Tea Break	
	3:45-5:30	Practice and role play: Module G Debrief	
(Day 6) May 17	8:30:00-10:30	Review of previous day's session Discussion of Module J, K, L	- Gender-Cash - Gender-Maternal Child Health and Nutrition (MCHN) - Gender-Household Decision-Making, Access to Credit and Group Participation Request participation of Agriculture Specialist from IPs
	10:30-10:45	Tea Break	
	10:45-12:30	Discussion of Module J, K, L	
	12:30-1:30	Lunch	
	1:30-3:30	Explanations on Module G by experts from IPs	
	3:30-3:45	Tea Break	
	3:45-5:30	Explanations on Module G by experts from IPs	
(Day 7) May 18	8:30:00-10:30	Review of previous day's sessions Practice and role play: Module J, K, L	- Gender-Cash - Gender-Maternal Child Health and Nutrition (MCHN) - Gender-Household Decision-Making, Access to Credit and Group Participation - Poverty Measurement
	10:30-10:45	Tea Break	
	10:45-12:30	Practice and role play: Module J, K, L Debrief	
	12:30-1:30	Lunch	
	1:30-3:30	Discussion of Module H	
	3:30-3:45	Tea Break	
	3:45-5:30	Discussion of Module H	
(Day 8)	8:30:00-10:30	Review of previous day's sessions	

ANNEX 2 - TRAINING AGENDAS

Date	Time	Discussion Topic	Note
May 19		Discussion of Module H	Poverty Measurement
	10:30-10:45	Tea Break	
	10:45-12:30	Practice and role play of Module H	
	12:30-1:30	Lunch	
	1:30-3:30	Practice and Role Play: Module H Debrief	
	3:30-3:45	Tea Break	
	3:45-5:30	Practice and Role Play: Module H Debrief	
(Day 9) May 21	8:30:00-10:30	Anthropometry Assistant Training	Training on Anthropometry Assistant THIS IS ONE-DAY SESSION FOR ALL INTERVIEWERS WHO WILL SERVE AS ANTHROPOMETRY ASSISTANTS. PLEASE REFER TO ANTHROPOMETRY TRAINING AGENDA FOR COMPLETE DETAILS ON TRAINING OF ANTHROPOMETRY SPECLAISTS.
	10:30-10:45	Tea Break	
	10:45-12:30	Anthropometry Assistant Training	
	12:30-1:30	Lunch	
	1:30-3:30	Anthropometry Assistant Training	
	3:30-3:45	Tea Break	
	3:45-5:30	Anthropometry Assistant Training	
(Day 10) May 22	8:30:00-10:30	Review of previous day's sessions Discussion: Module R	Resilience
	10:30-10:45	Tea Break	
	10:45-12:30	Discussion: Module R	
	12:30-1:30	Lunch	
	1:30-3:30	Practice and role play: Module R	
	3:30-3:45	Tea Break	
	3:45-5:30	Practice and role play: Module R Debrief	
(Day 11) May 23	8:30:00-10:30	Introduction to CAPI Tablet basics	CAPI Training
	10:30-10:45	Tea Break	
	10:45-12:30	Distribution of Tablets Data entry exercise	
	12:30-1:30	Lunch	
	1:30-3:30	CAPI menu system Assigning households	
	3:30-3:45	Tea break	
	3:45-5:30	Household data entry Demonstration and practice Enter data from paper questionnaire	
(Day 12)	8:30:00-10:30	Review of previous day's sessions	

ANNEX 2 - TRAINING AGENDAS

Date	Time	Discussion Topic	Note
May 24		Household characteristics data entry Continue entering data	• CAPI Training
	10:30-10:45	Tea Break	
	10:45-12:30	Listing eligible members for anthropometry Continue entering data	
	12:30-1:30	Lunch	
	1:30-3:30	Continue entering data	
	3:30-3:45	Tea Break	
	3:45-5:30	Practice transferring data to Supervisor's tablet	
(Day 13) May 25	8:30:00-10:30	Review of previous day's sessions Listing cases for outstanding modules Continue entering data	• CAPI Training
	10:30-10:45	Tea Break	
	10:45-12:30	Downloading updated programs	
	12:30-1:30	Lunch	
	1:30-3:30	Data review by Supervisor's tablet. Check and modify data as needed	
	3:30-3:45	Tea Break	
	3:45-5:30	Discussion on error after reviewing data. Discussion on CAPI part done so far. (Q/A session). Transfer data to Supervisor's tablet, Supervisor uploads data	
(Day 14) May 26	8:30:00-10:30	Review of previous day's sessions Entering anthropometry data Mock interviews with CAPI	• CAPI Training
	10:30-10:45	Tea Break	
	10:45-12:30	Mock interviews with CAPI	
	12:30-1:30	Lunch	
	1:30-3:30	Mock interviews with CAPI Transferring data to supervisor's tablets	
	3:30-3:45	Tea Break	
	3:45-5:30	Discussion on error after reviewing data. Discussion on CAPI part done so far. (Q/A session).	
(Day 15) May 28	8:30:00-10:30	Closing clusters Practice finalizing work in a cluster	• CAPI Training
	10:30-10:45	Tea Break	
	10:45-12:30	Mock Interview with CAPI	
	12:30-1:30	Lunch	
	1:30-3:30	Mock interviews with CAPI Transferring data to supervisor's tablets Fixing duplicate households	
	3:30-3:45	Tea Break	
	3:45-5:30	Discussion on error after reviewing data. Discussion on CAPI part done so far. (Q/A session).	
(Day 16) May 29	8:30:00-10:30	Review of previous day's sessions Mock interviews with CAPI	Supervisor Training
	10:30-10:45	Tea Break	
	10:45-12:30	Mock interviews with CAPI	

ANNEX 2 - TRAINING AGENDAS

Date	Time	Discussion Topic	Note
	12:30-1:30	Lunch	
	1:30-3:30	Discussion on error after reviewing data. Discussion on CAPI part done so far. (Q/A session).	
	3:30-3:45	Tea Break	
	3:45-5:30	Discussion on error after reviewing data. Discussion on CAPI part done so far. (Q/A session).	
(Day 17) May 30	8:30:00-10:30	Review of previous day's sessions Mock interviews with CAPI in languages	Supervisor Training
	10:30-10:45	Tea Break	
	10:45-12:30	Mock interviews with CAPI in languages	
	12:30-1:30	Lunch	
	1:30-3:30	Discussion on error after reviewing data. Discussion on CAPI part done so far. (Q/A session).	
	3:30-3:45	Tea Break	
	3:45-5:30	Discussion on error after reviewing data. Discussion on CAPI part done so far. (Q/A session).	
(Day 18) May 31	8:30:00-10:30	Review of previous day's sessions Mock interviews with CAPI in languages	Supervisor Training
	10:30-10:45	Tea Break	
	10:45-12:30	Mock interviews with CAPI in languages	
	12:30-1:30	Lunch	
	1:30-3:30	Discussion on error after reviewing data. Discussion on CAPI part done so far. (Q/A session).	
	3:30-3:45	Tea Break	
	3:45-5:30	Discussion on planning of pilot test	
(Day 19- Day 22) June 1 to June 4	Pilot Test		
Day 23 June 5	Pilot Debriefing and Deployment plan/logistics		

ANNEX 2 - TRAINING AGENDAS

Anthropometry training and standardization testing schedule

May 2018	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
FIRST WEEK							
	13 MAY	14 MAY	15 MAY	16 MAY	17 MAY	18 MAY	19 MAY
9am to 1 pm		Meeting to define schedule and logistics	Equipment checkup including standardization. Take the equipment to the main training center and prepare the anthropometrist's kit.	At main training center: Introduction to Anthropometry	At main training center: Introduction to standing height and weight of children 2-5 yrs. old, Recumbent length and weight of children <2 yrs. old	At facility for children: Hands on practice, every procedure with special focus on the 2-5 yrs. age category	At facility for children: Hands on practice, every procedure with special focus on the < 2yrs age category
2pm to 4pm				At main training center: Height and weight of adults (mothers). Training and practice on each other	To be used as needed	To be used as needed	To be used as needed
SECOND WEEK							
	20 MAY	21 MAY	22 MAY	23 MAY	24 MAY	25 MAY	26 MAY
9am to 1pm		At main training center: Introduction to anthropometry and practice (ASSISTANT)	At main training center. Introduction to standardization testing of mothers.	At facility for children: Standing height and weight standardization test of children 2-5 yrs. old	At facility for children: Length standardization test of children <2 yrs. old	At facility for children: Re-standardization test	At facility for children: Hands on practice, every procedure.
2pm to 4pm		At facility for children: Standing height and weight of children 2-5 yrs. old, training and practice (ASSISTANT)	To be used as needed	To be used as needed	To be used as needed	At facility for children: Hands on practice, every procedure.	At facility for children: Recumbent length and weight training of children <2 yrs. old (ASSISTANT)
THIRD WEEK							
	27 MAY	28 MAY	29 MAY	30 MAY			
9am to 1pm		Introducing the quality control sheet and Z-score tables to team supervisors	Continued practice	Anthropometrists familiarizing with their teams in preparation for pilot			
2pm to 4pm		To be used as needed	To be used as needed				

ANNEX 2 - TRAINING AGENDAS

NOTES:

1. Interactive Training

Training will be interactive and participatory with practice, testing and discussions.

2. Flexibility

The above schedule **WILL** change according to the needs as the training progresses.

3. Introduction to Anthropometry

The Introduction to Anthropometry session will include subjects of the measurements taken, the importance of taking accurate measurements, types of measurement errors, reading and recording measurements, reading and recording systems. Also, definitions of measurements, derived anthropometry indices (i.e., stunting, wasting, underweight) will be presented (note—this covers some of the basic science of anthropometry so that the trainees will have a greater understanding of anthropometry, its use in population surveys with the intention of a greater ‘ownership’ of the anthropometry component of the survey).

4. Other subjects to be covered and trained (to be inserted in the above schedule:

- Bilateral pedal edema training
- Age assessment training
- Anthropometry questionnaire training, completion
- Team supervisor training that includes the use of growth charts to evaluate acceptable measurements, taking replicate measurements occasionally, use of the Anthropometry Supervisor Checklist and other quality control tasks
- Understanding weighing and measuring instruments

Annex 3: Population-Based Household Survey Questionnaire

2018 UGANDA JOINT BL/EL QUESTIONNAIRE

Module A. Identification and Informed Consent (Head of HH or Responsible Adult)

IDENTIFICATION (1)

A01 CLUSTER CODE

A02 HOUSEHOLD NUMBER (HH)

A03 DISTRICT

KAABONG	1
NAPAK	5

KOTIDO	2
NAKAPIRIPIT	6

ABIM	3
AMUDAT	7

MOROTO	4

INTERVIEWER VISITS

	FIRST VISIT	SECOND VISIT	THIRD VISIT	FINAL VISIT						
A05 DATE				A09 DAY <table border="1"><tr><td></td><td></td></tr></table>						
A06 ENUMERATOR				A10 MONTH <table border="1"><tr><td></td><td></td></tr></table>						
A07 DAY OF VISIT				A11 YEAR <table border="1"><tr><td>2</td><td>0</td><td>1</td><td>8</td></tr></table>	2	0	1	8		
2	0	1	8							
A08 RESULT USE CODES BELOW	<table border="1"><tr><td></td></tr></table>		<table border="1"><tr><td></td></tr></table>		<table border="1"><tr><td></td></tr></table>		A12 INT. NUMBER <table border="1"><tr><td></td><td></td><td></td></tr></table>			
NEXT VISIT: DATE				A13 TOTAL NUMBER OF VISITS <table border="1"><tr><td></td></tr></table>						
A14 FINAL OUTCOME OF INTERVIEW (CIRCLE ONE)				A17 TOTAL PERSONS IN THE HOUSEHOLD <table border="1"><tr><td></td><td></td></tr></table>						
1 COMPLETED		3 ENTIRE HOUSEHOLD ABSENT FOR EXTENDED PERIOD OF TIME		A18 LINE NO. OF RESPONDENT TO HOUSEHOLD ROSTER <table border="1"><tr><td></td><td></td></tr></table>						
2 NO HOUSEHOLD MEMBER AT HOME OR NO COMPETENT RESPONDENT AT HOME AT TIME OF VISIT		4 POSTPONED/PARTIALLY COMPLETED		A19 TOTAL CHILD- REN UNDER FIVE <table border="1"><tr><td></td><td></td></tr></table>						
5 REFUSED				A20 TOTAL ELIG. WOMEN 15-49 YRS <table border="1"><tr><td></td><td></td></tr></table>						
9 OTHER _____ (SPECIFY)				A21 TOTAL NO. OF FARMERS <table border="1"><tr><td></td><td></td></tr></table>						
A15A. MALE PRIMARY DECISION-MAKER'S NAME AND LINE NUMBER										
A15B. FEMALE PRIMARY DECISION-MAKER'S NAME AND LINE NUMBER										

A22 SUPERVISOR

NAME _____

CODE

INFORMED CONSENT

A00: START TIME

		:		
HOUR			MINUTE	

IT IS NECESSARY TO INTRODUCE THE HOUSEHOLD TO THE SURVEY AND OBTAIN THE CONSENT OF ALL RESPONDENTS. FIRST IDENTIFY THE HEAD OF HOUSEHOLD AND CONDUCT THE INFORMED CONSENT WITH HIM/HER. THEN BEGIN THE INTERVIEW. AS YOU IDENTIFY NEW RESPONDENTS FOR SUBSEQUENT MODULES, RETURN TO THIS PAGE AND OBTAIN THEIR CONSENT BEFORE INTERVIEWING THEM.

Hello. My name is _____. I am working with IRC. We are conducting a survey to learn about agriculture, food consumption, nutrition and welfare of households in Karamoja. The study is funded by the United States Agency for International Development Food for Peace Office. It was approved by the Mildmay Uganda Ethics Research Committee (MUREC) and registered by the Uganda National Council of Science and Technology (UNCST).

The survey will target 3,360 households and your household is among those that were chosen for the survey. I would like to ask you some questions about your household. These questions can take two to three hours to complete. We can come back tomorrow if we do not have enough time to go through all of the questions today. **As part of the survey we would also like your permission to measure and weigh women and children under 5 years of age. These measurements can be used to assess the nutritional status of a population.** All the information provided for the survey will be kept confidential and will only be shared for professional and learning purposes. Your identity shall not be disclosed on any publicly available data or reports. The data collected in this survey may be used as part of a study in the future. If your household is selected for the future study then a second survey will be conducted. If you agree to participate in the second study, the data from this study will be used for comparison. You do not have to agree to participate in either study **and there will be no penalties if you decide not to participate.** If I ask you any question that you don't want to answer, just let me know and I will go on to the next question. You can stop the interview at any time.

There are no direct **risks** or benefits to you for participating in the study. However, the information we collect will help to improve on the services provided to your community aimed at improving food security, nutrition and welfare of households. Study participants will get feedback on the progress and findings of the study. You can also contact the principal investigator for the study, Dr. Daniel Kibuuka Musoke TEL 0772587094 for Information regarding the progress and findings of the study. If you have any concerns about the study, you can contact the research ethics committee chairperson, Dr. Nabiryo Christine; TEL 0392174236.

Do you have any questions about the study or about your participation?

You or other respondents can ask any questions you may have about the study at any time.

AS APPLICABLE, CHECK AND SIGN THE CONSENT BOX BELOW.

1. Who is the main male adult (15 years or older) decision-maker in the household?

[NAME], do you agree to participate in the survey?

NAME: _____ RESPONDENT AGREED ____ RESPONDENT DID NOT AGREE ____

2. Who is the main female adult (15 years or older) decision-maker in the household?

[NAME], do you agree to participate in the survey?

NAME: _____ RESPONDENT AGREED ____ RESPONDENT DID NOT AGREE ____

3. PRIMARY CAREGIVERS FOR CHILDREN UNDER FIVE YEARS OF AGE

[NAME], do you agree to participate in the survey and allow your child to be weighed and measured?

NAME: _____ RESPONDENT AGREED ____ RESPONDENT DID NOT AGREE ____

NAME: _____ RESPONDENT AGREED ____ RESPONDENT DID NOT AGREE ____

NO CHILDREN UNDER FIVE IN THE HOUSEHOLD _____

ADDITIONAL ELIGIBLE HOUSEHOLD MEMBERS

4. NAME _____ Do you agree to participate in the survey?

5. NAME _____ Do you agree to participate in the survey?

RESPONDENT
AGREED

RESPONDENT
DID NOT AGREE

My signature affirms that I have read the verbal informed consent statement to the respondent(s), and I have answered any questions asked about the study.

INTERVIEWER'S NAME AND CODE _____

SIGNATURE AND DATE _____

DAY		MONTH		YEAR			
				2	0	1	8

INTERVIEWER'S NAME AND CODE _____

SIGNATURE AND DATE _____

DAY		MONTH		YEAR			
				2	0	1	8

A26: END TIME

		:		
HOUR			MINUTE	

MODULE B. HOUSEHOLD ROSTER (HEAD OF HH OR RESPONSIBLE ADULT)										B00: START TIME		HOUR		MINUTE														
LINE NO.	USUAL RESIDENTS	RELATIONSHIP TO HEAD OF HOUSEHOLD	SEX	AGE	IF AGE 15 OR OLDER	IF UNDER 5 YEARS	IF AGE 15 OR OLDER								IF AGE 15 OR OLDER	IF AGE 0-17 YEARS				IF AGE 5 YEARS OR OLDER		IF AGE 5-24 YEARS						
					ELIGIBILITY								MARITAL STATUS	SURVIVORSHIP AND RESIDENCE OF BIOLOGICAL PARENTS				EVER ATTENDED SCHOOL	CURRENT/RECENT SCHOOL ATTENDANCE									
					MODULE C, H1	MODULE D	PRIMARY CAREGIVER	MODULE E	MODULE F, H2-H7, R	MODULE J	MODULE J	MODULE J		MODULE K	MODULE L	B16	B17		B18	B19	B20	B21	B22	B23				
B01	B02	B03	B04	B05	B06	B07	B08	B09	B10	B11	B12	B13	B14	B15	B16	B17	B18	B19	B20	B21	B22	B23						
	Please tell me the name and sex of each person who lives here, starting with the head of the household. For our purposes today, members of a household are adults or children that live together and eat from the "same pot". It should include anyone who has lived in your house for at least 6 of the last 12 months, but it does not include anyone who lives here but eats separately. AFTER LISTING NAMES, RELATIONSHIP, SEX, AGE, CASTE FOR EACH PERSON ASK QUESTIONS 2A-2C TO BE SURE THAT THE LISTING IS COMPLETE. THEN ASK QUESTIONS B06 TO B23 FOR EACH PERSON	What is the relationship (NAME) to the head of the household? SEE CODES BELOW.	Is (NAME) male or female?	How old is (NAME)? IF 95 OR MORE, RECORD '95'. '98'=DON'T KNOW. USE ONLY FOR PERSONS WHO ARE ≥ 50. USE '00' IF CHILD IS LESS THAN 1 YEAR	Is (NAME) responsible for food preparation in the household?	IS THIS PERSON UNDER 5 YEARS OF AGE?	Who is the primary caregiver of (NAME)? *SEE DEFINITION BELOW	IS THIS A WOMAN 15-49 YEARS OF AGE?	IS THIS PERSON THE HEAD OF THE HH OR A RESPONSIBLE ADULT IF HEAD OF HH IS ABSENT?	Has (NAME) done any work in the last 12 months?	During the last 12 months, was (NAME) usually paid in cash or kind for this work or was (NAME) not paid at all?	Is (NAME) the parent of a child under 2 years of age who is living in this household?	Is (NAME) a farmer?	What is (NAME)'s current marital status? 1 = MARRIED OR LIVING TOGETHER 2 = DIVORCED/SEPARATED 3 = WIDOWED 4 = NEVER-MARRIED AND NEVER LIVED TOGETHER	Is (NAME)'s natural mother alive?	Does (NAME)'s natural mother usually live in this household?	Is (NAME)'s natural father alive?	Does (NAME)'s natural father usually live in this household?	Has (NAME) ever attended school?	What is the highest grade (NAME) has completed? SEE CODES BELOW.	Did (NAME) attend school at any time during the 2018 school year?	During this school year, what grade is (NAME) attending? SEE CODES BELOW.						
01		0 1	M F 1 2	IN YEARS [][]	Y N 1 2	Y N 1 2	[][]	Y N 1 2	Y N 1 2	Y N 1 2 GO TO 13	[][]	Y N 1 2	Y N 1 2	[][]	Y N DK 1 2 8 GO TO 18	[][]	Y N DK 1 2 8 GO TO 20	[][]	Y N 1 2 NEXT LINE	LEVEL GRADE [][]	Y N 1 2 NEXT LINE	LEVEL GRADE [][]						
02		[][]	1 2	[][]	1 2	1 2	[][]	1 2	1 2	1 2 GO TO 13	[][]	1 2	1 2	[][]	1 2 8 GO TO 18	[][]	1 2 8 GO TO 20	[][]	1 2 NEXT LINE	[][]	1 2 NEXT LINE	[][]						
03		[][]	1 2	[][]	1 2	1 2	[][]	1 2	1 2	1 2 GO TO 13	[][]	1 2	1 2	[][]	1 2 8 GO TO 18	[][]	1 2 8 GO TO 20	[][]	1 2 NEXT LINE	[][]	1 2 NEXT LINE	[][]						
04		[][]	1 2	[][]	1 2	1 2	[][]	1 2	1 2	1 2 GO TO 13	[][]	1 2	1 2	[][]	1 2 8 GO TO 18	[][]	1 2 8 GO TO 20	[][]	1 2 NEXT LINE	[][]	1 2 NEXT LINE	[][]						
05		[][]	1 2	[][]	1 2	1 2	[][]	1 2	1 2	1 2 GO TO 13	[][]	1 2	1 2	[][]	1 2 8 GO TO 18	[][]	1 2 8 GO TO 20	[][]	1 2 NEXT LINE	[][]	1 2 NEXT LINE	[][]						
06		[][]	1 2	[][]	1 2	1 2	[][]	1 2	1 2	1 2 GO TO 13	[][]	1 2	1 2	[][]	1 2 8 GO TO 18	[][]	1 2 8 GO TO 20	[][]	1 2 NEXT LINE	[][]	1 2 NEXT LINE	[][]						
07		[][]	1 2	[][]	1 2	1 2	[][]	1 2	1 2	1 2 GO TO 13	[][]	1 2	1 2	[][]	1 2 8 GO TO 18	[][]	1 2 8 GO TO 20	[][]	1 2 NEXT LINE	[][]	1 2 NEXT LINE	[][]						
08		[][]	1 2	[][]	1 2	1 2	[][]	1 2	1 2	1 2 GO TO 13	[][]	1 2	1 2	[][]	1 2 8 GO TO 18	[][]	1 2 8 GO TO 20	[][]	1 2 NEXT LINE	[][]	1 2 NEXT LINE	[][]						
09		[][]	1 2	[][]	1 2	1 2	[][]	1 2	1 2	1 2 GO TO 13	[][]	1 2	1 2	[][]	1 2 8 GO TO 18	[][]	1 2 8 GO TO 20	[][]	1 2 NEXT LINE	[][]	1 2 NEXT LINE	[][]						
CODES FOR B03: RELATIONSHIP TO HEAD OF HOUSEHOLD					DEFINITIONS										CODES FOR Qs. B21 AND B23: EDUCATION													
01 = HEAD 02 = WIFE OR HUSBAND 03 = SON OR DAUGHTER 04 = SON-IN-LAW OR DAUGHTER-IN-LAW 05 = GRANDCHILD 06 = PARENT 07 = PARENT-IN-LAW 08 = BROTHER OR SISTER 09 = OTHER RELATIVE 10 = ADOPTED/FOSTER/STEPCHILD 11 = NOT RELATED 98 = DON'T KNOW					*The primary caregiver is the person who knows the most about how and what the child is fed. Usually, but not always, this will be the child's mother. **Work includes jobs in the formal and/or informal sector, full time, part time, or seasonal work that is done within and/or outside the home. It includes, but is not limited to agricultural daily wage labor, off-farm daily wage labor, income generation activities, sale of goods produced or processed outside the home or at the home, homestead garden or farm (e.g., vegetables, eggs, fish, livestock, artisanal goods), or petty trading. For this indicator, work does not include participating in cash for work, food for work, or conditional transfers and/or productive safety net programs. It does not include either caring for own children, cooking, cleaning or doing other routine chores for own household (e.g., fetching water, collecting firewood) or being involved in agricultural production solely for household consumption. ***Farmers, including herders and fishers, are: 1) 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., non-timber forest products, wild fisheries). These farmers may engage in processing and marketing of food, feed, and fiber and may reside in settled communities, mobile pastoralist communities, or refugee/internally displaced person camps. An adult member of the household who does farm work but does not have decision-making responsibility over the plot OR animals would not be considered a "farmer." For instance, a woman working on her husband's land who does not control a plot of her own would not be interviewed.										LEVEL 0 = PRESCHOOL 1 = PRIMARY 2 = "00" LEVEL 3 = "A" LEVEL 4 = TERTIARY 5 = UNIVERSITY 6 = FAL 8 = DON'T KNOW							GRADE 00 = LESS THAN 1 YEAR COMPLETED (USE '00' FOR B21 ONLY. THIS CODE IS NOT ALLOWED FOR B23.) 98 = DON'T KNOW						

					IF AGE 15 OR OLDER		IF UNDER 5 YEARS	IF AGE 15 OR OLDER							IF AGE 15 OR OLDER	IF AGE 0-17 YEARS				IF AGE 5 YEARS OR OLDER		IF AGE 5-24 YEARS																
LINE NO.	USUAL RESIDENTS	RELATIONSHIP TO HEAD OF HOUSEHOLD	SEX	AGE	ELIGIBILITY										MARITAL STATUS	SURVIVORSHIP AND RESIDENCE OF BIOLOGICAL PARENTS				EVER ATTENDED SCHOOL		CURRENT/RECENT SCHOOL ATTENDANCE																
					MODULE C, H1	MODULE D	PRIMARY CAREGIVER	MODULE E	MODULE F, H2-H7, R	MODULE J	MODULE J	MODULE K	MODULE L	B15		B16	B17	B18	B19	B20	B21	B22	B23															
B01	B02	B03	B04	B05	B06	B07	B08	B09	B10	B11	B12	B13	B14	B15	B16	B17	B18	B19	B20	B21	B22	B23																
	Please tell me the name and sex of each person who lives here, starting with the head of the household. For our purposes today, members of a household are adults or children that live together and eat from the "same pot". It should include anyone who has lived in your house for at least 6 of the last 12 months, but it does not include anyone who lives here but eats separately. AFTER LISTING NAMES, RELATIONSHIP, SEX, AGE, CASTE FOR EACH PERSON ASK QUESTIONS 2A-2C TO BE SURE THAT THE LISTING IS COMPLETE. THEN ASK QUESTIONS B06 TO B23 FOR EACH PERSON	What is the relationship of (NAME) to the head of the household? SEE CODES BELOW.	Is (NAME) male or female?	How old is (NAME)? IF 95 OR MORE, RECORD '95'. '98'=DON'T KNOW. USE ONLY FOR PERSONS WHO ARE ≥ 50. USE '00' IF CHILD IS LESS THAN 1 YEAR	Is (NAME) responsible for food preparation in the household?	IS THIS PERSON UNDER 5 YEARS OF AGE?	Who is the primary caregiver of (NAME)? *SEE DEFINITION BELOW	IS THIS A WOMAN 15-49 YEARS OF AGE?	IS THIS PERSON THE HEAD OF THE HH OR A RESPONSIBLE ADULT IF HEAD OF HH IS ABSENT?	Has (NAME) done any work in the last 12 months?	During the last 12 months, was (NAME) usually paid in cash or kind for this work or was (NAME) not paid at all?	Is (NAME) the parent of a child under 2 years of age who is living in this household?	Is (NAME) a farmer?	What is (NAME)'s current marital status? 1 = MARRIED OR LIVING TOGETHER 2 = DIVORCED/SEPARATED 3 = WIDOWED 4 = NEVER-MARRIED AND NEVER LIVED TOGETHER	Is (NAME)'s natural mother alive?	Does (NAME)'s natural mother usually live in this household?	Is (NAME)'s natural father alive?	Does (NAME)'s natural father usually live in this household?	Has (NAME) ever attended school?	What is the highest grade (NAME) has completed? SEE CODES BELOW.	Did (NAME) attend school at any time during the 2018 school year?	During this school year, what grade is (NAME) attending? SEE CODES BELOW.																
10			M F 1 2	IN YEARS 	Y N 1 2	Y N 1 2		Y N 1 2	Y N 1 2	Y N 1 2 ↓ GO TO 13		Y N 1 2	Y N 1 2		Y N DK 1 2 ↓ GO TO 18		Y N DK 1 2 ↓ GO TO 20		Y N 1 2 ↓ NEXT LINE	LEVEL GRADE 	Y N 1 2 ↓ NEXT LINE	LEVEL GRADE 																
11			1 2		1 2	1 2		1 2	1 2	1 2 ↓ GO TO 13		1 2	1 2		1 2 ↓ GO TO 18		1 2 ↓ GO TO 20		1 2 ↓ NEXT LINE		1 2 ↓ NEXT LINE																	
12			1 2		1 2	1 2		1 2	1 2	1 2 ↓ GO TO 13		1 2	1 2		1 2 ↓ GO TO 18		1 2 ↓ GO TO 20		1 2 ↓ NEXT LINE		1 2 ↓ NEXT LINE																	
13			1 2		1 2	1 2		1 2	1 2	1 2 ↓ GO TO 13		1 2	1 2		1 2 ↓ GO TO 18		1 2 ↓ GO TO 20		1 2 ↓ NEXT LINE		1 2 ↓ NEXT LINE																	
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15			1 2		1 2	1 2		1 2	1 2	1 2 ↓ GO TO 13		1 2	1 2		1 2 ↓ GO TO 18		1 2 ↓ GO TO 20		1 2 ↓ NEXT LINE		1 2 ↓ NEXT LINE																	
16			1 2		1 2	1 2		1 2	1 2	1 2 ↓ GO TO 13		1 2	1 2		1 2 ↓ GO TO 18		1 2 ↓ GO TO 20		1 2 ↓ NEXT LINE		1 2 ↓ NEXT LINE																	
17			1 2		1 2	1 2		1 2	1 2	1 2 ↓ GO TO 13		1 2	1 2		1 2 ↓ GO TO 18		1 2 ↓ GO TO 20		1 2 ↓ NEXT LINE		1 2 ↓ NEXT LINE																	
18			1 2		1 2	1 2		1 2	1 2	1 2 ↓ GO TO 13		1 2	1 2		1 2 ↓ GO TO 18		1 2 ↓ GO TO 20		1 2 ↓ NEXT LINE		1 2 ↓ NEXT LINE																	
2A) Just to make sure that I have a complete listing: are there any other persons such as small children or infants that we have not listed?					YES → NO		ADD TO TABLE		DEFINITIONS										CODES FOR Qs. B21 AND B23: EDUCATION																			
2B) Are there any other people who may not be members of your family, such as domestic servants, lodgers, or friends who usually live here?					YES → NO		ADD TO TABLE		*The primary caregiver is the person who knows the most about how and what the child is fed. Usually, but not always, this will be the child's mother.										LEVEL								GRADE											
2C) Does anyone else live here even if they are not at home now? INCLUDE CHILDREN IN SCHOOL OR HOUSEHOLD MEMBERS AT WORK OR MIGRATED.					YES → NO		ADD TO TABLE		**Work includes jobs in the formal and/or informal sector, full time, part time, or seasonal work that is done within and/or outside the home. It includes, but is not limited to agricultural daily wage labor, off-farm daily wage labor, income generation activities, sale of goods produced or processed outside the home or at the home, homestead garden or farm (e.g., vegetables, eggs, fish, livestock, artisanal goods), or petty trading. It can also include participating in cash for work, food for work, or conditional cash transfers and/or productive safety net programs. For this indicator, work does not include caring for own children, cooking, cleaning or doing other routine chores for own household (e.g., fetching water, collecting firewood) or being involved in agricultural production solely for household consumption.										0 = PRESCHOOL 1 = PRIMARY 2 = "O" LEVEL 3 = "A" LEVEL 4 = TERTIARY 5 = UNIVERSITY 6 = FAL 8 = DON'T KNOW								00 = LESS THAN 1 YEAR COMPLETED (USE '00' FOR B21 ONLY. THIS CODE IS NOT ALLOWED FOR B23.) 98 = DON'T KNOW											
CODES FOR B03: RELATIONSHIP TO HEAD OF HOUSEHOLD					***Farmers, including herders and fishers, are: 1) 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., non-timber forest products, wild fisheries). These farmers may engage in processing and marketing of food, feed, and fiber and may reside in settled communities, mobile pastoralist communities, or refugee/internally displaced person camps. An adult member of the household who does farm work but does not have decision-making responsibility over the plot OR animals would not be considered a "farmer." For instance, a woman working on her husband's land who does not control a plot of her own would not be interviewed.										B24: END TIME								HOUR MINUTE								→ GO TO MODULE C							
01 = HEAD OF HOUSEHOLD 02 = WIFE OR HUSBAND 03 = SON OR DAUGHTER 04 = SON-IN-LAW OR DAUGHTER-IN-LAW 05 = GRANDCHILD 06 = PARENT					07 = PARENT-IN-LAW 08 = BROTHER OR SISTER 09 = OTHER RELATIVE 10 = ADOPTED/FOSTER/STEPCHILD 11 = NOT RELATED 98 = DON'T KNOW																																	

Module C. Food Security
(Person responsible for food preparation)

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	
C00	INSERT TIME MODULE STARTED	HOUR MINUTE	
C01	CLUSTER CODE AND HOUSEHOLD NUMBER	CLUSTER HH	
C02A	PERSON IN CHARGE OF FOOD PREPARATION FROM THE HOUSEHOLD ROSTER (B06) = 1)	LINE NUMBER (B01)	
C02B	OBTAIN CONSENT. DOES [NAME] AGREE TO PARTICIPATE IN THE SURVEY?	YES 1 NO 2 NOT AVAILABLE 3	☐ → C24
HDDS QUESTIONS			
	Now I would like to ask you about the types of foods that you or anyone else in your household ate yesterday during the day and at night. READ THE LIST OF FOODS. RECORD "YES" IF ANYONE IN THE HOUSEHOLD ATE THE FOOD IN QUESTION. RECORD "NO" IF NO ONE IN THE HOUSEHOLD ATE THE FOOD. THE FOODS LISTED SHOULD BE THOSE PREPARED IN THE HOUSEHOLD AND EATEN IN THE HOUSEHOLD OR TAKEN ELSEWHERE TO EAT. DO NOT INCLUDE FOODS CONSUMED OUTSIDE THE HOME THAT WERE PREPARED ELSEWHERE.		
C03	Was yesterday an unusual or special day (Festival, Funeral, fasting etc.) or were most household members absent?	YES 1 NO 2	→ C16Y
C04	Any bread, biscuits, rice, noodles, posho, porridge, cereals or other foods made from wheat, maize, rice, sorghum, millet?	YES 1 NO 2	
C05	Any Irish potatoes, yams, sweet potatoes, cassava, matoke, or any other foods made from roots or tubers?	YES 1 NO 2	
C06	Any vegetables? (pumpkin, squash, etc.)	YES 1 NO 2	
C07	Any fruits? (watermelon, jackfruit, etc.)	YES 1 NO 2	
C08	Any beef, pork, lamb, goat, rabbit, field rats, wild game, chicken, duck, or other birds, liver, kidney, heart, or other organ meats or blood?	YES 1 NO 2	
C09	Any eggs?	YES 1 NO 2	
C10	Any fresh or dried fish or shellfish?	YES 1 NO 2	
C11	Any foods made from beans, peas, lentils, green grams, cowpeas, pigeon peas, nuts, or sunflower seeds?	YES 1 NO 2	
C12	Any cheese, yogurt, milk, or other milk products?	YES 1 NO 2	
C13	Any foods made with oil, fat, or butter?	YES 1 NO 2	
C14	Any sugar or honey?	YES 1 NO 2	
C15	Any other foods, such as condiments, coffee or tea?	YES 1 NO 2	

Module C. Food Security (Person responsible for food preparation)			
NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	
FOOD INSECURITY EXPERIENCE SCALE (FIES)			
	Now, I would like to ask you some questions about your food consumption in the past 30 DAYS or 12 MONTHS.		
C16Y	During the past 12 MONTHS, was there a time when you or others in your household were worried you would not have enough food to eat because of a lack of money or other resources?	YES 1 NO 2	→ C17Y
C16M	During the past 30 DAYS was there a time when you or others in your household were worried you would not have enough food to eat because of a lack of money or other resources?	YES 1 NO 2	
C17Y	During the past 12 MONTHS was there a time when you or others in your household were unable to eat healthy and nutritious food because of a lack of money or other resources?	YES 1 NO 2	→ C18Y
C17M	During the past 30 DAYS was there a time when you or others in your household were unable to eat healthy and nutritious food because of a lack of money or other resources?	YES 1 NO 2	
C18Y	During the past 12 MONTHS was there a time when you or others in your household ate only a few kinds of foods because of a lack of money or other resources?	YES 1 NO 2	→ C19Y
C18M	During the past 30 DAYS was there a time when you or others in your household ate only a few kinds of foods because of a lack of money or other resources?	YES 1 NO 2	
C19Y	During the past 12 MONTHS was there a time when you or others in your household had to skip a meal because there was not enough money or other resources to get food?	YES 1 NO 2	→ C20Y
C19M	During the past 30 DAYS was there a time when you or others in your household had to skip a meal because there was not enough money or other resources to get food?	YES 1 NO 2	
C20Y	During the past 12 MONTHS was there a time when you or others in your household ate less than you thought you should because of a lack of money or other resources?	YES 1 NO 2	→ C21Y
C20M	During the past 30 DAYS was there a time when you or others in your household ate less than you thought you should because of a lack of money or other resources?	YES 1 NO 2	
C21Y	During the past 12 MONTHS was there a time when your household did not have food because of a lack of money or other resources?	YES 1 NO 2	→ C22Y
C21M	During the past 30 DAYS was there a time when your household did not have food because of a lack of money or other resources?	YES 1 NO 2	
C22Y	During the past 12 MONTHS was there a time when you or others in your household were hungry but did not eat because there was not enough money or other resources for food?	YES 1 NO 2	→ C23Y
C22M	During the past 30 DAYS was there a time when you or others in your household were hungry but did not eat because there was not enough money or other resources for food?	YES 1 NO 2	
C23Y	During the past 12 MONTHS was there a time when you or others in your household went without eating for a whole day because of a lack of money or other resources?	YES 1 NO 2	→ C24
C23M	During the past 30 DAYS was there a time when you or others in your household went without eating for a whole day because of a lack of money or other resources?	YES 1 NO 2	
C24	INSERT TIME MODULE ENDED HOUR MINUTE → GO TO MODULE CC		

Module CC. Mobility, Local Government Responsiveness and PPI (Head of HH or Responsible Adult)			
NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	
CC00	INSERT TIME MODULE STARTED	HOUR	MINUTE
CC01	CLUSTER CODE AND HOUSEHOLD NUMBER	CLUSTER	HH
CC02A	HEAD OF HOUSEHOLD OR RESPONSIBLE ADULT (B10 = 1) FROM HOUSEHOLD ROSTER	LINE NUMBER (B01)	
CC02B	OBTAIN CONSENT. DOES [NAME] AGREE TO PARTICIPATE IN THE SURVEY?	YES 1 NO 2 NOT AVAILABLE 3	→ CC27
PROJECT PARTICIPATION			
CC03	Have you or someone from your household regularly participated in [GHG/Rwanu] activities? USE PROBES.	YES 1 NO 2 DON'T KNOW 8	→ CC04
CC03A	Have you received food rations?	YES 1 NO 2	
CC03B	Have you regularly participated in nutrition training/ meetings?	YES 1 NO 2	
CC03C	Have you regularly participated in agriculture related training/meetings?	YES 1 NO 2	
CC03D	Have you participated in any other activities?	YES 1 NO 2	
MOBILITY AND SECURITY			
CC04	Are there areas in your community that you were unable to visit in 2012 due to insecurity, that you are now able to access, such as grazing land, farmland, markets, or social events?	YES 1 NO 2 DON'T KNOW 8	
LOCAL GOVERNMENT RESPONSIVENESS			
	Now, I will ask you about your impressions on the performance of representatives from local government. On a scale of 1 to 10, with 10 being the best and 1 being the worst, how would you rank officials in local government in the following categories?		
CC05	Local government officials share important information that helps my household to make better decisions.	1 2 3 4 5 6 7 8 9 10	
CC06	Local government officials are available to me if I want to express my opinion or solve a problem.	1 2 3 4 5 6 7 8 9 10	
CC07	Local government are actively working to solve problems and meet needs of people like me and my community.	1 2 3 4 5 6 7 8 9 10	
CC08	Local government officials are aware of the issues of most concern to people like me.	1 2 3 4 5 6 7 8 9 10	
CC09	Local government officials speak regularly with people like me and interact with us.	1 2 3 4 5 6 7 8 9 10	
CC10	Local government officials try their best to listen to what people like me have to say.	1 2 3 4 5 6 7 8 9 10	
CC11	Local government officials are working in the interest of the people, and not their own self-interest.	1 2 3 4 5 6 7 8 9 10	
CC12	Local government officials are competent and professional in performing their jobs.	1 2 3 4 5 6 7 8 9 10	
CC13	Local government officials are accountable to the public for the quality of their job performance and the decisions that they take.	1 2 3 4 5 6 7 8 9 10	
CC14	Local government officials are open and honest about their work and the decisions that they take.	1 2 3 4 5 6 7 8 9 10	
CC15	Local government officials are willing to share information about their work with me and my community	1 2 3 4 5 6 7 8 9 10	
CC16	Local government officials have taken action to improve health and water services in my community.	1 2 3 4 5 6 7 8 9 10	

Module CC. Mobility, Local Government Responsiveness and PPI (Head of HH or Responsible Adult)				
NO.	QUESTIONS AND FILTERS		CODING CATEGORIES	
PPI				
CC17	What type of material is mainly used for the construction of the roof?	NO ROOF 1 THATCHED 2 IRON SHEETS 3 ASBESTOS 4 TILE 5 CONCRETE 6 TIN 7 OTHER 96		
CC18	What type of material is mainly used for the construction of the floor?	EARTH 1 CEMENT 2 RAMMED EARTH 3 CONCRETE 4 TILES 5 BRICK 6 STONE 7 WOOD 96 OTHER 96		
CC19	What source of energy does this household mainly use for lighting?	FIREWOOD 1 COW DUNG 2 GRASS 3 REEDS 4 ELECTRICITY GRID 5 PARAFFIN LANTERN 6 PARAFFIN TABODA 7 PLYWOOD 8 SOLAR 9 GENERATOR 10 GAS 11 BIOGAS 12 THERMAL 13 OTHER 96		
CC20	Does any member of your household own a bicycle at present?	YES 1 NO 2		
CC21	Has the household consumed beans (fresh/dry), groundnuts (in shell, shelled, pounded) or peas in the last 7 days?	YES 1 NO 2		
CC22	Does every member of the household have at least one pair of shoes?	YES 1 NO 2		
CC23	What was the average number of meals taken by household members per day in the last 7 days?	LESS THAN TWO 1 TWO 2 MORE THAN TWO 3		
CC24	Are all household members ages 6 to 12 currently in school?	THERE IS NO CHILD AGES 6 TO 12 1 AT LEAST ONE CHILD AGES 6 TO 12 IS NOT IN SCHOOL 2 ALL CHILDREN AGES 6 TO 12 ARE ATTENDING SCHOOL 3		
CC25	How many usual members does the household have?	MORE THAN SIX 1 FIVE OR SIX 2 FOUR OR LESS 3		
CC26	Can the (oldest) female head/spouse read and write with understanding in any language?	NO 1 NO FEMALE HEAD/SPOUSE 2 YES 3		
CC27	INSERT TIME MODULE ENDED HOUR MINUTE		→ GO TO MODULE F	

[illegible]

Module F. Water, Sanitation and Hygiene (Head of HH or Responsible Adult)			
NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
SANITATION			
F11	What kind of toilet facility do members of your household usually use ? IF RESPONDENT CANNOT GIVE CLEAR RESPONSE, THEN OBSERVE THE TOILET AND RECORD THE CORRECT RESPONSE.	FLUSH OR POUR FLUSH TOILET FLUSH TO PIPED SEWER SYTEM 11 FLUSH TO SEPTIC TANK 12 FLUSH TO PIT LATRINE 13 FLUSH TO SOMEWHERE ELSE 14 FLUSH, DON'T KNOW WHERE 15 PIT LATRINE VENTILATED IMPROVED PIT LATRINE 21 PIT LATRINE WITH SLAB 22 PIT LATRINE WITHOUT SLAB/OPEN PIT. 23 ECOSAN LATRINE 31 BUCKET TOILET 41 HANGING TOILET/HANGING LATRINE 51 DESIGNATED AREA NOT ALREADY LISTED 61 DIG AND BURY 62 NO FACILITY/BUSH/FIELD 71 OTHER 96 _____ (SPECIFY)	→ F13A
F12	Does your household share the toilet facility with other households?	YES 1 NO 2	→ F13A
F13	How many households share that toilet facility?	NUMBER OF HOUSEHOLDS IF LESS THAN 10 0 10 OR MORE HOUSEHOLDS 95 DON'T KNOW 98	
F13A	Do the children of this household use a different toilet facility as the adult members?	YES 1 NO 2	→ F14
F13B	What kind of facility do children use?	FLUSH OR POUR FLUSH TOILET FLUSH TO PIPED SEWER SYTEM 11 FLUSH TO SEPTIC TANK 12 FLUSH TO PIT LATRINE 13 FLUSH TO SOMEWHERE ELSE 14 FLUSH, DON'T KNOW WHERE 15 PIT LATRINE VENTILATED IMPROVED PIT LATRINE 21 PIT LATRINE WITH SLAB 22 PIT LATRINE WITHOUT SLAB/OPEN PIT. 23 ECOSAN LATRINE 31 BUCKET TOILET 41 HANGING TOILET/HANGING LATRINE 51 DESIGNATED AREA NOT ALREADY LISTED 61 DIG AND BURY 62 NO FACILITY/BUSH/FIELD 71 OTHER 96 _____ (SPECIFY)	
HANDWASHING			
F14	Please show me where members of your household most often wash their hands.	OBSERVED 1 NOT OBSERVED, NOT IN DWELLING/YARD/PLOT 2 NOT OBSERVED, NO PERMISSION TO SEE 3 NOT OBSERVED, OTHER REASON 4 (SKIP TO F17) ←	
F15	<u>OBSERVATION ONLY:</u> OBSERVE PRESENCE OF WATER AT THE PLACE FOR HANDWASHING.	WATER IS AVAILABLE 1 WATER IS NOT AVAILABLE 2	
F16	<u>OBSERVATION ONLY:</u> OBSERVE PRESENCE OF SOAP, DETERGENT, OR OTHER CLEANSING AGENT AT THE PLACE FOR HANDWASHING.	SOAP OR DETERGENT (BAR, LIQUID, POWDER, PASTE) 1 ASH, MUD, SAND 2 NONE 3	
F17	INSERT TIME MODULE FINISHED	HOUR MINUTE →	GO TO MODULE G

Module G. Agriculture (All Farmers)

G00	INSERT TIME MODULE STARTED	HOUR	MINUTE	
G01	CLUSTER CODE AND HOUSEHOLD NUMBER	CLUSTER		
NO.	QUESTIONS AND FILTERS	FIRST FARMER NAME	SECOND FARMER NAME	THIRD FARMER NAME
REGISTER NAME, SEX AND LINE NUMBER FROM THE HOUSEHOLD ROSTER FOR THE FIRST FARMER (B14=1). START WITH QUESTION G02 FOR THE FIRST FARMER. IF THERE IS MORE THAN ONE FARMER IN THE HOUSEHOLD THEN INTERVIEW ALL ADDITIONAL FARMERS AS NEEDED. QUESTIONS G03A-G03D ARE ONLY USED IF THE FARMER IS ABSENT AFTER THREE TRIES AND THERE IS AN ALTERNATE RESPONDENT THAT IS KNOWLEDGABLE ABOUT THE FARMER'S AGRICULTURAL PRACTICES AND DECISIONS.				
G02A	FARMER FROM THE HOUSEHOLD ROSTER (B14 = 1)	LINE NO. (B01)	LINE NO. (B01)	LINE NO. (B01)
G02B	FARMER'S SEX FROM THE HOUSEHOLD ROSTER (B04)	MALE 1 FEMALE 2	MALE 1 FEMALE 2	MALE 1 FEMALE 2
G02C	OBTAIN CONSENT. DOES [NAME] AGREE TO PARTICIPATE IN THE SURVEY?	YES 1 (SKIP TO G04) ← NO 2 (SKIP TO G26) ← NOT AVAILABLE 3	YES 1 (SKIP TO G04) ← NO 2 (SKIP TO G26) ← NOT AVAILABLE 3	YES 1 (SKIP TO G04) ← NO 2 (SKIP TO G26) ← NOT AVAILABLE 3
G03A	ARE YOU INTERVIEWING AN ALTERNATE RESPONDENT ?	YES 1 NO 2 (SKIP TO G26) ←	YES 1 NO 2 (SKIP TO G26) ←	YES 1 NO 2 (SKIP TO G26) ←
G03B	ALTERNATE RESPONDENT'S LINE NUMBER FROM THE HH ROSTER (B01)	LINE NUMBER.....	LINE NUMBER.....	LINE NUMBER.....
G03C	ALTERNATE RESPONDENT'S SEX FROM THE HH ROSTER (B04)	MALE 1 FEMALE 2	MALE 1 FEMALE 2	MALE 1 FEMALE 2
G03D	OBTAIN WRITTEN CONSENT. DOES [NAME] AGREE TO PARTICIPATE IN THE SURVEY?	YES 1 NO 2 (SKIP TO G26) ←	YES 1 NO 2 (SKIP TO G26) ←	YES 1 NO 2 (SKIP TO G26) ←
INSTRUCTION TO RESPONDENT WHEN THE FARMER IS ABSENT: I want to know about all farming activities in this household. Because [NAME OF ABSENT FARMER] is absent, please answer these questions about [HIS/HER] farming.				
G04	Do you have access to a plot of land (even if very small) over which you make decisions about what will be grown, OR how it will be grown, OR how to dispose/store/sell the harvest? INCLUDES PLOTS OF LAND ALLOCATED TO FARMERS FOR GROWING CROPS BUT NOT OWNED.	YES 1 NO 2 (SKIP TO G05) ←	YES 1 NO 2 (SKIP TO G05) ←	YES 1 NO 2 (SKIP TO G05) ←
G04A	Do you own, rent, or sharecrop the land over which you make decisions?	OWN 1 RENT 2 SHARECROP 3 NONE OF THESE 4 (SKIP TO G05) ←	OWN 1 RENT 2 SHARECROP 3 NONE OF THESE 4 (SKIP TO G05) ←	OWN 1 RENT 2 SHARECROP 3 NONE OF THESE 4 (SKIP TO G05) ←
G04B	What was your farm size (the largest total area of your farmland) in any cropping season in the past 12 months? INCLUDE LAND THAT IS OWNED, RENTED OR SHARE CROPPED	. ACRES	. ACRES	. ACRES
G05	Do you have animals and/or aquaculture products over which you make decisions about their management OR how to dispose/store/sell of the production? NOTE: BEEKEEPING IS INCLUDED	YES 1 NO 2	YES 1 NO 2	YES 1 NO 2
G06	CHECK ANSWERS TO QUESTIONS G04 AND G05. IS THE ANSWER TO QUESTION G04 OR G05 "YES"?	IF YES, THEN CONTINUE. IF NO, SKIP TO G26.	IF YES, THEN CONTINUE. IF NO, SKIP TO G26.	IF YES, THEN CONTINUE. IF NO, SKIP TO G26.

NO.	QUESTIONS AND FILTERS	FIRST FARMER NAME _____	SECOND FARMER NAME _____	THIRD FARMER NAME _____
FINANCIAL SERVICES				
G07	Did you take any agricultural credit, in cash or in kind, in the [PAST 12 MONTHS]? PROBES: Village savings and credit groups, farmers group, MFI, Bank, RUSACCO etc.	YES 1 NO 2	YES 1 NO 2	YES 1 NO 2
G08	Did you save any cash in the [PAST 12 MONTHS]? PROBES: village savings and credit group, MFI, cooperatives, bank, mobile banking, etc.	YES 1 NO 2	YES 1 NO 2	YES 1 NO 2
G09	Some people insure their agricultural production against negative unexpected circumstances, such as drought, floods, and pests by paying for this service. Did you buy agricultural insurance in the [PAST 12 MONTHS] ?	YES 1 NO 2	YES 1 NO 2	YES 1 NO 2
VALUE CHAIN ACTIVITIES				
	Now I want to ask you about farming and livestock practices about which you make decisions. This includes practices about crops, animals and aquaculture products.			
G10A	Do you plant any crops or raise/buy livestock with the specific intention to sell or resell to earn income?	YES 1 NO 2 (SKIP TO G11) ←	YES 1 NO 2 (SKIP TO G11) ←	YES 1 NO 2 (SKIP TO G11) ←
G10B	Which of the following activities related to farming and/or animal husbandry have you practiced or received services for during [PAST 12 MONTHS]? READ EACH ACTIVITY. RECORD RESPONSES IN THE CELL BELOW THE RESPONSE LIST FOR EACH FARMER. DO NOT CIRCLE THE CODE IN THE RESPONSE LIST. IF NONE OF THESE ACTIVITIES WERE PRACTICED, THEN CIRCLE Y.	Purchase inputs for crops Purchase inputs for livestock Tillage of land Bulk transporting of inputs produced Bulk transporting of animals (on foot or by vehicle) Sorting produce Grading produce Drying or processing produce Trading or marketing (wholesale, retail, or export) for either animals or crops Use of supplements to increase livestock production Feed production Other activity Specify _____ Other activity Specify _____ DID NOT PRACTICE ANY OF THESE ACTIVITIES IN PAST 12 MONTHS.....Y.....	A B C D E F G H I J K L M	
	CIRCLE ALL ACTIVITIES STATED.	A B C D E F G H I J K L M Y	A B C D E F G H I J K L M Y	A B C D E F G H I J K L M Y
AGRICULTURAL PRACTICES				
G11	REFER TO G04 TO DETERMINE WHETHER THE RESPONDENT HAS ACCESS TO A PLOT OF LAND OVER WHICH HE/SHE MAKES DECISIONS.	"YES" NO CIRCLED CIRCLED (SKIP TO G14) ←	"YES" NO CIRCLED CIRCLED (SKIP TO G14) ←	"YES" NO CIRCLED CIRCLED (SKIP TO G14) ←
G12	In the past 12 months, did you plant any crops in the plot(S) over which you make decisions?	YES 1 NO 2 (SKIP TO G14) ← DON'T KNOW 8	YES 1 NO 2 (SKIP TO G14) ← DON'T KNOW 8	YES 1 NO 2 (SKIP TO G14) ← DON'T KNOW 8
G13	What crops did you plant during the [PAST 12 MONTHS] in the plot(S) over which you make decisions. REGISTER THE NAME OF ALL CROPS NAMED BY THE RESPONDENT CROPS NAMED BY THE REGISTER RED SORGHUM AND WHITE SORGHUM AS TWO DIFFERENT CROPS CROPS NAMED BY THE	1 _____ 2 _____ 3 _____ 4 _____ 5 _____ 6 _____	1 _____ 2 _____ 3 _____ 4 _____ 5 _____ 6 _____	1 _____ 2 _____ 3 _____ 4 _____ 5 _____ 6 _____

NO.	QUESTIONS AND FILTERS	FIRST FARMER NAME _____	SECOND FARMER NAME _____	THIRD FARMER NAME _____
G13A	For each crop you planted, did you use any of these practices in the [PAST 12 MONTHS]? CIRCLE ALL PRACTICES THAT ARE MENTIONED FOR EACH CROP PROBE TO IDENTIFY ANY OTHER PRACTICES REGISTER ALL PRACTICES THAT RESPONDENT MENTIONS	SOIL PREPARATION BY HAND..... SOIL PREPARATION WITH OX PLOW..... SOIL PREPARATION WITH TRACTOR..... BROADCASTING SEED..... PLANTING SEEDS IN ROWS..... CROP ROTATION..... APPLY FERTILIZER..... INTERCROPPING..... PEST AND DISEASE CONTROL WEED CONTROL MULCHING THINNING CONTOURING LAND WITH BERMS AND SWALES OTHER PRACTICE _____ (SPECIFY NAME AND TYPE OF PRACTICE) OTHER PRACTICE _____ (SPECIFY NAME AND TYPE OF PRACTICE) DID NOT USE ANY OF THESE PRACTICES IN PAST 12 MONTHS.....	A B C D E F G H I J K L M N O Y	
	CROP #1	ABCDEF GHIJ KLMNOY	ABCDEF GHIJ KLMNOY	ABCDEF GHIJ KLMNOY
	CROP #2	ABCDEF GHIJ KLMNOY	ABCDEF GHIJ KLMNOY	ABCDEF GHIJ KLMNOY
	CROP #3	ABCDEF GHIJ KLMNOY	ABCDEF GHIJ KLMNOY	ABCDEF GHIJ KLMNOY
	CROP #4	ABCDEF GHIJ KLMNOY	ABCDEF GHIJ KLMNOY	ABCDEF GHIJ KLMNOY
	CROP #5	ABCDEF GHIJ KLMNOY	ABCDEF GHIJ KLMNOY	ABCDEF GHIJ KLMNOY
	CROP #6	ABCDEF GHIJ KLMNOY	ABCDEF GHIJ KLMNOY	ABCDEF GHIJ KLMNOY
G14	CHECK G05: DETERMINE WHETHER THE RESPONDENT HAS ANY ANIMALS OR AQUACULTURAL PRODUCTS OVER WHICH HE/SHE MAKES DECISIONS	☐ CODE "YES" CIRCLED ☐ CODE "NO" CIRCLED (SKIP TO G18) ←	☐ CODE "YES" CIRCLED ☐ CODE "NO" CIRCLED (SKIP TO G18) ←	☐ CODE "YES" CIRCLED ☐ CODE "NO" CIRCLED (SKIP TO G18) ←
G15	What animal species did you raise/care for and make decisions about during the [PAST 12 MONTHS]? REGISTER THE NAME OF ALL ANIMAL SPECIES LISTED BY THE RESPONDENT. NOTE: IF THE RESPONDENT MENTIONS BEEKEEPING, DO NOT INCLUDE HERE. IT WILL BE COVERED IN QUESTIONS 17A, 17B, 17C AND 17D.	1 _____ 2 _____ 3 _____ 4 _____ 5 _____ 6 _____	1 _____ 2 _____ 3 _____ 4 _____ 5 _____ 6 _____	1 _____ 2 _____ 3 _____ 4 _____ 5 _____ 6 _____
G16A	Did you use any of the following practices when you cared for the animals during the [PAST 12 MONTHS]? CIRCLE ALL THE PRACTICES THAT ARE MENTIONED FOR EACH SPECIES CIRCLE ALL THE PRACTICES THAT ARE MENTIONED FOR EACH SPECIES	ANIMAL SHELTERS KRAALS VACCINATIONS DEWORMING HOMEMADE ANIMAL FEEDS MADE OF LOCALLY AVAILABLE PRODUCTS USED THE SERVICES OF COMMUNITY ANIMAL HEALTH WORKERS PURCHASED DRUGS/MEDICINES TO GIVE TO ANIMALS ROTATIONAL GRAZING DEHORNING CASTRATION DID NOT PRACTICE ANY OF THESE ACTIVITIES IN PAST 12 MONTHS	A B C D E F G H I J Y	
	SPECIES #1	ABCDEF GHI Y	ABCDEF GHI Y	ABCDEF GHI Y
	SPECIES #2	ABCDEF GHI Y	ABCDEF GHI Y	ABCDEF GHI Y
	SPECIES #3	ABCDEF GHI Y	ABCDEF GHI Y	ABCDEF GHI Y
	SPECIES #4	ABCDEF GHI Y	ABCDEF GHI Y	ABCDEF GHI Y
	SPECIES #5	ABCDEF GHI Y	ABCDEF GHI Y	ABCDEF GHI Y
	SPECIES #6	ABCDEF GHI Y	ABCDEF GHI Y	ABCDEF GHI Y
G16B	If you purchased drugs or medicines to give to animals, where did you purchase the drugs? ASK ONLY FOR RESPONDENTS THAT ANSWERED "G" TO QUESTION G16.	VETERINARIAN 1 COMMUNITY ANIMAL HEALTH WORKER. . 2 OTHER SOURCE. 3 (SPECIFY) _____ DID NOT PURCHASE DRUGS/MEDICINES 9	VETERINARIAN 1 COMMUNITY ANIMAL HEALTH WORKER. . 2 OTHER SOURCE. 3 (SPECIFY) _____ DID NOT PURCHASE DRUGS/MEDICINES 9	VETERINARIAN 1 COMMUNITY ANIMAL HEALTH WORKER. . 2 OTHER SOURCE. 3 (SPECIFY) _____ DID NOT PURCHASE DRUGS/MEDICINES 9

NO.	QUESTIONS AND FILTERS	FIRST FARMER	SECOND FARMER	THIRD FARMER
		NAME _____	NAME _____	NAME _____
G17A	Did you keep bees during the [PAST 12 MONTHS]?	YES 1 NO 2 (SKIP TO G18) ←	YES 1 NO 2 (SKIP TO G18) ←	YES 1 NO 2 (SKIP TO G18) ←
G17B	Which hive did you use?	KENYAN TOP BAR 1 TRADITIONAL BEEHIVE 2 LOG HIVE 3 TREE SWARM HARVEST 4 OTHER 5	KENYAN TOP BAR 1 TRADITIONAL BEEHIVE 2 LOG HIVE 3 TREE SWARM HARVEST 4 OTHER 5	KENYAN TOP BAR 1 TRADITIONAL BEEHIVE 2 LOG HIVE 3 TREE SWARM HARVEST 4 OTHER 5
G17C	Which equipment did you use to harvest honey?	SMOKER 1 BEE SUIT 2 HIVE TOOL/KNIFE 3 OTHER 4 DID NOT HARVEST 9	SMOKER 1 BEE SUIT 2 HIVE TOOL/KNIFE 3 OTHER 4 DID NOT HARVEST 9	SMOKER 1 BEE SUIT 2 HIVE TOOL/KNIFE 3 OTHER 4 DID NOT HARVEST 9
G17D	How did you store your honey?	USED JERRY CAN 1 USED HONEY BUCKET 2 OTHER 3 DID NOT STORE 9	USED JERRY CAN 1 USED HONEY BUCKET 2 OTHER 3 DID NOT STORE 9	USED JERRY CAN 1 USED HONEY BUCKET 2 OTHER 3 DID NOT STORE 9
G18	Did you use any of the following natural resources management practices or techniques that were not related directly to your on-farm production during the [PAST 12 MONTHS]?	MANAGEMENT OF WATERSHED OR REFORESTATION A AGRO-FORESTRY OR CULTIVATION OF FRUIT TREES B MANAGEMENT OF FOREST PLANTATION C MANAGEMENT OF NATURAL REGENERATION D COLLECTING PRODUCTS FROM FOREST PLANTS (SUCH AS GUM ARABIC) E SOIL CONSERVATION ON HILLSIDES F CONSTRUCTION OF WATER CATCHMENTS G DID NOT PRACTICE ANY OF THESE ACTIVITIES FOR THE PAST 12 MONTHS Y		
	CIRCLE ALL PRACTICES MENTIONED BY THE RESPONDENT	A B C D E F G Y	A B C D E F G Y	A B C D E F G Y
IMPROVED STORAGE PRACTICES				
G19	CHECK G04: DETERMINE WHETHER THE RESPONDENT HAS ACCESS TO A PLOT OF LAND OVER WHICH HE/SHE MAKES DECISIONS.	☐ CODE "YES" ☐ CODE "NO" CIRCLED CIRCLED (SKIP TO G26) ←	☐ CODE "YES" ☐ CODE "NO" CIRCLED CIRCLED (SKIP TO G26) ←	☐ CODE "YES" ☐ CODE "NO" CIRCLED CIRCLED (SKIP TO G26) ←
G20	During [THE LAST 12 MONTHS], did you store any crops from the plot over which you make decisions?	YES 1 NO 2 (SKIP TO G26) ← DON'T KNOW 8	YES 1 NO 2 (SKIP TO G26) ← DON'T KNOW 8	YES 1 NO 2 (SKIP TO G26) ← DON'T KNOW 8
G21	Did you store sorghum?	YES 1 NO 2 (SKIP TO G22) ←	YES 1 NO 2 (SKIP TO G22) ←	YES 1 NO 2 (SKIP TO G22) ←
G21A	What was the main method that you used to store sorghum?	CEREAL BANK 1 GRANARY 2 SUPER GRAIN BAGS/ PICS BAGS 3 MANUFACTURED SILO 4 OTHER METHOD 5 (SPECIFY) _____	CEREAL BANK 1 GRANARY 2 SUPER GRAIN BAGS/ PICS BAGS 3 MANUFACTURED SILO 4 OTHER METHOD 5 (SPECIFY) _____	CEREAL BANK 1 GRANARY 2 SUPER GRAIN BAGS/ PICS BAGS 3 MANUFACTURED SILO 4 OTHER METHOD 5 (SPECIFY) _____
G22	Did you store maize?	YES 1 NO 2 (SKIP TO G23) ←	YES 1 NO 2 (SKIP TO G23) ←	YES 1 NO 2 (SKIP TO G23) ←
G22A	What was the main method that you used to store maize?	MANUFACTURED SILO 1 GRANARY 2 SUPER GRAIN BAGS/ PICS BAGS 3 OTHER METHOD 4 (SPECIFY) _____	MANUFACTURED SILO 1 GRANARY 2 SUPER GRAIN BAGS/ PICS BAGS 3 OTHER METHOD 4 (SPECIFY) _____	MANUFACTURED SILO 1 GRANARY 2 SUPER GRAIN BAGS/ PICS BAGS 3 OTHER METHOD 4 (SPECIFY) _____

NO.	QUESTIONS AND FILTERS	FIRST FARMER	SECOND FARMER	THIRD FARMER
		NAME _____	NAME _____	NAME _____
G23	Did you store legumes (beans, cowpeas, pigeon peas, or green grams/mung beans)?	YES 1 NO 2 (SKIP TO G24) ←	YES 1 NO 2 (SKIP TO G24) ←	YES 1 NO 2 (SKIP TO G24) ←
G23A	What was the main method that you used to store legumes (beans, cowpeas, pigeon peas, or green orams/muno beans)?	MANUFACTURED SILO 1 GRANARY 2 SUPER GRAIN BAGS/ PICS BAGS 3 OTHER METHOD. 4 _____ (SPECIFY)	MANUFACTURED SILO 1 GRANARY 2 SUPER GRAIN BAGS/ PICS BAGS 3 OTHER METHOD. 4 _____ (SPECIFY)	MANUFACTURED SILO 1 GRANARY 2 SUPER GRAIN BAGS/ PICS BAGS 3 OTHER METHOD. 4 _____ (SPECIFY)
G24	Did you store rice?	YES 1 NO 2 (SKIP TO G25) ←	YES 1 NO 2 (SKIP TO G25) ←	YES 1 NO 2 (SKIP TO G25) ←
G24A	What was the main method that you used to store rice?	MANUFACTURED SILO 1 GRANARY 2 SUPER GRAIN BAGS/ PICS BAGS 3 OTHER METHOD. 4 _____ (SPECIFY)	MANUFACTURED SILO 1 GRANARY 2 SUPER GRAIN BAGS/ PICS BAGS 3 OTHER METHOD. 4 _____ (SPECIFY)	MANUFACTURED SILO 1 GRANARY 2 SUPER GRAIN BAGS/ PICS BAGS 3 OTHER METHOD. 4 _____ (SPECIFY)
G25	In addition to sorghum, maize, rice and legumes, did you store any additional crops from the plot over which you make decisions during the [PAST 12 MONTHS]?	YES 1 NO 2 (SKIP TO G26) ←	YES 1 NO 2 (SKIP TO G26) ←	YES 1 NO 2 (SKIP TO G26) ←
G25A	What other crops did you store during the [PAST 12 MONTHS] REGISTER THE NAMES OF THE ADDITIONAL CROPS THAT WERE STORED BY EACH RESPONDENT	1 _____ 2 _____ 3 _____ 4 _____	1 _____ 2 _____ 3 _____ 4 _____	1 _____ 2 _____ 3 _____ 4 _____
G25B	What was the main method that you used to store each of the additional crops? CIRCLE THE MAIN METHOD MENTIONED TO STORE ANY ADDITIONAL CROPS	CEREAL BANK 1 MANUFACTURED SILO 2 GRANARY 3 SUPER GRAIN BAGS/PICS BAGS 4 OTHER METHOD 5 _____ (SPECIFY)		
	ADDITIONAL CROP #1	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
	ADDITIONAL CROP #2	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
	ADDITIONAL CROP #3	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
	ADDITIONAL CROP #4	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
G26	THERE ARE NO MORE QUESTIONS FOR THIS FARMER.	GO TO G02 FOR ANOTHER FARMER. IF THERE ARE NO MORE FARMERS, GO TO G27.	GO TO G02 FOR ANOTHER FARMER. IF THERE ARE NO MORE FARMERS, GO TO G27.	GO TO G02 FOR ANOTHER FARMER. IF THERE ARE NO MORE FARMERS, GO TO G27.
G27	INSERT TIME MODULE ENDED HOUR MINUTE → GO TO MODULE D1			

Module D1. Children's Nutritional Status and Feeding Practices (Primary Caregivers)				
D00	INSERT TIME MODULE STARTED	HOUR MINUTE		
D01	CLUSTER CODE AND HOUSEHOLD NUMBER	CLUSTER HH		
NO.	QUESTIONS AND FILTERS	FIRST ELIGIBLE CHILD FROM ROSTER	SECOND ELIGIBLE CHILD FROM ROSTER	THIRD ELIGIBLE CHILD FROM ROSTER
		NAME	NAME	NAME
D02	CHILD UNDER 5 YEARS OLD (B07= 1) FROM THE HOUSEHOLD ROSTER	LINE NO. CHILD (B01)	LINE NO. CHILD (B01)	LINE NO. CHILD (B01)
D03A	CAREGIVER'S LINE NUMBER FROM THE HOUSEHOLD ROSTER (B08)	LINE NO. CAREGIVER	LINE NO. CAREGIVER	LINE NO. CAREGIVER
D03B	OBTAIN CONSENT. DOES [NAME] AGREE TO PARTICIPATE IN THE SURVEY?	YES 1 NO 2 (SKIP TO D65) ← NOT AVAILABLE 3	YES 1 NO 2 (SKIP TO D65) ← NOT AVAILABLE 3	YES 1 NO 2 (SKIP TO D65) ← NOT AVAILABLE 3
D04	What is [CHILD NAME]'s sex?	MALE 1 FEMALE 2	MALE 1 FEMALE 2	MALE 1 FEMALE 2
D05	I would like to ask you some questions about [CHILD'S NAME]. Does [CHILD'S NAME] have a health/vaccination card or other document with the birth date recorded? IF A DOCUMENT WITH THE BIRTHDATE IS SHOWN RECORD THE DAY, MONTH AND YEAR AS DOCUMENTED. RECORD AGE IN YEARS IN D06 IF A DOCUMENT WITH THE BIRTHDATE IS NOT SHOWN THEN ASK: In what month and year was [CHILD'S NAME] born? What is [HIS/HER] birthday? RECORD BIRTH DAY, MONTH AND YEAR IF THE CAREGIVER DOES NOT KNOW THE EXACT DAY OF BIRTH, ENTER "98", INDICATING "DON'T KNOW" FOR DAY. YOU DO NOT NEED TO PROBE FURTHER FOR DAY OF BIRTH. NOTE THAT YOU ARE NOT ALLOWED TO ENTER "DON'T KNOW" FOR MONTH OR YEAR OF BIRTH.	DAY MONTH YEAR	DAY MONTH YEAR	DAY MONTH YEAR
D06	How old was [CHILD'S NAME] at [HIS/HER] last birthday? RECORD AGE IN COMPLETED YEARS	YEARS	YEARS	YEARS
D07	How many months old is [CHILD'S NAME]? RECORD AGE IN COMPLETED MONTHS	MONTHS	MONTHS	MONTHS
D08	CHECK D05, D06, AND D07 TO VERIFY CONSISTENCY. A) IS THE YEAR RECORDED IN D05 CONSISTENT WITH THE AGE IN YEARS RECORDED IN D06? B) ARE YEAR AND MONTH OF BIRTH RECORDED IN D05 CONSISTENT WITH AGE IN MONTHS RECORDED IN D07? USE BIRTHDATE CONVERSION TABLE TO CHECK. IF THE ANSWER TO A OR B IS "NO" RESOLVE ANY INCONSISTENCIES.			

NO.	QUESTIONS AND FILTERS	FIRST ELIGIBLE CHILD FROM ROSTER NAME	SECOND ELIGIBLE CHILD FROM ROSTER NAME	THIRD ELIGIBLE CHILD FROM ROSTER NAME
EXCLUSIVE BREAST FEEDING AND MINIMUM ACCEPTABLE DIET				
D14	CHECK D07 : IS THE CHILD UNDER 60 MONTHS (5 YEARS)?	YES 1 NO 2 (GO TO D02 FOR NEXT CHILD OR TO D66 IF NO MORE CHILDREN) DON'T KNOW 8	YES 1 NO 2 (GO TO D02 FOR NEXT CHILD OR TO D66 IF NO MORE CHILDREN) DON'T KNOW 8	YES 1 NO 2 (GO TO D02 ON NEW PAGE FOR NEXT CHILD OR TO D66 IF NO MORE CHILDREN) DON'T KNOW 8
D15	CHECK D07 : IS THE CHILD UNDER 24 MONTHS (2 YEARS)?	YES 1 NO 2 (SKIP TO D54) DON'T KNOW 8	YES 1 NO 2 (SKIP TO D54) DON'T KNOW 8	YES 1 NO 2 (SKIP TO D54) DON'T KNOW 8
D16	Has [CHILD'S NAME] ever been breastfed?	YES 1 NO 2 (SKIP TO D18) DON'T KNOW 8	YES 1 NO 2 (SKIP TO D18) DON'T KNOW 8	YES 1 NO 2 (SKIP TO D18) DON'T KNOW 8
D17	Was [CHILD'S NAME] breastfed yesterday during the day or at night?	YES 1 (SKIP TO D19) NO 2 DON'T KNOW 8	YES 1 (SKIP TO D19) NO 2 DON'T KNOW 8	YES 1 (SKIP TO D19) NO 2 DON'T KNOW 8
D18	Sometimes babies are breastfed by another woman or given breast milk from another woman by spoon, cup, bottle, or some other way. This can happen if a mother cannot breastfeed her own baby for various reasons, such as the mother is sick or away, mastitis, etc. Did [CHILD'S NAME] consume breast milk in any of these ways yesterday during the day or at night?	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8
D19	Now I would like to ask you about some medicines and vitamins that are sometimes given to infants. Was [CHILD'S NAME] given any vitamin drops or other medicines as drops yesterday during the day or at night?	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8
D20	Was [CHILD'S NAME] given oral rehydration solution yesterday during the day or at night?	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8
	Next I would like to ask you about some liquids that [CHILD'S NAME] may have had yesterday during the day or at night. Did [CHILD'S NAME] have:			
D21	Plain water?	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8
D22	Any kind of Infant formula like Nani, SMA, Nestle?	YES 1 NO 2 (SKIP TO D24) DON'T KNOW 8	YES 1 NO 2 (SKIP TO D24) DON'T KNOW 8	YES 1 NO 2 (SKIP TO D24) DON'T KNOW 8
D23	How many times yesterday during the day or at night did [CHILD'S NAME] consume any formula?	TIMES	TIMES	TIMES
D24	Did [CHILD'S NAME] have any milk such as tinned, powdered or fresh animal milk?	YES 1 NO 2 (SKIP TO D26) DON'T KNOW 8	YES 1 NO 2 (SKIP TO D26) DON'T KNOW 8	YES 1 NO 2 (SKIP TO D26) DON'T KNOW 8
D25	How many times yesterday during the day or at night did [CHILD'S NAME] consume any milk?	TIMES	TIMES	TIMES
D26	Did [CHILD'S NAME] have any juice or juice drinks?	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8

NO.	QUESTIONS AND FILTERS	FIRST ELIGIBLE CHILD FROM ROSTER	SECOND ELIGIBLE CHILD FROM ROSTER	THIRD ELIGIBLE CHILD FROM ROSTER
		NAME	NAME	NAME
D27	Clear broth?	YES 1 NO 2 DON'T KNOW 8.	YES 1 NO 2 DON'T KNOW 8.	YES 1 NO 2 DON'T KNOW 8.
D28	Yogurt?	YES 1 NO 2 (SKIP TO D30) DON'T KNOW 8.	YES 1 NO 2 (SKIP TO D30) DON'T KNOW 8.	YES 1 NO 2 (SKIP TO D30) DON'T KNOW 8.
D29	How many times yesterday during the day or at night did [CHILD'S NAME] consume any yogurt?	TIMES	TIMES	TIMES
D30	Did [CHILD'S NAME] have any thin porridge? PROBES: EUGI LIMIT TO PORRIDGE MIXED VERY THIN OR THICK DRINKS MADE FROM CEREAL. THICKER LESS LIQUID PORRIDGE IS INCLUDED UNDER ITEM D33.	YES 1 NO 2 DON'T KNOW 8.	YES 1 NO 2 DON'T KNOW 8.	YES 1 NO 2 DON'T KNOW 8.
D31	Any other liquids?	YES 1 NO 2 DON'T KNOW 8.	YES 1 NO 2 DON'T KNOW 8.	YES 1 NO 2 DON'T KNOW 8.
D32	Now I would like to ask you about (other) liquids or foods that (NAME) ate yesterday during the day or at night. I am interested in whether your child had the item even if it was combined with other foods. For example, if (NAME) ate a millet porridge made with a mixed vegetable sauce, you should reply yes to any food I ask about that was an ingredient in the porridge or sauce. Please do not include any food used in a small amount for seasoning or condiments (like chilies, spices, herbs, or fish powder), I will ask you about those foods separately. Yesterday, during the day or at night, did [CHILD'S NAME] eat any (ASK QUESTIONS D33A-D49)?			
D33	Bread, biscuits, cereals/porridge, noodles, rice, chapati, posho, sorghum mash/residue or other foods made from grains such as maize, millet, sorghum, wheat, bullrush?	YES 1 NO 2 DON'T KNOW 8.	YES 1 NO 2 DON'T KNOW 8.	YES 1 NO 2 DON'T KNOW 8.
D34	Pumpkin, carrots, squash, orange flesh sweet potatoes or or any other dark yellow or orange fleshed roots, tubers and vegetables?	YES 1 NO 2 DON'T KNOW 8.	YES 1 NO 2 DON'T KNOW 8.	YES 1 NO 2 DON'T KNOW 8.
D35	White irish potatoes, white yams, white sweet potato, cassava, matoke, or any other foods made from roots?	YES 1 NO 2 DON'T KNOW 8.	YES 1 NO 2 DON'T KNOW 8.	YES 1 NO 2 DON'T KNOW 8.
D36A	Any dark green leafy vegetables such as spinach, lettuce, chard, dodo (amaranthis), pumpkin leaves, cassava leaves, bean leaves, kales/sukumawiki, cowpea leaves or okra?	YES 1 NO 2 DON'T KNOW 8.	YES 1 NO 2 DON'T KNOW 8.	YES 1 NO 2 DON'T KNOW 8.
D36B	Any indigenous vegetables such as eboo, allote, ekamalakang, ekoreete seeds and/or leaves, ngadekela seeds and/or leaves?	YES 1 NO 2 DON'T KNOW 8.	YES 1 NO 2 DON'T KNOW 8.	YES 1 NO 2 DON'T KNOW 8.
D36C	Any other vegetables, like cucumbers, tomatoes, cauliflower, cabbage, broccoli, eggplant, etc.?	YES 1 NO 2 DON'T KNOW 8.	YES 1 NO 2 DON'T KNOW 8.	YES 1 NO 2 DON'T KNOW 8.
D37A	Ripe mangoes, ripe papaya, melon, passionfruit or other fruits that are dark yellow or orange inside?	YES 1 NO 2 DON'T KNOW 8.	YES 1 NO 2 DON'T KNOW 8.	YES 1 NO 2 DON'T KNOW 8.
D37B	Any indigenous fruits like ekoreete, ngadekela (white watermelon), ngimongo, ngakamuria, ngikajika, hgikaruka or ngalam?	YES 1 NO 2 DON'T KNOW 8.	YES 1 NO 2 DON'T KNOW 8.	YES 1 NO 2 DON'T KNOW 8.
D37C	Any other fruits like watermelon, tamarind, or jackfruit?	YES 1 NO 2 DON'T KNOW 8.	YES 1 NO 2 DON'T KNOW 8.	YES 1 NO 2 DON'T KNOW 8.
D38A	Any liver, kidney, heart, blood or other organ meats from domesticated animals such as cow, pig, goat, chicken or duck?	YES 1 NO 2 DON'T KNOW 8.	YES 1 NO 2 DON'T KNOW 8.	YES 1 NO 2 DON'T KNOW 8.
D38B	Any meat from domesticated animals, such as beef, pork, lamb, goat, chicken, or duck?	YES 1 NO 2 DON'T KNOW 8.	YES 1 NO 2 DON'T KNOW 8.	YES 1 NO 2 DON'T KNOW 8.

NO.	QUESTIONS AND FILTERS	FIRST ELIGIBLE CHILD FROM ROSTER	SECOND ELIGIBLE CHILD FROM ROSTER	THIRD ELIGIBLE CHILD FROM ROSTER
		NAME	NAME	NAME
D39A	Any organs from wild animals, such as game meat, bush rats, birds, wild pigeons, guinea fowl, deer, wild boar, wild goat?	YES 1 NO 2 DON'T KNOW 8.	YES 1 NO 2 DON'T KNOW 8.	YES 1 NO 2 DON'T KNOW 8.
D39B	Any flesh from wild animals, such as game meat, bush rats, birds, wild pigeons, guinea fowl, deer, wild boar, wild goat?	YES 1 NO 2 DON'T KNOW 8.	YES 1 NO 2 DON'T KNOW 8.	YES 1 NO 2 DON'T KNOW 8.
D40	Eggs?	YES 1 NO 2 DON'T KNOW 8.	YES 1 NO 2 DON'T KNOW 8.	YES 1 NO 2 DON'T KNOW 8.
D41	Fresh or dried fish, shellfish or seafood?	YES 1 NO 2 DON'T KNOW 8.	YES 1 NO 2 DON'T KNOW 8.	YES 1 NO 2 DON'T KNOW 8.
D42	Any foods made from beans, peas, lentils, peanuts or other legumes such as cowpeas, pigeon peas, green grams or simsim?	YES 1 NO 2 DON'T KNOW 8.	YES 1 NO 2 DON'T KNOW 8.	YES 1 NO 2 DON'T KNOW 8.
D43	Any foods made from nuts and seeds such as pumpkin, sunflower seeds?	YES 1 NO 2 DON'T KNOW 8.	YES 1 NO 2 DON'T KNOW 8.	YES 1 NO 2 DON'T KNOW 8.
D44	Cheese, yogurt or other milk products?	YES 1 NO 2 DON'T KNOW 8.	YES 1 NO 2 DON'T KNOW 8.	YES 1 NO 2 DON'T KNOW 8.
D45	Any shea nut oils, other oils, fats, butter or foods made with any of these?	YES 1 NO 2 DON'T KNOW 8.	YES 1 NO 2 DON'T KNOW 8.	YES 1 NO 2 DON'T KNOW 8.
D46	Any sugary foods such as chocolates, sweets, candies, pastries, cakes or biscuits?	YES 1 NO 2 DON'T KNOW 8.	YES 1 NO 2 DON'T KNOW 8.	YES 1 NO 2 DON'T KNOW 8.
D47	Condiments for flavor, such as chilies, spices, herbs, or fish powder?	YES 1 NO 2 DON'T KNOW 8.	YES 1 NO 2 DON'T KNOW 8.	YES 1 NO 2 DON'T KNOW 8.
D48	Grubs, snails or insect?	YES 1 NO 2 DON'T KNOW 8.	YES 1 NO 2 DON'T KNOW 8.	YES 1 NO 2 DON'T KNOW 8.
D49	Foods made with red palm oil, red palm nut, or red palm nut pulp sauce?	YES 1 NO 2 DON'T KNOW 8.	YES 1 NO 2 DON'T KNOW 8.	YES 1 NO 2 DON'T KNOW 8.
	CHECK QUESTIONS D33-D49 :	IF "NO" TO ALL → D50 IF AT LEAST ONE "YES" OR "DK" TO ALL → D51	IF "NO" TO ALL → D50 IF AT LEAST ONE "YES" OR "DK" TO ALL → D51	IF "NO" TO ALL → D50 IF AT LEAST ONE "YES" OR "DK" TO ALL → D51
D50	Did [CHILD'S NAME] eat any solid, semi-solid, or or soft foods yesterday during the day or at night? IF "YES" PROBE: What kind of solid, semi-solid, or soft foods did [CHILD'S NAME] eat?	YES 1 GO BACK TO D33-D47 AND RECORD FOODS EATEN. THEN CONTINUE WITH D51 . NO 2 GO TO D52 ← DON'T KNOW 8	YES 1 GO BACK TO D33-D47 AND RECORD FOODS EATEN. THEN CONTINUE WITH D51 . NO 2 GO TO D52 ← DON'T KNOW 8	YES 1 GO BACK TO D33-D47 AND RECORD FOODS EATEN. THEN CONTINUE WITH D51 . NO 2 GO TO D52 ← DON'T KNOW 8
D51	How many times did [CHILD'S NAME] eat solid, semi-solid, or soft foods other than liquids yesterday during the day or at night?	TIMES DON'T KNOW 98.	TIMES DON'T KNOW 98.	TIMES DON'T KNOW 98.
SPECIFIC TARGETED NUTRIENT-RICH COMMODITIES				
D52a	Did [CHILD'S NAME] eat any foods made from bio-fortified beans yesterday during the day or at night?	YES 1 NO 2 DON'T KNOW 8.	YES 1 NO 2 DON'T KNOW 8.	YES 1 NO 2 DON'T KNOW 8.
D52b	Did [CHILD'S NAME] eat any foods made from bio-fortified maize or sorghum yesterday during the day or at night?	YES 1 NO 2 DON'T KNOW 8.	YES 1 NO 2 DON'T KNOW 8.	YES 1 NO 2 DON'T KNOW 8.
D52c	Did [CHILD'S NAME] eat any orange flesh sweet potatoes (OFSP) or foods made with OFSP yesterday during the day or at night?	YES 1 NO 2 DON'T KNOW 8.	YES 1 NO 2 DON'T KNOW 8.	YES 1 NO 2 DON'T KNOW 8.
		GO TO D54 FIRST COLUMN	GO TO D54 SECOND COLUMN	GO TO D54 THIRD COLUMN

Module D2. Children's Diarrhea and Oral Rehydration Therapy (Primary Caregivers)				
NO.	QUESTIONS AND FILTERS	FIRST ELIGIBLE CHILD FROM ROSTER NAME _____	SECOND ELIGIBLE CHILD FROM ROSTER NAME _____	THIRD ELIGIBLE CHILD FROM ROSTER NAME _____
D54	Has [CHILD'S NAME] had diarrhea in the last 2 weeks? (1) DIARRHEA IS DEFINED AS 3 OR MORE WATERY STOOLS IN A DAY.	YES 1 NO 2 (GO TO D02 FOR NEXT CHILD OR TO D66 IF NO MORE CHILDREN) ← DON'T KNOW 8	YES 1 NO 2 (GO TO D02 FOR NEXT CHILD OR TO D66 IF NO MORE CHILDREN) ← DON'T KNOW 8	YES 1 NO 2 (GO TO D02 ON NEW PAGE FOR NEXT CHILD OR TO D66 IF NO MORE CHILDREN) ← DON'T KNOW 8
D62	Was he/she given any of the following to drink at any time since he/she started having the diarrhea: a) A fluid made from a special packet called ORS sachet such as Zinkid or RESTORE? b) A reconstituted ORS liquid provided through government health facilities? c) A government-recommended homemade fluid?	YES NO DK FLUID FROM ORS PKT.....1. 2 8 RECONSTITUTED ORS FROM GOVT..1.....2 8 HOMEMADE 1 2 8 FLUID.....	YES NO DK FLUID FROM ORS PKT.....1. 2 8 RECONSTITUTED ORS FROM GOVT..1.....2 8 HOMEMADE 1 2 8 FLUID.....	YES NO DK FLUID FROM ORS PKT.....1. 2 8 RECONSTITUTED ORS FROM GOVT..1.....2 8 HOMEMADE 1 2 8 FLUID.....
D63	Was anything (else) given to treat the diarrhea?	YES 1 NO 2 (GO TO D02 FOR NEXT CHILD OR TO D66 IF NO MORE CHILDREN) ← DON'T KNOW 8	YES 1 NO 2 (GO TO D02 FOR NEXT CHILD OR TO D66 IF NO MORE CHILDREN) ← DON'T KNOW 8	YES 1 NO 2 (GO TO D02 ON NEW PAGE FOR NEXT CHILD OR TO D66 IF NO MORE CHILDREN) ← DON'T KNOW 8
D64	What (else) was given to treat the diarrhea? RECORD ALL TREATMENTS GIVEN. UPDATED FROM DHS	PILL OR SYRUP ANTIBIOTIC A ANTIMOTILITY B OTHER (NOT ANTIBIOTIC, ANTIMOTILITY, OR ZINC) C UNKNOWN PILL OR SYRUP D INJECTION ANTIBIOTIC E NON-ANTIBIOTIC ... F UNKNOWN INJECTION G (IV) INTRAVENOUS (DRIPS) H HOME REMEDY/ HERBAL MEDICINE . I OTHER _____ X (SPECIFY)	PILL OR SYRUP ANTIBIOTIC A ANTIMOTILITY B OTHER (NOT ANTIBIOTIC, ANTIMOTILITY, OR ZINC) C UNKNOWN PILL OR SYRUP D INJECTION ANTIBIOTIC E NON-ANTIBIOTIC ... F UNKNOWN INJECTION G (IV) INTRAVENOUS (DRIPS) H HOME REMEDY/ HERBAL MEDICINE . I OTHER _____ X (SPECIFY)	PILL OR SYRUP ANTIBIOTIC A ANTIMOTILITY B OTHER (NOT ANTIBIOTIC, ANTIMOTILITY, OR ZINC) C UNKNOWN PILL OR SYRUP D INJECTION ANTIBIOTIC E NON-ANTIBIOTIC ... F UNKNOWN INJECTION G (IV) INTRAVENOUS (DRIPS) H HOME REMEDY/ HERBAL MEDICINE . I OTHER _____ X (SPECIFY)
D65	THERE ARE NO MORE QUESTIONS FOR THIS CHILD.	GO TO D02 FOR NEXT CHILD OR, IF NO MORE CHILDREN, GO TO D66	GO TO D02 FOR NEXT CHILD OR, IF NO MORE CHILDREN, GO TO D66	GO TO D02 ON NEW PAGE FOR NEXT CHILD OR, IF NO MORE CHILDREN, GO TO D66
D66	INSERT TIME MODULE ENDED	HOUR MINUTE → GO TO MODULE E		

(1) The term(s) used for diarrhea should encompass the expressions used for all forms of diarrhea, including bloody stools (consistent with dysentery), watery stools, etc.

Module E. Women's Nutrition, Breastfeeding and Antenatal Care (Women 15-49)				
NO.	QUESTIONS AND FILTERS	WOMAN'S NAME	WOMAN'S NAME	WOMAN'S NAME
E00	INSERT TIME MODULE STARTED	HOUR MINUTE	HOUR MINUTE	HOUR MINUTE
E01	CLUSTER CODE AND HOUSEHOLD NUMBER	CLUSTER HH	CLUSTER HH	CLUSTER HH
E02A	LINE NUMBER OF WOMAN 15-49 YEARS OF AGE FROM ROSTER (B09=1)	LINE NUMBER (B01)	LINE NUMBER (B01)	LINE NUMBER (B01)
E02B	OBTAIN CONSENT. DOES [NAME] AGREE TO PARTICIPATE IN THE SURVEY?	YES 1 NO 2 SKIP TO E49A ← NOT AVAILABLE 8	YES 1 NO 2 SKIP TO E49A ← NOT AVAILABLE 8	YES 1 NO 2 SKIP TO E49A ← NOT AVAILABLE 8
E03	In what month and year were you born? IF DON'T KNOW MONTH RECORD "98" IF DON'T KNOW YEAR RECORD "9998"	MONTH YEAR	MONTH YEAR	MONTH YEAR
E04	Please tell me how old you are. What was your age at your last birthday? RECORD AGE IN COMPLETED YEARS AND SKIP TO E06. IF RESPONDENT CANNOT REMEMBER HOW OLD SHE IS, CIRCLE 98 AND ASK QUESTION E05.	AGE IN YEARS (SKIP TO E06) ← DON'T KNOW 98	AGE IN YEARS (SKIP TO E06) ← DON'T KNOW 98	AGE IN YEARS (SKIP TO E06) ← DON'T KNOW 98
E05	Are you between the ages of 15 and 49 years old?	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8
E06	CHECK E03, E04 AND E05 (IF APPLICABLE): IS THE RESPONDENT BETWEEN THE AGES OF 15 AND 49 YEARS? IF ANSWER IS 'NO' AND ANOTHER WOMAN IS INCLUDED, THAN QUESTIONS E02-E05 MUST BE REPEATED FOR THE NEW WOMAN. IF THE INFORMATION IN E03, E04 AND E05 CONFLICTS, DETERMINE WHICH IS MOST ACCURATE.	IF YES, THEN CONTINUE. IF NO, THEN GO TO E49A	IF YES, THEN CONTINUE. IF NO, THEN GO TO E49A	IF YES, THEN CONTINUE. IF NO, THEN GO TO E49A
WOMAN'S DIETARY DIVERSITY				
	Now I would like to ask you about liquids or foods that you ate yesterday during the day or at night. I am interested in whether you had the item even if it was combined with other foods. For example, if you ate a millet porridge made with a mixed vegetable sauce, you should reply yes to any food I ask about that was an ingredient in the porridge or sauce. Please do not include any food used in a small amount for seasoning or condiments (like chilies, spices, herbs, or fish powder), I will ask you about those foods separately. Yesterday during the day or night did you drink/eat any [ASK QUESTIONS E07 to E25]?			
E07	Bread, biscuits, cereals/porridge, noodles, rice, chapati, posho, sorghum mash/residue or other foods made from grains such as maize, millet, sorghum, wheat, bullrush?	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8
E08	Pumpkin, carrots, squash, orange flesh sweet potatoes or or any other dark yellow or orange fleshed roots, tubers and vegetables?	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8
E09	White Irish potatoes, white yams, white sweet potato, cassava, matoke, or any other foods made from roots?	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8
E10	Any dark green leafy vegetables such as spinach, lettuce, chard, dodo (amaranthis), pumpkin leaves, cassava leaves, bean leaves, kales/sukumawiki, cowpea leaves or okra?	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8
E10A	Any indigenous vegetables such as eboo, allote, ekamalakang, ekoreete seeds and/or leaves, ngadekela seeds and/or leaves?	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8
E11	Any other vegetables, like cucumbers, tomatoes, cauliflower, cabbage, broccoli, eggplant, etc.?	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8
E12	Ripe mangoes, ripe papaya, melon, passionfruit or other fruits that are dark yellow or orange inside?	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8
E12A	Any indigenous fruits like ekoreete, ngadekela (white watermelon), ngimongo, ngakamuria, ngikajika, hgikaruka or ngalam?	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8
E13	Any other fruits like watermelon, tamarind, jackfruit, ngimongo, ngakamuria, ngikajika, hgikaruka, or ngalam?	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8
E14	Any liver, kidney, heart, blood or other organ meats from domesticated animals such as cow, pig, goat, chicken or duck?	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8
E15	Any meat from domesticated animals, such as beef, pork, lamb, goat, chicken, or duck?	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8
E16	Any organs from wild animals, such as game meat, bush rats, birds, wild pigeons, guinea fowl, deer, wild boar, wild goat?	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8
E17	Any flesh from wild animals, such as game meat, bush rats, birds, wild pigeons, guinea fowl, deer, wild boar, wild goat?	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8

Module E. Women's Nutrition, Breastfeeding and Antenatal Care (Women 15-49)

NO.	QUESTIONS AND FILTERS	WOMAN'S NAME	WOMAN'S NAME	WOMAN'S NAME
E18	Eggs?	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8
E19	Fresh or dried fish, shellfish or seafood?	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8
E20	Any foods made from beans, peas, lentils, peanuts or other legumes such as cowpeas, pigeon peas, green grams or simsim?	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8
E21	Any foods made from nuts and seeds such as pumpkin, sunflower seeds?	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8
E22	Milk, cheese, yogurt or other milk products?	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8
E23	Any shea nut oils, other oils, fats, butter or foods made with any of these?	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8
E24	Any sugary foods such as chocolates, sweets, candies, pastires, cakes or biscuits?	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8
E25	Condiments for flavor, such as chilies, spices, herbs, or fish powder?	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8
E26	Grubs, snails or insects?	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8
E27	Foods made with red palm oil, red palm nut, or red palm nut pulp sauce?	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8
	SPECIFIC TARGETED NUTRIENT-RICH COMMODITIES			
E27a	Any foods made from bio-fortified beans yesterday during the day or at night?	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8
E27b	Any foods made from bio-fortified sorghum or maize yesterday during the day or at night?	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8
E27c	Any orange flesh sweet potatoes (OFSP) or foods made with OFSP yesterday during the day or at night	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8	YES 1 NO 2 DON'T KNOW 8
	HISTORY OF PREGNANCIES AND BIRTHS			
E28	Now I would like to ask you about pregnancies and births you may have had. Are you currently pregnant?	YES 1 (SKIP TO E30) ← NO 2 DON'T KNOW 8	YES 1 (SKIP TO E30) ← NO 2 DON'T KNOW 8	YES 1 (SKIP TO E30) ← NO 2 DON'T KNOW 8
E29	Have you ever been pregnant?	YES 1 NO 2 (SKIP TO E45) ←	YES 1 NO 2 (SKIP TO E45) ←	YES 1 NO 2 (SKIP TO E45) ←
E30	Have you ever given birth?	YES 1 NO 2 (SKIP TO E45) ←	YES 1 NO 2 (SKIP TO E45) ←	YES 1 NO 2 (SKIP TO E45) ←
E31	When was the last time you gave birth to a boy or girl who was born alive? IF THE RESPONDENT DOES NOT KNOW THE BIRTHDATE ASK: Do you have a health/vaccination card for that child with the birthdate recorded? IF THE HEALTH/VACCINATION CARD IS SHOWN, RECORD THE DATE OF BIRTH AS DOCUMENTED ON THE CARD	Date of Last Live Birth DAY..... [][] If day is not known, enter '98' above MONTH..... [][] YEAR..... [][][][]	Date of Last Live Birth DAY..... [][] If day is not known, enter '98' above MONTH..... [][] YEAR..... [][][][]	Date of Last Live Birth DAY..... [][] If day is not known, enter '98' above MONTH..... [][] YEAR..... [][][][]
	CHECK ANSWER TO QUESTION E31. DID THE RESPONDENT'S LAST LIVE BIRTH OCCUR WITHIN THE PAST 5 YEARS, THAT IS, SINCE [INSERT MONTH OF INTERVIEW] 2012?	IF YES, THEN CONTINUE. IF NO, THEN SKIP TO E45	IF YES, THEN CONTINUE. IF NO, THEN SKIP TO E45	IF YES, THEN CONTINUE. IF NO, THEN SKIP TO E45
E32	What is the name of your child who was born on (DATE INDICATED IN E31)? ADD LINE NUMBER (B01) FROM HH ROSTER. WRITE 00 IF CHILD NOT IN HH.	NAME _____ LINE NUMBER (B01) [][]	NAME _____ LINE NUMBER (B01) [][]	NAME _____ LINE NUMBER (B01) [][]

Module E. Women's Nutrition, Breastfeeding and Antenatal Care (Women 15-49)				
NO.	QUESTIONS AND FILTERS	WOMAN'S NAME	WOMAN'S NAME	WOMAN'S NAME
ANTENATAL CARE AND CONTRACEPTIVE PREVALENCE				
E38	Did you see anyone for antenatal care during the pregnancy?	YES 1 NO 2 (SKIP TO E45) ←	YES 1 NO 2 (SKIP TO E45) ←	YES 1 NO 2 (SKIP TO E45) ←
E39	Whom did you see? Anyone else?	HEALTH PERSONNEL DOCTOR A NURSE B MIDWIFE C HEALTH OFFICIER D HEALTH EXTENSIO.WORKER.... WORKER E OTHER PERSON TRADITIONAL BIRTH ATTENDANT F OTHER PERSON X (SPECIFY)	HEALTH PERSONNEL DOCTOR A NURSE B MIDWIFE C HEALTH OFFICIER D HEALTH EXTENSIO.WORKER.... WORKER E OTHER PERSON TRADITIONAL BIRTH ATTENDANT F OTHER PERSON X (SPECIFY)	HEALTH PERSONNEL DOCTOR A NURSE B MIDWIFE C HEALTH OFFICIER D HEALTH EXTENSIO.WORKER.... WORKER E OTHER PERSON TRADITIONAL BIRTH ATTENDANT F OTHER PERSON X (SPECIFY)
E40	Where did you receive antenatal care for this pregnancy? Anywhere else? PROBE TO IDENTIFY EACH TYPE OF FACILITY AND RECORD ALL MENTIONED.	HOME YOUR HOME..... A OTHER HOME..... B PUBLIC SECTOR GOVT HOSPITAL..... C GOVT HEALTH CENTER/STATION..... D GOVT HEALTH POST E OTHER PUBLIC F (SPECIFY) NON-GOVT (NGO) SECTOR HEALTH FACILITY G OTHER NGO FACILITY H (SPECIFY) PRIVATE MED. SECTOR PVT. HOSPITAL I PVT. CLINIC J OTHER PRIVATE MED. K (SPECIFY) OTHER X (SPECIFY)	HOME YOUR HOME..... A OTHER HOME..... B PUBLIC SECTOR GOVT HOSPITAL..... C GOVT HEALTH CENTER/STATION..... D GOVT HEALTH POST E OTHER PUBLIC F (SPECIFY) NON-GOVT (NGO) SECTOR HEALTH FACILITY G OTHER NGO FACILITY H (SPECIFY) PRIVATE MED. SECTOR PVT. HOSPITAL I PVT. CLINIC J OTHER PRIVATE MED. K (SPECIFY) OTHER X (SPECIFY)	HOME YOUR HOME..... A OTHER HOME..... B PUBLIC SECTOR GOVT HOSPITAL..... C GOVT HEALTH CENTER/STATION..... D GOVT HEALTH POST E OTHER PUBLIC F (SPECIFY) NON-GOVT (NGO) SECTOR HEALTH FACILITY G OTHER NGO FACILITY H (SPECIFY) PRIVATE MED. SECTOR PVT. HOSPITAL I PVT. CLINIC J OTHER PRIVATE MED. K (SPECIFY) OTHER X (SPECIFY)
E41	How many months pregnant were you when you first received antenatal care during this pregnancy?	MONTHS	MONTHS	MONTHS
E42	How many times did you receive antenatal care during this pregnancy?	NUMBER OF TIMES	NUMBER OF TIMES	NUMBER OF TIMES
E43	At this time, do you know of a place where you can go to receive services for family planning? ?	YES 1 NO 2	YES 1 NO 2	YES 1 NO 2
E45	CHECK ANSWER TO QUESTION E28. IS THE WOMAN CURRENTLY PREGNANT?	IF YES, THEN SKIP TO E49A IF NO, THEN CONTINUE.	IF YES, THEN SKIP TO E49A IF NO, THEN CONTINUE.	IF YES, THEN SKIP TO E49A IF NO, THEN CONTINUE.
E47	Are you or your partner currently doing something or using any method to delay or avoid getting pregnant?	YES 1 NO 2 (SKIP TO E49A) ←	YES 1 NO 2 (SKIP TO E49A) ←	YES 1 NO 2 (SKIP TO E49A) ←
E48	Which method are you using? RECORD ALL MENTIONED. NOTE: MOON BEADS ARE LOCALLY USED FOR STANDARD DAYS METHOD	FEMALE STERILIZATION A MALE STERILIZATION B IUD.....C INJECTABLES D IMPLANTS.....E PILL.....F CONDOM.....G FEMALE CONDOM.....H EMERGENCY CONTRACEPTION I STANDARD DAYS METHOD J LACTATIONAL AMEN. METHOD.....K RHYTHM METHOD.....L WITHDRAWAL M OTHER MODERN METHOD N OTHER TRADITIONAL METHOD.....O	FEMALE STERILIZATION A MALE STERILIZATION B IUD.....C INJECTABLES D IMPLANTS.....E PILL.....F CONDOM.....G FEMALE CONDOM.....H EMERGENCY CONTRACEPTION I STANDARD DAYS METHOD J LACTATIONAL AMEN. METHOD.....K RHYTHM METHOD.....L WITHDRAWAL M OTHER MODERN METHOD N OTHER TRADITIONAL METHOD.....O	FEMALE STERILIZATION A MALE STERILIZATION B IUD.....C INJECTABLES D IMPLANTS.....E PILL.....F CONDOM.....G FEMALE CONDOM.....H EMERGENCY CONTRACEPTION I STANDARD DAYS METHOD J LACTATIONAL AMEN. METHOD.....K RHYTHM METHOD.....L WITHDRAWAL M OTHER MODERN METHOD N OTHER TRADITIONAL METHOD.....O
E49A	THERE ARE NO MORE QUESTIONS FOR THIS WOMAN.	GO TO E02A FOR NEXT WOMAN OR, IF NO MORE WOMEN, GO TO E49B.	GO TO E02A FOR NEXT WOMAN OR, IF NO MORE WOMEN, GO TO E49B.	GO TO E02A FOR NEXT WOMAN OR, IF NO MORE WOMEN, GO TO E49B.
E49B	INSERT TIME MODULE ENDED HOUR MINUTE → GO TO ANTHROPOMETRY			

CLUSTER CODE					HH NUMBER					AN00: START TIME		HOUR:				MINUTE:			
ANTHROPOMETRY - Children under 5 years of age																			
CHECK QUESTION D14 IN EACH COLUMN OF MODULE D. IF THE CHILD IS LESS THAN 5 YEARS OLD (D14= YES), THE CHILD SHOULD BE MEASURED. TRANSFER THE INFORMATION FOR EACH CHILD LESS THAN 5 YEARS OLD FROM MODULE D TO QUESTIONS D67 TO D72 BELOW.																			
CHILDREN LESS THAN 5 YEARS OF AGE										WEIGHT AND HEIGHT OF CHILDREN									
D67	D68	D69	D70	D71			D72	D73	D74	D75	D76	D77							
LINE NO. FROM HH ROSTER (B01)	NAME	SEX 1. MALE 2. FEMALE	AGE IN MONTHS	CHILD'S BIRTH DATE (DDMMYY)			SOURCE BIRTH DATE	HEIGHT (CM) 9994 = NOT PRESENT 9995 = REFUSED	HEIGHT MEASURED: 1. LAYING DOWN 2. STANDING UP	WEIGHT (KG) 9994 = NOT PRESENT 9995 = REFUSED	RESULT 1. MEASURED 2. NOT PRESENT 3. REFUSED 6. OTHER (explain in comments #1)	EDEMA 1. YES 2. NO							
D78: COMMENTS #1							<u>SOURCE OF BIRTH DATE</u> 1. BIRTH CERTIFICATE 4. HOME RECORD 2. BAPTISMAL/CHURCH RECORD 5. PARENT STATEMENT 3. HEALTH REGISTRATION CARD 6. OTHER _____												

Module J. Gender - Cash (All Men and Women who Earned Cash)				
NO.	QUESTIONS AND FILTERS	FIRST ELIGIBLE PERSON FROM ROSTER	SECOND ELIGIBLE PERSON FROM ROSTER	THIRD ELIGIBLE PERSON FROM ROSTER
J00	INSERT TIME MODULE STARTED	HOUR	MINUTE	
J01	CLUSTER CODE AND HOUSEHOLD NUMBER	CLUSTER	HH	
J02	MAN/WOMAN WHO EARNED CASH (B12 = 1 OR 2) FROM THE HOUSEHOLD ROSTER	LINE NO. (B01)	LINE NO. (B01)	LINE NO. (B01)
J03A	CHECK HOUSEHOLD ROSTER QUESTION B15 (MARITAL STATUS). IS RESPONDENT MARRIED OR LIVING TOGETHER (B15=1)?	YES 1 NO 2 GO TO J12 ←	YES 1 NO 2 GO TO J12 ←	YES 1 NO 2 GO TO J12 ←
J03B	OBTAIN CONSENT. DOES [NAME] AGREE TO PARTICIPATE IN THE SURVEY?	YES 1 NO 2 GO TO J12 ← NOT AVAILABLE 3	YES 1 NO 2 GO TO J12 ← NOT AVAILABLE 3	YES 1 NO 2 GO TO J12 ← NOT AVAILABLE 3
J04	RESPONDENT'S SEX FROM HOUSEHOLD ROSTER (B04)	MALE 1 FEMALE 2	MALE 1 FEMALE 2	MALE 1 FEMALE 2
J05	RESPONDENT'S AGE FROM HOUSEHOLD ROSTER (B05)	YEARS	YEARS	YEARS
J06	Have you done any work in the past 12 months? READ DEFINITION OF WORK FROM MODULE B.	YES 1 NO 2 GO TO J12 ←	YES 1 NO 2 GO TO J12 ←	YES 1 NO 2 GO TO J12 ←
J07	During the past 12 months, were you usually paid in cash or kind for this work or were you not paid at all?	CASH ONLY 1 CASH AND KIND 2 IN KIND ONLY 3 GO TO J12 ← NOT PAID 4	CASH ONLY 1 CASH AND KIND 2 IN KIND ONLY 3 GO TO J12 ← NOT PAID 4	CASH ONLY 1 CASH AND KIND 2 IN KIND ONLY 3 GO TO J12 ← NOT PAID 4
J08	When you were paid in cash for this work, was the payment usually made directly to you, to your spouse/partner or to someone else in your household? IF RESPONSE IS SOMEONE ELSE IN HH OR OTHER, THEN SPECIFY THE RELATIONSHIP TO THE RESPONDENT.	RESPONDENT 1 SPOUSE/PARTNER 2 SOMEONE ELSE IN HH 3 _____ (SPECIFY) OTHER 4 _____ (SPECIFY)	RESPONDENT 1 SPOUSE/PARTNER 2 SOMEONE ELSE IN HH 3 _____ (SPECIFY) OTHER 4 _____ (SPECIFY)	RESPONDENT 1 SPOUSE/PARTNER 2 SOMEONE ELSE IN HH 3 _____ (SPECIFY) OTHER 4 _____ (SPECIFY)
J09A	Do you usually discuss with someone about how the cash you earn will be used?	YES 1 NO 2 (SKIP TO J10) ←	YES 1 NO 2 (SKIP TO J10) ←	YES 1 NO 2 (SKIP TO J10) ←
J09B	With whom do you usually talk about how the cash you earn will be used? CIRCLE ALL THAT APPLY. FOR RESPONSES B AND C, SPECIFY THE RELATIONSHIP TO THE RESPONDENT.	SPOUSE/PARTNER A SOMEONE ELSE IN HH (SPECIFY RELATIONSHIP) OTHER B _____ C (SPECIFY)	SPOUSE/PARTNER AA SOMEONE ELSE IN HH (SPECIFY RELATIONSHIP) OTHER BB _____ CC (SPECIFY)	SPOUSE/PARTNER A SOMEONE ELSE IN HH (SPECIFY RELATIONSHIP) OTHER B _____ C (SPECIFY)
J10	Who usually decides how the cash you earn will be used? READ ALL RESPONSES AND SELECT ONLY ONE. FOR RESPONSES #4 AND #5, SPECIFY THE RELATIONSHIP TO THE RESPONDENT.	YOURSELF 1 SPOUSE/PARTNER 2 YOURSELF AND SPOUSE/PARTNER JOINTLY 3 YOURSELF AND OTHER JOINTLY 4 _____ (SPECIFY) OTHER 5 _____ (SPECIFY)	YOURSELF 1 SPOUSE/PARTNER 2 YOURSELF AND SPOUSE/PARTNER JOINTLY 3 YOURSELF AND OTHER JOINTLY 4 _____ (SPECIFY) OTHER 5 _____ (SPECIFY)	YOURSELF 1 SPOUSE/PARTNER 2 YOURSELF AND SPOUSE/PARTNER JOINTLY 3 YOURSELF AND OTHER JOINTLY 4 _____ (SPECIFY) OTHER 5 _____ (SPECIFY)
	CHECK RESPONSE TO QUESTION J04. IS THE RESPONDENT A FEMALE?	IF YES CONTINUE IF NO GO TO J11.	IF YES CONTINUE IF NO GO TO J11.	IF YES CONTINUE IF NO GO TO J11.
J10A	Has your spouse/partner done any work in the past 12 months? READ DEFINITION OF WORK FROM MODULE B.	YES 1 NO 2 GO TO J11 ← DON'T KNOW 9	YES 1 NO 2 GO TO J11 ← DON'T KNOW 9 GO TO J11	YES 1 NO 2 GO TO J11 ← DON'T KNOW 9
J10B	During the past 12 months, was he usually paid in cash or kind for this work or you not paid at all?	CASH ONLY 1 CASH AND KIND 2 IN KIND ONLY 3 GO TO J11 ← NOT PAID 4	CASH ONLY 1 CASH AND KIND 2 IN KIND ONLY 3 GO TO J11 ← NOT PAID 4	CASH ONLY 1 CASH AND KIND 2 IN KIND ONLY 3 GO TO J11 ← NOT PAID 4
J10C	Who usually decides how the cash he earns will be used? READ ALL RESPONSES AND SELECT ONLY ONE. FOR RESPONSES #4 AND #5, SPECIFY THE RELATIONSHIP TO THE RESPONDENT.	YOURSELF 1 SPOUSE/PARTNER 2 YOURSELF AND SPOUSE/PARTNER JOINTLY 3 YOURSELF AND OTHER JOINTLY 4 _____ (SPECIFY) OTHER 5 _____ (SPECIFY)	YOURSELF 1 SPOUSE/PARTNER 2 YOURSELF AND SPOUSE/PARTNER JOINTLY 3 YOURSELF AND OTHER JOINTLY 4 _____ (SPECIFY) OTHER 5 _____ (SPECIFY)	YOURSELF 1 SPOUSE/PARTNER 2 YOURSELF AND SPOUSE/PARTNER JOINTLY 3 YOURSELF AND OTHER JOINTLY 4 _____ (SPECIFY) OTHER 5 _____ (SPECIFY)

Module J. Gender - Cash (All Men and Women who Earned Cash)

NO.	QUESTIONS AND FILTERS	FIRST ELIGIBLE PERSON FROM ROSTER	SECOND ELIGIBLE PERSON FROM ROSTER	THIRD ELIBLE PERSON FROM ROSTER
J11	Who usually makes decisions about making major household purchases? READ ALL RESPONSES AND SELECT ONLY ONE. FOR RESPONSES #4 AND #5, SPECIFY THE RELATIONSHIP TO THE RESPONDENT.	YOURSELF 1 SPOUSE/PARTNER .. 2 YOURSELF AND SPOUSE/PARTNER JOINTLY 3 YOURSELF AND OTHER JOINTLY .. 4 _____ (SPECIFY) OTHER _____ 5 _____ (SPECIFY)	YOURSELF 1 SPOUSE/PARTNER .. 2 YOURSELF AND SPOUSE/PARTNER JOINTLY 3 YOURSELF AND OTHER JOINTLY .. 4 _____ (SPECIFY) OTHER _____ 5 _____ (SPECIFY)	YOURSELF 1 SPOUSE/PARTNER .. 2 YOURSELF AND SPOUSE/PARTNER JOINTLY 3 YOURSELF AND OTHER JOINTLY .. 4 _____ (SPECIFY) OTHER _____ 5 _____ (SPECIFY)
J12	THERE ARE NO MORE QUESTIONS FOR THIS CASH EARNER.	GO TO J02 FOR NEXT CASH EARNER, OR J13 IF NO MORE CASH EARNERS	GO TO J02 FOR NEXT CASH EARNER, OR J13 IF NO MORE CASH EARNERS	GO TO J02 FOR NEXT CASH EARNER, OR J13 IF NO MORE CASH EARNERS
J13	INSERT TIME MODULE ENDED	HOUR	MINUTE	→ GO TO MODULE K

Module K. Gender - MCHN (All Men and Women with Child Under 2 Years)

NO.	QUESTIONS AND FILTERS	FIRST ELIGIBLE PERSON FROM ROSTER	SECOND ELIGIBLE PERSON FROM ROSTER	THIRD ELIGIBLE PERSON FROM ROSTER
K00	INSERT TIME MODULE STARTED	HOUR	MINUTE	
K01	CLUSTER CODE AND HOUSEHOLD NUMBER	CLUSTER	HH	
K02A	MAN/WOMAN WITH A CHILD UNDER 2 YEARS (B13=1) FROM THE HOUSEHOLD ROSTER	LINE NO. (B01)	LINE NO. (B01)	LINE NO. (B01)
K02B	OBTAIN CONSENT. DOES [NAME] AGREE TO PARTICIPATE IN THE SURVEY?	YES 1 NO 2 SKIP TO K17 ← NOT AVAILABLE 3	YES 1 NO 2 SKIP TO K17 ← NOT AVAILABLE 3	YES 1 NO 2 SKIP TO K17 ← NOT AVAILABLE 3
K03	RESPONDENT'S SEX FROM HOUSEHOLD ROSTER (B04)	MALE 1 FEMALE 2	MALE 1 FEMALE 2	MALE 1 FEMALE 2
K04A	RESPONDENT'S AGE FROM HOUSEHOLD ROSTER (B05)	YEARS	YEARS	YEARS
K04B	RESPONDENT'S MARITAL STATUS FROM HOUSEHOLD ROSTER (B15)	MARITAL STATUS	MARITAL STATUS	MARITAL STATUS
K05	Do you have a child under 2 years of age living in the household?	YES 1 NO 2 GO TO K17 ←	YES 1 NO 2 GO TO K17 ←	YES 1 NO 2 GO TO K17 ←
K06	What is the name of your (youngest) child under 2 years of age? ADD LINE NUMBER (B01) FROM HH ROSTER	NAME _____ LINE NO. (B01)	NAME _____ LINE NO. (B01)	NAME _____ LINE NO. (B01)
K07	How many times should a pregnant woman go for antenatal check-ups during the pregnancy?	NUMBER OF TIMES DON'T KNOW 98	NUMBER OF TIMES DON'T KNOW 98	NUMBER OF TIMES DON'T KNOW 98
K08	In your opinion, do you think pregnant women, overall, need to eat more, less or the same amount of food as they did before they got pregnant?	MORE 1 LESS 2 SAME 3 DON'T KNOW 8	MORE 1 LESS 2 SAME 3 DON'T KNOW 8	MORE 1 LESS 2 SAME 3 DON'T KNOW 8
K09	How long after birth should a mother first put her baby to the breast?	IMMEDIATELY 1 LESS THAN 1 HOUR 2 AFTER DELIVERY 2 SOME HRS LATER BUT LESS THAN 24 HRS 3 1 DAY LATER 4 MORE THAN 1 DAY LATER 5 BABY SHOULD NOT BE BREASTFED 6 DON'T KNOW 8	IMMEDIATELY 1 LESS THAN 1 HOUR 2 AFTER DELIVERY 2 SOME HRS LATER BUT LESS THAN 24 HRS 3 1 DAY LATER 4 MORE THAN 1 DAY LATER 5 BABY SHOULD NOT BE BREASTFED 6 DON'T KNOW 8	IMMEDIATELY 1 LESS THAN 1 HOUR 2 AFTER DELIVERY 2 SOME HRS LATER BUT LESS THAN 24 HRS 3 1 DAY LATER 4 MORE THAN 1 DAY LATER 5 BABY SHOULD NOT BE BREASTFED 6 DON'T KNOW 8
K10	At what age should a breast-fed child be introduced to semi-solid or solid foods?	AGE IN MONTHS DON'T KNOW 98	AGE IN MONTHS DON'T KNOW 98	AGE IN MONTHS DON'T KNOW 98
K11	Can you please list the benefits of waiting at least two years after the last live birth before attempting the next pregnancy? DO NOT READ THE ANSWERS. IF THE RESPONDENT INDICATES THAT S/HE DOES NOT KNOW DO NOT PROBE FOR ADDITIONAL RESPONSES. CIRCLE ALL THAT APPLY. AFTER RECORDING ALL RESPONSES, PROBE TWICE ASKING FOR ANY OTHER BENEFITS.	REDUCED RISK OF MATERNAL DEATH A REDUCED RISK OF CHILD DEATH B REDUCED RISK OF MISCARRIAGE C REDUCED RISK OF PREMATURE DELIVERY D CHILD WILL GROW HEALTHIER E HEALTH OF OTHER CHILDREN F ECONOMIC BENEFIT G INCREASED EDUCATION FOR OTHER CHILDREN H OTHER X (SPECIFY) DON'T KNOW Y	REDUCED RISK OF MATERNAL DEATH A REDUCED RISK OF CHILD DEATH B REDUCED RISK OF MISCARRIAGE C REDUCED RISK OF PREMATURE DELIVERY D CHILD WILL GROW HEALTHIER E HEALTH OF OTHER CHILDREN F ECONOMIC BENEFIT G INCREASED EDUCATION FOR OTHER CHILDREN H OTHER X (SPECIFY) DON'T KNOW Y	REDUCED RISK OF MATERNAL DEATH A REDUCED RISK OF CHILD DEATH B REDUCED RISK OF MISCARRIAGE C REDUCED RISK OF PREMATURE DELIVERY D CHILD WILL GROW HEALTHIER E HEALTH OF OTHER CHILDREN F ECONOMIC BENEFIT G INCREASED EDUCATION FOR OTHER CHILDREN H OTHER X (SPECIFY) DON'T KNOW Y

Module K. Gender - MCHN (All Men and Women with Child Under 2 Years)

NO.	QUESTIONS AND FILTERS	FIRST ELIGIBLE PERSON FROM ROSTER	SECOND ELIGIBLE PERSON FROM ROSTER	THIRD ELIGIBLE PERSON FROM ROSTER
	CHECK K04B ABOVE, MARITAL STATUS IS PERSON MARRIED/LIVING TOGETHER (K04B=1)?	YES 1 NO 2 GO TO K17	YES 1 NO 2 GO TO K17	YES 1 NO 2 GO TO K17
K12	IF FEMALE RESPONDENT ASK: Is there someone with whom you usually discuss your spouse/partner's or [NAME OF INDEX CHILD]'s health and nutrition? IF MALE RESPONDENT ASK: Is there someone with whom you usually discuss your spouse/partner's or [NAME OF INDEX CHILD]'s health and nutrition?	YES 1 NO 2 (SKIP TO K14)	YES 1 NO 2 (SKIP TO K14)	YES 1 NO 2 (SKIP TO K14)
K13	With whom do you usually discuss this? CIRCLE ALL THAT APPLY. FOR RESPONSES B AND C, SPECIFY THE RELATIONSHIP TO THE RESPONDENT.	SPOUSE/PARTNER A SOMEONE ELSE IN HH (SPECIFY RELATIONSHIP) OTHER B C (SPECIFY)	SPOUSE/PARTNER A SOMEONE ELSE IN HH (SPECIFY RELATIONSHIP) OTHER B C (SPECIFY)	SPOUSE/PARTNER A SOMEONE ELSE IN HH (SPECIFY RELATIONSHIP) OTHER B C (SPECIFY)
K14	~~IF FEMALE RESPONDENT ASK:~~ Who usually makes decisions about your health and nutrition? ~~IF MALE RESPONDENT ASK:~~ Who usually makes decisions about your spouse/partner's health and nutrition? READ ALL RESPONSES AND SELECT ONLY ONE. FOR RESPONSES #4 AND #5, SPECIFY THE RELATIONSHIP TO THE RESPONDENT.	Yourself 1 Spouse/partner 2 Yourself and Spouse/partner Jointly 3 Yourself and other jointly 4 (SPECIFY) Other 5 (SPECIFY)	Yourself 1 Spouse/partner 2 Yourself and Spouse/partner Jointly 3 Yourself and other jointly 4 (SPECIFY) Other 5 (SPECIFY)	Yourself 1 Spouse/partner 2 Yourself and Spouse/partner Jointly 3 Yourself and other jointly 4 (SPECIFY) Other 5 (SPECIFY)
K15	Who usually makes decisions about [NAME OF INDEX CHILD]'s health and nutrition? READ ALL RESPONSES AND SELECT ONLY ONE. FOR RESPONSES #4 AND #5, SPECIFY THE RELATIONSHIP TO THE RESPONDENT.	Yourself 1 Spouse/partner 2 Yourself and Spouse/partner Jointly 3 Yourself and other jointly 4 (SPECIFY) Other 5 (SPECIFY)	Yourself 1 Spouse/partner 2 Yourself and Spouse/partner Jointly 3 Yourself and other jointly 4 (SPECIFY) Other 5 (SPECIFY)	Yourself 1 Spouse/partner 2 Yourself and Spouse/partner Jointly 3 Yourself and other jointly 4 (SPECIFY) Other 5 (SPECIFY)
K16	Who usually makes decisions about making major household purchases? READ ALL RESPONSES AND SELECT ONLY ONE. FOR RESPONSES #4 AND #5, SPECIFY THE RELATIONSHIP TO THE RESPONDENT.	Yourself 1 Spouse/partner 2 Yourself and Spouse/partner Jointly 3 Yourself and other jointly 4 (SPECIFY) Other 5 (SPECIFY)	Yourself 1 Spouse/partner 2 Yourself and Spouse/partner Jointly 3 Yourself and other jointly 4 (SPECIFY) Other 5 (SPECIFY)	Yourself 1 Spouse/partner 2 Yourself and Spouse/partner Jointly 3 Yourself and other jointly 4 (SPECIFY) Other 5 (SPECIFY)
K17	THERE ARE NO MORE QUESTIONS FOR THIS RESPONDENT.	GO TO K02A FOR NEXT RESPONDENT, OR K18 IF NO MORE RESPONDENTS	GO TO K02A FOR NEXT RESPONDENT, OR K18 IF NO MORE RESPONDENTS	GO TO K02A FOR NEXT RESPONDENT, OR K18 IF NO MORE RESPONDENTS
K18	INSERT TIME MODULE ENDED	HOUR	MINUTE	→ GO TO MODULE R

MODULE H. POVERTY MEASUREMENT

HOUSEHOLD NUMBER FROM MODULE A

INSERT TIME MODULE STARTED

CLUSTER NUMBER FROM MODULE A

HOUR

INFORMANT'S LINE NUMBER IN HOUSEHOLD ROSTER (COLUMN 6)

MINUTES

MODULE H1. FOOD, BEVERAGES AND TOBACCO CONSUMPTION OVER PAST 7 DAYS

ITEM CODE	PRODUCT	YES = 1 NO = 2	FOOD CONSUMPTION OVER PAST 7 DAYS	FROM PURCHASES	TOTAL SPENT	FROM AGRICULTURAL PRODUCTION	ESTIMATED COST	FROM GIFTS AND OTHER SOURCES	ESTIMATED COST				
	Over the past one week (7 days), did you or others in your household eat any [ITEM]? INCLUDE FOOD BOTH EATEN COMMUNALLY IN THE HOUSEHOLD AND SEPARATELY BY INDIVIDUAL HOUSEHOLD MEMBERS. DO NOT INCLUDE FOOD OR DRINKS EATEN IN RESTAURANTS.	IF "NO" SKIP TO NEXT ITEM	How much in total did your household eat in the past week?	How much from [ITEM] came from purchases? (IF H1.04A =0 THEN SKIP TO H1.06A)	How much did you spend on what was eaten last week? If the family ate part but not all of something they purchased, estimate only cost of what was consumed.	How much came from own production? (IF H1.06A =0 THEN SKIP TO H1.07A)	Please tell me how much it would have cost to buy that much [FOOD ITEM] if you had to purchase it in the market today.	How much came from gifts and other sources? (IF H1.07A =0 THEN SKIP TO NEXT ITEM)	Please tell me how much it would have cost to buy that much [FOOD ITEM] if you had to purchase it in the market today.				
H1.01		H1.02	H1.03A QUANTITY	H1.03B UNIT	H1.04A QUANTITY	H1.04B UNIT	H1.05 SHILLING/UGX	H1.06A QUANTITY	H1.06B UNIT	H1.06C SHILLING/UGX	H1.07A QUANTITY	H1.07B UNIT	H1.07C SHILLING/UGX
101	Matooke	1 2											
105	Sweet Potatoes	1 2											
107	Cassava	1 2											
109	Irish Potatoes	1 2											
110	Rice	1 2											
111	Maize	1 2											
114	Bread	1 2											
115	Millet	1 2											
116	Sorghum	1 2											
119	Goat Meat	1 2											
120	Other Meat	1 2											
121	Chicken	1 2											
122	Fish	1 2											
124	Eggs	1 2											
125	Fresh Milk	1 2											
126	Infant Formula Foods	1 2											
127	Cooking oil	1 2											
129	Margarine, Butter, Ghee, etc	1 2											
130	Fruits	1 2											
			UNIT CODES Kilogramme ... 1 50 kg. Bag ... 2 90 kg. Bag ... 3 Pail (small) ... 4 Pail (large) ... 5 No. 10 plate ... 6 NO.12 PLATE ... 7 BUNCH ... 8 PIECE ... 9 HEAP ... 10 BALE ... 11 NO.10 PLATE ... 12 BASKET (DENGU) (SHELLED) ... 12 BASKET (DENGU) (UNSHELLED) ... 13 OX-CART (UNSHELLED) ... 14 LITRE ... 15 CUP ... 16 TIN ... 17 GRAM ... 18 MILLILITRE ... 19 TEASPOON ... 20 BASIN ... 21 SATCHET/TUBE ... 22 TOTAL ... 23 OTHER ... 96 (SPECIFY)										
			Bags: Uganda normally uses 100kg bags.										

MODULE H1. FOOD, BEVERAGES AND TOBACCO CONSUMPTION OVER PAST 7 DAYS

ITEM CODE	PRODUCT	YES = 1 NO = 2	FOOD CONSUMPTION OVER PAST 7 DAYS		FROM PURCHASES		TOTAL SPENT	FROM AGRICULTURAL PRODUCTION		ESTIMATED COST	FROM GIFTS AND OTHER SOURCES		ESTIMATED COST
	Over the past one week (7 days), did you or others in your household eat any [ITEM]? INCLUDE FOOD BOTH EATEN COMMUNALLY IN THE HOUSEHOLD AND SEPARATELY BY INDIVIDUAL HOUSEHOLD MEMBERS. DO NOT INCLUDE FOOD OR DRINKS EATEN IN RESTAURANTS.	IF "NO" SKIP TO NEXT ITEM	How much in total did your household eat in the past week?		How much from [ITEM] came from purchases? (IF H1.04A =0 THEN SKIP TO H1.06A)		How much did you spend on what was eaten last week? If the family ate part but not all of something they purchased, estimate only cost of what was consumed.	How much came from own production? (IF H1.06A =0 THEN SKIP TO H1.07A)		Please tell me how much it would have cost to buy that much [FOOD ITEM] if you had to purchase it in the market today.	How much came from gifts and other sources? (IF H1.07A =0 THEN SKIP TO NEXT ITEM)		Please tell me how much it would have cost to buy that much [FOOD ITEM] if you had to purchase it in the market today.
H1.01		H1.02	H1.03A QUANTITY	H1.03B UNIT	H1.04A QUANTITY	H1.04B UNIT	H1.05 SHILLING/UGX	H1.06A QUANTITY	H1.06B UNIT	H1.06C SHILLING/UGX	H1.07A QUANTITY	H1.07B UNIT	H1.07C SHILLING/UGX
135	Onions	1 2											
136	Tomatoes	1 2											
139	Other vegetables	1 2											
140	Beans	1 2											
142	Ground nuts	1 2											
145	Peas	1 2											
146	Sim sim	1 2											
147	Sugar	1 2											
148	Coffee	1 2											
149	Tea	1 2											
150	Salt	1 2											
151	Soda (NOT AT RESTAURANTS)	1 2											
152	Alcoholic Drinks (NOT AT RESTAURANTS)	1 2											
154	Other drinks	1 2											
155	Cigarettes	1 2											
156	Other Tobacco	1 2											
	EXPENDITURE AT RESTAURANTS												
157	Food	1 2											
158	Drinks	1 2											
	OTHER FOOD NOT LISTED												
161	SPECIFY _____	1 2											
161	SPECIFY _____	1 2											
161	SPECIFY _____	1 2											
			UNIT CODES										
			Kilogramme . . . 1	NO.12 PLATE . 7	BASKET (DENGU)	LITRE. 15	BASIN. 21						
			50 kg. Bag . . . 2	BUNCH. 8	(SHELLED). . . . 12	CUP. 16	SATCHET/TUBE. . 22						
			90 kg. Bag . . . 3	PIECE. 9	BASKET (DENGU)	TIN. 17	TOTAL 23						
			Pail (small) . . . 4	HEAP 10	(UNSHELLED) . . 13	GRAM 18	OTHER _____ 96						
			Pail (large) . . . 5	BALE 11	OX-CART	MILLILITRE . . . 19	(SPECIFY)						
			No. 10 plate . . . 6		(UNSHELLED) . . 14	TEASPOON. . . . 20							

MODULE H2. NON-DURABLE GOODS AND FREQUENTLY PURCHASED SERVICES OVER PAST MONTH

H2.01	HOUSEHOLD AND CLUSTER NUMBER		
	HH.		VN.
H2.02	LINE NUMBER IN THE HOUSEHOLD LISTING (COLUMN 10) OF HEAD OF HOUSEHOLD OR RESPONSIBLE ADULT		
ITEM NO.	QUESTIONS FOR A REFERENCE PERIOD OF ONE MONTH	CODING CATEGORIES	COST IN SHILLING/UGX
	Over the past <u>one month</u> , did your household use or buy any [ITEM]:		How much did you pay (how much did they cost) in total?
	HOUSE/FUEL/POWER		
304	Maintenance and repair expenses?	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
305	Water?	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
306	Electricity?	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
307	Generators/lawn mower fuels?	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
308	Paraffin (Kerosene)?	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
309	Charcoal?	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
310	Firewood?	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
311	Other expenditures? What?	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
	NON-DURABLE OR PESONAL GOODS		
451	Matches?	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
452	Soap?	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
453	Sanitary towels?	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
454	Tooth paste?	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
455	Cosmetics?	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
456	Handbags, travel bags, etc?	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
457	Batteries (Dry cells)?	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____

MODULE H2. NON-DURABLE GOODS AND FREQUENTLY PURCHASED SERVICES OVER PAST MONTH			
H2.01	HOUSEHOLD AND CLUSTER NUMBER HH. VN.		
H2.02	LINE NUMBER IN THE HOUSEHOLD LISTING (COLUMN 10) OF HEAD OF HOUSEHOLD OR RESPONSIBLE ADULT		
ITEM NO.	QUESTIONS FOR A REFERENCE PERIOD OF ONE MONTH	CODING CATEGORIES	COST IN SHILLING/UGX
	Over the past <u>one month</u> , did your household use or buy any [ITEM]:		How much did you pay (how much did they cost) in total?
458	Newspapers and Magazines?	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
459	Security protection (weapons, bows, bullets, etc.)	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
460	Other non-durable and personal goods? What?	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
TRANSPORT AND COMMUNICATION			
461	Tires, tubes, spares, etc	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
462	Petrol, diesel etc	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
463	Transport Fares (taxi, bus, boda boda)?	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
466	Stamps, envelopes?	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
467	Phone fees (fixed/ mobile phones)?	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
469	Mobile money fees	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
471	Other transport and communications expenditures? What? LIST EXPENDITURE _____ LIST EXPENDITURE _____	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____ _____
HEALTH AND MEDICAL CARE			
501	Health and medical care services?	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
502	Medicines, etc?	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
OTHER SERVICES			
601	Sports, theaters, etc?	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____

MODULE H2. NON-DURABLE GOODS AND FREQUENTLY PURCHASED SERVICES OVER PAST MONTH

H2.01	HOUSEHOLD AND CLUSTER NUMBER		
	HH.		VN.
H2.02	LINE NUMBER IN THE HOUSEHOLD LISTING (COLUMN 10) OF HEAD OF HOUSEHOLD OR RESPONSIBLE ADULT		
ITEM NO.	QUESTIONS FOR A REFERENCE PERIOD OF ONE MONTH	CODING CATEGORIES	COST IN SHILLING/UGX
	Over the past <u>one month</u> , did your household use or buy any [ITEM]:		How much did you pay (how much did they cost) in total?
602	Dry cleaning and laundry?	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
603	Houseboys/ girls, Shamba boys etc?	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
604	Barber and beauty shops?	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
605	Expenses in hotels, lodging, etc?	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
606	Other expenditures? What?	YES 1 NO 2	TOTAL COST
	LIST EXPENDITURE _____		_____
	LIST EXPENDITURE _____	(NEXT MODULE)	_____

MODULE H3. NON-FOOD EXPENDITURES OVER PAST 12 MONTHS			
ITEM NO.	QUESTIONS AND FILTERS (ONE YEAR REFERENCE)	CODING CATEGORIES	TOTAL COST IN SHILLING/UGX
	Over the past <u>twelve months</u> (one year), did your household use or buy any [ITEM]:		How much did you pay (how much did they cost) in total?
	CLOTHING AND FOOTWEAR		
201	Clothing (mens, womens, childrens)	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
202	Other clothing and clothing materials	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
203	Tailoring and Materials	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
204	Footwear (mens, womens, childrens)	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
205	Other Footwear and repairs	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
	FURNITURE, CARPET, FURNISHING, ETC.		
301	Furniture Items	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
302	Carpets, mats, etc.	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
303	Bedding (curtains, bed sheets, mattresses, blankets, etc.)	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
304	Others and Repairs	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
	HOUSEHOLD APPLIANCES AND EQUIPMENT		
401	Charcoal and Kerosene Stoves	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
402	Electronic Appliances or Equipment (iron, kettle, TV, etc.) EXCLUDE RADIOS - COVERED UNDER ITEM 404.	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
403	Transport equipment (bicycles, motor cycles, motors, pick-ups, etc.)	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
404	Radio	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
405	Computers for household use	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____

MODULE H3. NON-FOOD EXPENDITURES OVER PAST 12 MONTHS			
ITEM NO.	QUESTIONS AND FILTERS (ONE YEAR REFERENCE)	CODING CATEGORIES	TOTAL COST IN SHILLING/UGX
	Over the past <u>twelve months</u> (one year), did your household use or buy any [ITEM]:		How much did you pay (how much did they cost) in total?
406	Phone Handsets (both fixed and mobile)	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
407	Agricultural tools	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
408	Security/protection - weapons, bows, bullets	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
409	Other equipment and repairs	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
410	Jewelry, Watches, etc	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
	GLASS/TABLEWARE/UTENSILS, ETC		
501	Plastics (basins, plates, tumblers, buckets, jerry canes)	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
504	Enamel and metallic utensils	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
505	Switches, plugs, cables, etc	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
506	Others and repairs	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
	EDUCATION EXPENDITURES		
601	Educational expenses (fees, PTA, boarding, uniforms, books & supplies)	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
602	Other educational expenses	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
	SERVICES NOT ELSEWHERE SPECIFIED		
701	Expenditure on household functions	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
702	Expenditure on agricultural services	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
703	Other services N.E.S.	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____

MODULE H3. NON-FOOD EXPENDITURES OVER PAST 12 MONTHS			
ITEM NO.	QUESTIONS AND FILTERS (ONE YEAR REFERENCE)	CODING CATEGORIES	TOTAL COST IN SHILLING/UGX
	Over the past <u>twelve months</u> (one year), did your household use or buy any [ITEM]:		How much did you pay (how much did they cost) in total?
	NON-CONSUMPTION EXPENDITURES		
801	Taxes (income, local services, etc.)	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
802	Property rates (taxes)	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
803	User fees and charges	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
805a	Pension and social security payments	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
805b	Insurance premiums	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
806	Remittances, gifts, and other transfers	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
807	Funerals and other social functions	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
808	Interest on Loans	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
809	Dowry and/or debt payments	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
810	Animal sales letter/market fee	YES 1 NO 2 (NEXT ITEM)	TOTAL COST _____
811	Other expenditures, what? LIST EXPENDITURE _____ LIST EXPENDITURE _____	YES 1 (GO TO NEXT MODULE)	TOTAL COST _____ _____

MODULE H4. HOUSING EXPENDITURES

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
101	Do you own or are you purchasing this house, is it provided to you by an employer, do you use it for free, or do you rent this house?	OWN 01 BEING PURCHASED 02 EMPLOYER PROVIDES 03 FREE, AUTHORIZED 04 FREE, NOT AUTHORIZED 05 RENTED 06 OTHER 96 (SPECIFY) DON'T KNOW/NO RESPONSE/ NOT APPLICABLE 98	 → 104 → 104 → 104 → 105 → 104 → H5
102	If you <u>sold this dwelling today</u> , how much would you receive for it?	SHILLING/UGX DON'T KNOW/NO RESPONSE/ NOT APPLICABLE 98	
103	How many years ago was this house built? How old is it?	YEARS. DON'T KNOW 98	
104	If you <u>rented this dwelling today</u> , how much rent would you receive?	SHILLING/UGX DAY 1 WEEK 2 MONTH 3 YEAR 4 DON'T KNOW/NO RESPONSE/ NOT APPLICABLE 8	 → H5 → H5 → H5 → H5 → H5
105	How much do you pay to rent this dwelling?	SHILLING/UGX DAY 1 WEEK 2 MONTH 3 YEAR 4 DON'T KNOW/NO RESPONSE/ NOT APPLICABLE 8	

MODULE H5. VALUE OF ASSETS							
ITEM CODE	PRODUCT	YES = 1 NO = 2	NUMBER OF UNITS OF EACH ITEM	AGE OF ITEMS	PRICE IF SOLD	ITEMS BOUGHT IN LAST 12 MONTHS	AMOUNT PAID FOR ALL ITEMS BOUGHT IN THE LAST 12 MONTHS
	Does your household own a [ITEM]? CIRCLE 1 (YES) OR 2 (NO) IN THE FOLLOWING COLUMN. IF THE ANSWER IS "NO" ASK THE QUESTIONS FOR THE FOLLOWING ITEM.		How many [ITEMS] do you own?	What is the age of these [ITEM]s? IF MORE THAN ONE ITEM, AVERAGE AGE	If you wanted to sell one of these [ITEM]s today, how much would you receive? IF MORE THAN ONE ITEM, AVERAGE VALUE	Did you purchase or pay for any of these [ITEM]s in the last 12 months? "NO": CIRCLE "2" AND GO TO NEXT ITEM.	How much did you pay for all these [ITEM]s all together (total) in the last 12 months?
H5.1		H5.2	H5.3 NUMBER OF ITEMS	H5.4 NUMBER OF YEARS	H5.5 SHILLING/UGX	H5.6	H5.7 SHILLING/UGX
02	Other Buildings besides House	1 2				1 2	
03	Land	1 2				1 2	
04	Furniture/Furnishings	1 2				1 2	
05	Household Appliances e.g. Kettle, Flat iron, etc.	1 2				1 2	
06	Television	1 2				1 2	
07	Radio/Cassette	1 2				1 2	
08	Generators	1 2				1 2	
09	Solar panel/electric inverters	1 2				1 2	
10	Bicycle	1 2				1 2	
11	Motor cycle	1 2				1 2	
12	Motor vehicle	1 2				1 2	
13	Boat	1 2				1 2	
14	Other Transport equipment	1 2				1 2	
15	Jewelry and Watches	1 2				1 2	
16	Mobile phone	1 2				1 2	
17	Computer	1 2				1 2	
18	Internet Access	1 2				1 2	
19	Other electronic equipment	1 2				1 2	
20	Solar lanterns/chargers	1 2				1 2	
21	Fuel efficient stoves (charcoal or kerosene)	1 2				1 2	
22	Mosquito nets	1 2				1 2	
23	Other household assets e.g. lawn mowers, etc.	1 2				1 2	
24	Other, what? _____	1 2				1 2	
25	Other, what? _____	1 2				1 2	
33	Other, what? _____	1 2				1 2	
H5.8	INSERT TIME MODULE ENDED		HOUR		MINUTE		

INTERVIEWER'S OBSERVATIONS

TO BE FILLED IN AFTER COMPLETING INTERVIEW

COMMENTS ABOUT RESPONDENT:

COMMENTS ON SPECIFIC QUESTIONS:

ANY OTHER COMMENTS:

SUPERVISOR'S OBSERVATIONS

NAME OF TEAM LEADER: _____ DATE: _____

EDITOR'S OBSERVATIONS

NAME OF EDITOR: _____ DATE: _____

MODULE L. GENDER – HOUSEHOLD DECISION-MAKING, ACCESS TO CREDIT AND GROUP PARTICIPATION

Enumerator: This questionnaire should be administered separately to the primary and secondary respondents identified in the household questionnaire. You should complete this coversheet for each individual identified in the “selection section” even if the individual is not available to be interviewed for reporting purposes.

Please double check to ensure:

- You have completed the roster section of the household questionnaire to identify the correct primary and/or secondary respondent(s);
- You have noted the household number and line number correctly for the person you are about to interview;
- You have gained informed consent for the individual in the household questionnaire;
- You have sought to interview the individual in private or where other members of the household cannot overhear or contribute answers.
- Do not attempt to make responses between the primary and secondary respondent the same—it is ok for them to be different.

MODULE 1. INDIVIDUAL IDENTIFICATION

	Code		Code
1.01. Household Number:		1.08. Type of household	Male and female adult 1 Female adult only.....2 Male adult only.....3 Child only (no adults 18 or older)...4
1.02. Cluster number		1.09a. Name of respondent currently being interviewed (Line number from Module B, Household Roster): Surname, First Name	
1.05 District Number	KAABONG 1 KOTIDO 2 ABIM 3 MOROTO.....4 NAPAK..... 5 NAKAPIRITPIRIT..... 6 AMUDAT..... 7	1.09b. Sex of Respondent	Male 1 Female 2
		1.10. Outcome of interview	Completed 1 Incomplete 2 Absent..... 3 Refused 4 Could not locate..... 5
		1.11. Ability to be interviewed alone:	Alone 1 With adult females present 2 With adult males present 3 With adults mixed sex present. ...4 With children present..... 5 With adults mixed sex and children present..... 6
1.06. Primary Decision-Maker Name and ID (from Module A and B)			
1.07. Secondary Decision-Maker Name and ID (from Module A and B)			

The primary and secondary decision makers are those who self-identify as the primary male and female (or female only) members responsible for the decision making, both social and economic, within the household. In Male and Female Adult Households, they are usually the husband and wife; however they can also be other household members as long as they are aged 18 and over. In Female Adult Only households, there will only be one Primary Decision-Maker -- the principal female decision-maker aged 18 or older. Primary and Secondary Decision-Makers do not need to be noted for Male Adult Only and Child Only Households, and the WEAI should not be applied in Male Adult Only and Child Only Households.

MODULE 2: ROLE IN HOUSEHOLD DECISION-MAKING AROUND PRODUCTION AND INCOME GENERATION

Activity		Did you (singular) participate in [ACTIVITY] in the past 12 months?	How much input did you have in making decisions about [ACTIVITY]?	How much input did you have in decisions on the use of income generated from [ACTIVITY]
Activity Code	Activity Description	2.01	2.02	2.03
A	Food crop farming: crops that are grown primarily for household food consumption	1	1 2 3 4 5 6	1 2 3 4 5 6
B	Cash crop farming: crops that are grown primary for sale in the market	1	1 2 3 4 5 6	1 2 3 4 5 6
C	Livestock raising (including beekeeping)	1	1 2 3 4 5 6	1 2 3 4 5 6
D	Non-farm economic activities: Small business, self-employment, buy-and-sell	1	1 2 3 4 5 6	1 2 3 4 5 6
E	Wage and salary employment: in-kind or monetary work both agriculture and other wage work	1	1 2 3 4 5 6	1 2 3 4 5 6
F	Fishing or fishpond culture	1	1 2 3 4 5 6	1 2 3 4 5 6

GO TO MODULE 3

MODULE 3: ACCESS TO CREDIT

3.01	Have you taken out a cash loan in the last 12 months?	1. Yes → 3.07A 2. No 8 Don't know → 3.07A
3.02	Why not? CONTINUE TO 3.07A	01. Didn't need 02. Couldn't find a loan that met my needs" (i.e. "is appropriate" in terms of size, terms, etc.); 03. Afraid I couldn't pay back 04. No loan providers in my area 05. Other (specify) 98 Don't know

Lending sources		Has anyone in your household taken any loans or borrowed cash/in-kind from [SOURCE] in the past 12 months? Yes, cash.....1 Yes, in-kind.....2 Yes, cash and in-kind.....3 No.....4 Don't know.....5 } Go to next item	Who made the decision to borrow from [SOURCE]?	Who makes the decision about what to do with the money/ item borrow from [SOURCE]?
Lending source names		3.07	3.08	3.09
A	Non-governmental organization (NGO)	1 2 3 → 3.08 4 5 → next item	1 2 3 4 5 6 7 8 9 10	1 2 3 4 5 6 7 8 9 10
B	Informal lender	1 2 3 → 3.08 4 5 → next item	1 2 3 4 5 6 7 8 9 10	1 2 3 4 5 6 7 8 9 10
C	Formal lender (bank/financial institution)	1 2 3 → 3.08 4 5 → next item	1 2 3 4 5 6 7 8 9 10	1 2 3 4 5 6 7 8 9 10
D	Friends or relatives	1 2 3 → 3.08 4 5 → next item	1 2 3 4 5 6 7 8 9 10	1 2 3 4 5 6 7 8 9 10
E	Group based micro-finance or lending including VSLAs / SACCOs/ merry-go-rounds	1 2 3 → 3.08 4 5 → next item	1 2 3 4 5 6 7 8 9 10	1 2 3 4 5 6 7 8 9 10
GO TO MODULE 4		3.08/3.09: Decision-making and control over credit Self.....1 Partner/Spouse.....2 Self and partner/spouse jointly.....3 Other household member.....4 Self and other household member(s).....5 Partner/Spouse and other household member(s).....6 Someone (or group of people) outside the household...7 Self and other outside people.....8 Partner/Spouse and other outside people.....9 Self, partner/spouse and other outside people.....10		

MODULE 4: GROUP MEMBERSHIP

Group membership		Is there a [GROUP] in your community? Yes.....1 No 2 → next group	Are you an active member of this [GROUP]? Yes 1 No 2	
	Group Categories	4.04	4.05	
A	Agricultural / livestock/ fisheries producer's group (including marketing groups)	1 2 → Next group	1 2	→ Next group
B	Water users' group	1 2 → Next group	1 2	GO TO 4.06a
C	Forest users' group	1 2 → Next group	1 2	→ Next group
D	Credit or microfinance group (including SACCOs/merry-go-rounds/ VSLAs)	1 2 → Next group	1 2	→ Next group
E	Savings groups (VSLA, merry-go-rounds, etc.)	1 2 → Next group	1 2	→ Next group
F	Mutual help or insurance group (including burial societies)	1 2 → Next group	1 2	→ Next group
G	Trade and business association	1 2 → Next group	1 2	→ Next group
H	Civic groups (improving community) or charitable group (helping others)	1 2 → Next group	1 2	→ Next group
I	Local government	1 2 → Next group	1 2	→ Next group
J	Religious group (e.g. Mother's Union)	1 2 → Next group	1 2	→ Next group
K	Mother's group	1 2 → Next group	1 2	→ Next group
L	Youth group	1 2 → Next group	1 2	→ Next group
M	Farmers'/cattle rearing cooperative	1 2 → Next group	1 2	→ Next group
N	Communal grazing land users' group	1 2 → Next group	1 2	GO TO 4.07
O	Communal natural resources group (Area Land Committee)	1 2 → Next group	1 2	GO TO 4.08
P	Disaster planning /response group (Resilience Action Committee)	1 2 → Next group	1 2	→ Next group
Q	Peace committee	1 2 → Next group	1 2	→ Next group
R	Other women's group (only if it does not fit into one of the other categories)	1 2 → Next group	1 2	→ Next group
X	Other (specify)_____	1 2 → GO TO 5.01	1 2	→ Next group

MODULE 4: GROUP MEMBERSHIP AND INFLUENCE IN THE GROUP (continued)

ASK ONLY IF 4.04B =Yes		
4.06a	Does the water user's group manage communal water for livestock in this village?	1. Yes 2. No 99. Don't know
4.06b	Does the water user's group manage communal water for irrigation in this village?	1. Yes 2. No 99. Don't know >> Go to 4.04C
ASK ONLY IF 4.04N = Yes		
4.07	Does the group decide who in the village can use communal grazing land and when they can use it?	1. Yes – who can use (not when) 2. Yes – who can use and when 3. No 99. Don't know >> Go to 4.04O
ASK ONLY IF 4.04O = Yes		
4.08	Does the communal natural resources group decide who in the village can gather firewood and how much?	1. Yes- who can gather (not how much) 2. Yes – who can gather and how much 3. No 99. Don't know >> Go to 4.04P

Cluster code (Module A) HH number (from Module A) Start time: Hour Minute

UGANDA PBS - MODULE R – RESILIENCE

The resilience module questions will be asked to the household head, or other responsible HH member

R02A. Respondent's line number (B01) from Module B, Question B10

R02B. OBTAIN WRITTEN CONSENT. DOES [NAME] AGREE TO PARTICIPATE IN THE SURVEY?

1=Yes

2=No → Go to Module H

3=Not available → Go to Module H

MODULE R1: SHOCKS AND STRESSORS

	R101	R102	R103	R104	R105	R106
	Over the last year (12 months) did your household experience [the shock]? 1= Yes 2 = No 99 -= Don't know >>If 2 or 99, Next shock	In which month did [the shock] start? Note: If experienced [the shock] more than once, use the month of the most recent occurrence Enter code from list	How severe was the overall impact on your household (income) Enter code from list Only ask if R101=1	How severe was the impact on your household's food consumption? Enter code from list	How did you cope with the [shock]? Enter code from list Select all that apply Only ask if R101=1	To what extent has your household been able to recover? Enter code from list Only ask if R103=2,3, or 4
Climatic shocks						
a. Excessive rains						
b. Flooding						
c. Too little rain/drought						
d. variable rain (early/late)						
e. Hail/frost						
f. Landslides/erosion						
Biological shocks						
g. Crop disease (rust on wheat, sorghum)						
h. Crop pests (locusts)						

i. Weeds (e.g., associated with striga)						
j. Livestock disease						
k. Human disease outbreaks (from contaminated water)						
Conflict shocks						
l. Theft or destruction of assets						
m. Theft of livestock (raids)						
Land conflict						
Water conflict						
Gender Based Violence						
Economic shocks						
n. Delay in food assistance						
o. Increasing food prices						
p. Increased prices of agricultural or livestock inputs						
q. Decreased prices for agricultural or livestock products						
r. Loss of land/rental property						
s. Unemployment						
t. Death or long-term illness of household member						
u. Non-function of borehole						

SHOCKS CODE LIST

R102		R103, R104	R106
Month in which shock started		Severity of impact	Ability to recover
1. June 2017	8. January 2018	1. None (the same)	1. Did not recover
2. July	9. February	2. Slight decrease	2. Partially recovered
3. August	10. March	3. Severe decrease	3. Fully recovered, same as before the shock
4. September	11. April	4. Worst ever happened	4. Fully recovered and better than before the shock
5. October	12. May	99. Don't know	5. Not affected by [event]
6. November	13. June 2018		99. Don't know
7. December	99. Don't know		

R105 (How coped with the shock)		
LIVESTOCK AND LAND HOLDINGS		COPING STRATEGIES TO GET MORE FOOD OR MONEY
a. Send livestock in search of pasture		m. Take up new/additional work (casual labor, wage labor)
b. Sell livestock		n. Sell household items (e.g., radio, bed)
c. Slaughter livestock		o. Sell productive assets (e.g., plough, water pump)
d. Lease out land		p. Take out a loan (with interest) from a (formal) bank
MIGRATION		q. Take out a loan (with interest) from an MFI or village savings group
e. HH member migrated		r. Take out a loan (with interest) from a money-lender
f. Migrate (the whole family)		s. Take out a loan (no interest) from friends or relatives within the community (bonding)
g. Send children or an adult to stay with relatives		t. Take out a loan (no interest) from friends or relatives outside of the community (bridging)
		u. Gift of money (not remittances) or food from family, friends, church or other group within community (bonding)
COPING STRATEGIES TO REDUCE CURRENT EXPENDITURE		v. Gift of money (not remittances) or food from family, friends, church or other group outside of community (bridging)
h. Take children out of school (to work, or can't pay school)		w. Send children to work for money (e.g., domestic service)
i. Move to less expensive housing		x. Receive emergency food aid from the government or NGO
j. Reduce food consumption (quantity/meal; # of meals/day)		y. Receive emergency cash transfer from the government or NGO
k. Reduced non-essential HH expenses		z. Participate in government or NGO food-for-work or cash-for-work activities
l. Gotten food on credit from a local merchant		aa. Use money from savings
		bb. Remittances from a relative that migrated
		cc. Other (specify)
		dd. Did nothing

Shock exposure and severity (cont'd)		
R107	To what extent has your ability to meet food needs returned to the level it was before all the shocks and stressors you experienced in the last 12 months? [PROMPT]	Ability to meet food needs is the same as before the shock.....1
		Ability to meet food needs is better than before the shock.....2
		Ability to meet food needs is worse than before the shock.....3
R108	In light of the shocks and stressors you faced in the last 12 months, to what extent do you believe you will be able to meet your food needs in the next year? [PROMPT]	Ability to meet food needs will be the same as before the shock.....1
		Ability to meet food needs will be better than before the shock.....2
		Ability to meet food needs will be worse than before the shock.....3
		Don't know.....4

R109	What have you done to protect your household from the impact of shocks in the future?	Nothing.....1 Increased savings.....2 Put aside grains (for HH or animals).....3 Put water aside.....4 Planted different crops.....5 Purchased different animals.....6 Changed livelihood.....7 Added different livelihood activity.....8 Acquired crop insurance.....9 Relocated temporarily.....10 Relocated permanently.....11 Other 12 99 Don't know
	[Read list; select all that apply]	

MODULE R2. PRODUCTIVE ASSETS

		R201
		Number owned now 99 Don't know
a.	Plough (oxen-pulled)	
b.	Mechanical plough	
c.	Sickle	
d.	Pick axe	
e.	Axe	
f.	Pruning/cutting shears	
g.	Hoe	
h.	Spade or shovel	
i.	Water trough	
j.	Traditional beehive	
k.	Modern beehive	
l.	Knapsack chemical sprayer	
m.	Mechanical water pump	

n.	Motorized water pump	
o.	Stone grain mill	
p.	Motorized grain mill	
q.	Broad bed maker (oxen-pulled)	
r.	Small tractor	
s.	Hand-held motorized tiller	
t.	Individual granary (at homestead) traditional	
u.	Modern silo	
v.	Grain bag	
w.	Tarpaulin	
x.	Agricultural land (hectares)	

MODULE R2A. LIVESTOCK ASSETS

		R201A
		Number owned now 9999 Don't know
a.	Oxen	
b.	Cattle	
c.	Goats	
d.	Sheep	
e.	Donkey/mule	
f.	Poultry	
h.	Horse	
i.	Honey bees (hives)	

MODULE R3. ACCESS TO MARKETS, INFRASTRUCTURE, AND SERVICES

		R301
		Are the following services available IN or WITHIN FIVE KM of your village? ^a 1= yes 2= no 99 Don't know
a.	Institutions where people can borrow money	If yes, go to R302
b.	Institutions where people can save money (including VSLA)	If yes, go to R302a
c.	Primary school	If yes, go to R303a
d.	Health services (at least level 3 facility)	If yes, go to R304a
e.	Agricultural extension services	If yes, go to R305a
f.	Veterinary services (mobile vet, vet center, etc.)	If yes, go to R306a
g.	Electricity from public utility (main grid)	If yes, go to R307
h.	Mobile phone service	
j.	Public transport service (boda/boda, bus)	Go to R308

^aInterviewer: if respondent cannot estimate distance, ask how long to walk to the location.
Assume that 60 minutes walking is equal to 5 KM.

ASK ONLY IF R301a = YES		
R302	Who provides this service? Select all that apply	1. Banks 2. MFI (SACCO) 3. Community savings/loan group 4. Shops/merchants 5. Money lender 6. Other (specify): 99. Don't know >> Go to R301b
ASK ONLY IF R301b = YES		

R302a	Who provides this service? Select all that apply	1. Banks 2. MFI (SACCO) 3. Community savings/loan group 4. Other (specify): 99. Don't know >> Go to R301c
ASK ONLY IF R301c = Yes		
R303a	Are there enough teachers for the primary school that children in this village attend?	1. Yes 2. No 99. Don't know
R303b	What is the physical condition of the primary school that the children in this village attend?	1. Very good 2. Good 3. Poor 4. Very poor 99. Don't know >> Go to R301d
ASK ONLY IF R301d = Yes		
R304a	What is the physical condition of the health service used by people in this village?	1. Very good 2. Good 3. Poor 4. Very poor 99. Don't know
R304b	In the last year was there a time when your household needed health services but could not get them?	1. Yes 2. No 99. Don't know
R304c	If yes, why were you not able to get the health services? Select all that apply	1. No beds, facility was full 2. No staff in the facility 3. Health facility was destroyed 4. Security problem (e.g., armed conflict) 5. No transportation 6. No road or poor road condition 7. No drugs at the health center 8. No money for services 9. Quality of the service is very poor 10. Other (specify): 99. Don't know >> Go to R301e

ASK ONLY IF R301e = Yes		
R305a	In the last year was there a time when you needed agricultural extension services but could not get them?	1. Yes 2. No 99. Don't know
		} → Go to R301f
R305b	Is yes, why were you not able to get agricultural extension services? Select all that apply	1. No service provider in area 2. No equipment/inputs available from service provider 3. No road or poor road condition 4. Too busy/bad timing of ext agent visit 5. Quality of the services is poor 6. Other (specify): 99. Don't know >> Go to R301f
ASK ONLY IF R301f = Yes		
R306a	In the last year was there a time when you needed veterinary services but could not get them?	1. Yes 2. No 99. Don't know
		} → Go to R301g
R306b	If yes, why were you not able to get the veterinary services? Select all that apply	1. No service provider (vet center, veterinarian) in area 2. Service provision too expensive 3. No vaccines/medicines available 4. No road or poor road condition 5. No money for services 6. Quality of the services is poor 7. Other (specify): 99. Don't know >> Go to R301g
ASK ONLY IF R301g = Yes		
R307	Does your household have electricity from a public utility (main grid)?	1. Yes 2. No 99. Don't know >> Go to R301h

ASK AFTER COMPLETING R301j		
R308	Can the village be reached by a tarmac road all year around?	1. Yes 2. No 99. Don't know
	Can the village be reached by a murram (graded) road	1. Yes 2. No 99. Don't know
R309	How far away is the nearest livestock market from this village?	_____ km 99. Don't know
R310	How far away is the nearest market for selling agricultural products from this village?	_____ km 99. Don't know
R311	How far away is the nearest market for purchasing agricultural inputs from this village?	_____ km 99. Don't know

MODULE R6. ACCESS TO FINANCIAL SERVICES/ SAVING

R601	Do you or any other household member regularly save cash?	1. Yes 2. No module 99. Don't know
R602	Where are the savings primarily held? Select only one	1. At home 2. MFI (SACCO) 3. Village savings/credit group (e.g., VSLA) 4. Bank 5. Mobile banking 6. Other 99. Don't know

MODULE R7. ACCESS TO INFORMATION

		R701	R702
		Did you receive any information on [topic] in the last 12 months? 1. Yes 2. No 99 Don't know If 2, 99, skip to next topic	What was your main source of information about [topic]? See codes below
a.	Early warning for natural hazards (flooding, hail, landslide)		
b.	Long-term changes in weather patterns		
c.	Rainfall/ weather prospects for coming season		
d.	Water prices and availability in local boreholes, shallow wells etc		
e.	Animal health (e.g., disease, epidemic) threats/prevention		
f.	Crop health (e.g., pest outbreaks, disease) threats/prevention		
g.	Improved crop production practices/technologies (CCA, seeds)		
h.	Improved livestock production practices (fodder, husbandry)		
i.	Current market prices for live animals in the area		
j.	Market prices for animal products (milk, hides, skins, etc.)		
k.	Grazing conditions in nearby areas		
l.	Conflict or security issues		
m.	Business and investment opportunities		
n.	Opportunities for borrowing money		
o.	Market prices of the food that you buy		
p.	Child nutrition and health information		
q.	Equal rights for women and men		
r.	Gender-based violence		
s.	Natural resource management		

CODES FOR R702 - Main Information sources			
1	Relatives, friends, neighbors	8	Local market
2	Gov't officials	9	Gov't: rural development agents, health/agriculture ext.
3	Village Development Committee	10	NGOs
4	School teachers	11	Newspaper /Radio / TV
5	Group in community (e.g., savings, forest users, farmers)	12	Internet or SMS
6	Religious leaders	13	Private sector (input supplier, veterinarian, etc.)
7	Clan Elders	99	Don't know
14	Health facility	15	Other

MODULE R9. COLLECTIVE ACTION

R901	In the last 12 months, have you worked with others in your village to do something for the benefit of everyone in the village?	1. Yes 2. No 99. Don't know	} → skip to next module
R902	What activities did you participate in that benefit the village? Read list; select all that apply	1. Soil conservation (terracing, bunds, half-moons, gabions, etc.) 2. Flood diversion activities 3. Repaired/built schools 4. Repaired/built health posts or centers 5. Road maintenance/construction 6. Planted trees on communal land 7. Formed a cooperative 8. Area enclosure 9. Improving community access to drinking water 10. Repaired/built communal irrigation system 11. Other (specify) 99. Don't know	

MODULE R10. LIVELIHOOD ACTIVITIES

		R1001
		What were the sources of your household's food/income over the last 12 months? Read each source
a.	Farming/crop production and sales	
b.	Livestock production/fattening and sales	
c.	Agricultural wage labor	
d.	Non-agricultural wage labor	
e.	Salaried work	
f.	Sale of wild/bush products (including charcoal, firewood)	
g.	Honey production and sales	
h.	Petty trade (selling other products, e.g., grain, veggies, oil, sugar, etc.)	
i.	Petty trade (selling own products, e.g., local beer, sex work)	
j.	Other self-employment/own business (agricultural, e.g., buying/reselling chat)	
k.	Other self-employment/own business (non-agricultural, e.g., stone cutting, hair braiding, etc.)	
l.	Rental of land, house, rooms	
m.	Remittances	
n.	Gifts/inheritance	
o.	Safety net food/cash assistance	
p.	Artisanal mining/quarrying	
p.	Other (specify):	
Note: Enumerator does not record; number is automatically generated		R1003
		Total number of sources

MODULE R13. SOCIAL AND CAPACITY-BUILDING SUPPORT

INFORMAL SOURCES OF SOCIAL SUPPORT		
R1300	During the drought members of my community have helped each other to cope	(Scale:1-5; 1=Strongly disagree to 5=Strongly agree)
R1301	Read list, single response	1 Strongly disagree 2 Somewhat disagree 3 No opinion 4 Somewhat agree 5 Strongly agree
R1302	During the drought members from different communities have helped each other to cope	(Scale:1-5; 1=Strongly disagree to 5=Strongly agree)
R1303	Read list, single response	1 Strongly disagree 2 Somewhat disagree 3 No opinion 4 Somewhat agree 5 Strongly agree
R1304	If your household had a problem and needed help urgently (e.g., food, money, labor, transport, etc.), who IN THIS VILLAGE could you turn to for help? Read list; select all that apply	1. Relatives 2. Non-relatives in my ethnic group/clan 3. Non-relatives in other ethnic group/clan 4. No one 5. Other (specify) 99. Don't know
R1305	If your household had a problem and needed help urgently (e.g., food, money, labor, transport, etc.), who OUTSIDE THIS VILLAGE could you turn to for help? Read list; select all that apply	1. Relatives 2. Non-relatives in my ethnic group/clan 3. Non-relatives in other ethnic group/clan 4. No one 5. Other (specify) 99. Don't know
R1306	Compared to one year ago has your ability to get this type of help (from someone within or outside of your village):	1. Increased 2. Stayed the same 3. Decreased 99. Don't know
R1307	Who INSIDE THIS VILLAGE would you help if they needed help urgently (e.g., food, money, labor, transport, etc.)? Read list; select all that apply	1. Relatives 2. Non-relatives in my ethnic group/clan 3. Non-relatives in other ethnic group/clan

		4. No one 5. Other (specify): 99. Don't know
R1308	Who OUTSIDE THIS VILLAGE would you help if they needed help urgently (e.g., food, money, labor, transport, etc.)? Read list; select all that apply	1. Relatives 2. Non-relatives in my ethnic group/clan 3. Non-relatives in other ethnic group/clan 4. No one 5. Other (specify): 99. Don't know
LINKING SOCIAL CAPITAL		
R1309	Do you or does anyone else in your household personally know an elected government official?	1. Yes 2. No 99. Don't know
		} → Skip to R1312
R1310	How do you (or other household member) know the government official? Is he or she a... Read list; select all that apply	1. Family member or relative 2. Friend /neighbor 3. Acquaintance (members of a group, friend of a friend, etc.) 4. Other (specify): 99. Don't know
R1311	Could you ask the official to help your family or village if help was needed?	1. Yes 2. No 99. Don't know
R1312	Do you or does anyone else in your household personally know a staff member of an NGO?	1. Yes 2. No 99. Don't know
		} → Skip to R1315
R1313	How do you (or another household member) know the NGO staff member? Is he or she a... Read list; select all that apply	1. Family member or relative 2. Friend /neighbor 3. Acquaintance (members of a group, friend of a friend, etc.) 4. Other (specify): 99. Don't know
R1314	Could you ask the NGO staff member to help your family or community if help was needed?	1. Yes 2. No

		99. Don't know
EDUCATION AND TRAINING SUPPORT		
R1327	Have you or anyone in your household ever received any vocational (job) or skills training?	1. Yes 2. No 99. Don't know } → Skip to R1329
R1329	Have you or anyone in your household ever received any business development training (including financial literacy)?	1. Yes 2. No 99. Don't know } → Skip to R1331
R1331	Have you or anyone in your household ever received any early warning training?	1. Yes 2. No 99. Don't know } → Skip to R1333
R1333	Have you ever or anyone in your household received any natural resource management training?	1. Yes 2. No 99. Don't know } → Skip to R1335
R1335	Have you or anyone in your household ever received adult education (literacy or numeracy or financial education)?	1. Yes 2. No 99. Don't know } → Skip to R1338
R1337	Have you or anyone in your household ever received training in how to use your mobile phone to get market information like prices?	1. Yes 2. No 99. Don't know } → Skip to R1340

MODULE R14. ASPIRATIONS AND CONFIDENCE TO ADAPT

R1401	Please tell me which one of these two views you most agree with.	1. "Each person is primarily responsible for his/her success or failure in life". 2. "One's success or failure in life is a matter of his/her destiny".
R1402	Please tell me which one of these two views you most agree with.	1. "To be successful, above all one needs to work very hard". 2. "To be successful above all one needs to be lucky".
R1403	Are you willing to move somewhere else to improve your life?	1. Yes 2. No
R1404	Are you hopeful about your children's future?	1. Yes 2. No
R1405	What level of education do you want for your children?	1. No preference 2. Any level of primary (but not graduated) 3. Graduated from primary 4. Graduated from secondary 5. Post-secondary (college, university)
R1406	Do you agree that one should always follow the advice of the elders?	1. Yes 2. No
R1407	Do you communicate regularly with at least one person outside the village?	1. yes 2. No
R1408	During the past week, have you engaged in any economic activities with other villages or clans? For example, farming, trading, employment, borrowing or lending money.	1. Yes 2. No
R1409	How many times in the past month have you gotten together with friends, family, neighbors, etc. to discuss issues or share food/drinks, either in someone's home or in a public place?	
R1410	How many times in the past month have you attended a church/ mosque or other religious service?	
R1411	In the last year, how many times have you stayed more than 2 days outside your village?	

Below is a series of statements that you may agree or disagree with. Using the scales below indicate your agreement with each item.

		Strongly disagree	Disagree	Slightly disagree	Slightly agree	Agree	Strongly agree
R1412	My experience in my life has been that what is going to happen will happen.	1	2	3	4	5	6
R1413	My life is chiefly controlled by other powerful people.	1	2	3	4	5	6
R1414	It is not always wise for me to plan too far ahead because many things turn out to be a matter of good or bad fortune.	1	2	3	4	5	6
R1415	I can mostly determine what will happen in my life.	1	2	3	4	5	6
R1416	When I get what I want, It is usually because I worked hard for it.	1	2	3	4	5	6
R1417	My life is determined by my own actions.	1	2	3	4	5	6
R1418	Most people are basically honest.	1	2	3	4	5	6
R1419	Most people can be trusted.	1	2	3	4	5	6
R1420	I trust my neighbors to look after my house if I am away.	1	2	3	4	5	6

MODULE R15: GOVERNMENT SUPPORT

R1501	Are there any government or NGO programs in this village?	1. Yes 2. No 99. Don't know  Skip to 1503
R1502	What types of programming do they provide? Read list; Select all that apply	1. Emergency food/cash assistance 2. Food/cash transfers 3. Household materials and non-food items 4. Educational assistance 5. Agricultural inputs (seeds, fertilizer, etc.) 6. Livestock inputs (feed, fodder, medicine, etc.) 7. WASH 8. Disaster planning/response 9. Safety net (FFW/CFW) 10. Child malnutrition/infant feeding 11. Other 99 Don't know
R1503	In the last 12 months, did you or your household receive any government or NGO assistance?	1. Yes 2. No 99. Don't know  Skip to 1505
R1504	What type(s) of assistance did you or your household receive? Read list; Select all that apply	1. Emergency food/cash assistance 2. Food/cash transfers 3. Household materials and non-food items 4. Educational assistance 5. Agricultural inputs (seeds, fertilizer, etc.) 6. Livestock inputs (feed, fodder, medicine, etc.) 7. WASH 8. Disaster planning/response 9. Safety net (FFW/CFW) 10. Child malnutrition/infant feeding 11. Install water points 12. Install latrines 13. Other 99 Don't know

R1505	Is there an emergency plan for livestock offtake if a drought hits your village?	1. Yes 2. No 99. Don't know
R1506	Do you have an active Peace Committee in your village?	1. Yes 2. No 99. Don't know
R1506a	Do you have an active Area Land Committee in your village?	1. Yes 2. No 99. Don't know
R1507	Does this village have a security or police force?	1. Yes 2. No 99. Don't know] → Skip to next module
R1508	Who provides the nearest security/police force?	1. Subcounty government 2. District government 3. National government 4. Local militia 5. Community members 6. Other (specify): 99. Don't know
R1509	How long does it take for the nearest security/police force to reach this village?	1. Over one hour 2. About one hour 3. Half an hour 4. Minutes 99. Don't know

MODULE R16: GENDER NORMS

R1601	Generally, do adult men and women sit and eat together within households? Select only one	1. Yes, regularly 2. Yes, occasionally 3. No 99. Don't know
R1602	Generally, do you and your spouse sit and eat together? Select only one	1. Yes, regularly 2. Yes, occasionally 3. No 4. No spouse/spouse absent 99. Don't know
R1603	Generally, do adult men and women sit together at public meetings? Select only one	1. Yes, regularly 2. Yes, occasionally 3. No 99. Don't know
R1605	Generally, do men in the village help with childcare around the household? Select only one	1. Yes, regularly 2. Yes, occasionally 3. No 99. Don't know
R1606	Generally, who cares for your children? Select only one	1. Yourself 2. Your spouse/partner 3. You help your spouse/partner 4. Your spouse/partner helps you 5. No children in household 6. Other (specify) 99. Don't know
R1607	Generally, do men in the village help collect firewood or carry water for your household? Select only one	1. Yes, regularly 2. Yes, occasionally 3. No 99. Don't know
R1608	Generally, who collections firewood for your household?	1. Yourself 2. Your spouse/partner 3. You help your spouse/partner

	Select only one	4. Your spouse/partner helps you 5. No need 6. Other (specify) 99. Don't know
R1609	Generally, who fetches water for your household? Select only one	1. Yourself 2. Your spouse/partner 3. You help your spouse/partner 4. Your spouse/partner helps you 5. No need 6. Other (specify) 99. Don't know

Annex 4: Population-Based Survey Data Treatment and Analysis Plan



USAID
FROM THE AMERICAN PEOPLE

Uganda Joint Baseline/Endline PBS Data Treatment and Analysis Plan - FINAL

Office of Food for Peace (FFP)

Contract #: GS-00F-189CA/7200AA18M00002

Contract #: GS00F189CA/AID-OAA-M-15-00022

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ACRONYMS

ANC	Antenatal care
BL	Baseline
CAPI	Computer-assisted personal interviewing
CHN	Child health and nutrition
CRS	Catholic Relief Services
DFAP	Development food assistance project
DFSA	Development food security activity
DTAP	Data treatment and analysis plan
EL	Endline
FANTA	Food and Nutrition Technical Assistance Project III
FFP	Office of Food for Peace
FIES	Food insecurity experience scale
GHG	Growth Health and Governance Program
GHT	Gendered household type
HDDS	Household dietary diversity score
ICF	ICF International
IFSS	Internet file streaming system
IP	Implementing partner
IRC	International Research Consortium of Uganda
MAD	Minimum acceptable diet
MC	Mercy Corps
MCHN	Maternal and child health and nutrition
MHN	Maternal health and nutrition
MDD-W	Minimum dietary diversity for women
ORT	Oral rehydration therapy
PBS	Population-based survey
PE	Performance evaluation
PPI	Poverty Probability Index
RWANU	Resiliency through Wealth, Agriculture and Nutrition in Karamoja
TANGO	Tango International
USAID	U.S. Agency for International Development
WASH	Water, sanitation and hygiene

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APPENDIX A: Sampling Weights

APPENDIX B: Methodology to Calculate New/Modified or Custom Indicators

APPENDIX C: Methodology to Calculate Poverty Indicators

APPENDIX D: Overview of PPI Analyses

APPENDIX E: Resilience Indicators and Analyses

I. BACKGROUND

USAID's Office of Food for Peace (FFP) is the U.S. Government leader in international food assistance. In 2018, FFP awarded ICF International (ICF) a contract to conduct a joint baseline (BL)/endline (EL) population-based household survey (PBS) in the Karamoja region of Uganda. The BL survey is for two newly funded development food security activities (DFSAs), beginning in fiscal year (FY) 2017 which will be implemented by Catholic Relief Services (CRS) and Mercy Corps (MC) in seven districts of Karamoja. The EL survey is for two development food assistance projects (DFAPs) that were implemented by ACDI VOCA and Mercy Corps in the same seven districts of Karamoja. These projects started in FY 2012 and ended in FY 2017.

The project areas for the new DFSAs and prior DFAPs overlap to a large extent. For this reason, ICF will administer a joint BL/EL PBS using a common questionnaire in the overlap and non-overlap areas encompassed by the prior DFAPs and current DFSAs. The common questionnaire will be driven by the indicators required for the BL PBS for the new DFSAs, many of which (but not all) overlap with those required for the DFAPs.

The purpose of the BL PBS for the DFSAs is to assess the current status of key indicators, to serve as a point of comparison with indicators collected at EL and to have a better understanding of the prevailing conditions and perceptions of the populations in the DFSA implementation areas. The study results will also be used to further refine program targeting and, where possible, to understand the relationship between variables to inform program design. The results of the EL PBS for the prior DFAPs will be used to evaluate change over time in the indicators that were collected at BL as part of the performance evaluations (PEs) for these DFAPs. The fieldwork for the joint BL/EL PBS will be conducted in June-July 2018.

ICF has subcontracted the International Research Consortium of Uganda (IRC), a local data collection firm, to support the field implementation of the joint BL/EL PBS. ICF will work closely with the survey subcontractor in the implementation of the PBS.

Implementing partners and their roles

From 2012-2017, two implementing partners (IPs) conducted the prior DFAPs in the Karamoja region:

- (1) ACDI VOCA and its partners implemented the Resiliency through Wealth, Agriculture and Nutrition in Karamoja (RWANU) Program in Amudat, Moroto, Napak and Nakapiripirit districts.
- (2) MC and its partners implemented the Growth Health and Governance Program (GHG) Program in Abim, Kotido and Kaabong districts.

In 2017, FFP awarded two new DFSAs in the Karamoja region:

- (1) MC and its partners will implement the Apolou DFSA in Kaabong, Kotido, Moroto, and Amudat districts.
- (2) CRS and its partners will implement the Nuyok DFSA in Abim, Nakapiripirit and Napak districts.

2. STUDY DESIGN AND SAMPLE

This section briefly describes the study design and sample. A more detailed description of the sampling design for the joint BL/EL PBS is available in the “Uganda Joint Baseline/Endline PBS Protocol”, June 2018. A detailed description of the sampling design for the BL PBS for the prior DFAPs can be found in the “Development Food Aid Program in Uganda Baseline Survey” Report, March 2014.

The BL component of the joint BL/EL PBS serves as the first phase of a pre-post survey cycle for the DFSA awards, and the EL component of the joint BL/EL PBS serves as the second phase of a pre-post survey cycle for the prior DFAP awards. The pre-post design (using the 2013 BL survey and the 2018 EL component of the joint BL/EL PBS) allows for the determination of statistically significant change in indicators between the BL and EL for the prior DFAPs; however, it does not allow statements about attribution or causation relating to project impact to be made.

The target population for the joint BL/EL PBS consists of two components: 1) all households in the areas where the prior DFAPs were implemented and 2) all households in the areas where the DFSAs will be implemented. These target populations overlap to a great extent since the new DFSAs will be implemented in most of the same geographic areas where the prior DFAPs were implemented.

The sample size for the joint BL/EL PBS was derived by: 1) calculating the sample size needed for the BL survey for the DFSAs, 2) calculating the sample size needed for the EL survey for the prior DFAPs, and 3) deriving a joint sample size based on these sample sizes, taking into account the overlap between the DFSA and prior DFAP project areas. The sample size calculations for both 1) and 2) are based on a multi-stage clustered sample designed to adequately power a test of differences between the BL and EL estimates for the FFP stunting indicator for each project. Table 2.1 shows the sample size by DFSA implementing partner for the joint BL/EL PBS. See Table 4 in the June 2018 “Uganda Joint Baseline/Endline PBS Protocol” for more details on the sample allocations.

Table 2.1. Program Area and Sampled Households by DFSA Implementing Partner

DFSA Implementing Partner	Districts in Program Area	Number of sampled households for 2013 BL Study	Number of households needed for 2018 EL study	Number of households needed for 2018 BL study	Joint BL/EL Sample Size Requirement
MC	Kaabong, Kotido, Moroto, and Amudat	2,400	1,220	1,230	1,680
CRS	Abim, Nakapiripirit and Napak	2,400	1,220	1,230	1,680
TOTAL		4,800	2,440	2,460	3,360

3. QUESTIONNAIRE

The joint BL/EL questionnaire 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 BL planning workshop in January 2018. All questionnaire modules follow FFP and Feed the Future guidelines, as

described in the *FFP Indicators Handbook* (April 2015)¹ and the *Feed the Future Indicator Handbook* (September 2016).²

The questionnaire consists of separate modules covering the following topics:

- Module A: Household identification and informed consent
- Module B: Household roster
- Module C: Household food security
- Module CC: Mobility, Local Government Responsiveness and Poverty Probability Index
- Module D: Children's nutrition and health
- Module E: Women's nutrition and health
- Module F: Water, sanitation, and hygiene
- Module G: Agriculture
- Module H: Poverty
- Module J: Gender – Cash
- Module K: Gender – Maternal and Child Health and Nutrition (MCHN)
- Module L: Gender – Household Decision-Making, Access To Credit And Group Participation
- Module R: Resilience

The questionnaire will be translated into three local languages (Karamojong, Swahili, and Lethur). The total time for completing the survey in each household is expected to be approximately two to three hours, depending on the size of the household.

The 2013 BL PBS questionnaire did not include modules CC, J, K, L and R listed above since these were introduced to collect data for indicators added after the 2013 BL PBS was conducted. The indicators collected for the 2013 BL study where change over time can be measured using the 2018 EL PBS are noted in Table 5.2 of Section 5.2.

4. DATA COLLECTION AND QUALITY CONTROL

4.1. Data Collection Mode and Data Transmission Procedure

The 2018 joint BL/EL PBS data will be collected with tablets using Computer-Assisted Personal Interviewing (CAPI) mode by local data collection subcontractor, IRC. Tablets will be loaded with a CSPro data entry application developed at ICF for FFP surveys and tailored to fit the PBS questionnaire. All data will be entered directly into the tablets and edited dynamically while interviewing in the field.

For transmission of data from the field, IRC will use Internet File Streaming System (IFSS), a cloud-based electronic file delivery web service. The primary objective of the service is to deliver files from one user to another in a way that is fast and secure. The ICF CSPro programmer will work in-country to set up and test the cloud-based data transmission system, as well as to provide technical support during the

¹ Food and Nutrition Technical Assistance III Project (FANTA III). 2015. *FFP Indicators Handbook Part I: Indicators for Baseline and Final Evaluation Surveys*. Washington, DC. Available at http://pdf.usaid.gov/pdf_docs/PBAAE201.pdf. A newer version of the FFP Indicators Handbook is pending release in 2018.

² Available at https://feedthefuture.gov/sites/default/files/resource/files/Feed_the_Future_Indicator_Handbook_Sept2016.pdf

first week of data collection, to ensure that tablets and the IFSS transmission system are operating smoothly. The subcontractor, IRC, will upload data to the IFSS on a weekly basis. Data transmissions will occur on a weekly basis and will begin after interviewers have completed all interviews in their first assigned cluster. For the final dataset, the CSPro programmer will develop a program to run quality control checks and convert the raw data exported from the CSPro application into the data format needed for analysis using Stata, SPSS or SAS.

4.2. CAPI Data Entry Training

All interviewers and supervisors will participate in a CAPI data entry training prior to the start of fieldwork to ensure the successful use of tablets during data collection. ICF IT specialists will lead the CAPI training sessions, which will include:

- Basic use of the tablet, including how to check and prepare the tablets, switching off/on, login, touch screen/keyboard, rotating screen, buttons to avoid, change of batteries, power management, click/double click, swiping, basic operating system tasks
- Review of different types of responses to questions, including predetermined numeric, open-ended numeric, predetermined alpha, open text, and multiple response
- Trouble spots in the questionnaire and troubleshooting, error messages
- Anthropometry data entry with anthropometry measurement exercises
- Practice interviews with tablets in pairs, including starting/stopping the interview, reading questions, entering different types of responses, household rosters, use of calendar for age verification
- Workflow, including assigning interviews, receiving assignments and sending completed interviews back to supervisors, supervisors transferring updates to interviewers
- Bluetooth transfers of data to the central office via the IFSS

4.3. Field Quality Control Procedures

ICF ensures high-quality data through a strong emphasis on training field staff, monitoring data collection and quality control at the field level. During critical periods, including training, anthropometry standardization testing, pretesting, piloting, and at the beginning of fieldwork, the ICF survey coordinator will be in-country to coordinate and oversee these activities. When the ICF survey coordinator is not in the country, the local survey monitor will oversee fieldwork activities and closely update the ICF survey coordinator on fieldwork progress or any issues encountered during data collection. The quality control procedures established in the field include:

Proper fieldwork oversight: Maximum ratio of one supervisor for every four interviewers, and one anthropometry specialist. Each interviewer will be accompanied by a team supervisor for one full interview, from start to finish, within the interviewer's first three clusters of households.

Inconsistency checks: These will be built into the CSPro data entry application and will include respondent eligibility checks, checks for questionnaire skip patterns and filters, valid response range checks and other quality control checks.

Field-check tables: These tables will be run on raw survey data that are uploaded from the survey teams to the central office via the Internet file transfer system. Therefore, they represent a near real-time snapshot of the status of the survey data quality. Field-check tables are designed to flag

indicators that appear to be lower or higher than anticipated, such as the expected number of eligible women and children per household. The ICF CSPro programmer and supervisors will work together to review the tables and identify any problems. If data collection problems are discovered at the team level, individual-level tabulations can be run to determine whether problems are team-wide or restricted to one or two of the team members. Immediate action will be taken to address problems, either by contacting the team supervisor by telephone or by visiting the team to review the findings. In cases of serious problems, a brief written report will be produced detailing the teams with problems and the actions that were taken. The supervisors of teams whose data indicate serious problems in data collection will be informed immediately of the specific problems observed.

Data review: Supervisors will review the electronic data received from interviewers and resolve error messages identified by the program. The review will be conducted on a daily basis to identify any missing or problematic data items. Supervisors will not be able to close a cluster and transmit the final data to the central office until all error messages identified are resolved.

Re-interviews: During fieldwork, ten percent of the households interviewed per cluster (three households) will be randomly selected for a short re-interview by the team supervisor. The supervisor will visit the household and conduct a quick re-interview on paper comprising the first two sections of the household questionnaire (the cover page and the household roster). The team supervisor will then compare the manually collected responses to the responses in the CAPI system. Any significant discrepancies between the two will be followed up by the supervisor. Re-interviews can be effective in detecting issues, such as falsifying interviews and deliberate displacement of ages of household members to reduce workload.

Completion of interviews: Interviewers will make up to three visits to the household to interview a respondent, and will plan one to two visits with the respondents to successfully complete the interview, as necessary.

Closing the cluster: This is the last step for the field team and supervisors before leaving each cluster. This is an ongoing activity throughout the data collection period. After the supervisor receives all data from the team, s/he will run a program to check all data collected for completeness and structural integrity. The program will generate a report flagging any missing or incomplete data items. The supervisor will make sure that any problems are resolved before leaving the cluster. When there are no issues remaining, the system will archive the data and automatically upload them to the local subcontractor's (IRC) central office. Data transfers from the field to the central data office in Kampala will take place regularly during the data collection.

4.4. Data Processing Quality Control Procedures

The CSPro data capture and processing program is designed to allow only valid data ranges, to check questionnaire logic (skips and filters) and to flag data inconsistencies during data entry. The CSPro program will also make comprehensive reviews of the data at the cluster level.

Within CSPro, a hierarchical structure is used to store the survey data; each module corresponds to a unique record within the CSPro dictionary (codebook). For singly-occurring modules (i.e., one set of values per sampled household), such as C, CC, F, H and R, there will be one line of data in the ASCII file corresponding to the CSPro record where those variables have been defined. For modules where more than one person is included (such as the household roster (Module B), the anthropometry modules for children and women, and Modules D, E, G, J, K and L), there will be one line of data per household

corresponding to each person eligible for that roster/module. For example, if there are five persons in the household, there will be five lines of data in the data file corresponding to the record created to represent Module B.

The complete suite of quality control checks used during the data processing cycle include the following:

1) Data Capture (During fieldwork in CAPI mode)

- a) Range checking for numeric responses: Based on all possible values being listed in the CSPro dictionary, CSPro automatically ensures that values cannot be entered outside that range. For example, once the variable "sex" has been assigned to the codes 1 (male) and 2 (female), no other value can be entered.
- b) Range checking for alphabetic responses: For questions that allow multiple responses to be selected (corresponding to the alphabetic responses), a specially-programmed function has been added, which ensures that: (1) only the letters listed can be entered; (2) allowable letters only appear once ("A", but not "AA"); (3) responses requiring an "other" text entry (generally indicated with the "X" and sometimes "W" characters) are captured; (4) responses that must appear in isolation from any other response (usually "Y" (no one) or "Z" (don't know)) do not appear in combination with any other letter; and (5) the field cannot be left blank.
- c) Consistency checks: In selected fields when applicable, answers will be cross-checked against other fields for validity. For example, in Modules D and E and the anthropometry sections, age and date of birth will be compared to one another to ensure agreement. In addition, in any module that asks for a person's age, this will be cross-checked against the age given in the household roster (Module B); if an age difference exists, a warning message is issued and the interviewer must verify the correct age.
- d) Skips: If a skip is present, then based on the respondent's answer to the question, the skip will be applied by the CAPI system. Responses that are skipped will be designated as missing by the CAPI system. For numeric responses, missing is indicated by filling the entire field with the number "9". For alpha fields, missing is indicated by filling the field with "X" to indicate "text missing".
- e) Filters: If a question should not be asked, it will be skipped. For example, persons under the age of 15 are not asked their marital status in the household roster. Therefore, the question will be skipped over for those under-age persons.
- f) Identifier integrity: A file containing the geographic identifiers will be created for each country. The file provides, for any given cluster, all levels of geographic identifiers. This information will be prefilled from the sample files. This step ensures that the correct identifier is associated with each record.

2) Structure Checks (During fieldwork in CAPI mode)

- a) Files are created at the cluster level. They are concatenated into a single file at the very end of closing the clusters. The final data are then transmitted to the central office. When closing the clusters, the total number of households with complete (result=1) and incomplete (result <> 1) result codes are also logged in. A check is applied that compares the number of households found within their data file against what was expected from the sample file, with an error being

generated if the two are not the same. Likewise, if the total number of households found is correct, but if there are some partially completed households, an error message will be generated. The cluster cannot be closed until these problems have been resolved.

- b) In addition to checking for result codes and total number of households, the program will ensure for each household that the required number of individual records exist, based on the eligibility of the persons within Module B. For example, if the household roster indicates three persons should be administered Module D, then three records must exist in the file before the structure check can succeed. The cluster cannot advance to the consistency editing stage until any identified problems have been resolved.

3) Miscellaneous Data Quality Measures (During fieldwork in CAPI mode)

- a) Field-check tables will be run on a weekly basis during fieldwork that will report on several key items measuring fieldwork quality. These tables will show data at the team level. For example, a table will be generated that shows age distributions of female respondents between 12-18 years that allows survey managers to determine if teams are dropping respondents with ages below 15, in order to disqualify women from Module E. This helps to identify underperforming teams.
- b) Frequencies will be generated to ensure reasonable distribution of the data and that no out-of-range values exist.

4) Consistency Checks (After fieldwork is complete)

- a) More complex issues are handled after fieldwork is complete. Once a cluster has been closed in the field and data have been transmitted to the central office, a secondary (consistency) edit program will be run against the data in the central office. Many of the checks made during the interviewing process will be repeated here. All error messages are assigned a unique number.
- b) The central office will be provided a secondary editing manual that lists all error messages in numerical order. It will describe the problem that prompted the error, and possible methods to resolve the conflict. In general, the method is to review the data collected, compare the variables (questions) involved, and look for any notes the interviewer may have made, or changes the field supervisor or field coordinators may have made, that created/exacerbated the problem. Checks for missing values are not made at this time, as it is too late for the field team to resolve this type of error.

ICF will conduct a quality control review of the raw and edited data as the data is received from the central office in Kampala. Data transfers will take place weekly from the central office to ICF in Rockville, MD, via the IFSS secure file transfer protocol. Data cleaning will take place based on secondary (consistency) editing reports generated in-country, and per ICF feedback. Final review and data cleaning will take place at ICF in Rockville, MD, upon receipt of the final clean datasets. The final raw CSPro datasets will be accompanied by a data dictionary/codebook with all variables clearly labeled. The raw CSPro datasets will be converted to facilitate data analysis using SAS, Stata or SPSS Statistical Software.

5. DATA PREPARATION

5.1. Sampling Weights

Sampling weights will be computed and used in the data analyses. Weights will be computed separately for the 2018 BL and EL PBS data analyses, according to the unique sampling scheme that is relevant to the associated sampled household or individual. This will involve computing an overall sampling weight for each distinct sampling group by taking the inverse of the product of the probabilities of selection from each stage of sampling (cluster selection and household selection). Weights will be calculated for the following distinct sampling groups:

- Households (used for indicators derived from Modules C, CC, F, H, L and R)
- Children under five years of age (Module D and Children's Anthropometry)
- Women 15-49 years of age (Module E)
- Non-pregnant women 15-49 years (Women's anthropometry)
- Farmers (Module G)
- Cash-earning adults (Module J)
- Parents of children under two years of age (Module K)

Weights will be calculated separately for each of the project areas and will be adjusted to compensate for household- and individual-level non-response, where appropriate. The household level nonresponse adjustment, relevant for all modules, is based on the total number of households with completed interviews and the total number of households in each cluster from the listing exercise. Individual level non-response adjustments for Modules D, E, G, J, K and the anthropometry data are based on the total number of completed interviews for each group of individuals and the total number of eligible individuals from the household roster.³

A more detailed description of the calculation for sampling weights is provided in Appendix A.

5.2. FFP Indicator Definitions

The FFP required indicators and the resilience indicators to be included in the data analysis are listed in Table 5.2. Definitions of the FFP indicators are provided in the *FFP Indicator Handbook*, and definitions for resilience indicators are described in this section. Of the full set of indicators included in the joint BL/EL PBS, the 25 indicators highlighted in yellow are those that were calculated for the 2013 DFAP BL study and can be compared with 2018 DFAP EL indicators to assess change over time.

Table 5.2. Joint BL/EL PBS Indicators

Indicator	Disaggregation Level	2018 BL	2018 EL
FOOD SECURITY			
1. Average Household Dietary Diversity Score (HDDS)	None	✓	✓
2. Prevalence of moderate and severe food insecurity in the population, based on the Food Insecurity Experience Scale (FIES) [30 day recall]	GHT	✓	✓
3. Prevalence of moderate and severe food insecurity in the population, based on the Food Insecurity Experience Scale (FIES) [12 month recall]	GHT	✓	

³ Strictly speaking, a separate non-response adjustment should be made for all indicator subgroups, e.g., children 0-5 months, children 6-23 months, women married in a union, etc. However, nonresponse for these subgroups very closely mirrors nonresponse for the entire group, so one nonresponse adjustment for the entire group is used.

Indicator	Disaggregation Level	2018 BL	2018 EL
POVERTY			
4. Per capita expenditures (as a proxy for income) of USG-assisted areas	GHT	✓	✓
5. Prevalence of Poverty: Percent of people living on less than \$1.25/day 2005 PPP (EL) or \$1.90/day 2011 PPP (BL)	GHT	✓	✓
6. Depth of Poverty: Mean percent shortfall relative to the \$1.25/day (EL) or \$1.90/day (BL) poverty line	GHT	✓	✓
7. Depth of Poverty of the Poor: Mean percent shortfall of the poor relative to the \$1.90/day 2011 PPP poverty line	GHT	✓	
WATER, SANITATION, AND HYGIENE			
8. Percentage of households using an improved drinking water source	None		✓
9. Percentage of households using basic drinking water services	None	✓	
10. Percent of households in target areas practicing correct use of recommended household water treatment technologies	None	✓	
11. Percent of households that can obtain drinking water in less than 30 minutes (round trip)	None	✓	
12. Percentage of households using an improved sanitation facility	None		✓
13. Percentage of households with access to a basic sanitation service	GHT	✓	
14. Percent of households in target areas practicing open defecation	None	✓	
15. Percent of households with soap and water at a handwashing station commonly used by family members	None	✓	✓
AGRICULTURE			
16. Percentage of farmers who used financial services (savings, agricultural credit, and/or agricultural insurance in the past 12 months	Sex	✓	✓
17. Percentage of farmers who practiced the value chain activities promoted by the project in the past 12 months	Sex	✓	✓
18. Percentage of farmers who used at least [a project-defined minimum] sustainable agriculture (crop, livestock and natural resource management) practices and/or technologies in the past 12 months	Sex, type of practice		✓
19. Proportion of producers who have applied targeted improved management practices or technologies*	Sex, type of practice, type of commodity	✓	
20. Percentage of farmers who used improved storage practices in the past 12 months	Sex, type of commodity	✓	✓
WOMEN'S HEALTH AND NUTRITION			
21. Prevalence of underweight (BMI < 18.5) women of reproductive age	None	✓	✓
22. Prevalence of women of reproductive age consuming a diet of minimum diversity	None	✓	
23. Percentage of women of reproductive age who are currently using, or whose sexual partner is currently using, at least one contraceptive method, regardless of the method used	None	✓	
24. Percent of births receiving at least four antenatal care (ANC) visits during pregnancy**	None	✓	✓
25. Prevalence of women of reproductive age who consume targeted nutrient-rich commodities	Sex, type of commodity	✓	
CHILDREN'S HEALTH AND NUTRITION			
26. Prevalence of healthy weight (WHZ ≤ 2 and ≥ -2) among children under five (0-59 months)	Sex	✓	
27. Prevalence of underweight children (WAZ < -2) children under five (0-59 months)	Sex		✓
28. Prevalence of stunted children (HAZ < -2) children under five (0-59 months)	Sex	✓	✓
29. Prevalence of wasted children (WHZ < -2) children under five (0-59 months)	Sex	✓	✓
30. Percentage of children under age five who had diarrhea in the past two weeks	Sex	✓	✓
31. Percentage of children under five years old with diarrhea treated with oral rehydration therapy	Sex	✓	✓
32. Prevalence of exclusive breastfeeding of children under six months of age	Sex	✓	✓
33. Prevalence of children 6-23 months receiving a minimum acceptable diet	Sex	✓	✓

Indicator	Disaggregation Level	2018 BL	2018 EL
34. Prevalence of children 6- 23 months who consume targeted nutrient-rich commodities	Sex, type of commodity	✓	
GENDER			
35. Percentage of men and women <u>in union</u> who earned cash in the past 12 months	Sex	✓	
36. Percentage of women in union and earning cash who report participation in decisions about the use of self-earned cash	None	✓	
37. Percentage of women in union and earning cash who report participation in decisions about the use of spouse/partner's self-earned cash	None	✓	
38. Percentage of men in union and earning cash who report spouse/partner participation in decisions about the use of self-earned cash	None	✓	
39. Percentage of men and women <u>in union</u> with children under two who have knowledge of maternal and child health and nutrition (MCHN) practices	Sex	✓	
40. Percentage of men/women in union with children under two who make maternal health and nutrition decisions alone	Sex	✓	
41. Percentage of men/women in union with children under two who make maternal health and nutrition decisions jointly with spouse/partner	Sex	✓	
42. Percentage of men/women in union with children under two who make child health and nutrition decisions alone	Sex	✓	
43. Percentage of men/women in union with children under two who make child health and nutrition decisions jointly with spouse/partner	Sex	✓	
RESILIENCE			
44. Shock exposure index	None	✓	
45. Cumulative impact of shock exposure index	None	✓	
46. Absorptive capacity index	None	✓	
47. Adaptive capacity index	None	✓	
48. Transformative capacity index	None	✓	
49. Ability to recover from shocks and stresses index	None	✓	
50. Proportion of households participating in group-based savings, micro-finance or lending programs	None	✓	
51. Index of Social Capital at the household level	None	✓	
CUSTOM INDICATORS			
52. Percentage of respondents reporting increased movement in areas that were previously not accessible due to insecurity	None		✓
53. Percentage of households with access to a sanitation facility – not necessarily improved	None		✓
54. Average number of crops produced per farmer in the past 12 months	None		✓
55. Percentage of farmers adopting farmer managed natural regeneration practices in the past 12 months	None		✓
56. Percentage of livestock owners accessing government or private sector vet care in the past 12 months	None		✓
57. Average rating of government's ability to be responsive to citizens' needs (including transparency, inclusivity, effectiveness) as measured on scorecard	Sex	✓	
58. Percent of target population who can state at least one health benefit of waiting at least two years after last live birth before attempting the next pregnancy	Sex, Age	✓	

BL = DFSA Baseline Study

EL = DFAP Endline Evaluation

GHT= Gendered Household Type, FIES = Food Insecurity Experience Scale

* Pending confirmation of definition and feasibility with existing data

**2018 BL indicator includes last birth within the past 5 years. 2018 EL indicator includes last birth within the past 2 years.

Below we provide an introduction to the newly added or modified FFP indicators and definitions for those indicators that require country-specific adaptations.

5.2.1 Prevalence of moderate or severe food insecurity (FIES)

This indicator captures both physical and psychological experiences of hunger in the past 30 days and 12 months. A draft PIRS developed by ICF based on guidance from the Food and Agriculture Organization (FAO) and Bureau of Food Security (BFS) is included in Appendix B.

5.2.2 Percentage of households with access to basic sanitation services

This is a modified indicator which is essentially the same as the original improved sanitation facilities indicator but no longer includes “flushed to a pit latrine” as an improved facility. The PIRS for this indicator is included in Appendix B.

5.2.3 Prevalence of women of reproductive age who consume targeted nutrient-rich commodities

This indicator is recently updated by FFP. The updated PIRS is included in Appendix B. This indicator is computed based on the sample weighted women of reproductive age (15-49 years old) in the implementation areas that in the previous day ate one or more nutrient-rich commodities promoted by a FFP-funded activity or one or more product made from a nutrient-rich commodity promoted by a FFP-funded activity. The IPs identified the following targeted nutrient-rich commodities that they would be promoting in their projects: orange flesh sweet potatoes (OFSP) and foods made with bio-fortified beans, bio-fortified maize or bio-fortified sorghum,

5.2.4 Prevalence of children 6-23 months who consume targeted nutrient-rich commodities

This indicator is also recently updated by FFP. The updated PIRS is included in Appendix B. It is computed based on the sample weighted children of age (6-23 months) in the implementation areas that in the previous day ate one or more nutrient-rich commodities promoted by a FFP-funded activity or one or more product made from a nutrient-rich commodity promoted by a FFP-funded activity. The identified targeted nutrient-rich commodities under 5.2.3 for women are also applicable for this indicator.

5.2.5 Prevalence of healthy weight children under five years of age

This is a newly added indicator. It is the sample-weighted number of children 0-59 months of age in the sample with $(WHZ \geq -2 \text{ and } WHZ \leq 2)$ divided by the sample-weighted number of children 0-59 months in the sample with WHZ data. The PIRS for this indicator is included in Appendix B.

5.2.6 Agricultural Indicators

The agricultural indicators for the 2018 EL study will be calculated using the same definitions that were used for the 2013 BL.⁴ The following tabulation instructions will be used to calculate the agricultural indicators for the BL study:

⁴ These definitions can be found in Appendix B of the “Data Treatment and Analysis Plan for the Title II Quantitative Baseline Surveys in Uganda, Niger and Guatemala”, June 28, 2013.

- *Percentage of farmers who used financial services* (savings, agricultural credit, and/or agricultural insurance) in the past 12 months is calculated based on the sample weighted number of farmers who reported using at least one financial service divided by the sample weighted total number of farmers.
- *Percentage of farmers who practiced the value chain activities* promoted by the project in the past 12 months is calculated based on the sample weighted number of farmers who reported using at least one value chain activity⁵ to be promoted by the project divided by the sample weighted total number of farmers.
- *Proportion of producers who have applied targeted improved management practices or technologies* in the past 12 months is a new indicator to be computed for 2018 BL only. The PIRS for this indicator is attached in Appendix B. FFP plans to use this indicator to replace *Percentage of farmers who used a project-defined minimum number of sustainable agricultural practices* indicator in future BL surveys. This indicator is calculated based on the sample weighted number of producers⁶ who have applied promoted improved management practices and/or technologies anywhere within the food and fiber system in the reporting year divided by the sample weighted number of producers with application of any improved management practices or technologies.⁷
- *Percentage of farmers using improved storage practices* is calculated based on the sample weighted number of farmers who reported using at least one improved storage practice and/or technology divided by the sample weighted total number of farmers.

5.2.7 Custom Indicators (2013 BL and 2018 EL)

The 2013 BL PBS included five custom indicators as noted in Table 5.2. These indicators will be computed for 2018 EL PBS in order to compare with the 2013 BL PBS values. Computation methodologies for all five indicators are presented in Appendix B.

5.2.8 Custom Indicators (2018 BL)

- *Average rating of government's ability to be responsive to citizens' needs (including transparency, inclusivity, and effectiveness) as measured on scorecard* is the sample weighted average score for each of 12 questions related to government responsiveness. Estimates of this indicator will be presented as a scorecard. The PIRS for this indicator is presented in Appendix B.
- *Percent of target population who can state at least one health benefit of waiting at least two years after last live birth before attempting the next pregnancy* is calculated as sample weighted number of individuals who can state at least one health or social benefit of waiting at least two years after

⁵ Only those farmers who raise crops or livestock with the intent to sell for income are asked about value chain activities.

⁶ The definition of a producer as stated in the PIRS “(e.g. farmers, ranchers and other primary sector producers of food and nonfood crops, livestock products, fish and other fisheries/aquaculture products, agro-forestry products, and natural resource-based products, etc.)” is similar to the definition of a farmer in Module G of the questionnaire.

⁷ This indicator will be included pending confirmation of definition and feasibility with existing data. It requires each implementing partner to determine their targeted improved management practices or technologies. Similarly, to disaggregate the indicator by prioritized value chain commodities as suggested in the PIRS, the implementing partners will also need to determine and provide a list of such commodities to ICF.

last live birth before attempting the next pregnancy divided by total sample weighted number of individuals. The indicator PIRS is presented in Appendix B.

5.2.9 Poverty Indicators

Calculation of the four poverty indicators involves a complex and time-consuming methodology that follows guidance from USAID and the World Bank. A detailed description of this methodology is provided in Appendix C.

The 2018 BL study will include questions to calculate the Innovations for Poverty Action (IPA) Poverty Probability Index (PPI) which will be used to construct two poverty indicators: prevalence of poverty and depth of poverty. These two indicators will be compared to the same two indicators constructed using the LSMS methodology as described in Appendix C. This is a pilot study for the PPI in order to test its viability as a replacement methodology for the LSMS variants for calculating the poverty indicators. The analyses for the PPI will be conducted by IPA with support from ICF. An overview of the analyses is provided in Appendix D.

5.2.10 Resilience Indicators

The resilience questionnaire module and indicators were developed by TANGO and are described in Appendix E. TANGO will calculate the resilience indicators and conduct all further analyses of these indicators.

5.3. Handling of Missing Data and “Don’t know” Responses

Missing data points will be assessed and excluded from both the denominator and the numerator for the calculation of all indicators as applicable. “Don’t know” and “Refused” responses will be excluded from the numerators used in the calculation of the indicators. For example, for responses to questions relating to consumption of the various food groups in the HDDS component, “Yes,” “No,” and “Don’t know” responses will be included in the denominator, but only “Yes” responses will be counted in the numerator. For poverty indicators, there are special instructions for handling missing data (see Appendix B).

6. DATA ANALYSIS PLAN

Separate datasets will be prepared for the 2018 BL and EL samples and data analyses will be conducted separately for each. For the BL study, analyses will include examination of key demographic characteristics of the study population, calculation of all FFP and resilience indicators, bivariate analyses and multivariate analyses as appropriate. TANGO will conduct the resilience analyses, as described in Appendix E. For the PEs, analyses of the 2018 EL PBS data will include comparisons between the 2013 BL and 2018 EL key demographic characteristics and comparisons between the 2013 BL and 2018 EL overlapping FFP indicators.

Indicators will be calculated separately for each project, as well as for the combined project areas, and all analyses will be weighted to reflect the full target population. Stata version 14⁸ will be used for all analyses and statistical testing. A more detailed data analysis plan for the 2018 BL PBS and EL PEs is provided below.

6.1. Analyses for 2018 BL Study

Data analysis for the BL PBS includes examination of key demographic characteristics of the study population, calculation of all FFP and resilience indicators, and bivariate analysis of indicators that can help inform program targeting and program design where possible. Bivariate analyses including disaggregation by key sub-populations will be conducted for each DFSA area separately. They will not be performed for the combined DFSA areas since the combined estimates will mask differences by DFSA area; and program targeting and the design of interventions are DFSA-specific. Additional multivariate analyses will be conducted as appropriate to provide further insights on relationships between key indicators. In some cases, it may not be possible to conduct the proposed analyses due to sample size limitations.

6.1.1 Household Characteristics

The BL report will provide an overview of the size and sociodemographic characteristics of the population in the DFSA areas and an explanation for why or how these characteristics may influence the BL indicators and the achievement of DFSA targets over time.

This includes the percentage of individuals in the following key target population groups in the combined DFSA areas and by DFSA:

- Adults (15+ years), total and by sex
- Cash earners (15+ years), total and by sex
- Farmers (15+ years), total and by sex
- Women of reproduction age (15-49 years)
 - Non-pregnant
 - Married or in a union
 - With a live birth in the past 5 years
 - Pregnant and lactating women
- Children under 5 years, total and by sex
- Children under 2 years, total and by sex
- Children under 6 months, total and by sex
- Children 6-23 months, total and by sex

This analysis also includes the following household-level statistics for the combined DFSA areas and by DFSA:

- Average household size (Number of persons)
- Average number of adults (15+ years) per household
- Percent of households with at least one child under 5 years of age
- Percent of households with at least one child 6-23 months of age
- Percent of households with at least one child under 6 months of age

⁸ StataCorp. 2014. *Stata Statistical Software: Release 13*. College Station, TX: StataCorp LP.

- Gendered household type (Percent of households)
- Highest level of education achieved by any adult household member

6.1.2 FFP, Resilience and Custom Indicators

All indicators will be generated using relevant sampling weights to represent the full target population and tabulated for the combined DFSA areas and for each DFSA separately. All indicators will be disaggregated, as specified in Table 5.2. Variance estimation (derived using Taylor series expansion) will take into account the design effect associated with the complex sampling design; 95 percent confidence intervals will be provided for all FFP indicators at the aggregated DFSA level and for each DFSA separately.

6.1.3 Additional Analyses

Select bivariate and multivariate analyses will be conducted to explore relationships between indicators and other important household/individual characteristics, and to explore associations between outcome and impact indicators. These analyses are intended to provide useful information to help identify particular sub-groups on which to focus or to help inform program design by illustrating the factors that are associated with the outcome and impact indicators. Differences in means or proportions between groups or correlations will be tested using appropriate statistical test of differences (such as t-test, chi square test). The BL study will include both quantitative and qualitative information though the study will be heavily dependent on quantitative data and analyses. The qualitative information to be collected for this BL study will be collected at the same time as the larger qualitative data collection effort for the PEs. The qualitative data to be collected for the BL study will be guided by the quantitative findings and its need for further explorations and interpretations. As such, a summary of the findings or excerpts from the qualitative data derived from key informant interviews and focus group discussions will be used to explain the “why” and “how” of the quantitative findings. If time and resources allow, outside literature will be also be consulted and used to explain or confirm the quantitative findings as necessary.

The rationale and explanations for select additional bivariate analyses are discussed below, followed by a description of the specific proposed analyses by content area.

Rationale for Analyses:

- *Gendered household type*: Based on other FFP countries’ data, certain gendered household types, particularly those with adult females only, seem to have higher food insecurity and poverty. As such, it would be interesting to explore how gendered household type may influence households’ food insecurity, poverty, and child nutrition indicators in the Karamoja Region.
- *Education*: The level of education attained by adult household members can influence the choices and decisions made by their household which in-turn can affect their socio-economic wellbeing. Hence, it would be interesting to conduct relational analyses especially between the highest education attained by any adult member and some select FFP indicators such as child stunting, underweight, FIES, and WASH practices. The results can help IPs to design further studies to investigate the barriers to adult education and also to educate project participants about the importance of continued education for adults in the project areas.

- *Gender bias in intra-household resource allocation:* Gender bias can affect women and children. Analysis of children's health and nutrition by sex of the child and sex of the household head might shed an important light on gender bias with respect to household food security indicators (HDDS and FIES). Increased household food security, in theory, could mean improved dietary intake for children and women. The non-existence of such relationships could mean several things, including a lack of adequate distribution of food among the children and women within the household.
- *Agriculture:* Agriculture is the backbone of peoples' livelihoods in Karamoja. Understanding the types of crops produced, types of animals owned, farmers' use of financial services, and types of modern/improved technologies practiced in farming and livestock rearing can help the project IPs systematically diagnose the status of agriculture in the project areas. Similarly, exploring the relationships between whether farmers plant (or raise) crops (or livestock) and their intention to sell and size or type of land owned (own, rent, sharecrop etc.) can shed some lights about agriculture constraints.
- *WASH practices:* Household WASH practices can affect household members' health and nutrition outcomes. Unsafe drinking water, poor or non-existent handwashing practices, and/or inadequate disposal of human feces can cause diarrhea and other diseases. While some of the common causes of these situations are known in the literature, it is still useful to examine the relationships between the WASH indicators and various household and community level characteristics such as, household poverty status, availability of relevant WASH project interventions in the area, availability of a communal water users' group, and whether or not households receive health and nutritional information. These analyses could be very useful for the project implementers to design or prioritize WASH interventions.
- *Women's empowerment:* Women's ability to earn cash and control over household assets can give them leverage to participate in household decision making, such as decisions about household consumption and expenditures, which may contribute to improved nutrition among children and women and improve the food security of the overall household. The proposed analyses will investigate perceived control over decisions about cash and assets and control over decisions about child health and nutrition.
- *Local context:* Households access to important institutions or services such as markets, educational institutions, health services, agricultural inputs and services, and existing external development program, as well as incurring shocks and stresses can influence food insecurity and health and nutrition situations. Where relevant, bivariate analysis will be conducted between such contextual variables (available in the resilience module) and women's and children's health and nutritional indicators.
- *Poverty:* Poverty can be a cause of many subpar living conditions such as poor health and malnutrition, poor education, and poor water and sanitation practices. It can also be an outcome of such conditions. As the FFP projects aim to target the neediest households in the project areas, it will be useful to examine the relationships between WASH indicators, FIES, child stunting and underweight, children's minimum acceptable diet (MAD), and women's dietary

diversity; with household's poverty status. Such analyses may help the IPs to design or prioritize interventions that can effectively target the poor.

Proposed specific analyses:

Household Food Security, Poverty, and Livelihood Activities

- Analysis of food security, poverty and livelihood activities will be presented in the same section because of their interrelationship. The FFP indicators for food security and poverty will be disaggregated by gendered household type. The results of these analyses are intended to help focus targeting on subgroups that may be more vulnerable to food insecurity and poverty.
- Bivariate analyses will be conducted between food insecurity and poverty indicators. These can include correlation analysis (1) between average daily per capita consumption and household hunger status; (2) between average household dietary diversity score and household poverty status; and (3) between prevalence of poverty and prevalence of hunger. These analyses are intended to empirically test hypothesized relationships in the theory of change on the interrelationship between food security and poverty and to establish a BL profile of the economic status of food-insecure households.
- Both food insecurity and poverty can be attenuated by a host of many internal factors such as household ownership of productive assets including land, ownership of livestock assets, and external factors such as access to markets, infrastructure, and services, and external shocks. A series of correlation analysis will be conducted to identify association between the various internal and external factors with both food insecurity and poverty. The results of this analyses will help IPs to design program interventions that moderate the factors that contribute to food insecurity and poverty.
- The analysis of livelihood activities will look at the percentage of households that engage in more than one livelihood activity or have more than one source of income. It will also identify primary livelihood activities by food insecurity and poverty status. The primary livelihood activities of the households will be disaggregated by gendered household type. Bivariate analyses will be conducted between households bearing different set of livelihood activities with the food security and poverty indicators. The results of these analyses are intended to inform program targeting and design by (1) identifying primary livelihoods that households are currently pursuing, and (2) identifying the types of program assistance that can help households focus on livelihood activities that can potentially contribute to higher income and reduce vulnerability to food insecurity and poverty.

Agriculture

- The types of crops and livestock produced in each of the project areas will be presented and analyzed by sex of the farmer, land ownership and size of land. The types of crops planted will also be analyzed in relation to whether the land is used for sharecropping. The results of the analyses are intended to highlight whether certain subgroups are more likely to focus on food crops versus cash crops. Univariate analyses will be provided for the following variables to provide a BL understanding of some of the factors that may be related to agricultural productivity: land ownership and size of land, availability and accessibility of agricultural

extension services, availability and accessibility of veterinary services, and types of improved practices for crop and livestock management. The BL estimates of shocks impacting agriculture and its severity experienced by the households will be presented and discussed in relation to agriculture status and prospects in the project areas. Qualitative insights will also be offered to provide a better understanding about evolving nature of shocks and stresses for agriculture. These analyses are helpful for IPs to understand important shocks related to agriculture challenges in the project areas.

- The BL estimates for use of financial services, targeted improved management practices or technologies, value chain activities and improved storage methods will be presented and disaggregated by sex of farmer. To better understand the factors that open pathways to the use of financial services, bivariate analyses of the use of financial services will be conducted with the availability of institutions where people can save money within five miles of respondents' villages and the availability of institutions where people can borrow money within five miles of respondents' villages. Further, to identify important institutions used by farmers for credit and saving, correlation analyses will be conducted between farmers' use of financial services and each type of financial service institution used by farmers within the past 12 months.
- Bivariate analyses will be conducted for farmers' use of financial services and their use of applied targeted improved management practices or technologies with household education status and household's poverty status. This analysis can help assess if poverty and education are important defining factors for use of financial services and improved agriculture management practices.
- Both projects' theories of change emphasize market systems development and promote sales through activities such as access to financial services, entrepreneurship and business development training. Distance to markets can become critical for many farmers to be able to sell their produce. To understand the relationship in the context of project areas, bivariate analysis will be conducted between farmers' intent to sell their agricultural products and the distances from their household to nearest markets, and the types of road that connect to villages.

Water, Sanitation and Hygiene (WASH)

- Household WASH practices can be influenced by many factors such as lack of adequate water, lack of education, and lack of proper norms or habits of following basic personal hygiene practices. To explore some of the possible factors in the project area, select WASH indicators will be disaggregated by gendered household type and households' status of participating in different community groups.
- Households' use of basic water services, use of water treatment technologies, use of basic sanitation facilities and adoption of handwashing practices can be influenced by whether or not they are informed about proper health and hygiene practices. To examine this, a set of bivariate analyses will be conducted between the WASH indicators and households' status of receiving information on child health and nutrition. While the information on child health and nutrition may not necessarily cover all WASH aspects, it could serve as a proxy to basic WASH information such as safe drinking water, basic hygiene practices are usually part of the child health and nutrition information provided by public health professionals.

- Households' WASH conditions can be affected by natural and socio-economic shocks. Thus, associations between the select WASH indicators and households' exposure to shocks will also be explored. The results of these analyses are intended to inform program targeting, for example, by highlighting certain subgroups whose BL estimates are significantly lower than the project area average. Bivariate analyses of WASH practices and children's health and nutrition status are covered in the section on Child Health and Nutrition.

Women's Health and Nutrition (WHN)

- Select WHN indicators will be disaggregated by women's age groups. This will help better understand if women's health and nutrition indicators vary by their age group. Also, such disaggregation may help target the women beneficiaries who are in need of health and nutrition support the most.
- Bivariate analyses will be conducted for the prevalence of underweight women and MDD-W with the household poverty status and type of development food security programming available in the village. Results can illustrate the types of program interventions that are statistically associated with women's nutrition and potentially serve as a basis for discussing how and whether to align future interventions with existing ones.
- Bivariate analyses will be conducted for women's underweight, MDD-W and ANC indicators with the household's access to child and health information, equal rights for women and men, and gender-based violence information, and existing gender norms within the households. Similarly, bivariate analyses will be conducted with households' involvement in community groups especially mothers' and women's groups. These analyses will help assess whether targeting households with certain information or women's involvement in the community groups make difference in women's food consumption and health care behavior especially during pregnancy.
- Additionally, bivariate analyses will be conducted for the following: (1) antenatal care and availability of health services within five miles of respondents' villages; (2) antenatal care and physical condition of health service used by people in respondents' villages; and (3) contraceptive use and availability of health services within five kilometers of respondents' villages. Results can help shed light on the factors associated with women's sexual and reproductive health care practices.
- Additional multivariate analyses that control for confounding variables may be conducted to illustrate the potential pathways for improvements in women's health and nutrition. These analyses should control for households' use of improved agriculture management practices or technologies, maternal health decision making, and female-level and household-level factors that can influence women's health and nutrition. The results of these analyses may help inform program design and empirically validate relationships in the underlying theory of change.

Children's Health and Nutrition (CHN)

- Children's health and nutrition indicators will be disaggregated by sex and age group. Bivariate analyses will be conducted for children's malnutrition indicators (stunting, underweight, and wasting) and the prevalence of diarrhea with the following: (1) use of basic water services, (2)

use of basic sanitation facility, (3) correct water treatment; and (4) availability of a handwashing facility with soap and water. Results are intended to highlight any gender bias and suggest factors that are associated with children's health and nutrition and inform program design where possible.

- Additional multivariate analyses that control for confounding variables may be conducted to illustrate the potential pathways for improvements in children health and nutrition. These analyses could control for households' use of improved agriculture management practices or technologies, value chain activities, decision making over children's health, and a host of child-level and household-level factors that can influence children's health and nutrition. The results of these analyses could help inform program design and empirically validate relationships in the underlying theory of change. These analyses will be conducted if warranted by the results of the bivariate analyses or the qualitative study.

Gender

- Gender analysis will be conducted throughout the report, for example by looking at differences by sex in the indicators. In addition, the following will be disaggregated by sex: (1) ownership of agricultural land, (2) plot size, and (3) participation in cash-earning opportunities.
-
- Bivariate gender analyses will be conducted for the following: (1) decision making on use of cash and household hunger, (2) decision making on use of cash and household dietary diversity; (3) maternal health decision making and use of contraception, (4) maternal health decision making and antenatal care, (5) child health decision making and children's nutritional status (stunting, wasting and underweight), and (6) child health decision making and feeding practices of children (MAD). Results are intended to highlight existing gender gaps in access to and control over resources, and to shed light on decision-making processes within the household that could impact women and children's health and nutrition and household food security.

6.2 Analyses for 2018 Performance Evaluations

Analysis of the PBS data for the PEs includes a comparison of key demographic characteristics of the study population at BL in 2013 and at EL in 2018 along with comparisons of BL and EL indicator estimates for all indicators as noted in Table 5.2. In addition, where relevant, bivariate and multivariate analyses will be performed to support the PEs and explore the plausible determinants for key outcome indicators.

6.2.1 Comparison of 2013 BL and 2018 EL Household Characteristics

A comparison of household characteristics between the BL and EL samples will be conducted to determine if differences exist. The same demographic and socioeconomic characteristics described in Section 6.1.1 will be evaluated. If differences are found between BL and EL, an explanation for why or how these differences may influence the change in indicators over time and the achievement of program targets will be provided.

6.2.2 FFP and Custom Indicators

All 24 indicators that were constructed in 2013 will be calculated using 2018 PBS endline data and weighted to represent the full target population. Indicators will be tabulated for the combined DFAP areas and for the two prior DFAPs separately. All indicators will be disaggregated, as specified in Table 5.2. Variance estimation (derived using Taylor series expansion) will take into account the design effect associated with the complex sampling design; 95 percent confidence intervals will be provided for all FFP and custom indicators at the aggregated DFAP level and for each prior DFAP separately.

6.2.3 Comparison of 2013 BL and 2018 EL FFP and Custom Indicators

The 2013 BL and 2018 EL indicator estimates will be compared using a statistical test of differences to determine if significant change occurred over time. Raw differences and p-values to test for significant differences will be provided for each comparison. Although the results from these comparisons will provide an indication of whether change occurred over time, the change cannot be directly attributed to the DFAP activities.

6.2.4 Additional Analyses

Relevant bivariate analyses from the list as described in section 6.1.3 will be conducted to explore relationships between indicators as appropriate in support of the PEs. Additional select multivariate analyses may be conducted if warranted by the BL-EL comparisons or bivariate analyses findings, to explore plausible determinants of key outcome indicators. The PBS data will be interpreted based in part on FFP's conceptual model/framework, secondary data from other studies as available, and within the context of the PEs.

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APPENDIX A – SAMPLING WEIGHTS

HOUSEHOLD WEIGHTS

Household weights will be applied for household level indicators derived from Modules C, CC, F, H, L, and R and included in the construction of individual weights for all other modules.

Household design weights are calculated based on the separate sampling probabilities for each sampling stage and for each cluster (kebele).

P_{1hi} = first-stage sampling probability of the i -th cluster in stratum h

P_{2hi} = second-stage sampling probability within the i -th cluster (household selection).

The probability of selecting cluster i in the sample is: $P_{1hi} = \frac{m_h \times N_{hi}}{N_h} \times b_{hi}$

The second-stage probability of selecting households in cluster i is: $P_{2hi} = n_{hi} / L_{hi}$

Where:

m_h = number of sample clusters selected in stratum h .

N_{hi} = total households in the frame for the i -th sample cluster in stratum h (obtained from Census or other external information).

N_h = total households in the frame in stratum h .

b_{hi} = the number of selected segments divided by the total number of segments in the i -th sample cluster in stratum h

n_{hi} = number of sample households selected for the i -th sample cluster in stratum h .

L_{hi} = number of households from the household listing exercise for the i -th sample cluster in stratum h (ideally, this is the same as N_{hi} , but most often is not in practice).

The overall selection probability of each household in cluster i of stratum h is the product of the selection probabilities of the two (or three) stages:

$$P_{hi} = P_{1hi} \times P_{2hi} = \frac{m_h \times N_{hi}}{N_h} \times b_{hi} \times n_{hi} / L_{hi}$$

The household design weight for each household in cluster i of stratum h is the inverse of its overall selection probability:

$$W_{hi} = \frac{1}{P_{hi}} = \frac{N_h \times L_{hi}}{m_h \times N_{hi} \times n_{hi} \times b_{hi}}$$

The household sampling weight is calculated using the household design weight corrected for household non-response in each of the selected clusters. Weighted response rates are calculated at the cluster level as ratios of the weighted number of interviewed households divided by the weighted number of eligible households, where the weights used are the household design weights. The household sampling weight is calculated by dividing the household design weight by the weighted household response rate.

Separate baseline and endline household weights

Household weights will be computed separately for the 2018 baseline and endline PBS samples. Because the baseline and endline were jointly administered, only the appropriate component geographic areas relating to each of the two embedded PBSs are used in the formation of the respective set of weights.

The steps for calculation of these separate weights are as follows:

- I. Divide the sampled households into two groups – one for 2018 baseline (overlap and new areas) and one for 2018 endline (overlap and old areas)

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APPENDIX A – SAMPLING WEIGHTS

2. Create a separate set of weights for the 2018 BL group and another set of weights for the 2018 endline group following the two stages of sampling described above
3. Apply an adjustment to the weights if there are more households than are needed for a specific stratum (old, new or overlap) to ensure that the strata contribute with the same proportion as they were in the original allocations. The original allocations are shown in the table below.

Project	Sample Size Requirement (Old Project/EL)	Sample Size Requirement (New Project/BL)	Joint BL/EL Sample Size Requirement	Number of Clusters
CRS DFSA	1,220	1,230	1,680	56
Overlap	939	916	990	33
Old	281	0	330	11
New	0	314	360	12
MC DFSA	1,220	1,230	1,680	56
Overlap	1,220	820	1,230	41
Old	0	0	0	0
New	0	410	450	15
TOTAL	2,440	2,460	3,360	112

INDIVIDUAL WEIGHTS

Individual sampling weights will be applied for indicators derived from Modules D (children), E (women of reproductive age), G (farmers), J (cash earners), and K (parents of children under two years).

Since all eligible individuals will be selected for each Module, the probability of selecting eligible individuals within sampled households is always one. Therefore, the individual weights will consist of an individual non-response adjustment only.

The weighted individual nonresponse adjustment will be applied using the inverted proportion of the weighted total number of completed interviews for each group divided by the weighted total number of eligible individuals for each group. This non-response adjustment is calculated at the project level.

The final individual weights will then be computed as the product of the household weights and the weighted individual nonresponse adjustment.

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APPENDIX B – METHODOLOGY TO CALCULATE NEW/MODIFIED OR CUSTOM INDICATORS

Provided as separate document.

Uganda PBS Data Treatment and Analysis Plan

APPENDIX C - METHODOLOGY TO DERIVE POVERTY INDICATORS

The World Bank defines poverty as whether households or individuals have enough resources or abilities today to meet their needs. Poverty is usually measured based on consumption expenditures rather than income. Consumption expenditures are more closely related to well-being because households adopt strategies to meet their current basic needs. Also, in poor agrarian economies and in urban economies with large informal sectors, income may be difficult to estimate. It may be seasonal and erratic, and it may be difficult to estimate particularly for agricultural households whose income may not be monetized.

The prevalence of household poverty will be measured using information on household consumption expenditures to compute a household consumption aggregate. The consumption aggregates will be constructed following guidelines from Deaton & Zaidi (2002)⁹ and Grosh & Muñoz (1996)¹⁰ by adding together the various goods and services consumed by each household during a period of 12 months. The various components of consumption will be grouped together into 6 main categories, including food, usual expenses (expenses in the last 7 days), occasional expenses (expenses in the last 30 days), unusual expenses (expenses in the last 12 months), housing and durable assets.

In general, consumption will be calculated by adding the value in local currency units (LCU) of the items consumed by the household, as reported by household informants. These items will be collected according to different time horizons, but will be then transformed into a daily per capita consumption expenditure aggregate.

Whenever a household is missing data on the monetary value of an item it has consumed, that value will be imputed using the closest local median value for that item. That is, if a household is missing consumption information on a given item, it will be assigned the median value reported by other households in the vicinity. Whenever the item is reported frequently enough, this imputation will be done at the cluster level. However, some items may be consumed by few households. In those cases, the level of imputation would be at a higher level, depending on how rare the item is. These imputed amounts will be subject to checks that the imputed prices are plausible to avoid undue influence from outliers.

The reported values for each item and each consumption component will be checked for outliers to detect possible coding errors or extreme values. Depending on the distribution of variable, values that are 1 to 5 standard deviations (SD) over the average will be flagged and checked for plausibility. Values deemed implausible will be imputed using the methodology described above.

Besides this general methodology, some components require specific computations.

- **Food Consumption**

Computation of food consumption is complex because it involves products that are purchased in the market, where price information is available, and products that are home-produced or received as a gift, where price information is not available. Even when products are purchased, it is often difficult for

⁹ Deaton, A. and S. Zaidi (2002), A Guide to Aggregating Consumption Expenditures, Living Standards Measurement Study, Working Paper 135. Available at: <http://siteresources.worldbank.org/INTPA/Resources/429966-1092778639630/deatonZaidi.pdf>

¹⁰ Margaret Grosh and Juan Muñoz (1996). A Manual for Planning and Implementing the Living Standards Measurement Study Surveys. LSMS Working Paper #126, The World Bank. Available at: <http://documents.worldbank.org/curated/en/1996/05/438573/manual-planning-implementing-living-standards-measurement-study-survey>

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APPENDIX C - METHODOLOGY TO DERIVE POVERTY INDICATORS

household informants to report the precise market value of the amounts consumed by the household over the reference period, which often results in missing data.

The value of non-purchased food (and of any food missing value information), will be imputed by first transforming the amounts consumed by the household to a common reference unit, and multiplying the local median value of that unit times the amount consumed. If a product is reportedly consumed, but information on the quantity consumed is missing, the median daily per capita amount consumed by local households will be imputed.

• **Assets**

Purchases of durable goods represent large and relatively infrequent expenses. While almost all households incur relatively large expenditures on these at some point, only a small proportion of all households are expected to make such expenditures during the reference period covered by the survey. As indicated by Deaton & Zaidi (2002) “From the point of view of household welfare, rather than using expenditure on purchase of durable goods during the recall period, the appropriate measure of consumption of durable goods is the value of services that the household receives from all the durable goods in its possession over the relevant time period” (p. 33).

Consumption of durable goods will be calculated as the annual rental equivalent of owning the asset. This rental equivalent is computed as the price of the asset in its current shape multiplied by the sum of the real interest rate and the depreciation rate:

$$S_t P_t (r_t - \pi_t + \delta)$$

Where $S_t P_t$ is the current price of the asset, $r_t - \pi_t$ is the real rate of interest, and δ is the depreciation rate for the durable good. Each of these components will be computed separately.

1. Current value of the asset ($S_t P_t$): This will be obtained from household reports of the value of the asset in its current shape (second-hand).
2. Real rate of interest ($r_t - \pi_t$): In theory, r_t is the general nominal rate at time t , and π_t is the specific rate of inflation for each asset at time t . However, in practice this is calculated as a single real rate of interest that is used for all goods, taken as an average over several years (see Deaton & Zaidi, 2002 p. 33). Data on real interest rates will be obtained from the World Bank¹¹ and averaged for the appropriate period to obtain a single real rate of interest.
3. Rate of depreciation (δ): The rate of depreciation for each of the items is given by the formula:

$$1 - \left(\frac{P_t}{P_{t-T}} \right)^{1/T}$$

Where P_t is the current value of the item at current time t , P_{t-T} is the value of the item when purchased, and T is the age of the item in years. Inflation-adjusted rates of depreciation will be obtained using the local median price of an item at the time of purchase. In order to minimize

¹¹ Data on the real interest rates for Uganda are available for the period 1995 - 2018. Estimates are based on the average real interest rate during 1995-2018, which is 13.39%. Source: <https://data.worldbank.org/indicator/FR.INR.RINR?locations=UG&view=chart>

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the influence of outliers, the median δ will be used for each of the durable assets for which data are collected (i.e. rather than using household-specific values of δ calculated from the data).

A rental equivalent estimating the daily per capita flow of services from the durable goods is then derived by dividing the annual rental equivalent over the number of members in the household and the 365 days of the year.

- **Housing**

The case of housing is similar to other durable goods, in that it is better measured as an annual consumption of housing services, either annual rent expenditures for renters, or an annual rental equivalent for non-renters.

The household survey will collect information on rent paid among renters, and an estimated rental equivalent for non-renters. It is likely that the housing rental market is small and a significant amount of non-renters are unable to provide an estimated rental equivalent. These missing responses will be imputed using two approaches. First, the age of the house and its current replacement value will be used to estimate a housing rental equivalent, using the methodology described above for durable goods. For those cases where the estimated current value or age of the house are not available, a hedonic OLS (Ordinary Least Squares) regression model will be used (where “hedonic” regression is a preference method of estimating demand or value), as suggested by Grosh & Muñoz (1996). The model will be built on the sample of households reporting non-zero rent or rental equivalents, with the log of rent paid by renters as a dependent variable, and several sets of independent variables, that may include:

- Housing characteristics: number of members, type of water access, type of sanitation services, asset ownership.
- Location: District

The final model will be estimated based on the following regression equation,

$$\log(R_i) = \beta_0 + \beta X_i + \varepsilon_i$$

where R_i represents the reported non-zero rent paid by household i , β_0 is the constant term, X_i is the final vector of independent variables and ε_i is the error term accounting for unexplained variance. The initial model will contain consumption variables in log form and a set of dummies for all categorical variables. In order to avoid problems with multi-collinearity, a forward stepwise regression approach will be used to exclude variables that do not contribute to model fit and were thus statistically redundant. The unstandardized beta weights resulting from this regression equation will be applied to the vector of independent variables among non-renting households to estimate their annual rent equivalent.

- **Average daily per capita consumption expenditures**

In October 2015, the World Bank raised the poverty line to USD \$1.90 using 2011 purchasing power parity (PPP) rates. To facilitate the transition between the 2011 PPP rates and the prior framework based on 2005 PPP rates, this indicator will be computed as the average daily per capita consumption expenditures in constant 2010 US dollars, using the 2011 Purchasing Power Parity (PPP) exchange rates adjusted to 2010 US prices.¹²

¹² For the endline survey, poverty will be computed using the USD \$1.25 threshold using 2005 PPP rates. The poverty calculation methodology for the endline will be same as the 2014 baseline in order to facilitate baseline-endline comparisons.

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- o **2011 PPP rates:** The steps to convert daily per capita consumption expenditures collected in local currency units (LCU) to constant 2010 US\$ (2011 PPP adjusted to 2010 US prices) are:
- 1) Convert LCU at the time of the survey (June 2018) to LCU at 2011 prices, by dividing by the ratio of the CPI for the survey month (171.77) to the average annual CPI in 2011 for Uganda (116.19).¹³
 - 2) Convert 2011 LCU to 2011 US\$ by dividing by the 2011 PPP conversion rate of 946.89.¹⁴
 - 3) Convert US\$ in 2011 prices to US\$ in 2010 prices by dividing by 1.032, which is the ratio of the US CPI in 2011 (224.94) to the US CPI in 2010 (218.06).¹⁵

Note that average daily per capita consumption expenditure is expressed in US\$ in 2010 prices in order to enable comparisons with other countries – so a common standard is essential.

• **Prevalence of Poverty**

The prevalence of poverty, or poverty headcount ratio, is the proportion of the population in the survey area living in extreme poverty, defined as per capita consumption of less than US\$1.90 at 2011 prices.

- 1) Consumption data in the joint baseline and endline PBS will be collected in Ugandan *Shilling*. In order to compare the Uganda consumption expenditure data in Ugandan *Shilling* to the international poverty lines, the poverty lines first need to be converted into the LCU. However, if we use current market exchange rates we would underestimate consumption. One Ugandan *Shilling* can buy more products and services in Uganda than the equivalent amount in US\$ (1 Ugandan *Shilling* = US \$0.00026)¹⁶ can purchase in the US. The conversion of LCUs to US\$ should use an exchange rate that takes into account the differences in purchasing power of different currencies. This exchange rate is referred to as the Purchasing Power Parity (PPP) exchange rate. The poverty line will need to be further adjusted for cost of living differences in the FFP survey area since the PPP rates are constructed for entire country. Specifically, the poverty line to estimate the proportion of the population living in extreme poverty will be computed as following: The \$1.90 line will be converted into LCU by multiplying it by the 2011 PPP conversion factor for private consumption for Uganda (946.89).
- 2) The resulting figure ($\$1.90 * 946.89 = 1,799.09$) will be adjusted for cumulative price inflation since 2011. The adjustment will be done using the consumer price index (CPI) for the survey month as the numerator, and the average annual CPI for 2011 for Uganda as the base factor. The US\$1.90 poverty line is equal to $1,799.09 * (171.77/116.19) = 2,659.69$ in May 2018 Ugandan *Shilling*.
- 3) Finally, resulting figure will be adjusted by the factor of cost of living difference in Karamoja since the cost of basic needs required to live Karamoja could be different than the rest of the country and urban centers in particular. The CPIs in Uganda are constructed based on the prices in urban centers, they don't take an account of price differences in Karamoja. The price adjustment process involves multiple steps. First, the key food items (food bundle) that contribute to major share of overall households' food consumption will be identified from the survey data. Second,

¹³ CPI for the months of June 2018 for Uganda were not available therefore the CPI for the nearest available month (May 2018) is used here. The CPI for May 2017 for Uganda is 171.8. During the actual data analysis which will happen in July, the June CPI are expected to be publicly available and would be used. CPI 2011: <http://data.imf.org/?sk=6ac22ea7-e792-4687-b7f8-c2df114d9fdc&slid=1390030341854>; CPI for May 2018: <https://www.ubos.org/publications/statistical/30/>

¹⁴ PPP conversion factor, private consumption (LCU per international\$), 2011 International Comparison Program. Source: <https://data.worldbank.org/indicator/PA.NUS.PRVT.PP>

¹⁵ Source: https://www.bls.gov/cpi/cpi_dr.htm

¹⁶ <https://www.xe.com/currencyconverter/convert/?Amount=1&From=UGX&To=USD>, accessed on June 4, 2018.

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average per standard unit (KG) price of the food bundle will be computed for the Karamoja region and for the rest of the country using the price data from the Uganda National Household Survey 2016/17. The ratio of the food bundle price of Karamoja over rest of the country will then be used to adjust poverty line (2,659.69, 2011 PPP) for the Karamoja region. Cost of living could also vary by the type of dwelling structures and assets owned by the households. Such adjustment is not possible due to lack of price information in UNHS survey. Further, since a major share of household consumptions in poor rural communities go to food consumption, adjustment by food bundle prices would likely suffice for this study.

- **Depth of Poverty of the poor: Mean percent shortfall relative to the \$1.90/day 2011 PPP poverty line**

This indicator is useful to understand the average gaps between poor people's living standards and the poverty line. It indicates the extent to which individuals fall below the poverty line (if they do).

Depth of poverty is sometimes also called the poverty gap index (PGI). The PGI is computed as the average of the differences between an individual's total daily per capita consumption and the poverty line, divided by the poverty line, with individuals over the poverty line excluded from the calculation. The PGI is given by the formula:

$$PGI = \left(\frac{1}{N} \sum_{i=1}^N \left(\frac{z - y_i}{z} \right) \right) \times 100$$

Where N is the total number of poor individuals in the population, z is the poverty line and y_i is the daily per capita consumption of poor individual i. As noted in previous paragraph, all the individuals above the poverty line will be excluded from the numerator and denominator.

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APPENDIX D – OVERVIEW OF PPI ANALYSES

Prevalence of Poverty

- i) *Prevalence of Poverty Scorecard:* Innovations for Poverty Action (IPA) has developed household's PPI score using Ugandan National Household Survey 2012-2013 (UNHS 2012/13), which is then used with a look-up table to estimate the likelihood that the household is poor. This scorecard is calibrated to the 1.90 US PPP 2011 per person per day poverty line. Each question provides a reference to the question number in the UNHS 2012/13 instrument.
- ii) *Prevalence of Poverty Look-up Table:* IPA has also developed a look-up table to be used in conjunction with the prevalence of poverty scorecard. A household's cumulative score is mapped to a corresponding probability that a household is below the 1.90 US PPP poverty line.

Depth of Poverty

- i) *Depth of Poverty Scorecard:* Using the UNHS 2012/13, IPA has developed household's Poverty Depth score, which is then used with a look-up table to estimate the depth of poverty, which is also termed the poverty gap (the percentage by which the household's consumption is below a poverty line, with households at or above the line being assigned a gap of zero). This scorecard is calibrated to the 1.90 US PPP 2011 per person per day poverty line. For each question, a reference to the question number in the UNHS 2012/13 instrument is provided. The interview guidance provided in that instrument should be used when asking those questions.
- ii) *Depth of Poverty Look-up Table:* IPA has also developed the depth of poverty look-up table which should be used in conjunction with the depth of poverty scorecard. A household's cumulative score is mapped to a predicted poverty depth with respect to the 1.90 US PPP poverty line.

Approach to Test the Accuracy of the PPI based Poverty Indicators

- i) When the 2018 joint BL/EL PBS data are available, ICF through TANGO will provide IPA with a Stata data file that contains just the responses to the relevant PPI questions from the PPI Module along with (anonymized) household identifiers.
- ii) The IPA team will return:
 - a) A Stata do file (and related documents) demonstrating how the PPI scorecards and look up tables can be used to calculate the probability that a household is poor (or a household's poverty depth). ICF will review the code, scorecard, and the look up tables prepared by IPA.
 - b) IPA will also develop and share a separate Stata file with poverty predictions (along with household identifiers) based on an alternative non-linear approach to estimate poverty (that involves interactions between the responses), that uses responses to the questions previously requested and made available to PPI for the purpose of computing a).
- iii) Subsequently, ICF will calculate three groups of accuracy measures for each poverty category.
 - a) ICF will use the mean predicted poverty headcount (or mean predicted poverty depth) and compare it to the actual poverty rate (or actual mean poverty depth). This could be positive or negative.

Error = Proportion of poor households predicted by the PPI - proportion of households that are actually poor (based on World Bank Living Standards Measurement Study (LSMS) computation methodology).

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APPENDIX D – OVERVIEW OF PPI ANALYSES

This error will be calculated for the full sample and each project separately. This set of accuracy measures is useful to estimate poverty outreach.

b) Accuracy will also be measured in terms of whether the PPI is able to accurately classify poor and non-poor households. This will use the poverty headcount.

For each of these measures, ICF will set a cut-off consistent with reaching all the poor households and none of the non-poor households, and then calculate true positives (predicted poor when poor), true negatives (predicted non-poor when non-poor), false negatives (predicted non-poor when poor), false positives (predicted poor when non-poor). IPA will provide ICF with the Stata code. The cut-off can be either consistent with reaching the number of poor households that matches the poverty rate from the previous (i.e. baseline) survey, or the current survey (which IPA will not see). Alternatively, errors can be estimated for both cut-offs.

These inclusion and exclusion errors will be calculated for the full sample and for each representative sub sample.

This set of accuracy measures is useful to quantify targeting accuracy which can be compared to perfect targeting. With perfect targeting, in this case, there will be no false negatives (exclusion errors) and false positive (inclusion errors). The other benchmark that is useful here is universal coverage, where everyone is reached. Having these benchmarks will make the targeting efficiency measures easier to interpret.

c) Accuracy will also be measured in terms of whether the PPI is able to accurately classify the bottom 20 and bottom 40 quintiles (based on spatially adjusted consumption per capita) of each population as being poor and the top 20 as not being poor.

For each of these measures, we will calculate True Positives (e.g. predicted poor when poor) and False Negatives (e.g. predicted non-poor when poor).

This error will be calculated for the full sample and for each representative sub sample.

This set of accuracy measures is useful to estimate targeting accuracy for the most vulnerable segments of the population as well as leakage to the least vulnerable.

MEASURING RESILIENCE AND RESILIENCE CAPACITY

Resilience is viewed as a set of capacities that enable households and communities to effectively function in the face of shocks and stresses and still meet a set of well-being outcomes. The ability to measure resilience involves measuring the relationship between shocks, capacities, responses, and future states of well-being. **Thus, there is no single indicator that measures resilience.** There is a need for a number of variables to be used as part of a measurement framework. There are four key factors to consider in measuring resilience:

- Identify the well-being outcomes to be achieved and measure resilience in relation to these outcomes.
- Identify the shocks and stresses that individuals, households, communities and systems are exposed to and the severity and duration of these shocks and stresses.
- Measure the absorptive, adaptive and transformative capacities in relation to these shocks and stresses at different levels.
- Identify the responses of individuals, households, communities and systems to these shocks and stresses and trajectory of well-being outcomes.

The key questions to be explored through measurement of resilience are:

- Does shock exposure have a negative impact on food security and child nutritional status?
- Does greater resilience capacity have a positive impact on these outcomes?

Resilience and Resilience Capacity Indicators

o Well-being Outcomes

A number of outcome indicators can be used for measuring well-being:

1. Depth of Poverty: The mean percent shortfall relative to the \$1.25 poverty line
2. Prevalence of households with moderate or severe hunger (Household Hunger Scale - HHS)
3. Prevalence of wasted children under five years of age
4. Average Household Dietary Diversity Score (HDDS)
5. Prevalence of stunted children under five years of age
6. Ability to recover from shocks/stressors

o Shocks and Stresses

The shock exposure index measures the overall degree of shock exposure for each household. The shocks should be those that are experienced by the target population and may include: flooding /excessive rainfall; landslides/erosion; drought or unpredictable or insufficient rain; hail or frost; pests or disease outbreak (crop or livestock); human disease outbreaks (e.g., cholera); death in the HH; unemployment for youths; market price fluctuation; and theft/ conflict. The index is based on household data regarding:

- Number of shocks to which a HH is exposed in the past 12 months
- Perceived severity of the shocks

0 Resilience capacities

Resilience capacities are measured as a set of indices, one for each of the three dimensions of resilience capacity—absorptive capacity, adaptive capacity, and transformative capacity—and one overall index combining these three indexes.

Absorptive capacity index. Absorptive capacity is the ability to minimize exposure to shocks and stresses through preventative measures and appropriate coping strategies to avoid permanent, negative impacts. The absorptive capacity index will be constructed from eight variables, some of which are themselves indices. The variables to be used include:

- Availability of informal safety nets
- Bonding social capital
- Access to cash savings
- Access to remittances
- Asset ownership
- Shock preparedness and mitigation
- Access to insurance
- Availability of humanitarian assistance

Adaptive capacity index. Adaptive capacity is the ability to make proactive and informed choices about alternative livelihood strategies based on an understanding of changing conditions. This index is constructed from the following ten variables, again some of which are themselves indices. The variables are:

- Bridging social capital
- Linking social capital
- Social network index
- Education/training
- Livelihood diversification
- Exposure to information
- Adoption of improved practices
- Asset ownership
- Availability of financial services
- Aspirations/confidence to adapt index

Transformative capacity index. Transformative capacity involves the governance mechanisms, policies/ regulations, infrastructure, community networks, and formal and informal social protection mechanisms that constitute the enabling environment for systemic change. This index is constructed from fourteen variables, including some that are indices. The variables are:

- Availability of formal safety nets
- Availability of markets
- Access to communal natural resources
- Access to basic services
- Access to infrastructure
- Access to agricultural services
- Access to livestock services
- Bridging social capital
- Linking social capital
- Collective action

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APPENDIX E – Resilience Indicators and Analyses

- Gender equitable decision-making index
- Participation in local decision-making
- Local government responsiveness
- Gender index

Resilience capacity variables and their corresponding questions

Table I presents the resilience capacity variables and their respective survey questions. Questions sourced from the FFP/FTF core household baseline questionnaire are preceded by “BL” and those from the household resilience module are preceded by “R”.

Table I. Resilience capacity variables and sources.

Resilience capacity variable	Questions
Ability to recover	R107, R108
Shock exposure index	
Exposure: Number of shocks experienced in the past 12 months	R101
Shock severity: Impact of shock on income security Impact of shock food consumption	R103 R104
Absorptive capacity index	
Availability of informal safety nets	R801, R802
Bonding social capital	R1304, R1307
Access to cash savings	R601
Access to remittances	R1001 (m)
Asset ownership	BL H7.02, H7.03, R201, R201A
Shock preparedness and mitigation	R901, R902, R109, R1502, R1505
Access to insurance	BL G09
Availability of humanitarian assistance	R1501, R1502 (1,2)
Adaptive capacity index	
Bridging social capital	R1305, R1308
Linking social capital	R1309-R1314
Social network index	R801, R807-R809
Education/training	BL B21, R1327, R1329, R1331, R1333, R1335, R1337
Livelihood diversification	R1001
Adoption of improved practices	BL G13b, G16, G18, G21
Exposure to information	R701, R702
Asset ownership	See above
Availability of financial institutions	R301
Aspirations/confidence to adapt	R1401-R1405, R1407-R1412, R1413, R1415, R1416, R1417
Transformative capacity index	
Availability of formal safety nets	R1502
Availability of markets	R309-R311
Access to communal natural resources	R801a-R801d, R803, R804, R806
Access to basic services	R301a-R301d, R302, R303a, R303b, R304a-R304c, R1506, R1507
Access to infrastructure	BL F04, R301h-R301j, R307, R308

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Resilience capacity variable	Questions
Access to agricultural services	R301e, R305a, R305b
Access to livestock services	R301f, R306a, R306b
Bridging social capital	See above
Linking social capital	See above
Collective action	R901, R902
Gender equitable decision making index	R603, BL J07, J10, J11, K05, K14, K15
Participation in local decision-making	R801, R802
Local government responsiveness	R801c, R801d, R805, R806, R1504, R1506, R1507

In order to eliminate duplication of questions between the FFP/FTF core questionnaire and resilience modules, **Table 2** maps specific changes to the FFP/FTF household questionnaire assumed as part of this analysis plan. If questions in the FFP/FTF core questionnaire are deleted that should be included, then these questions need to be added to the relevant section in the resilience module. Similarly, those sections/questions identified as not necessary in the FFP/FTF core questionnaire must be deleted in order to not duplicate those in the resilience modules, which are designed specifically with a resilience focus.

Table 2. Assumptions regarding FFP/FTF household questionnaire.

Includes: ¹⁷		Does not include: ¹⁸	
FFP/FTF modules/sections	Questions	FFP/FTF modules/sections	Questions
Identification and Informed Consent	Module A	HHS	C16-C21
Household roster, with maximum level of education	B21	Humanitarian Assistance	C22-C24
HDDS	C3-C15	Shocks/stresses	C25
Main source of drinking water	F04	Livestock care/raising	G15
Improved practices for crops	G13B	Access to hazard insurance	G09
Improved practices for livestock	G16		
Improved practices for natural resources	G18		
Improved practices for crop storage	G21		
Gender - Cash	J07, J10, J11		
Gender - MCHN	K05, K14, K15		
Durable goods expenditures	H7.02, F7.03		

Calculation of shock exposure and measures of resilience capacity

Throughout this document, the explanation for how each index or variable is calculated is followed by the relevant questions from the baseline survey and proposed resilience modules used for each index (in

¹⁷ If the FFP/FTF questionnaire does NOT include modules/questions listed here, they need to be added in the resilience module or elsewhere.

¹⁸ Items listed here are preferred in the resilience module and need to be removed from the FFP/FTF questionnaire.

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red print). Those from the baseline household questionnaire are preceded by “BL” and those from the household resilience module are preceded by “R”.

It should be noted that the specific calculations for how each resilience element is calculated can change slightly, depending on the data. Thus, this document outlines the basic construction of the three resilience capacity indices but may vary slightly once the data have been collected and cleaned.

0 Ability to recover

1. Ability to recover index. Ability to recover index is based on estimation of the ability of households to recover from the typical types of shocks that occur in the Title II program areas based on data regarding the shocks households experienced in the year prior to the survey.

The index is calculated based on responses to two questions:

“To what extent has your ability to meet food needs returned to the level it was before the shocks and stressors you experienced in the last 12 months?” With possible responses and weighted values:

- Ability to meet food needs is the same as before the shocks (= value of 2)
- Ability to meet food needs is better than before the shocks (= value of 3)
- Ability to meet food needs is worse than before the shocks (= value of 1)

AND

“In light of the shocks you faced in the last 12 months, to what extent do you believe you will be able to meet your food needs in the next year?”, with possible responses and weighted values:

- Ability to meet food needs will be the same as before the shocks (= value of 2)
- Ability to meet food needs will be better than before the shocks (= value of 3)
- Ability to meet food needs will be worse than before the shocks (= value of 1)

The responses to the two questions are combined into one variable that has a minimum value of 2 and a maximum value of 6.

Survey questions: R107, R108

0 Index of shock exposure

A measure of shock/ stressor exposure and severity is created that takes into account the shocks or stressors to which a household is exposed out of the total number of shocks or stressors (e.g., 18), and the perceived severity of the shock on household income and food consumption.

Perceived severity is measured using two variables: impact on income security and impact on food consumption. The variables are based on respondents’ answers to the questions, “How severe was the impact on your income?” and “How severe was the impact on household food consumption?” which are asked of each shock or stressor experienced. The possible responses are:

- No impact = value of 1

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- Slight decrease = value of 2
- Severe decrease = value of 3
- Worst ever = value of 4

The responses to the two questions are combined into one variable that has a minimum value of 2 and a maximum value of 8.

The shock exposure measure is then a weighted average of the incidence of experience of each shock (a variable equal to 1 if the shock was experienced and zero otherwise), weighted by the perceived severity of the shock. The shock exposure index ranges from 1 to 144 (i.e., 8*total number of shocks).

Survey questions: R103, R104

0 **Proportion of HH participating in group-based savings, micro-finance, or lending programs**

This Indicator (EG.4.2) is calculated from the responses to questions BL 3.07 A, E and R602. The indicator value has a value of '1' if BL3.07A or BL3.07E has value of 1-3, or if R602 has value of 2 or 3.

Survey questions: BL3.07A, BL3.07E, R602

0 **Absorptive capacity index**

The absorptive capacity index is constructed from eight variables, some of which are themselves indices. The variables and explanations of their calculation are as follows.

1. Availability of informal safety nets. This variable is the total number of community organizations that typically serve as informal safety nets that are available and have been active within the community during the 12 months prior to the survey. The six groups are:

- Credit or micro-finance group
- Savings group
- Mutual help group (e.g., ritban, afoosha, ofera/webera, burial, eqqub, etc.)
- Religious group
- Mothers' group
- Women's group

Survey question: R801, R802

2. Bonding social capital index. The bonding social capital index is based on the responses to two questions:

- whether the household indicates it would be able to **get help** from various categories of people living WITHIN their community if they needed it;
- whether the household indicates it would be able to **give help** to people living WITHIN their community who needed it.

The possible responses for whom a household could get help from or to whom they would give help are: "relatives", "non-relatives/neighbors within my ethnic group/clan", "non-relatives/neighbors of other

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ethnic groups/clan” and “no one”. An additive index ranging from 0 to 6 is calculated based on these responses.

Survey questions: R1304, R1307

3. Access to cash savings. This is a binary (dummy) variable equal to 1 if the respondent reported that a household member regularly saves cash.

Survey questions: R601

4. Access to remittances. This is a binary (dummy) variable equal to 1 if the respondent reported that receiving remittances as a source of livelihood.

Survey questions: R1001 (m)

5. Asset ownership index. Asset ownership is measured using the number of consumer durables, productive assets, and livestock owned.

Survey questions: BL H7.02, H7.03, R201, R201A

6. Shock preparedness and mitigation. Summary variable ranging from 0 to 4 based on the following:

- There is a government and/or NGO disaster planning and/or response program in the village (1); Survey question: R1502 (8)
- There is an emergency plan for livestock off-take in the village if a drought hits (1); Survey question: R1505
- Household reports participating in any of the following activities: soil conservation activities, flood diversion structures (i.e., protection of land/infrastructure from flooding), planting trees on communal land, or improving access to health services (1); Survey questions: R901, R902
- Household reports engaging in any of the following ways of protecting their household from the impact of future shocks: increasing savings, putting aside grains/fodder, switching to different crops/livestock, added ag activity to non-ag activity, added non-ag activity to ag activity, acquiring crop insurance (1); Survey question: R109

7. Access to insurance. This is a binary (dummy) variable equal to 1 if the household has agricultural insurance.

Survey question: BL G09

8. Availability of humanitarian assistance. This is a binary (dummy) variable equal to 1 if government or NGO emergency food or cash assistance is available in the respondent’s village OR the household reported receiving emergency food or cash assistance from the government or NGO during the 12 months prior to the survey.

Survey questions: R1501, R1502 (1,2)

Combine the eight variables described into an absorptive capacity index using polychoric factor analysis.

0 Adaptive capacity index

The adaptive capacity index is constructed from ten variables, including some which are indices. The variables and calculations are as follows.

1. Aspirations/confidence to adapt index. This index is based on variables of the underlying concepts around people's aspirations, confidence to adapt, and a sense of control over one's life.

The **aspirations** component is based on questions regarding an absence of fatalism and belief in the future. The absence of fatalism is based on two sets of binary variables: the first is based on two yes/no questions about whether the respondent agrees that:

- Each person is responsible for his/her own success or failure in life.
- To be successful one needs to work very hard rather than rely on luck.

The second set of variables regarding fatalism is based on a 6-point agreement scale regarding the statements:

- My experience in life has been that what is going to happen will happen.
- It is not always good for me to plan too far ahead because many things turn out to be a matter of good or bad fortune.

Belief in the future is based on two binary variables regarding the respondent's view of the future.

- Whether they are hopeful for their children's future.
- The level of education they want for their children.

Survey questions: R1401, R1402, R1412, R1414, R1404, R1405

The **confidence to adapt** component is based on six variables regarding the degree to which the respondent is exposed to alternatives. Three binary variables involve whether the respondent:

- Is willing to move somewhere else to improve his/her life.
- Communicates regularly with at least one person outside of the village.
- Engaged in any economic activities with members of other villages or clans during the week prior to the survey.

The remaining three variables are based on answers to the following:

- How many times in the past month have you gotten together with people to have food or drinks, either in their home or in a public place?
- How many times in the past month have you attended a church/mosque or other religious service?
- How many times in the past month have you stayed more than two days outside of this kebele?

Survey questions: R1403, R1407, R1408-R1411

The **locus of control** component is based on four variables constructed from a 6-point agreement scale regarding the following:

- My life is chiefly controlled by other powerful people.
- I can mostly determine what will happen in my life.
- When I get what I want, it is usually because I worked hard for it.
- My life is determined by my own actions.

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Survey questions: R1413, R1415, R1416, R1417

The variables are combined into an index using polychoric factor analysis.

2. Bridging social capital. The bridging social capital index is based on the responses to two questions:

- whether the household indicated it would be able to **get help** from various categories of people living OUTSIDE OF their community if they needed it;
- whether the household indicated it would be able to **give help** to people living OUTSIDE OF their community who needed it.

The possible responses for whom a household could get help from or to whom they would give help are: “relatives”, “non-relatives within my ethnic group/clan”, “non-relatives of other ethnic groups/clan” and “no one”. An additive index ranging from 0 to 6 is calculated based on these responses.

Survey questions: R1305, R1308

3. Linking social capital. The linking social capital index is based on answers to questions regarding whether household members know a government official and/or NGO leader, how well they know them, and whether they believe the official/leader would help their family or community if help was needed. The index ranges from 0 to 6.

Survey questions: R1309-R1314

4. Social network index. This index is a sum ranging from 0 to 6 based on a series of binary (dummy) variables as follows:

- There is a savings group in the village (1);
- There is a mutual help group in the village (1);
- There is a women’s group in the village (1);
- The HH reports that any household member participated in a group that provided food to someone in that village at least once in the last 12 months (1);
- The HH reports that any household member participated in a group that provided labor to someone in that village at least once in the last 12 months (1);
- The HH reports that any household member participated in a group that provided some other type of help to someone in that village at least once in the last 12 months (1);

Survey questions: R801, R807-R809

5. Education/training. A summary variable ranging from 0 to 8 as follows:

- A binary (dummy) variable is equal to 1 if any household adult has a primary or higher education (1) **Survey question: BL B21**
- The total number of trainings (ranging from 0 to 6) the respondent or any adult household member has had, where the possibilities are: vocational (job) training, business development training (including financial literacy), early warning training, natural resources management training, adult education (literacy or numeracy), or how to use your cell phone to get market information (e.g., prices) **Survey questions: R1327, R1329, R1331, R1333, R1335, R1337**

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6. Livelihood diversification. The total number of livelihood activities engaged in over the last year. The question asked to identify these livelihoods is “What were the sources of your household’s food/income over the last 12 months?” The possible options are:

- Own farming/crop production and sales
- Own livestock production and sales
- Ag wage labor (within the village)
- Ag wage labor (outside the village)
- Non-ag wage labor (within the village)
- Non-ag wage labor (outside the village)
- Salaried work
- Sale of wild/bush products (e.g., charcoal, firewood)
- Honey production
- Petty trade (reselling other products, e.g., grains, veggies, oil, sugar, etc.)
- Petty trade (own products, e.g., local beer, sex work)
- Other self-employment/own business (agricultural, e.g., buying/selling chat)
- Other self-employment/own business (non-agricultural, e.g., stone cutting, hair braiding, etc.)
- Rental of land, house, rooms
- Remittances
- Gifts/inheritance
- Safety net food assistance
- Other

Survey questions: R1001

7. Exposure to information. The number of topics the respondent has received information on in the last year.

Survey questions: R701, R702

8. Adoption of improved practices. This binary (dummy) variable is equal to 1 if respondents report adopting three or more improved practices for crop production (including vegetables) OR respondents report adopting three or more improved practices for livestock production OR respondents report following one natural resource management practice or technique not related directly to on-farm production OR respondents report using any improved storage method.

Survey questions: BL G13b, G16, G18, G21

9. Asset ownership index. See above.

10. Availability of financial institutions. The variable is equal to zero if there is no institution in a village that provides credit or savings support, to one if there is one only, and to two if there are both types of support.

Survey questions: R301

The overall adaptive capacity index is calculated using polychoric factor analysis.

0 Transformative capacity index

The transformative capacity index is constructed from fourteen variables, some of which are indexes. The variables and calculations are as follows.

1. Availability of formal safety nets. This variable is a sum ranging from 0 to 9 of the number of formal safety nets available in a household's village.

Survey question: R1502 (excluding 'WASH')

2. Availability of markets. A summary variable based on the number of markets available within 5 kms of a village:

- Markets for selling agricultural products
- Markets for purchasing agricultural inputs
- Livestock market

Survey questions: R309-R311

3. Access to communal natural resources. This variable is a sum ranging from 0 to 4 based on the number of communal natural resources that are managed by the community as follows:

- A water users' group who manages the community's communal water for livestock (1)
Survey questions: R801a, R803
- A water users' group who manages the community's communal water for irrigation (1)
Survey questions: R801a, R804
- A group who manages the community's communal grazing lands (1) Survey questions: R801c, R805
- A group who manages the community's firewood resources (1) Survey questions: R801d, R806

4. Access to basic services. This variable is the number of basic services available in a village and that were either in good condition or accessible during the 12 months prior to the survey.

➤ Primary schools. A 4-point scale is constructed as follows:

- No primary school within 5 km (0)
- A primary school within 5 km but its physical condition is "poor" or "very poor" AND there are not enough teachers (1)
- A primary school within 5 km but its physical condition is "poor" or "very poor" OR there are not enough teachers (2)
- A primary school within 5 km and its physical condition is "good" or "very good" AND there are enough teachers (3)

Survey questions: R301c, R303a, R303b

➤ Health services (post, clinic, center). A 4-point scale is constructed as follows:

- No health services within 5 km (0)
- Health services within 5 km but its physical condition is "poor" or "very poor" AND there was time over the last year that people needed health services but could not get them because of problems with the quality of service (1)

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- Health services within 5 km but its physical condition is “poor” or “very poor” OR there was time over the last year that people needed health services but could not get them because of problems with the quality of service (2)
- Health services within 5 km and its physical condition is “good” or “very good” AND there were no problems accessing services over the last year (3)

Survey questions: R301d, R304a, R304b, R304c

- Police/security force. A binary (dummy) variable regarding the presence of government security forces (local or national) that can reach a village within one hour.

Survey questions: R1506, R1507

- Financial services. A binary (dummy) variable equal to 1 if there are formal institutions (i.e., government regulated banks) in a village where people can borrow or save money.

Survey questions: R301a, R301b, R302

5. Access to infrastructure. This variable is the number of types of infrastructure available in the respondent’s village or accessed by the respondent’s household, as determined by the following conditions:

- At least one-half of households in the village have access to piped water;
- At least one-half of households in the village have electricity from the main grid;
- The village either has mobile phone service/network coverage OR a public telephone/kiosk;
- The village can be reached with a paved road all year round OR is served by a public transportation system

Survey questions: BL F04, R301h, R301i, R301j, R307, R308

6. Access to agricultural extension services. This variable is based on whether agricultural extensions services are available in a village and were accessible over the 12 months prior to the survey. A 3-point scale is constructed as follows:

- No agricultural extension services within 5 km (0)
- Agricultural extension services available within 5 km but there was a time in the last year when people were unable to get extension services when they needed them (1)
- Agricultural extension services available within 5 km and people were able to get the services they needed over the last year (2)

Survey questions: R301e, R305a, R305b

7. Access to livestock services. This variable is based on whether livestock veterinary services are available in a village and were accessible over the 12 months prior to the survey. A 3-point scale is constructed as follows:

- No veterinary services within 5 km (0)
- Veterinary services available within 5 km but there was a time in the last year when people were unable to get veterinary services when they needed them (1)
- Veterinary services available within 5 km and people were able to get the services they needed over the last year (2)

Survey questions: R301f, R306a, R306b

8. **Bridging social capital.** See above.

9. **Linking social capital.** See above.

10. **Collective action.** A household-level summary variable based on the number of types of collective action a household engaged in over the last 12 months to benefit the entire community.

Survey questions: R901, R902

11. **Gender equitable decision-making index.** Recent experience in Bangladesh, Mali, and Nepal suggest data used to construct this index may be too limited (i.e., respondent restrictions result in a large reduction in sample size). Thus, the following analysis may not be possible, depending on the actual data collected.

This community-level variable¹⁹ is based on binary (dummy) variables created regarding four types of decision-making control within households: control of income, control over use of savings, control over household purchases and control over health and nutrition decisions.

The first variable, **gender-equitable control of income**, uses responses from the first male and female eligible persons from the roster who state they have been paid in “cash only” or “cash and kind” for work done in the past 12 months. Households without a male and female responding to Module J are excluded. The variable is equal to 1 if male respondents report they participate (solely or jointly) in decisions on how cash they themselves have earned is used AND female respondents also report they participate (solely or jointly) in decisions on how cash they themselves have earned is used. The variable is equal to 0 if either males or females in a household report that “spouse/partner” or “other person” makes this decision.

Survey questions: BL J07, J10

The variable **gender-equitable decision-making control over savings** is equal to 1 if respondents report that males and females jointly determine how savings will be used.

Survey questions: R603

The variable **gender-equitable control over health and nutrition decisions** uses responses from the first male and female from the household roster who state they have a child under 2 years (K05). Households without a male and female responding “yes” to K05 are excluded. The variable is equal to 1 if female respondents report they make decisions about their own health and nutrition (response 1 “yourself” is only valid response) AND female respondents also report they participate jointly in decisions about their child’s health and nutrition AND male respondents report they participate jointly in decisions about their child’s health and nutrition. The variable is equal to 0 if all three conditions are not met.

¹⁹ This variable cannot be calculated at the household level because all households do not satisfy the conditions for inclusion. For example, not all households have male and female adults, and not all households have both male and female adults who earn cash income. After the data are collected, it will become clearer whether the proposed method of measuring gender-equitable decision-making at the community level will be viable in practice.

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Survey questions: BL K05, K14, K15

The variable **gender-equitable household decision-making** uses responses from the first male and female eligible persons from the roster who state they have been paid in “cash only” or “cash and kind” for work done in the past 12 months. Households without a male and female responding to Module J are excluded. The variable is equal to 1 if male respondents report they participate (solely or jointly) in decisions on major household purchases AND female respondents also report they participate (solely or jointly) in decisions on major household purchases. The variable is equal to 0 if either males or females in a household report that “spouse/partner” or “other person” makes this decision.

Survey questions: BL J07, J11

The information from the survey households in each community is used to create the community-level index as follows: The four dummy variables are employed to calculate the percentage of eligible households (i.e., who the dummy variable can be calculated for) in each community satisfying the condition for gender-equitable decision making. Subsequently, the mean of the four indexes is used as the measure of gender-equitable decision-making control for each community.

12. Local government responsiveness. Summary variable ranging from 0 to 2 as follows:

- A security/police force provided by the local government that can reach the village in less than one hour (1) Survey questions: R1506, R1507
- A conflict resolution committee (1) Survey question: R1504

13. Gender index. This index is a summary variable ranging from 0 to 3 based on binary (dummy) variables regarding gender-neutral practices at the community level. Each binary variable is equal to 1 if there are no constraints to gender-neutral behavior at the community level:

- Men and women regularly sit and eat together within their households (1)
- Men and women regularly sit together at public meetings (1)
- Men in the village help with childcare (1)

Survey questions: R1601, R1603, R1605

A household-level gender variable may also be calculated.²⁰ For those households with husband and wife, the household-level component is a summary variable ranging from 0 to 6 based on the degree to which the household engages in gender-neutral behavior. A 3-point scale is constructed for whether the respondent and his/her spouse/partner sit and eat together within their household and whether they sit together at public meetings as follows:

- Not culturally acceptable = 0
- Culturally acceptable and the household engages in the behavior = 1
- Not culturally acceptable but the household engages in the behavior = 2

One binary (dummy) variable is based on who helps with childcare as follows:

➤ Male respondents

²⁰ It might be possible to combine the community and household gender variables into a single gender index, depending on the sample size of households with both husband and wife, etc. but can only be explored during analysis of the data.

- report they themselves care for OR help their spouse/partner care for the children (1);
- Female respondents
- report their spouse/partner cares for OR helps them care for the children (1);

Survey questions: R1602, R1604, R1606

14. Participation in local decision-making. A binary (dummy) variable equal to 1 if the respondent reports any household member's level of participation in any group's decision-making as "leader", "very active", or "somewhat active".

Survey questions: R801, R802

Combine the variables into a transformative capacity index using polychoric factor analysis.

0 Index of household resilience capacity

The overall index of resilience capacity is calculated using polychoric factor analysis, with the indexes of absorptive capacity, adaptive capacity, and transformative capacity as inputs.

Responses to Shocks and Stresses

Program interventions that focus on resilience strengthening should be designed and implemented so that they lead to intermediate outcomes (e.g., strengthened resilience capacity of the target population), which themselves should then lead to appropriate response outcomes. Fundamentally, resilience interventions are about strengthening the ability of households (or society) to choose – from a whole 'portfolio' of options – what they perceive at that time as the “right” response(s). An appropriate response (e.g., using social capital, accessing savings) increases the chances of positive well-being outcomes, while an inappropriate or ill-chosen one often leads to vulnerability. Resilience analysis should measure the effect of different resilience responses at multiple levels (i.e., households, communities, local, provincial and national authorities). The current analysis involves only the household level.

In the context of food security, the Coping Strategies Index (CSI) represents a viable response indicator as it measures the occurrence of specific detrimental coping strategies. However, the CSI focuses on short-term consumption-related behavior after a shock or stressor. Other short-term ex-post responses might also be relevant such as those focusing on cash or money-borrowing strategies, easily measured by variables that capture access to or utilization of financial services (e.g., savings groups, credit). Improved resilience capacity, however, is not simply about avoiding detrimental short-term response strategies. It is also about nurturing or fostering the ability of actors to engage in positive and sustainable responses that improve all three resilience capacities, i.e., absorptive, adaptive, and transformative capacity.

Thus, a reduction in the adoption of detrimental coping strategies (i.e., a lower CSI) might serve as one universal indicator in resilience programs for improving absorptive responses. However, resilience response variables should also measure changes in adaptive and transformative behavior (**Table 3**). These responses have to be understood in relation to the specific social and ecological contexts and constraints within which these households are operating.

Table 3. Resilience response variables and sources.

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Resilience response variables	Questions
Absorptive responses	
Coping Strategy Index (CSI)	R1201
Use of savings to deal with shocks	R106 (aa), R604
Use of remittances to deal with shock	R106 (bb), R1108
Use of hazard insurance	BL G09
Use of bonding social capital	R106 (s,u), R1315-R1320
Receipt of humanitarian assistance	R106 (x,y)
Adaptive Responses	
Application of information	R703
Adoption of improved agricultural practices	BL G13b, G16, G18, G21
Use of bridging social capital	R106 (t,v), R1321-R1326
Transformative Responses	
Participation in local decision-making	R802 (3,4,5)
Participation in collective action	R901, R902
Gender equitable decision making index	BL J07, J10, J11, K05, K14, K15, R604
Participation in safety net program	R106 (z)

Annex 5: Baseline Qualitative Study Protocol



USAID
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Baseline Qualitative Study for the Development Food Security Activities (NUYOK and APOLOU) in the Karamoja Region of Uganda

FINAL Study Protocol

USAID Office of Food for Peace

Contract #: GS-00F-189CA/7200AA18M00002

Principal Investigator: Dr. Daniel Kibuuka Musoke (Consulting Director, IRC)

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ACRONYMS

CRS	Catholic Relief Services
DFSA	development food security activity
DFAP	development food assistance program
FFP	Office of Food for Peace
FGD	focus group discussion
GHG	Growth, Health, and Governance
HDDS	household dietary diversity score
IRB	Institutional Review Board
IRC	International Research Consortium
KII	key informant interview
MC	Mercy Corps
MCH	maternal and child health
MFI	microfinance institution
PBS	population-based survey
PPP	purchasing power parity
RWANU	Resiliency through Wealth, Agriculture, and Nutrition
UNCST	Uganda National Council of Science and Technology
WASH	water, sanitation, and hygiene

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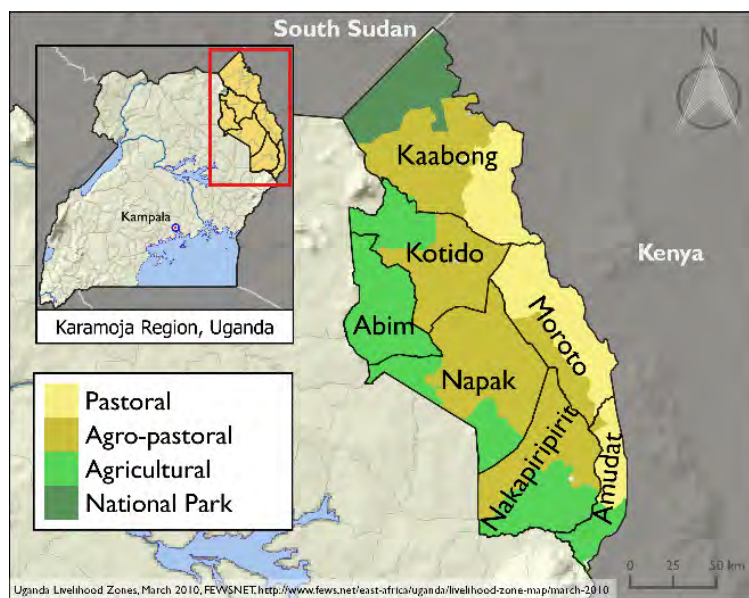
I. BACKGROUND AND PURPOSE

I.1 Introduction

The Karamoja region consists of seven districts in northeastern Uganda (Kaabong, Kotido, Abim, Moroto, Napak, Amudat, and Nakapiripirit). Karamoja is classified as one of the world's poorest areas, with high rates of malnutrition and a disproportionate number of its 1.3 million inhabitants (82 percent) living in absolute poverty. In addition, hunger, stunting, and lack of access to food are prevalent, with estimates suggesting that about 100 children under five years of age die each week from preventable diseases.¹ Food insecurity is a major and ongoing challenge, and heavy reliance on the natural resources renders livelihoods sensitive to climate dynamics. Climate variability and change undermines the already limited resources and development in Karamoja through recurring droughts, flash floods, and prolonged dry spells. The region has high levels of variability in the climate cycle, including unpredictable rainfall patterns. The other vulnerabilities that constrain development in Karamoja stem from the following historical dynamics, which affect governance: private ownership of firearms, cattle raiding, severe environmental degradation, and poor infrastructure and limited delivery of basic services.^{2,3}

The Karamoja region comprises three types of livelihood zones (agro-ecological zones) that run north to south and have different soils and rainfall patterns as shown in Figure 1.⁴ The pastoral zone primarily supports livestock production (for cattle, goats, and sheep) and crop cultivation, which is done mainly in the years of adequate rainfall. The agro-pastoral zone supports both crop and livestock production. The agricultural zone (also referred to as the greener belt) primarily supports crop production. This zone supports a wide variety of crops that are grown in two to three planting seasons.

Figure 1: Karamoja Region, Uganda



¹ World Food Programme. 2014. "Karamoja Food Security Assessment." Retrieved from <http://documents.wfp.org/stellent/groups/public/documents/ena/wfp266332.pdf?iframe>

² Mubiru, D.N. 2010. "Climate Change and Adaptation Options in Karamoja." Rome: FAO. Retrieved from [http://www.fao.org/fileadmin/user_upload/drought/docs/Karamoja percent20Climate percent20Change percent20and percent20Adaptation percent20Options.pdf](http://www.fao.org/fileadmin/user_upload/drought/docs/Karamoja_percent20Climate_percent20Change_percent20and_percent20Adaptation_percent20Options.pdf).

³ Netherlands Commission for Environmental Assessment. 2015. "Climate Change Profile: Uganda." Retrieved from http://api.commissiener.nl/docs/os/i71/i7152/climate_change_profile_uganda.pdf.

⁴ Ayoo, S., Opio, R., & Kakisa, O. 2012. "Karamoja Situational Analysis." CARE International in Uganda. Northern Uganda Women's Empowerment Programme. Retrieved from [http://www.careevaluations.org/Evaluations/Karamoja percent20Situational percent20Analysis percent20- percent20Final percent20Report percent2029.01.2013.pdf](http://www.careevaluations.org/Evaluations/Karamoja_percent20Situational_percent20Analysis_percent20- percent20Final_percent20Report_percent2029.01.2013.pdf).

1.2 Former and Current FFP Investments in the Karamoja Region

The United States Agency for International Development's Office of Food for Peace (FFP) supported two partners that implemented development food assistance programs (DFAPs) in the Karamoja region from 2012 to 2017:

- ACDI/VOCA and its partners implemented the Resiliency through Wealth, Agriculture, and Nutrition in Karamoja (RWANU) DFAP in Amudat, Moroto, Napak, and Nakapiripirit Districts.
- Mercy Corps (MC) and its partners implemented the Growth, Health, and Governance (GHG) DFAP in Abim, Kotido, and Kaabong Districts of Karamoja.

FFP awarded two new development food security activities (DFSAs) to begin in 2018 in the Karamoja region, commonly referred to as Apolou and Nuyok:

- MC and its partners are implementing the Apolou DFSA in Kaabong, Kotido, Moroto, and Amudat districts.
- Catholic Relief Services (CRS) and its partners are implementing the Nuyok DFSA in Abim, Nakapiripirit, and Napak districts.

Other organizations working in the Karamoja region offer food assistance to the most vulnerable households. Cash-for-work and food-for-work programs are also widespread in the region, and they are funded through the Northern Uganda Social Action Fund and implemented by the World Food Programme and other partners.

1.3 Study Purpose

ICF International, with support from FFP, conducted a joint baseline/endline quantitative population-based survey (PBS) in the Karamoja region in June and July 2018. The endline component was for the two prior DFAPs implemented by ACDI/VOCA and MC, and the baseline component was for the two new DFSAs that are being implemented by CRS and MC. The purpose of the baseline PBS was to assess the current status of key indicators, which will serve as points of comparison with the same indicators that will be collected in a future endline evaluation.

ICF will partner with Dr. Daniel Kibuuka Musoke of the International Research Consortium (IRC) to collect qualitative data in selected DFSA implementation areas to supplement the PBS data. The qualitative data will provide a better understanding of the prevailing conditions and perceptions of the populations in the DFSA implementation areas. These data will also be used to refine program targeting and, where possible, to interpret relationships between some quantitative variables.

2. STUDY OBJECTIVE AND QUESTIONS

2.1 Study Objective

The overarching objective of the baseline qualitative data collection is to interpret and contextualize data derived from the FFP baseline PBS. The qualitative study will explore the following key quantitative findings, which are listed under different technical sectors:

Food Security and Nutrition

- The average household dietary diversity score (HDDS) is low (less than 4 of 12 food groups are consumed by households on average) in both the CRS and MC areas.
- Nine out of 10 households experience moderate or severe food insecurity in both project areas.
- Nearly 40 percent of children are chronically malnourished (stunted) in both project areas. More male children compared to female children are stunted in both areas.
- Only about 10 percent of children ages 6–23 months consume a minimally acceptable diet.
- About a quarter of women of reproductive age are underweight, and less than 20 percent of women consume a diet with minimum diversity.

Poverty

- About 9 in 10 households are below the poverty line in both project areas.
- The depth of poverty among the poor is remarkably high, at around 60 percent. This indicates that daily per capita expenditures are well below the poverty line of USD 1.90 per day (purchasing power parity [PPP] 2010).

Water, Sanitation, and Hygiene (WASH)

- About 65 percent of households practice open defecation in both project areas, and very few (less than 5 percent) have soap and water at their hand-washing station.
- About 20 percent of households use a basic drinking water service.
- A quarter of children under five years of age had diarrhea within two weeks before the survey took place.

Agriculture

- About 20 percent of farmers used financial services in the past 12 months.
- Less than 50 percent of farmers used improved storage practices in the past 12 months.

2.2 Study Questions

Table I shows the key study questions that will guide the qualitative study. They are elaborated further in the focus group discussion (FDG) and key informant interview (KII) guides (see Annexes A and B).

Table I: Key Study Questions for the PBS Quantitative Findings

Quantitative PBS Findings	Guiding Research Questions
Nutrition and Food Security	
• The average HDDS is low (less than 4 out of 12 food items) in both the CRS and MC areas.	• Why is the HDDS so low in the project areas? What are the issues and challenges associated with low dietary diversity? How could the households improve their dietary diversity?
• Nine out of 10 households experience moderate or severe food insecurity in both project areas.	• What are the community perceptions about food security in Karamoja region? • Is the food insecurity situation in the project areas as dire as the quantitative PBS data show? • What factors contribute to the high levels of food insecurity in the project areas?

Quantitative PBS Findings	Guiding Research Questions
	What are the cultural, social, and economic challenges of food security within the households, among children under five and among women of reproductive age?
Nearly 40 percent of children are chronically malnourished (stunted) in both project areas.	What are the barriers of child malnutrition within the households and in the communities? How could they be improved?
More male children compared to female children are stunted in both the areas.	- Why are male children more stunted than female children? - What kind of foods are typically consumed by male and female children? Are male children more exclusively breastfed than female children?
Only about 10 percent of children ages 6–23 months consume a minimally accepted diet.	- What are the typical foods provided to children ages 0–5 months, 6–23 months, and 24–59 months? How adequate are these foods? - What are the differences in feeding practices between male and female children? - What has been done by communities and development agencies in the past five years to improve children’s diets and address child malnutrition in Karamoja? What still needs to be done? What should be done differently?
About a quarter of women of reproductive age are underweight.	What factors contribute to malnutrition among adult women?
Less than 20 percent of women consume a diet with minimum diversity.	What has been done to decrease women’s malnutrition in the last three to four years, and what still needs to be done? What should be done differently?
Poverty	
About 9 in 10 households are below the poverty line in both project areas.	Why do many households fall below the poverty line in spite of many development efforts, including RWANU and GHG, which have been implemented in the Karamoja region over the last 10 years?
The depth of poverty among the poor is also remarkably high, around 60 percent. This indicates that households are not just below the poverty line, their per capita expenditures is way below the poverty line of USD 1.90 per day (PPP 2010).	What has been the effect of GHG and RWANU on the livelihoods and income sources of community members and households?
Despite this, nearly 90 percent of men and women in a union reported earning cash in the past 12 months.	- Why are household per capital expenditures still below USD 1.90 per day in spite of previous support from development projects, including the FFP projects? - What are households doing differently to cover their nutritional needs and health care compared to five years ago? - Are there obvious improvements in the capacity of households to cover their nutritional needs, health care needs, and other necessary expenses over the last five years? If so, what are they? - How best can communities be supported to improve their livelihoods and income sources?
WASH	
About 65 percent of households practice open defecation in the both project areas.	- Why do communities still engage in open defecation? - What innovative approaches should be used to eradicate open defecation in the Karamoja region?
Less than 5 percent of households have soap and water in their hand-washing station.	- What factors contribute to the low levels of utilization and availability of WASH services and commodities in the region? - What gender norms influence the utilization of WASH services in the community?
About 20 percent of households use basic drinking water sources.	Why do many households fail to use basic drinking water sources?

Quantitative PBS Findings	Guiding Research Questions
A quarter of children under five had diarrhea within two weeks before the survey took place.	- What factors contribute to the high prevalence of diarrhea among children under five? - What factors contribute to the low levels of hygiene and sanitation practices in the communities? - How can the community address challenges related to access and utilization of WASH services? What kind of support is needed from the local government and implementing partners?
Agriculture	
About 20 percent of farmers used financial services in the past 12 months.	- What factors contribute to the low level of utilization of financial services by farmers and other traders for agricultural produce in the community? - How can access to financial services be scaled up among farmers?
Less than 50 percent of farmers used improved storage practices in the past 12 months.	- What factors contribute to the low level of utilization of improved storage practices among farmers in the community? - How can the utilization of improved storage practices be scaled up among farmers?

3. METHODOLOGY

3.1 Study Design

The qualitative study will use FGDs and KIs. Qualitative data will be collected in seven villages (one in each district) that were purposively selected based on the following characteristics:

- They were included in the joint baseline and endline PBS and are currently targeted by Apolou and Nuyok.
- They feature interventions in agriculture/livelihoods, WASH, and maternal and child health and nutrition.
- They are located in places that can easily be accessed within the time allocated to this research.

Table 2 shows the list of villages that have been selected for the baseline qualitative data collection.

Table 2: List of Villages That Will Be Visited for Qualitative Data Collection

District	Sub-county	Village To Be Visited (Supported Groups)
Kaabong	Losongolo	Naporukolong governance
Abim	Abim S/C	Geregere East
Napak	Lopeii	Lomusia
Nakapiripirit	Kakomangole	Kilimanjaro
Kotido	Nakapelimoru	Longelep
Amudat	Namosing	Loroo
Moroto	Tapac	Katikekile

3.2 Study Respondents

The study respondents will include key informants and community members. Key informants are individuals who have important information and insights to offer regarding the local context and

socio-economic situation because of their position in the project activities, community, and government or private institutions. They will be purposively selected because of their expert knowledge in food security and nutrition, agriculture/livelihoods, WASH, and maternal and child health and nutrition. Four KIs will be conducted in each district with the district production officer, sub-county agriculture extension officer, representative of a microfinance institution (MFI), and maternal and child health (MCH) nurse or in-charge of a nearby health facility. The guide for the KIs is shown in Annex A.

In addition, eight FGDs will be conducted with community members at the household level in each district. The following categories of community members will be recruited for the FGDs:

- **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 spouse, and may or may not participate in farming activities. Preference will be given to individuals who have children under five in the household; however, this will not be 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 over the type of food to eat and items to purchase in the household. 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 activities. Preference will be given to individuals who have children under five in the household; however, this will not be a requirement.
- **Male farmer:** This will be a male who undertakes and has decision-making authority over farming activities either on his own property or on someone else's (community plot).⁵ 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:** This will be a female who undertakes and has decision-making authority over farming activities on her own property or someone else's (community plot). 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 and female young people/teenagers:** These will be restricted to male and female young people/teenagers ages 15–20.
- **Community health workers:** These will include members of the village health teams as identified by the village local council chairpersons.
- **Members of the village water service committees**

⁵ 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., non-timber 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.

Table 3 summarizes the types of qualitative methods that will be used and the kinds of participants proposed for interviews.

Table 3: Type and Number of Interviews To Be Done at Study Site

Interview Types and Tentative Participants	Naporukolong	Geregere East	Lomusia	Kilimanjaro	Longelep	Katikekile	Loro
FGDs (six to eight participants each)							
Male head of household							
Female head of household or lead female in household:							
Male farmer							
Female farmer							
Male young people/teenagers ages 15–20							
Female young people/teenagers ages 15–20							
Member of village water service committees							
Community health workers							
Subtotal (FGDs)	8	8	8	8	8	8	8
KIIs							
District production officer							
Sub-county agriculture extension officer							
Representative of an MFI							
In-charge or MCH nurse at nearby health facility or hospital							
Subtotal (KIIs)	4	4	4	4	4	4	4

3.3 Data Collection Tools

Two interview guides will be used (see Annexes A and B). They have been designed with questions under each of the following technical sectors: food security and nutrition, WASH, agriculture/livelihoods, and poverty and socio-cultural community context.

- The KII guide will be used for the following respondents: district production officer, sub-county agriculture extension officer, representative of an MFI, and MCH nurse or in-charge of a nearby health facility.
- The FGD guide will be used for the following respondents: male and female heads of households, male and female farmers, male and female young people/teenagers ages 15–20, community health workers, and members of village water service committees.

3.4 Data Collection and Quality Assurance Procedures

Data collection will be conducted by a team comprising a qualitative researcher and four field assistants (two male, two female). The qualitative researcher will provide leadership in the design, implementation, analysis, and reporting for the qualitative data collection. He will train and closely supervise the field assistants in data collection, transcription, and translation. The field assistants will be selected based on their experience in conducting KIIs and FGDs and fluency in the local dialects or languages. All interviews will be conducted using the most suitable language for the study respondents. In addition, all interviews will be digitally recorded with permission from the participants.

Our quality control and quality assurance plan will involve the following:

- Field interviewers with the skills and abilities to follow and implement the field process as stated in the protocol will be recruited.
- A training will be organized for field assistants to carefully go through the protocol, interview guides, and data collection procedures. The training will be facilitated by the qualitative researcher.
- Consistency will be ensured in terms of interpretation and contextual presentation of information.
- The entire study team will be comprehensively oriented on the study methodology and data collection tools before the start of the actual fieldwork through a pretest. Any necessary corrections will be made following the pretest.
- Adequate and proper supervision during fieldwork will be done to ensure quality data collection. In addition, ICF technical managers will supervise and guide the qualitative data collection on all key study tasks.
- After each day of data collection, key findings will be discussed among the study team in a debriefing session, after which the data collected will be edited, cleaned, and summarized. The study team will follow up with key informants for any missing information or inconsistencies in each KII, within one day or at a more convenient time for the respondents. In some cases, this follow-up process will be done through a telephone conversation.

3.5 Data Processing, Management, and Analysis

The FGDs and KIIs will be audio-recorded and later transcribed verbatim by the field assistants. All typed transcripts will be reviewed by the lead qualitative researcher to identify emerging themes from the transcripts. They will be validated and uploaded to a Dropbox folder for storage. Access to the Dropbox folders will be restricted, and the qualitative researcher will be responsible for approving access rights. All the collected information will also be printed and stored as hardcopies in a secure, locked cabinet at the IRC offices. All audio recorders will be given to the qualitative researcher, and the tapes will later be destroyed after transcription validation so as not to retain recordings with identifiers.

All data will be analyzed manually using content analysis.⁶ Data will be read and re-read by the qualitative researcher in order to identify emerging themes from the transcripts.⁷ To provide an understanding of

⁶ Riley, J. 1990. "Getting the most from your data." London, King's Fund.

⁷ Glaser, B. G., and Strauss, A. L. 1967. "The discovery of grounded theory." Chicago IL. Aldine.

the quantitative indicators derived from the results of the household survey, content analysis will be used to identify themes or trends in responses, both within and across respondent groups so that the findings from the quantitative PBS are triangulated with the findings from the qualitative data collection. Direct quotations from the KIIs and FGDs will also be used to support the interpretations. Quotes will also be selected and included in the reports to emphasize the reasons for the reported quantitative performance.

3.6 Ethical Considerations

Institutional Review Board (IRB) approval: This study will involve interviewing human subjects, and therefore, the study team will make every effort to address ethical considerations during the planning and implementation of the study. Permission to conduct the study will be sought from the Mildmay Uganda Institutional Review Committee, and later the protocol will be registered at the Uganda National Council of Science and Technology (UNCST). In addition, permission will be sought from the chief administrative officers of the districts where communities will be selected for the interviews.

Consent process and documentation: Prior to each interview, the objective of the study will be explained to the respondents to enable them to provide verbal informed consent. Interviewers will obtain verbal informed consent using consents forms, which will be inserted at the beginning of every interview guide. During training, interviewers will be instructed on how to use the consent forms to obtain verbal informed consent from the study respondents.

All KIIs and FGDs will be recorded for consistency in data collection unless a participant refuses to do so. Verbal informed consent to participate as well as consent to be audio-recorded will be captured on the audiotape as appropriate. After participants have been screened, recruited, and brought to the interview site, the interviewer will review the informed consent document in full. If the participant agrees to participate and indicates a willingness to be recorded, the interviewer will then turn on the recorder. The audio-recording will begin with a note to indicate the interview number or other code, briefly restate the main points of the informed consent, and then ask the participant if he or she is willing to participate. After the participant consents verbally, the interviewers will reaffirm that he or she is willing to be audio-recorded.

Confidentiality and privacy: The study will include a number of measures to protect the respondents' confidentiality. Personal identifiers will not be collected from participants. Only a study code will be included on the transcript to identify the respondent.

To further protect respondent confidentiality, interviewers will be forbidden from interviewing respondents who are known to them. The interviewers will also be trained in research ethics, including the importance of ensuring subject confidentiality.

All study team members will sign a confidentiality statement that confirms their commitment to keep verbal and electronic information collected from respondents safe and confidential. Interviewers' contractual letters of agreement will explicitly state that they will safeguard the confidentiality of the information to be collected and will not discuss it with anyone outside the study team.

Interviewers will ensure that the KIIs are conducted in a confidential setting. KIIs should be conducted one-on-one with a respondent and no one should be able to hear the respondent's answers.

Interviewers will ensure respondents that their participation is voluntary and that they can choose to stop the interview at any time. The FGDs with community members will also be conducted in a private setting that will be identified in the community.

Risks: The study will present minimal risks to the participants because they will not undergo any invasive procedures. As indicated above, the study will not include any identifying information. Further, because the study team will use interviewers who do not know the participants, the risk of breach of confidentiality will be reduced significantly. In addition, the study will carry a relatively low time commitment on the part of the respondents because the interviews will not exceed two hours. Respondents also will not incur transportation or other costs as a result of participating in the study because interviewers will be travelling to their communities and work sites.

4. IMPLEMENTATION WORKPLAN

Key Activities	Duration (weeks)						Deliverables
	1	2	3	4	5	6	
Inception stage							
Develop study protocol							Final narrative
Develop research tools							
Pretest research tools							Tested research tools
Ethical approval stage							
Prepare IRB submission							IRB and UNCST research approval letters
Obtain IRB approval							
Prepare UNSCT submission							
Obtain UNCST approval							
Fieldwork stage							
Training of field teams							One-day training workshop
Data collection (field)							Audio files for all completed interviews
Data management stage							
Transcription							Fully typed transcripts
Data analysis							Analysis report
Reporting stage							
Technical report writing							Draft technical report
Finalization of study report							Final technical report

ANNEX A: KEY INFORMANT INTERVIEW GUIDE

Before we begin our conversation around food security, I want to learn a little bit about who you are and the nature of your position.

1. What organizations do you work with?
2. What is your current title?
3. What are the roles and responsibilities related with that position?
 - Tell me specifically about the roles and responsibilities related to food security and nutrition?
 - In which districts, sub-counties, villages, etc., do you work?
4. What is your past work experience in the Karamoja region of Uganda?

Nutrition and Food Security [district production officer, agriculture extension officer, and health worker or in-charge at nearby health facility or hospital]

5. What is your view or opinion about the food insecurity situation among households in you district? Is it very bad as portrayed by current statistics?
6. Are there any customs, traditions, or beliefs that involve food in your community? For example, is there a period in which people fast, or eat a particular food type, or avoid a particular food type? Are there beliefs that interfere with breastfeeding? Are there beliefs as to the kinds of foods children need when they are sick?
7. To what extent is food security influenced by gender?
8. Why is the household dietary diversity score so low in the project areas? What are the issues and challenges associated with low dietary diversity? How could the households improve their dietary diversity?
9. How do the households understand food security? How do they assess their food security situation? If they are concerned and/or have experienced the inadequacy or lack of food in the past 30 days or 12 months, why is that the case? What factors trigger their food insecurity? How could this situation be improved?
10. How do the caregivers assess the child nutrition situation in their households and in the communities? Do they think that malnutrition is prevalent or that it is not a big problem? If they realize the existence of this problem, do they understand the implications of child malnutrition, especially the implications of chronic malnutrition like stunting for children under five?
11. What are the barriers to child malnutrition within the households and in the communities? How could it be improved? What has been done in recent years (in the last three to four years) to address this problem by development agencies, and what needs to be done to address this problem more effectively?
12. Why are male children more stunted than female children? What kinds of foods are typically consumed by male and female children?
13. Are male children more exclusively breastfed than female children?

14. What are the typical foods provided to this age group of children (0–5months, 6–23 months, and 24–59months) in addition to breastfeeding?
 - How do you assess the adequacy of foods consumed by children of the following ages?
 - What are barriers to adequate diet for children of this age group?
 - Is there a difference in feeding practices between the male and female children?
 - What has been done by the respondents or by their community to improve children's diet in recent years (in the last three to four years), and what needs to be done?
15. Do the study participants think that adult women in the project area are generally malnourished? What kind of households are likely to have malnourished women? What are the factors that might be contributing to poor nutrition among the adult women? Do the participants think that malnourishment among adult women is a serious problem? Why or why not? What has been done to improve women's malnutrition in recent years (last three to four years), and what needs to be done?
16. What are the social and economic challenges of food security within the households, among children under five, and among the women of reproductive age?
17. What has been done to address those challenges at the household and/or community level in recent years (in the last three to four years)? Have the previous efforts worked? Why or why not? What needs to be done to address the existing food insecurity challenges? Is this a recurring problem? If so, is there something that could be done to address it?
18. Have there been food security programs implemented in the past by the government, foreign donors, or community-based organizations? If so, please tell me a little bit about your experiences with those programs. What were some of the strengths of those programs? And weaknesses?

Water, Sanitation, and Hygiene (WASH) [maternal and child health nurse or in-charge of nearby health facility]

19. What is the main source of drinking water for members of the community? In the dry season? In the rainy season? Please tell me about the quality of water in the dry and rainy seasons.
20. What is your view or opinion about the availability and utilization of WASH services and commodities in the community?
21. What factors contribute to the low levels of utilization and availability of WASH services and commodities in the region?
22. Why do communities still engage in open defecation?
23. Why do many households fail to use basic drinking water sources?
24. What do you think about the use of latrines in this community? Probe for why communities have not been able to use them.
25. What factors contribute to the high prevalence of diarrhea among children under five?
26. Are there major differences in access to and utilization of WASH services in the community by males and females?
27. What are the major challenges related to access to and use of WASH services in the community?
28. How can the community address these challenges, and what kind support do they need from the local government and implementing partners?

Agriculture and Livelihoods [district production officer, representative of micro-finance institution, and agriculture extension officer]

29. What are your views and opinions about financial services available in your community? Probe for profiling practices, minimum threshold, repayment rates.
30. What factors contribute to the low level of utilization of the financial services by farmers and other traders for agricultural produce in the community?
31. What prevents farmers from accessing the available financial services?
32. How can access to financial services be scaled up among farmers?
33. How do households store produce? What improved storage practices are currently used in your district?
34. What factors contribute to the low level of utilization of improved storage practices among farmers in the community?
35. What prevents farmers from using the improved storage practices?
36. How can the utilization of improved storage practices be scaled up among farmers?

Poverty [district production officer and sub-county agriculture extension officer]

37. What would you say are the primary sources of income for the majority of households in this community? Agriculture, livestock, trading? Services? Combination? Others (e.g., selling wild food, firewood, charcoal)? And who is involved in those activities?
38. Are there business development opportunities that you believe would help build food security in this area? Please explain your thoughts.
39. Is it common for individuals or families to save money? Why or why not? And if so, what are savings commonly directed towards? Are people members of saving groups? What is the composition of male versus female versus mixed groups in the community?
40. Is it possible to secure business loans in your community that may help inspire development? What are some of the roadblocks to securing loans? Are the screening process and requirements the same for men and women?
41. Are there other structural features in the community that may prevent successful economic growth? Please explain.
42. Why do many households fall below the poverty line in spite of many development programs, including Food for Peace (FFP) projects, which have been implemented in Karamoja region over the last 10 years?
43. What has been the effect of previous FFP development programs on the livelihoods and income sources of community members and households?
44. Why is the household per capital expenditures still below USD 1.9 per day in spite of previous support from development projects, including the FFP projects?
45. Are there obvious improvements in the capacity of households to cover their nutritional needs, health care needs, and other necessary expenses over the last five years?
46. How best can communities be supported to improve on their livelihoods and income sources?

ANNEX B: FOCUS GROUP DISCUSSION GUIDE

Food Security and Nutrition [male and female household heads, male and female youth, community health workers]

1. Please tell me what you understand by food security in your community.
2. Do you think food insecurity is a problem in your community? Probe for why.
3. How do you assess your food security situation?
4. Are you concerned and/or have experienced the inadequacy or lack of food in the past 30 days or 12 months, and if so, why is that the case? What factors trigger the food insecurity? How could this situation be improved?
5. Please tell me a little bit about the typical eating habits here in your community.

PROBES:

- What kinds of foods do you typically eat? (Think about the foods that you and the members of your household ate over the last week.)
 - What times of day do people eat?
 - Who prepares the food?
6. Please tell me a little bit about the liquids individuals in your community typically drink.
 - What do they typically drink? Probe for alcohol or local brew; probe for reasons as to why they take the mentioned drinks; probe for the local brew and residues fed to children and why they do so.
 - What times of day?
 7. Where do most of the foods and beverages you consume come from?
 8. Are there particular special events or holidays you celebrate that effect your food choices? Tell me about those occasions. How frequently do these events occur?
 9. Are there any beliefs or customs that involve food in your community? For example, is there a period in which people fast, or eat a particular food type, or avoid a particular food type?
 10. Are there beliefs that interfere with breastfeeding? Are there beliefs as to the kinds of foods children need when they are sick?
 11. How do caregivers of children assess the child nutrition situation in their households and in the communities? Do they think that malnutrition is prevalent or that it is not a big problem? If they realize the existence of this problem, do they understand the implications of child malnutrition, especially the implications of chronic malnutrition like stunting for children under five?
 12. Do you know of anything which has been done by development agencies in the recent years (in the last three to four years) to address this problem, and what needs to be done to address this problem more effectively?
 13. What kind of foods are typically consumed by male and female children?
 14. Do you think male children are more stunted than female children? If so, why?
 15. What kinds of foods typically consumed by male and female children?
 16. What are the typical foods provided children of the following age groups in your community: 0–5 months, 6–23 months, and 24–59 months? Probe for the following:
 - How do you assess the adequacy of foods consumed?
 - What are barriers to an adequate diet for children?

- Probe for any differences in feeding practices between male and female children.
 - What has been done by the respondents or by your community to improve children's diet in recent years (in the last three to four years)?
 - What else needs to be done?
17. How do you assess the adequacy of foods consumed by children ages 6–23 months? Probe for:
- What are the typical foods provided to this age group of children in addition to breastfeeding?
 - What are barriers to adequate diet for children of this age group?
 - Is there a difference in the way male and female children are fed?
 - What has been done by your community to improve children's diet in recent years (in the last three to four years), and what needs to be done?
18. Do you think that adult women in the project area are generally malnourished? Probe for:
- What kind of households are likely to have malnourished women?
 - What are the factors that might be contributing to poor nutrition among the adult women?
 - Do the participants think that malnourishment among the adult women is a serious problem? Why or why not?
 - What has been done to decrease women's malnutrition in recent years (in the last three to four years), and what still needs to be done?
19. What has been done to address food insecurity in the community? Probe for what has been done and by whom.
20. Are there any food security programs implemented in the past by the government, foreign donors, or community-based organizations? If so, please tell me a little bit about your experiences with those programs. What were some of the strengths of those programs? And weaknesses?

Agriculture and Livelihoods [male and female farmers]

Farming at the community level

21. What are some of the most common products that are farmed in this community? a. For sale? b. For consumption?
22. What type of farming do members of the community do? For food to consume? For food to sell? Or both? If both, what percentage for each? Does this vary by time of year? Or do people typically farm for some other purpose? If so, what is that other purpose?
23. I would like to learn a little bit more about the type of farming families do here for subsistence.
- What type of products are farmed? (particular plant or animal?)
 - Who typically makes the primary decisions about the farming in a household in your community? Tell me a little bit about the typical roles and responsibilities of individuals in households in your community for farming as well as household work.
 - Please tell me a little bit about the processes that occur once food has been harvested for consumption. What is the process for storing it? How is it processed? Who makes the decisions regarding the production and storage of the food that has been harvested?

24. Would like to learn a little bit more about the type of farming that happens in this community to generate income.
- What type of products are farmed? (particular plant or animal?)
 - Who typically makes the primary decisions about the farming in a household in your community? Tell me a little bit about the typical roles and responsibilities of individuals in households in your community for farming as well as household work.
 - Please tell me a little bit about the processes that occur once food has been harvested for income generation. What is the process for storing it? How do is it processed? Who makes the decisions regarding the production and storage of the food that has been harvested?
25. If community members are selling any part of the goods produced, please describe that process for me.
- Does the farming occur here locally or do community members go elsewhere to farm?
 - What part of the process do household members in this community typically undertake in the preparation and sale of foods?
 - Do you work with other community members?
 - Who makes decisions regarding how the money will be allocated if farming and sales are a communal process?
26. Has the community experienced any events in the past that have impacted the ability to farm either for sustenance or for income? (illness, environmental episode, accident, community event, national event?) How did members of the community get through that event?
27. Where do community members typically learn their farming techniques? Are there techniques you or others in the community would like to learn, but have not had access to?
- Techniques for farming for consumption?
 - Techniques for farming for income generation?
28. How often do agriculture extension workers visit your household to provide support?
29. What are some of the customs, traditions, and beliefs related to work in the household? What differences are there in men's versus women's work roles? Who owns livestock? Who is responsible for processing different kinds of crops and livestock? Are there specific gender issues that affect food security?
30. What is your primary source of water in this community? Is this water used both for consumption and for farming?
31. What are some of the biggest challenges faced in this community with farming?

Poverty [male and female household heads, male and female youth]

32. What would you say are the primary sources of income for the majority of households in this community? Agriculture, livestock, trading? Services? Combination? Others (e.g., selling wild food, firewood, charcoal)? And who is involved in those activities?
33. Are there business development opportunities that you believe would help build food security in this area? Please explain your thoughts.
34. Is it common for individuals or families to save money? Why or why not? And if so, what are savings commonly directed towards? Are people members of saving groups?

35. Is it possible to secure business loans in your community that may help inspire development? What are some of the roadblocks to securing loans?
36. What do you think are some of the greatest needs for your community?
37. Have there been programs implemented in the past by the government, foreign donors, or community-based organizations? If so, please tell me a little bit about your experiences with those programs.
38. What were some of the strengths of those programs? And weaknesses? How has the overall context and living situation changed within the last two years? Especially relating to security, food, health, women's rights, youth rights, and agricultural production?
39. What has been the effect of previous Food for Peace development programs on the livelihoods and income sources of community members and households?
40. Are there obvious improvements in the capacity of households to cover their nutritional needs, health care needs, and other necessary expenses over the last five years?
41. How best can communities be supported to improve their livelihoods and income sources?

Access to and Use of Financial Services [male and female farmers]

42. What are your views and opinions about the access and utilization of financial services in your district?
43. What factors contribute to the low level of utilization of the financial services by farmers and other traders for agricultural produce in the community?
44. What prevents farmers from accessing the available financial services?
45. How can access to financial services be scaled up among farmers?
46. What motivates or inhibits farmers from using financial services?
47. How can access to financial services be scaled up in the community?
48. What factors affect the utilization of the financial services provided to farmers in the community?
How can access to financial services be scaled up among farmers?

Storage Practices [male and female farmers]

49. How does your household store the produce?
50. Do you know of other methods you want to try? Why?
51. What prevents you from using your preferred storage methods for your produce?

Water, Sanitation, and Hygiene [members of the community water service committees and community health workers]

52. What is the main source of water for members in your community?
53. Tell me about the typical daily routine for fetching water. Does this activity happen individually for each household? Or is there a community system in place for fetching water?
54. How long does it take to fetch water and return, including travel and waiting time? How is water carried?
 - What time does it occur? And how often in the week?

- Who in the family is responsible for that activity?
 - Who makes the decision regarding who will be responsible for fetching the water?
 - Do those who fetch water face any risks? What are these risks and what steps have been taken, if any, to reduce the risk?
 - Do you typically sanitize your water before use? If so, what process do you follow? If not, why not?
 - Do community members pay for water services? How is it done? Are community members willing to pay for water if they know that they will get it? If they do not pay for water, what are some the solutions identified by the community members themselves to help improve access to water in the community?
55. Does this change in the dry versus the rainy season?
56. Are there times when water is not available to you? If so, what do you do when this happens?
57. What is the main source of drinking water for members of the community? In the dry season? In the rainy season? Please tell me about the quality of water in the dry and rainy seasons.
58. What is your view or opinion about the current levels of sanitation and hygiene in your community? Do you think it is bad or good? Probe for availability of water and sanitation commodities; use of latrines, open defecation, garbage disposal, and hand washing.
59. Why do communities still engage in open defecation?
60. Why do many households fail to use improved drinking water sources?

Definition: Basic drinking water services are defined as improved sources or delivery points that by nature of their construction or through active intervention are protected from outside contamination, in particular from outside contamination with fecal matter, and where collection time is no more than 30 minutes for a roundtrip, including queuing. Drinking water sources meeting these criteria include: piped drinking water supply on premises; public tap/standpost; tube well/borehole; protected dug well; protected spring; rainwater; and/or bottled water (when another basic service is used for hand washing, cooking, or other basic personal hygiene purposes). All other services are considered to be “unimproved,” including: unprotected dug well, unprotected spring, cart with small tank/drum, tanker truck, surface water (river, dam, lake, pond, stream, canal, irrigation channel), and bottled water (unless basic services are being used for hand washing, cooking, and other basic personal hygiene purposes).

61. Why are many children under five affected by diarrhea?
62. What can be done to improve sanitation and hygiene in your community?

Socio-Cultural and Political Community Context [male and female household heads, male and female youth, male and female farmers, member of community water service committees, community health workers]

63. In this last part of our interview, I would like to learn a little bit more about your community as a whole.
64. What do you think are some of the greatest needs for your community? Have there been programs implemented in the past by the government, foreign donors, or community-based organizations? If

so, please tell me a little bit about your experiences with those programs. What were some of the strengths of those programs? And weaknesses?

65. How has the overall context and living situations changed within the last two years? Especially relating to security, food, health, women's rights, and agricultural production? Also probe for market systems development. Are there more agriculture and livestock products available in the market now than two years ago? More drugs, vets, agriculture extension workers?
66. Are there locations or resources in your community that members would wish to access but have not for the past year due to insecurity or avoidance of disputes? How has the level of access to this resource changed? How free are you to move around? Has this changed over time?
67. How often do members of your community interact with individuals from other communities? What is the nature of interaction? What types of economic interactions are associated with good or bad relationships? Are there variations by sex? Who are the aggravators of conflict?
68. Is there any other additional information you would like to share with us about your access to food, your consumption of food and beverages, your work and livelihoods, or your health care practices?

ANNEX C: METHODOLOGY MATRIX

Key Findings from the Population-based Household Survey	Research Questions and Sub-questions	Data Collection Method and Respondents
Nutrition and Food Security		
• The average household dietary diversity score (HDDS) is low (less than 4 out of 12 food items) in both the Catholic Relief Services and Mercy Corps areas.	• Why is the household dietary diversity score so low in the project areas? What are the issues and challenges associated with low dietary diversity? How could the households improve their dietary diversity?	Key informant interviews with the following respondents: • District production officer • Health worker at nearby health facility or hospital Focus group discussion with the following respondents: • Male household head • Female household head • Male young people/teenagers ages 15–20 • Female young people/teenagers ages 15–20 • Male farmers • Female farmers • Community health workers • Members of the water service committees
• Nine out of 10 households experience moderate or severe food insecurity in both project areas.	• What are the community perceptions about food security in the Karamoja region? • Is the food insecurity situation in the project areas as dire as the quantitative population-based data show? • What factors contribute to the high levels of food insecurity in the project areas? • What are the cultural, social, and economic challenges of food security within the households, among children under five and among women of reproductive age?	
• Nearly 40 percent of children are chronically malnourished (stunted) in both project areas.	• What are the barriers of child malnutrition within the households and in the communities? How could these be improved? • Why are male children more stunted than female children? • What kind of foods are typically consumed by male and female children? Are male children more exclusively breastfed than female children? • What are the typical foods provided to children ages 0–5 months, 6–23 months, and 24–59 months? How adequate is it? • What are the differences in feeding practices between male and female children? • Has been done by communities and development agencies in the past five years to improve children’s diets and address child malnutrition in Karamoja? What still needs to be done? What should be done differently?	
• More male children compared to female children are stunted in both project areas.		
• Only about 10 percent of children ages 6–23 months consume a minimally accepted diet.		
• About a quarter of women of reproductive age are underweight.	• What factors contribute to malnutrition among adult women? • What has been done to decrease women’s malnutrition in recent years (last three to four years), and what still needs to be done? What should be done differently?	
• Less than 20 percent of women consume a diet with minimum diversity.		

Key Findings from the Population-based Household Survey	Research Questions and Sub-questions	Data Collection Method and Respondents
Poverty		
- About 9 in 10 households are below the poverty line in both project areas. - The depth of poverty among the poor is remarkably high, around 60 percent. This indicates that households are not just below the poverty line, their per capita expenditures are way below the poverty line of USD 1.90 per day (purchasing power parity 2010). - Despite all this, nearly 90 percent of men and women in union reported earning cash in the past 12 months.	- Why do many households fall below the poverty line in spite of many development efforts, including the Resiliency through Wealth, Agriculture, and Nutrition (RWANU) project and the Growth, Health, and Governance (GHG) project, which have been implemented in the Karamoja region over the last 10 years? - What has been the effect of previous GHG and RWANU efforts on the livelihoods and income sources of community members and households? - Why are the household per capital expenditures still below USD 1.90 per day in spite of previous support from development projects, including Food for Peace projects? - What are households doing differently to cover their nutritional needs and health care compared to five years ago? - Are there obvious improvements in the capacity of households to cover their nutritional needs, health care needs, and other necessary expenses over the last five years? If so, what are they? - How best can communities be supported to improve on their livelihoods and income sources?	Key informant interviews with the following respondents: - District production officer - Community development officer Focus group discussion with the following respondents - Male household head - Female household head - Male young people/teenagers ages 15–20 - Female young people/teenagers ages 15–20 - Male farmers - Female farmers
Water, Sanitation, and Hygiene (WASH)		
- About 65 percent of households practice open defecation in both project areas. - Less than 5 percent of households have soap and water in their hand-washing station. - About 20 percent of households use basic drinking water sources. - A quarter of children under five had diarrhea within two weeks before the survey took place.	- Why do communities still engage in open defecation? - What innovative approaches should be used to eradicate open defecation in Karamoja region? - What factors contribute to the low levels of utilization and availability of WASH services and commodities in the region? - What gender norms influence the utilization of WASH services in the community? - Why do many households fail to use basic drinking water sources? - What factors contribute to the high prevalence of diarrhea among children under five? - What factors contribute to the low levels of hygiene and sanitation practices in the communities? - How can the community address challenges related to access and utilization of WASH services? What kind of support is needed from the local government and implementing partners?	Key informant interviews with the following respondents: - Health worker at nearby health facility or hospital Focus group discussion with the following respondents: - Members of the water service committees - Male household head - Female household head - Male young people/teenagers ages 15–20 - Female young people/teenagers ages 15–20 - Community health workers

Key Findings from the Population-based Household Survey	Research Questions and Sub-questions	Data Collection Method and Respondents
Agriculture		
About 20 percent of farmers used financial services in the past 12 months.	- What factors contribute to the low level of utilization of financial services by farmers and other traders for agricultural produce in the community? - How can access to financial services be scaled up among farmers?	Key informant interviews with the following respondents: - Representative of a microfinance institution - Agricultural extension officer Focus group discussion with the following respondents - Male farmers - Female farmers - Male household head - Female household head
Less than 50 percent of farmers used improved storage practices in the past 12 months.	- What factors contribute to the low level of utilization of improved storage practices among farmers in the community? - How can the utilization of improved storage practices be scaled up among farmers?	

ANNEX D: INFORMED STATEMENTS AND CONSENT FORMS

Study Title: USAID Food for Peace Baseline Qualitative Study for the Development Food Security Activities (NUYOK and APOLOU) in the Karamoja Region of Uganda

This study has been approved by an accredited Ugandan Research Ethics Committee (MUREC).

This study is funded by the United States Agency for International Development (USAID) Office of Food for Peace.

About 588 people will be interviewed during the collection of qualitative baseline data from the communities targeted for the implementation of NUYOK and APOLOU projects.

<u>INFORMED CONSENT STATEMENT and CONSENT FORM for INDIVIDUALS SCHEDULED to PARTICIPATE in a KEY INFORMANT INTERVIEW</u>	
The same statement should be used for all key informant at the district, sub-county and village levels. This statement must be read at the beginning of each interview by the person leading the interview.	
Introductions and duration of interview	Thank you for very much for agreeing to meet us for an interview today. My name is X and I am from the International Research Consortium. (Each other study team member present will introduce him/herself.) This interview will take no more than one hour of your time.
Purpose of the study, and purpose of this interview	Before we begin I would like to tell you about the purpose of this study. We have been hired by ICF International to collect information from areas that will benefit from NUYOK and APOLOU projects. The information to be collected will be used to devise better ways of serving your communities with project services.
Duration	The reason why we want to interview you is because of your knowledge/experience with (X insert the specific intervention/activity that is the focus of the interview).
Potential risks, our procedures to reduce potential risk, and confidentiality measures	There should not be any risk to you for agreeing to be interviewed. Many other people in this district and in other villages will be interviewed, too, for the same purpose. The way we reduce any risk that might possibly occur because of your answers to our questions, is by our guarantee to you personally that everything you say during our meeting will be kept confidentially. We will not tell other people in your district/village or in any other places in this district, what we talked about and what you said.
Alternatives for notes taken during the interview and for recording the interview	We plan to take notes during this interview so that we will not forget this conversation, but these notes will not be shared with any other persons. Your name will not be included in these notes. I will type up these notes into my computer, and the notes we take from other people we interview, to better understand the food security situation in your community. When we finish studying the notes from all the interviews we hold with people in this district, I will erase the notes from my computer so that no one else will be able to read the notes. I will also destroy the notes we take down on paper today. Alternative for instances where we also plan to record the interviews. I would like to use this recorder to record our discussion to make sure I do not forget any important information. Do you have any objections? (plan to take notes if the person objects to being recorded)

	I will listen to the recording of the interview and type it up into my personal laptop/computer to make it easier for me to study. No one else is allowed to listen to the recording or to use my computer to read the notes from the recording of our interview today. I will study these notes, and the notes we take from other people we interview, to determine if there are ways in which future activities can be improved for the benefit of people in this area. When we finish studying the notes from all the interviews we hold with people in this district, I will erase the recording and delete the notes I typed up into my computer so that no one else will be able to listen to this interview or to read the notes.
Benefits from consenting to interview	There are no specific benefits to you for agreeing to be interviewed today. We can say that the information you give us today will make a contribution to these types of activities in the future to improve X (insert one of these phrases depending on the focus of this interview: the health of children, the local economy, the livelihoods of people, peace) in this area. We value your contribution.
Contact Information for any questions	You can contact Dr. Daniel Kibuuka Musoke TEL 0772587094 if you have any questions about this research after we leave here today and also for information regarding the progress and findings of the study. If you have any concerns about the study, you can contact the MUREC chairperson, Ms. Harriet Chemusfo; Tel: 0392174236.
Participation is Voluntary. No penalty involved in leaving any time during interview.	Before I begin asking questions, we want to assure you that your participation in this interview today is completely voluntary. If after hearing what I just explained you decide that you do not want to be interviewed, you are free to leave. I will not ask you for an explanation. There is no penalty involved. If there are any questions I ask that you do not want to answer, please let me know. We will skip to the next question. If at any time during the interview you wish to stop, please let me know. I will not ask you for an explanation.
Individual's questions	Do you have any questions?
Ask for consent	Do you agree to be interviewed? (If yes) Will you sign this consent form?

Participant Name, Signature and Date:

Interviewer Name, Signature and Date:

INFORMED CONSENT STATEMENT AND FORM FOR INDIVIDUALS SCHEDULED to PARTICIPATE IN FOCUS GROUP DISCUSSIONS

The same statement should be used for all focus group discussions at the village level.

This statement must be read before the discussion begins by the person leading the interview.

Introductions and duration of interview	Thank you for very much for agreeing to meet us for an interview today. My name is X and I am from the International Research Consortium. (Each other study team member present will introduce him/herself.) This interview will take no more than 60-75 minutes of your time.
Purpose of the study, and purpose of this interview	Before we begin I would like to tell you about the purpose of this study. We have been hired by ICF International to collect information from areas that will benefit from NUYOK and APOLOU projects. The information to be collected will be used to better understand the food security situation in your community.
Duration	The reason why we want to interview you is because of your knowledge/experience with (X insert the specific intervention/activity that is the focus of the interview).
Potential risks, our procedures to reduce potential risk, and confidentiality measures	There should not be any risk to anyone here for agreeing to participate in this discussion. The way we try to reduce any risks to you that might happen because of what you say during this discussion, is by our guarantee to each one of you personally that everything you say during our meeting will be kept confidential. We will not tell other people in your village or in any other place in this district, what we talked about and what anybody said here today.
Alternative statements for notes taken during the discussion and for recording the discussion	We plan to take notes during this interview so that we will not forget this conversation, but we will not write down your names. These notes will not be shared with any other people. I will type up these notes into my computer to make them easier for me to study later on. I will be studying these notes and the notes we take from all other interviews in this district to see if there are ways in which future activities can be improved for the benefit of communities. When I finish studying these notes, I will erase them from my computer. I will also destroy the notes we write down today. Alternative for instances when a recorder is used during the discussion. I would like to use this recorder to record our discussion to make sure I do not forget any important information. Does anyone object? (plan to take notes if there are objections) I will listen to the recording and type up what we said today into my computer to make it easier for me to study. No one will be allowed to listen to the recording or to use my computer to read the notes from the recording of our discussion today. I will study these notes, and the notes we take all other people we interview in this village and in this district, to see if there are ways in which Mercy Corps's future activities can be improved for the benefit of people living in this area. When I finish studying the notes from our discussion today, I will erase the recording so no one will be able to listen to what anyone said. I will also destroy the notes from the recording that I typed into my computer so that no one will be able to read what anyone in this group said.

Benefits from consenting to participate in the discussion	There are no specific benefits to anybody for agreeing to be interviewed today. We can say that the information you give us today will make a contribution to these types of activities in the future to improve X (insert one of these phrases depending on the focus of this interview: the health of children, the local economy, the livelihoods of people, peace) in this area. We value everybody's contribution to the discussion.
Contact Information for any questions	You can contact Dr. Daniel Kibuuka Musoke TEL 0772587094 if you have any questions about this research after we leave here today and also for information regarding the progress and findings of the study. If you have any concerns about the study, you can contact the MUREC chairperson, Ms. Harriet Chemusfo; Tel: 0392174236.
Participation is Voluntary. No penalty involved in leaving any time during interview.	Before we begin asking questions, I want to assure you that your participation in this discussion today is completely voluntary. If after hearing what I just explained you decide that you do not want to participate, you are free to leave. We will not ask you for an explanation. There is no penalty involved. If there are any questions we ask that you do not want to answer, please let us know. We will skip to the next question. If at any time during the interview you wish to leave, please let us know. We will not ask you for an explanation.
Ask for questions	Does anyone have any questions?
Ask for consent	Do you agree to participate? Please raise your hand if you want to participate in this discussion.

Participant Name, Signature and Date:

Interviewer Name, Signature and Date:

ANNEX E: CURRICULUM VITAE OF DR. DANIEL KIBUUKA MUSOKE

Career Summary

Daniel is a Senior Research and Evaluation Specialist and the Consulting Director of the International Research Consortium, a multidisciplinary agency offering research services in the East and Southern African Countries. He has over 13 years of experience in the design and implementation of a wide range research and evaluation projects in collaboration with top researchers from different universities and research institutions around the world. Daniel is uniquely skilled and has a wealth of experience in the following: (i) Survey methodology and qualitative approaches; (ii) Project/program evaluations including baseline assessments for rapid project start-ups, mid-term reviews, end of project evaluations and field based impact evaluations; (iii) Development of monitoring and evaluation systems, including design of conceptual, logical and results frameworks, indicators and tools using participatory approaches; (iv) Data quality audits/assessments; (v) Development of policies, strategies and guidelines; (vi) Provision of technical support in strategic planning and reviews through the use of participatory approaches; and (vii) Data analysis and synthesis of complex information in to user friendly formats.

Daniel has considerable experience in heading multidisciplinary research teams having done this for several client assignments at both the local and international scenes. He has successfully accomplished several research projects with USAID Uganda, DFID, UNFPA, UNICEF Uganda, World Bank, Uganda MoH, Management Systems International, JSI Research and Training Institute, Belgium Technical Cooperation, Mitchell Group, Inc., TANGO International, Westat, FHI360, and other Ugandan based HIV/AIDS service organizations.

He is a very hardworking and energetic individual with exceptional communication, leadership, consulting and presentation skills. He is highly analytical and good at conceptualization, logical thinking, and problem solving. He also has excellent report writing and documentation skills, and promptly meets deadlines. In 2010, he was among the recipients of the **Young Achiever's Award** for excellence and professionalism in the Provision of Research and Evaluation Services. He holds an International Master's Degree in Health Economics and Pharma-Economics from the University of Pompeu Fabra, Barcelona, Spain; Master's Degree in Health Services Research from the University of South Africa and also holds a bachelor of medicine and bachelor of surgery from Makerere University. He has also attended several short courses at recognized international centers of learning.

Tertiary Education

Aug 2010: International Masters in Health Economics and Pharma-Economics, University of Pompeu Fabra, Barcelona, Spain.

December 2004: Master of Science (Health Service Research) - University of South Africa.

June 1999/2000: Bachelor of Medicine and Bachelor of Surgery (MBChB), Makerere University Kampala, Uganda.

Other Courses Attended

March 2004: Public Health Management, Costing and Budgeting, Case Western Reserve University (CWRU), USA and the Uganda Joint Clinical Research Centre (JCRC).

January 2004: Monitoring and Evaluation of Community Health Program by Center for Infectious Disease Research in Zambia

May 2003: Survey Methodology for Community Medicine by the Makerere University Institute of Public Health.

April 2003: Further Practical Statistics, University of South Africa.

April 2000: Certificate in HIV/AIDS care and Prevention for Medical Doctors in Africa by the Academic alliance on HIV/AIDS care and prevention between North America Infectious Disease Society and Makerere University Medical School.

Evaluation and research experience for Nutrition and livelihood projects

1. **International Evaluator, Evaluation of the Swaziland Food by Prescription Development Programme Supported by World Food Programme (April-August 2016).** This evaluation was commissioned by the World Food Programme (WFP) Office of Evaluation (OEV) and focused on the appropriateness of the operation, results of the operation, why and how the operation produced the observed results. The evaluation findings informed a hand over strategy which was used by WFP to hand over the food by prescription programme to the Swaziland National Nutritional Council.
2. **Project head, End-of-Project Evaluation for “Climate Change Adaptation for improved Food Security and Applied Nutrition (CCA)” Project in Ngora District (January-June 2016).** Heifer International-Uganda and International Institute of Rural Reconstruction (IIRR) were supported to conduct a final project evaluation which was guided by the following standard evaluation criteria: Relevance, effectiveness, efficiency and sustainability. The evaluation documented project achievements and lessons learnt from implementation that guided scale up of similar projects in Uganda and the rest of Sub Saharan Africa.
3. **Co-Principal Investigator of the Impact Evaluation Study for the Kuroiler Distribution Project in Uganda (January-December 2014).** In collaboration with Arizona State University and TANGO International, the 2012, The Bill and Melinda Gates Foundation was supported to undertake an impact evaluation of the Kuroiler Distribution project in Uganda. Using a quasi-experimental design, the evaluation assessed the impact of Kuroiler chickens versus local chickens on household nutrition, household income, and gender equality.
4. **Project head, Impact evaluation of School Health and Nutrition projects funded by USAID through UPHOLD to Save the children/US in Nakaseke and Luwero districts (December 2005).** Using a quasi-experimental design and school based methodology, this evaluation assessed the impact of school health and nutrition interventions on key learning outcomes. Evaluation findings were used by the Save the Children/US to inform the design of similar projects in other settings/countries.
5. **Project head, End of project evaluation for the Easier Living Project implemented by the International Rescue Committee (IRC) with funding from Stichting Vluchteling [Jan-March 2013].** The International Rescue Committee and its stakeholders were supported to understand the overall project performance towards achieving its stated goal and objectives, and also learned from the experiences of the project. Since the project worked at zonal levels to provide business skills training and support to women through the VSLA methodology, the evaluation assessed the VSLA group experience for the 9 VSLA groups and the kind of social capital assets that were created as a result of participation. The evaluation used both quantitative and qualitative data collection approaches.

6. **Project head, Baseline assessment of food and nutrition interventions for PLHIV in Uganda (October 2008- January 2009).** University Research Co., LLC/USAID and the Uganda Ministry of Health were supported to conduct a combined health facility and household baseline nutritional assessment in 32 health facilities and 1450 HHs. This helped to document baseline indices of project performance that were compared with the end of project results in order to determine the outcome of effect of the project interventions. The household survey component was done using a two-stage stratified random design and covered nutritional status and dietary intake.
7. **Project head, Monitoring and Evaluation of Food for Peace programs implemented by ACDI VOCA and Mercy Corps in Uganda using the Layers Survey (October 2010-June 2011):** The USAID supported Food and Nutritional Technical Assistance Project (FANTA-2) was supported to implement the Layer survey (using PDA technology) which involved tracking the quality of the following activities that were implemented by Mercy Corps and ACDI/VOCA at their activity sites in Uganda: Warehouse management, Food for work - road rehabilitation, Institutional Strengthening, Agriculture package- post harvest handling, market training, farming as a business, agronomy training, nutrition and hygiene training, savings and credit group formation, Food distribution - assistance to PLHIV, NTIHCHN- health centers, care groups, Village health teams (VHTs), Agriculture- producer groups, women's garden groups, demo plots Food for work- road construction, wells, primary school latrines and Food distribution- (NTIHCHN, FFW).
8. **Project head, Joint endline and baseline population based surveys in Karamoja region, May –September 2018. The IRC team was contracted by ICF International to support the training and field activities for the joint baseline and endline PBS.** The purpose of the surveys is to improve understanding of how FFP projects are functioning, whether the projects are achieving targeted results, how they are perceived by primary stakeholders and whether the approaches, methods and interventions promoted by FFP are efficient and cost-effective.
9. **Project head, Feed the Future (FTF) Feedback Zone of Influence (ZOI) Uganda Survey (September 2014- April 2015).** Feed the Future is the US government's global food security initiative that seeks to reduce poverty, hunger, and under-nutrition among women and children; and to increase income, women's empowerment, dietary diversity, and appropriate feeding practices. Representative cluster sample surveys were done to track progress in achieving Feed the Future's objectives. IRC was contracted to plan, conduct, and supervise the fieldwork, including training and managing the interviewers; with support provided throughout all phases of the survey by the USAID-funded FTF FEEDBACK project (led by Westat).
10. **Project head, 2012 Uganda Feed the Future Zone of Influence Baseline Survey.** Technical support was provided to TANGO and Uganda Bureau of Statistics (UBoS) during the training of enumerators and field supervisors, review of the English and local versions of the questionnaires, anthropometry training, training in the use of tablets and on human subjects protection and procedures for maintaining confidentiality. The training and field pre-test was done using the 2012 Uganda Feed the Future Zone of Influence Baseline Survey Questionnaire which covered the following areas: agriculture, food security, food consumption, nutrition and wellbeing of households.
11. **Project head, Feed the Future (FTF) Feedback Pilot Quantitative Household Survey (August 2012).** TANGO International and Westat were supported to conduct a pilot survey that tested the hardware, software and data file transfer protocols in Uganda for the 2012 Uganda Feed the Future Zone of Influence Baseline Survey. There were four modes of data entry: three hardware/software combinations plus paper-based data entry. The pilot survey was used to test; three models of tablet computers (Nexus 7, HTC Flyer and the Fujitsu Q550) for field data collection; two data entry templates operating on two different operating systems and the feasibility of five different modalities of data backup/synchronization – The pilot test covered 500HHs that were randomly selected in Mukono district in Central Uganda.

Evaluation and research experience for health programmes

1. **Project head Final Evaluation of the Pioneer Project (December 2013).** The Pioneer project was a five-year special malaria prevention and control initiative project which was funded by Comic Relief and implemented by Malaria Consortium in five districts of Hoima, Buliisa, Kyankwanzi, Kibaale and Kiboga districts from May 2009 to December 2013. The evaluation assessed the project's overall performance and determined the extent to which project achieved its intended objectives. Data collection and analysis was partly done using the Most Significant Change technique.
2. **Project head, Evaluation of the Effectiveness and sustainability of the VHT model of Depo Provera provision and its impact on Family Planning switching behaviour (June-November 2013).** Marie Stopes International was supported to assess the challenges in the supply chain management for injectable contraceptives both at the community and health facility levels, and also explored the feasibility of different mechanisms that were utilized to address stock outs of key supplies and commodities. In addition, the evaluation determined factors that contributed to prolonged Depo-Provera usage and the most feasible approach which is currently used by Marie Stopes Uganda in strengthening the VHT supervision and monitoring techniques.
3. **Project Head, Second Annual Performance review of DFID funded mTrac project. (August- October 2013).** The United Kingdom, Department for International Development UNICEF and WHO Uganda were supported to conduct the second annual performance review of the mTrac project. The project involved procurement of ACTs and development and roll out of a national SMS based system for monitoring availability of ACTs and generating community action for improved health system accountability. Progress in implementing the three key components of the mTrac project were assessed, namely: (i) (use of SMS to transmit weekly reports; (ii) U-Reporters; and (iii) anonymous hotline). Progress was assessed against the project implementation plans and log frame matrix and the review findings were used to make evidence based decisions at national and district level.
4. **Project Head, First Annual Performance review of DFID funded mTrac project. (August- October 2013).** The United Kingdom, Department for International Development UNICEF and WHO Uganda were supported to conduct the second annual performance review of the mTrac project. The project involved procurement of ACTs and development and roll out of a national SMS based system for monitoring availability of ACTs and generating community action for improved health system accountability. Progress in implementing the three key components of the mTrac project were assessed, namely: (i) (use of SMS to transmit weekly reports; (ii) U-Reporters; and (iii) anonymous hotline). Progress was assessed against the project implementation plans and log frame matrix and the review findings were used to make evidence based decisions at national and district level.
5. **Project head, Evaluation and documentation of the CSO capacity building interventions that were supported by the SCIPHA project (April-August 2013).** Joint Clinical Research Centre was supported to conduct a process and outcomes based evaluation of the capacity building initiatives for Strengthening Civil Society for Improved HIV &AIDS and OVC service delivery (SCIPHA) project in Uganda. The evaluation determined the effects of the SCIPHA project capacity-building efforts on HIV service delivery results of supported CSOs as well as their overall institutional sustainability. The evaluation also identified links to the capacity-building inputs that were provided by SCIPHA and lessons learned in capacity building.
6. **Project head, Evaluation of the Child Status Index (CSI) tool and database (July-August 2012).** The Child Status Index (CSI) was developed in order to contribute to the improvement in the delivery of services for Orphans and Vulnerable Children (OVC). The Ministry of Gender, Labour and Social Development (MGLSD), the Civil Society Fund (CSF) and TPO-Uganda adapted the CSI tool from MEASURE Evaluation after field pretests that were conducted in August 2011. Additionally, a database for the CSI was developed for tracking and monitoring the changes in the

wellbeing of OVC supported by CSF. After one year of CSI implementation, an evaluation of the use of the CSI tool and database was done which identified successes/best practices as well as the critical bottlenecks and gaps that faced CSI application and determined possible options for rolling it out to other OVC service providers in the country.

7. **Project head, final evaluation of the strategic plan for Baylor College of Medicine Children Foundation Uganda (2007-2012).** The evaluation assessed the effectiveness of the Baylor Uganda strategic plan 2007-2012 in meeting its operational objectives and identified issues that emerged in the changing external and internal environment that required substantial modification of approach and institutional changes in the Strategic Plan for the subsequent period (2012-2017).
8. **Project head, Final evaluation of the USAID supported New Partners Technical Assistance (NuPITA) project that was implemented by John Snow Inc. (May -June 2012).** This evaluation was done in Uganda, Kenya and South Africa and determined the extent to which technical support that was provided by the NuPITA project to HIV service delivery organizations led to improvement in service delivery results and institutional sustainability. The final evaluation findings were disseminated to all key stakeholders.
9. **Project head, Final evaluation of the 5-year TB/HIV project implemented by AIC, and funded by Centre for Diseases Control and Prevention (CDC) (October-December 2011).** The evaluation assessed the extent to which the project achieved its intended objectives with a focus on relevancy, efficiency, effectiveness and sustainability of project activities.
10. **Project head, Final evaluation of the ‘Saving Women’s Lives: Tearing down the Barriers to Unsafe Abortion in Uganda’ project [also called Safe Abortion Action Fund (SAAF) project] – March –April 2011.** With funding from the International Planned Parenthood Federation (IPPF), Reproductive Health Uganda (RHU) was supported to evaluate the SAAF project. The evaluation assessed the extent to which the project achieved its intended objectives with a focus on relevancy, efficiency, effectiveness, and sustainability of the project activities. The evaluation assessed the appropriateness of the strategies which were used in project implementation and also documented lessons learnt which were used as the basis for instituting improvements to the planning, design, and management of similar projects or for scale up.
11. **Project head, Final Evaluation of Expansion of National Pediatric HIV&AIDS Prevention, Care and Treatment and Training of Service Providers in the Republic of Uganda under President’s Emergency Plan for AIDS Relief (PEPFAR) [March –May 2011].** With funding from CDC Uganda, Baylor Uganda was supported to evaluate key project achievement with a focus of relevancy, effectiveness, efficiency and sustainability. The evaluation also determined whether the project achievements and failures were influenced by factors outside Baylor-Uganda’s control, and whether Baylor-Uganda partnership strategy was appropriate and effective.
12. **Project head, Final evaluation of the HOPE project initiative (October 2009 – March 2010).** The HOPE project was funded by DFID (\$7m) for a period of five years. It was implemented by Interact Worldwide, UK and National Community of Women Living with HIV/AIDS in Uganda (NACWOLA). The evaluation used both qualitative and quantitative methods of data collection and assessed the relevancy, equity, efficiency, effectiveness, impact and sustainability. The evaluation findings informed strategies for engaging people living with HIV/AIDS in service delivery.
13. **Project head, Mid-term evaluation of the Northern Uganda Malaria, AIDS and Tuberculosis (NUMAT) program (July - August 2009).** USAID Uganda monitoring and evaluation services project (managed by the Mitchell Group, Inc.) was supported to conduct a mid-term review of the NUMAT program. The evaluation determined whether the program was on track to achieve its objectives within the existing time frame and funding parameters and recommended changes in program or management strategies for the remaining two years of the

project which helped to increase its impact in Northern Uganda in light of the changing political and social context.

- 14. Project head, Evaluation of HIV/AIDS service networks in Uganda (January 2008-March 2008).** The USAID Uganda monitoring and evaluation management services project (managed by Management Systems International) was supported to undertake an in-depth assessment of the role of “networked approaches” in the delivery of HIV/AIDS services. Study findings were used by the USAID Uganda and supported implementing partners to develop better strategies for supporting networked HIV/AIDS services for improved efficiency and sustainability.
- 15. Project head, Evaluation of the Africa Dialogue on AIDS Care (ADAC); an African AIDS Experts led initiative managed at the JCRC (July 2007-August 2008).** The Joint Clinical Research Centre in Uganda was supported to conduct a rapid participatory review of the achievements of the African Dialogue in AIDS Care in Africa.
- 16. Project head, Provision of technical assistance to the USAID AIDS Capacity Enhancement Project in strengthening monitoring and evaluation services at Joint Clinical Research Centre (JCRC) in Uganda (2007-2008).** Chemonics International was supported to conducting a rapid participatory assessment of the monitoring and evaluation systems at the Joint Clinical Research Centre. Thereafter, additional support was extended to JCRC to develop an organizational wide monitoring and evaluation framework and plan, integrated monitoring and evaluation database, data collection tools and reporting formats. This assignment was done in close collaboration with JCRC senior management as well as interaction with the JCRC’s centers of excellence and ART sites.
- 17. Project head, Provision of technical assistance to UNICEF/MoH in the Evaluation of the National PMTCT programme 2000/01-2006/07.** This evaluation was conducted in partnership with Health Consult and Mbarara University Department of Community Health and also involved working closely with the Ministry of Health. The evaluation assessed the PMTCT programme coordination, organization and management; access, utilization and quality of services; procurement and supply chain of PMTCT services; quality and integration of services, and lastly funding mechanisms and cost of PMTCT implementation. Additionally, a retrospective cost analysis was done in order to determine the cost of PMTCT implementation at the national, district, health facility and community levels.
- 18. Co-principal investigator, Public Expenditure Review (PER) of the Health Sector (November 2006-February 2007).** The assessment of public expenditures for health generated evidence that informed the strategic implementation of Uganda’s health program through improved planning, budgeting and management of public funds for equitable and efficient allocation and utilization of public resources for health.
- 19. Project head, Assessment of the Uganda’s progress in the implementation of the UNGASS Declaration of commitment to HIV/AIDS (November 2005 - January 2006).** The assessment was done for the Uganda AIDS Commission using the national agreed indicators entailed in the National M&E Framework and the UNAIDS UNGASS Guidelines on construction of core indicators. The exercise involved largely analysis of data from secondary sources, consultation with sectors mandated to report on various indicators and interviews with key informants.

Household and health facility surveys

- 20. Project head, The Uganda Diarrhea prevention and treatment survey (October-December, 2011).** Abt Associates was supported to conduct a household survey in 20 project districts including Masaka, Rakai, Luwero, Mukono, Bugiri, Kayunga, Mbale, Gulu, Lira, Amuru, Arua, Nebbi, Dokolo, Soroti, Kaberamaido, Kibaale, Masindi, Hoima, Kyankwanzi and Kiboga. The survey was done using a multi-stage stratified random design and covered 4500 households. The survey was comprised of 3 components, namely; diarrhea prevention and treatment survey for caregiver of

children 6-59months, a survey on water treatment for caregivers of children in the same age range, and a survey of service providers regarding diarrhea treatment within the selected enumeration areas. The survey included house holding listing and was done using PDAs that were programmed using Pocket PC creations.

- 21. Project head Baseline survey of the Strengthening Civil Society for Improved HIV & AIDS and Orphans and Vulnerable Children (OVC) service delivery project in Uganda (SCIPHA project - (September- November, 2011).** Joint Clinical Research Centre (JCRC) and Uganda Health Marketing Group were supported to conduct a quantitative household survey using Lot Quality Assurance Sampling methodology in 5 regions of Uganda (West Nile, North, Central, Midwest, and Eastern) covering a total of 19 districts – The survey covered 1805 Households and mainly investigated HIV/AIDS prevention and treatment.
- 22. Annual survey of reproductive health and family planning services in 15 districts in Uganda [October-December 2010].** Management Sciences for Health (MSH) was supported to conduct a combined health facility and household surveys which tracked performance of the PMP indicators. It covered 2400 households and mainly investigated reproductive health and utilization of family planning services.
- 23. Baseline assessment of HoPE Lake Victoria Basin project in Uganda and Kenya (March –September 2012).** Pathfinder International was supported to conduct baseline household surveys that helped to gain an in-depth understanding of the socio cultural, environmental and institutional settings of project sites. This study also helped to assess relevant factors that affected ecosystem threats and health status in the communities and service delivery points, as well as existing capacities and areas that needed to be strengthened. The survey was done using a multi-stage stratified random design and covered 1245 households. The survey included house holding listing and was done using PDAs that were programmed using Pocket PC creations.
- 24. Project head, Baseline Evaluation of the “Preserving the African family in the face of HIV/AIDS through prevention initiative (January-July 2007).** Children AIDS Fund was supported to conduct a baseline survey on the abstinence and be faithful project in six districts of Kampala, Mukono, Kayunga, Luwero, Wakiso and Mpigi. It was done using two stage stratified random design and covered 12 households. It involved house hold listing and rigorous training of field interviewers on human subjects protection.

Research on Malaria

- 25. Co-Investigator, Perceptions about the value of malaria rapid diagnostic tests among private sector providers in Uganda (January-May 2015).** Collaborated with John Hopkins University to conduct a qualitative study which was aimed at: (i) Understanding factors that influence malaria rapid diagnostic test (mRDT) use and associated treatment at private health facilities in and around the Wakiso district of Uganda; (ii) Understanding how structural market factors, including price, supply chain structure, and alternative treatment sources act to facilitate or pose a barrier to adoption of malaria rapid diagnostic tests (mRDT) at private health facilities in and around the Wakiso district of Uganda; and (iii) Identifying opportunities for addressing barriers to malaria rapid diagnostic test (mRDT) use and treatment according to mRDT results at private health facilities in and around the Wakiso district of Uganda.
- 26. Co-Investigator, Net care and repair formative research in Uganda (January-June 2012).** Collaborated with the Johns Hopkins University Center for Communication Programs (JHU-CCP) to carry out qualitative research in Lira and Soroti districts in Uganda which informed NetWorks/JHU-CCP’s interventions that focused on promoting LLIN care and repair behaviors among households. The study identified protective, adaptive and repair behaviors around mosquito net ownership and use in Uganda, including the barriers and motivations for these behaviors. The study findings informed the development of net care and repair interventions in Uganda

- 27. Principal investigator, Post Insecticide Treated Nets (ITN) distribution survey in Karamoja sub-region (March-December 2009).** Supported UNICEF Uganda and MoH to conduct a post ITN distribution survey in Karamoja sub region which determined ITN household coverage, retention and use, factors that affect ITN retention and use and the effectiveness of the behavior campaigns which were conducted as part of the campaign distribution. The survey was done using two stage stratified random design and targeted 1,550 households in the districts of Moroto, Napak, Amudat, Kotido, Kaabong and Nakapiripirit.
- 28. Principal Investigator, Post Insecticide Treated Nets (ITN) distribution survey in Lango sub-region (March-December 2009).** Supported UNICEF Uganda and MoH to conduct a post ITN distribution survey which determined ITN household coverage, retention and use, factors that affect ITN retention and use and the effectiveness of the behavior campaigns which were conducted as part of the campaign distribution. The survey was done using a two stage stratified random design and targeted 1,550 households in the districts of Lira, Oyam, Apac, Dokolo and Pader.
- 29. Principal Investigator, Baseline and final household surveys for the “Hang Up’ project in Eastern Uganda (October 2009-December 2010).** Supported the Uganda Red Cross Society (URCS) to conduct a baseline and final household surveys which assessed household knowledge and practices about malaria prevention among the communities in the districts of Mbale, Manafwa and Kaberamaido. The surveys were done using a two stage stratified random design and targeted 850 households in each survey rounds. Baseline and final indices for key performance indicators were compared in order to determine changes in key project performance indicators.
- 30. Project head, Baseline survey of medical laboratory facilities in Uganda (March-July 2005).** Provided technical support to the World Health Organization to conduct a baseline survey of medical laboratory facilities in Uganda. The study documented major strengths and weaknesses in the provision of medical laboratory in Uganda. The study findings informed major policy reforms and strategic actions that helped to improve medical laboratory services in Uganda.

Research on key populations

- 31. Project head, Rapid assessment on access to and utilization of HIV/AIDS care and treatment services for key and priority populations in Uganda (August 2014-March 2015).** Supported USAID Uganda and Ministry of Health to conduct a rapid key population assessment using mixed methods. The study determined which MARPs are served; identified current services available for MARPs; described services delivery models used and best service delivery practices. In addition, the study also determined gaps in service delivery and opportunities for scaling up HIV/AIDS services targeted to key populations. The findings from the rapid assessment informed the roll out of the revised national ART guidelines with a strong focus on the test and treat strategy for key populations.
- 32. Project head, Rapid assessment and response analysis for HIV prevention services for MARPS in the Eastern Region (July- August 2013).** Supported the USAID supported The STAR-E project to review the current MARPs interventions using mixed methods in the Eastern region. The study focused on the following key populations: Fisher folk, commercial sex workers (CSWs) and their clients, long distance truck drivers, discordant couples, and men having sex with men (MSM). The study findings informed the design of better strategies for scaling up MARPs intervention in the Eastern region.
- 33. Project head, IRAPP/IGAD End line Behavioural Surveillance Survey (BSS) at Bibia and Oraba Hotspots in Uganda (January 2015).** Supported the Inter-Governmental Agency for Development (IGAD) supported Regional HIV/AIDS Partnership Project (IRAPP) to conduct an end-line Behavioural surveillance survey (BSS) at two HIV hot spots in Uganda (Bibia/Elegu and Koboko/Oraba). The study assessed the extent to which the IRAPP had progressed in meeting its intended results. Specifically, the end line survey was done using both qualitative and quantitative

methods and provided data which was used to track changes in the key project performance indicators.

- 34. Project head, IRAPP/IGAD Baseline Behavioural Surveillance Survey (BSS) at Bibia and Oraba Hotspots in Uganda (January 2012).** Supported the Inter-Governmental Agency for Development (IGAD) supported Regional HIV/AIDS Partnership Project (IRAPP) to conduct a baseline behavioural surveillance survey (BSS) at two HIV hot spots in Uganda (Bibia/Elegu and Koboko/Oraba). The IGAD Regional HIV/AIDS Partnership Programme (IRAPP) was aimed at reducing HIV transmission along the major transport routes in the targeted countries including Uganda. Specifically, the survey collected information on HIV/AIDS knowledge, attitudes, practices and behaviours among the high risk and vulnerable target groups (commercial sex workers, truck drivers and youth). The survey established baseline data for the IRAPP projects in the two hot spots which was used to set project benchmarks and targets.
- 35. Project head, Rapid HIV/AIDS situation analysis among long distance truck drivers and their sexual networks in West Nile region of Uganda (April 2011).** Supported Uganda Health Marketing Group to conduct a rapid HIV/AIDS situation analysis among the truckers and their sexual networks. This study generated strategic information which informed a new HIV prevention project for truckers and their sexual networks in West Nile region.

Data quality assessments

- 36. Project head, USAID Uganda DO3 Data Quality Assessment for FY2013 (April 2014).** Supported USAID Uganda to conduct the Data Quality Assessment (DQA) on a set of 27 performance indicators. The DQA help USAID Uganda to ensure that the Development Objective (DO3) team was aware of the strengths and weaknesses of the project performance data which by applying the five data quality standards (validity, integrity, precision, reliability and timeliness). The DQA also determined the extent to which the data integrity could be trusted to influence management decisions, and also ensured that all data reported to USAID/Washington or data that was reported externally on USAID performance had a recent data quality assessment done within three years before submission. The DQA exercise was conducted from July 8th 2014 to September 15th 2014, covering 27 DO3 indicators and 18 implementing partners (IPs).
- 37. Project head, Independent verification of Marie Stopes Uganda's outreach service numbers (2012-2014).** Supported Marie Stopes International to conduct an independent assessment of the accuracy of service data which was reported by the 25 mobile outreach teams to MSU management, and subsequently to USAID, between 1st January 2013 and 30th September 2014. The verification exercise involved cross-checking of a sample of selected data and ascertained its quality based on the crosschecked and verified that the data was of reasonable quality, based on the five data quality standards; validity, reliability, integrity, precision, and timeliness. The key findings from the verification exercise were used to eventually strengthen the MSU M&E system at the both the regional centers and headquarters, which in turn helped to improve management and programmatic decisions based on data generated through the M&E system.
- 38. Project head, Comprehensive audit of the health communication interventions in Uganda (Nov 2013-Jan 2014).** Supported FHI360 to conduct a comprehensive audit of health communication interventions in Uganda over the period 2007-2012. The audit findings informed GOU and partners to design and implement quality health communication interventions which have contributed to reduction in HIV infections, total fertility, maternal & child mortality, malnutrition, malaria & tuberculosis.
- 39. Project head, Development of planning and evaluation frameworks for implementation of combination HIV prevention strategies in Rakai and Mayuge Districts (October 2012-**

February 2013). Supported UNFPA Uganda and Ministry of Health to conduct a baseline programmatic assessment for combination HIV prevention in Mayuge and Rakai District using mixed methods. The study findings informed the development of district planning and evaluation frameworks which were used to roll out combination HIV prevention activities in the districts.

- 40. Project head, Evaluation of the five-year strategic plan for Baylor College of Medicine Children Foundation Uganda and development of a new strategic plan for the period 2013/17.** Baylor Uganda was supported to evaluate the organization strategic plan, and also engaged senior and middle level managers to craft a new strategic plan that was discussed and harmonized with all key stakeholders and collaborating partners.
- 41. Project head, Development of alternative distribution strategies for the distribution of contraceptives in Uganda (July- August 2011).** Reproductive Health Uganda (RHU) and UNFPA Uganda were supported to develop and build national level consensus on an alternative strategy for distribution of contraceptives in Uganda. This activity involved review of key project documents, interviews with key partners in reproductive health service delivery and a national level consensus building workshop.
- 42. Project head, Design of a five year 60 million US\$ project for National Medical Stores; for the purchase, distribution and tracking of cotrimoxazole, HIV/AIDS Related Laboratory Commodities and Supplies in the Republic of Uganda under the Presidents' Emergency Plan for AIDS Relief (PEPFAR).** CDC Uganda and National Medical Stores were supported to design a new project which strengthened the supply chain management for HIV related laboratory commodities and supplies in Uganda.
- 43. Project head, Development of a Costed National HIV Drug Resistance Prevention, Monitoring and Surveillance plan (March 2007).** Provided technical support to WHO, Ministry of Health and other HIV/AIDS service institutions to craft a costed national plan for HIV Drug Resistance Prevention, Surveillance and Monitoring. The information for incorporation in the country plan was garnered from desk reviews and selected key informant interviews. The key output was a Costed National HIVDR Prevention, Monitoring and Surveillance Plan for the FYs 2006/07-2010/11, which was costed, prioritized and fully harmonized with key HIV implementing partners in Uganda.
- 44. Project Head: Evaluation of St. Francis Health Care Services in Jinja District of Uganda and Development of a five year costed strategic plan (December 2006-January 2007).** This was a cross-sectional descriptive and analytical impact evaluation that was done using both rapid participatory assessment and economic appraisal techniques. The evaluation assessed the outcomes and impact of the different project activities that were undertaken by St. Francis Health Care Services programme in Jinja and Mukono District.
- 45. Project head, Joint annual evaluation of HIV/AIDS activities in Uganda and development of a Costed National HIV/AIDS Priority Action Plan for FY 2006/07 (November 2005 - January 2005).** The joint annual evaluation exercise was done for the Uganda AIDS Commission HIV/AIDS Partnership and UNAIDS. It was implemented through a collaborative arrangement between International Research Consortium, Mbarara University Department of Community Health and HealthConsult. The evaluation documented progress in the implementation of the national multi-sectoral response to HIV/AIDS in Uganda for the period June 2004 to July 2005. Progress, challenges and constraints were reported on the goals and objectives of the Revised National Strategic Framework 2003/04-2005/6 and the Monitoring and evaluation framework for HIV/AIDS activities in Uganda.
- 46. Project Head, Provision of technical support to the Uganda Programme for Human and Holistic Development (UPHOLD/USAID) to strengthen integrated management for HIV, Tuberculosis, Malaria and STIs with in 26 UPHOLD supported health facilities in the districts of Mbarara, Isingiro, Kiruhura, Bushenyi, Ibanda and Rukungiri (December 2007 to July 2008).** The USAID supported UPHOLD programme was supported to

conduct a baseline assessment to determine the extent to which the targeted health facilities were providing services in an integrated manner. This was followed with monthly support supervision visits which were used to mentor and also update the skills of health facility staffs in the management of HIV, TB, Malaria and STIs in an integrated manner. Health workers at all supported sites were mentored on how to develop work plans for the integrated delivery of HIV, TB, Malaria and STI services.

Employment Record

January 2005 – Current: Consulting Director, International Research Consortium (IRC):

The International Research Consortium is a Ugandan based development consulting firm that focuses on health and social sector development. The firm is dedicated to improving human condition by offering strategic advice and technical assistance to both the public and private sector agencies in the design, implementation, monitoring and evaluation of public health and social development programmes in resource poor settings. Major duties include:

- Coordinates a team of 15 consultants (8 full time and 7 part-time) in providing technical assistance in executing different consultancy assignments
- Provides technical assistance in the design, implementation and Monitoring and Evaluation of different projects
- Provides technical assistance to different companies in Uganda in developing and implementing Workplace HIV/AIDS programs and policies
- Takes proactive steps in strategic business developments
- Develops terms of reference for areas requiring technical expertise

January 2002 - Dec 2004: Regional technical Advisor for HIV and Cancer Programs – Axios International, Uganda Office

- Increased institutional enrolment for HIV and Cancer philanthropy programs by 68% in 65 countries
- Successfully carried out a baseline assessment for ARV drug logistics management systems, diagnostic and monitoring capacities for HIV/AIDS management in four regional hospitals in Tanzania (Muhimbili Regional Referral Hospital, Kilimanjaro Christian Medical Centre. Mawenzi and Morogoro Regional Referral Hospitals) and three provinces in Zambia (Lusaka, Mongu and Livingstone provinces)
- Developed an network of 123 institutions for widening access to cancer and HIV treatments with the support of five pharmaceutical companies
- Coordinated a highly dedicated international team that established the antiretroviral drug logistics system in Zambia
- Carried out a baseline assessment of the cancer treatment sites in Ethiopia and developed a strategic business plan for the implementation of cancer donations program by Astra Zeneca in Ethiopia
- Provide technical assistance to districts health Management teams in planning needs assessments, designing and implementation of VCT & PMTCT programs of in AXIOS's programs in Tanzania and Burkina Faso

2001: Program Manager, Uganda Police HIV Drug Treatment Program: The Police HIV drug treatment program was started in 2001 as one of the pioneers ART programs in Uganda with the support of the Ford Foundation, to rapidly expand access to treatments for HIV infection using highly active antiretroviral treatment (HAART) for a large number of HIV infected police officers and their families.

- Carried out intensive mobilization of the police community for VCT, PMTCT and ARVS and increased patient enrolment by 54 percent.
- Increased enrolment for VCT and PMTCT services by 56 percent

Certification

I, the undersigned, certify that to the best of my knowledge and belief, these bio-data correctly describe my qualification, my professional experience, and me.



Signature:

Dr. Daniel Kibuuka Musoke

Date: July 16th, 2018

Annex 6: Tabular Summary of Baseline Indicator Estimates

Table A6.1. FFP Uganda Baseline Indicators - Combined Project Areas
Indicators, 95% Confidence Intervals and Base Population [Uganda, 2018]

	Indicator Value	Confidence Interval		Number of Records	Weighted Population	Standard Deviation	Standard Error	DEFT
		Lower	Upper					
FOOD SECURITY INDICATORS								
Average Household Dietary Diversity Score (HDDS)	3.3	3.1	3.5	2,259	106,169	2.0	0.11	2.7
Prevalence of moderate and severe food insecurity in the population, based on the Food Insecurity Experience Scale (FIES) [30 day recall]	91.0	89.2	92.9	2,770	129,500	23.4	0.93	2.1
Male and female adults	91.0	89.2	92.9	2,169	100,215	23.3	0.94	1.9
Adult female, no adult male	92.1	89.4	94.9	499	24,484	22.0	1.42	1.5
Adult male, no adult female	85.2	78.9	91.6	98	4,603	32.4	3.24	1.0
Child, no adults	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Prevalence of moderate and severe food insecurity in the population, based on the Food Insecurity Experience Scale (FIES) [one year recall]	93.7	92.4	95.0	2,770	129,500	18.8	0.65	1.9
Male and female adults	93.6	92.2	95.0	2,169	100,215	19.1	0.70	1.7
Adult female, no adult male	94.7	92.9	96.6	499	24,484	16.3	0.94	1.3
Adult male, no adult female	90.4	84.9	95.9	98	4,603	25.1	2.80	1.1
Child, no adults	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
POVERTY INDICATORS								
Per capita expenditures (as a proxy for income) of USG-assisted areas	\$1.04	\$0.90	\$1.19	15,469	723,726	2.8	0.07	1.4
Male and female adults	\$1.04	\$0.88	\$1.20	13,122	607,772	2.8	0.08	1.4
Adult female, no adult male	\$1.00	\$0.77	\$1.24	2,073	101,713	2.9	0.12	0.9
Adult male, no adult female	\$1.64	\$0.94	\$2.35	248	12,953	4.4	0.35	0.8
Child, no adults	N/A	N/A	N/A	26	1,289	N/A	N/A	N/A
Prevalence of poverty: Percentage of people living on less than \$1.90/day	88.8	86.4	91.2	15,469	723,726	31.5	1.23	2.1
Male and female adults	88.8	86.3	91.3	13,122	607,772	30.4	1.26	1.9
Adult female, no adult male	90.4	87.2	93.7	2,073	101,713	33.0	1.64	1.1
Adult male, no adult female	74.3	60.2	88.5	248	12,953	61.9	7.12	1.2
Child, no adults	N/A	N/A	N/A	26	1,289	N/A	N/A	N/A
Depth of Poverty: Mean percentage shortfall relative to the \$1.90 poverty line	54.6	52.1	57.0	15,469	723,726	26.8	1.22	2.4
Male and female adults	54.3	51.8	56.8	13,122	607,772	25.8	1.24	2.3
Adult female, no adult male	56.4	52.9	59.8	2,073	101,713	29.0	1.74	1.3
Adult male, no adult female	49.9	39.8	59.9	248	12,953	48.2	5.05	1.1
Child, no adults	N/A	N/A	N/A	26	1,289	N/A	N/A	N/A
Depth of Poverty of the Poor: Mean percentage shortfall relative to the \$1.90 poverty line	61.4	60.1	62.8	13,655	642,665	19.7	0.69	1.7
Male and female adults	61.1	59.7	62.6	11,603	539,751	18.9	0.72	1.7
Adult female, no adult male	62.3	60.0	64.7	1,859	91,995	21.2	1.19	1.2
Adult male, no adult female	67.1	60.9	73.3	167	9,630	23.7	3.12	0.9
Child, no adults	N/A	N/A	N/A	26	1,289	N/A	N/A	N/A
WASH INDICATORS								
Percentage of households using an improved drinking water source	40.7	35.9	45.6	2,835	132,832	49.1	2.45	2.7
Available on premises	2.6	1.5	3.7	2,835	132,832	16.0	0.55	1.8
Available in 30 minutes or less (round trip)	26.4	21.4	31.4	2,835	132,832	44.1	2.50	3.0
Available in more than 30 minutes (round trip)	11.7	8.7	14.7	2,835	132,832	32.2	1.53	2.5
Percentage of households practicing correct use of recommended household water treatment technologies	10.0	8.0	12.1	2,835	132,832	30.1	1.04	1.8
Chlorination	1.8	0.9	2.7	2,835	132,832	13.3	0.43	1.7
Flocculent/Disinfectant	0.2	0.0	0.4	2,835	132,832	4.3	0.09	1.1
Filtration	1.1	0.6	1.7	2,835	132,832	10.6	0.27	1.4
Solar	0.0			2,835	132,832	0.0		0.0
Boiling	7.8	6.1	9.5	2,835	132,832	26.8	0.86	1.7
Percentage of households that can obtain drinking water in less than 30 minutes (round trip)	45.1	39.0	51.3	2,835	132,832	49.8	3.10	3.3

Table A6.1. FFP Uganda Baseline Indicators - Combined Project Areas
Indicators, 95% Confidence Intervals and Base Population [Uganda, 2018]

	Indicator Value	Confidence Interval		Number of Records	Weighted Population	Standard Deviation	Standard Error	DEFT
		Lower	Upper					
Percentage of households with access to a basic sanitation facility	8.4	5.7	11.1	2,835	132,832	27.8	1.35	2.6
Male and female adults	9.1	6.1	12.2	2,216	102,392	29.0	1.54	2.5
Adult female, no adult male	5.6	2.4	8.8	503	24,734	22.4	1.61	1.6
Adult male, no adult female	9.9	3.5	16.4	102	4,819	29.8	3.24	1.1
Child, no adults	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Percentage of households in target areas practicing open defecation	65.6	59.7	71.5	2,835	132,832	47.5	2.96	3.3
Percentage of households with soap and water at a handwashing station commonly used by family members	3.5	1.9	5.1	2,835	132,832	18.3	0.80	2.3
AGRICULTURAL INDICATORS								
Percentage of farmers who used financial services (savings, agricultural credit, and/or agricultural insurance) in the past 12 months	20.5	17.3	23.6	3,664	182,782	40.4	1.58	2.4
Male	21.1	17.9	24.2	1,631	79,667	41.2	1.59	1.6
Female	20.0	16.2	23.8	2,033	103,116	39.7	1.91	2.2
Percentage of farmers who practiced value chain activities promoted by the project in the past 12 months	31.0	27.6	34.5	3,664	182,782	46.3	1.71	2.2
Male	35.2	31.1	39.3	1,631	79,667	48.3	2.07	1.7
Female	27.8	24.2	31.4	2,033	103,116	44.4	1.82	1.8
Percentage of farmers who used at least [project-defined minimum number] ¹ sustainable agriculture (crop, livestock, and NRM) practices and/or technologies in the past 12 months	28.1	24.6	31.6	3,664	182,782	45.0	1.76	2.4
Male	31.6	27.7	35.4	1,631	79,667	47.0	1.91	1.6
Female	25.5	21.5	29.4	2,033	103,116	43.2	1.98	2.1
Percentage of farmers who used at least [project-defined minimum number] ¹ sustainable crop practices and/or technologies in the past 12 months	43.7	39.4	48.0	3,664	182,782	49.6	2.16	2.6
Male	46.1	41.6	50.6	1,631	79,667	50.4	2.26	1.8
Female	41.8	37.2	46.4	2,033	103,116	48.9	2.31	2.1
Percentage of farmers who used at least [project-defined minimum number] ¹ sustainable livestock practices and/or technologies in the past 12 months	7.6	6.1	9.0	3,664	182,782	26.4	0.75	1.7
Male	11.9	9.5	14.4	1,631	79,667	32.8	1.22	1.5
Female	4.2	2.9	5.5	2,033	103,116	19.8	0.65	1.5
Percentage of farmers who used at least [project-defined minimum number] ¹ sustainable NRM practices and/or technologies in the past 12 months	1.8	0.8	2.8	3,664	182,782	13.3	0.51	2.3
Male	2.2	1.0	3.4	1,631	79,667	14.8	0.61	1.7
Female	1.5	0.5	2.5	2,033	103,116	12.1	0.49	1.8
Percentage of farmers who used improved storage practices in the past 12 months	49.9	45.4	54.3	3,664	182,782	50.0	2.23	2.7
Male	47.8	43.1	52.4	1,631	79,667	50.5	2.34	1.9
Female	51.5	46.7	56.2	2,033	103,116	49.6	2.38	2.2
WOMEN'S HEALTH AND NUTRITION INDICATORS								
Prevalence of underweight (BMI < 18.5) women of reproductive age	34.6	31.6	37.7	1,888	94,089	47.6	1.54	1.4
Prevalence of women of reproductive age consuming a diet of minimum diversity	16.4	13.4	19.4	2,422	137,039	37.0	1.52	2.0
Contraceptive Prevalence Rate	13.8	10.9	16.7	1,381	77,607	34.5	1.47	1.6
Modern methods	13.5	10.6	16.4	1,381	77,607	34.2	1.46	1.6
Traditional methods	0.3	0.1	0.6	1,381	77,607	5.8	0.14	0.9
Percentage of births receiving at least four antenatal care (ANC) visits during pregnancy	78.4	75.8	80.9	1,639	92,945	41.2	1.28	1.3
Prevalence of women of reproductive age who consume targeted nutrient-rich commodities	8.7	6.1	11.4	2,422	137,039	28.3	1.31	2.3
Bio-fortified beans	3.0	1.8	4.2	2,422	137,039	17.1	0.60	1.7
Bio-fortified maize or sorghum	7.3	4.7	9.9	2,422	137,039	26.1	1.30	2.5
Orange-flesh sweet potatoes	1.1	0.4	1.8	2,422	137,039	10.5	0.36	1.7
CHILDREN'S HEALTH AND NUTRITION INDICATORS								
Prevalence of healthy weight (WHZ ≤ 2 and ≥ -2) among children under five (0-59 months)	87.9	86.4	89.4	2,577	124,483	32.6	0.74	1.1
Male	86.5	84.4	88.6	1,259	59,475	34.6	1.06	1.1

Table A6.1. FFP Uganda Baseline Indicators - Combined Project Areas
Indicators, 95% Confidence Intervals and Base Population [Uganda, 2018]

	Indicator Value	Confidence Interval		Number of Records	Weighted Population	Standard Deviation	Standard Error	DEFT
		Lower	Upper					
Female	89.2	87.2	91.2	1,318	65,008	30.8	1.01	1.2
Age 0-23 months	84.0	81.4	86.5	1,001	46,741	36.7	1.27	1.1
Age 24-59 months	90.3	88.5	92.0	1,576	77,742	29.6	0.87	1.2
Prevalence of underweight children (WAZ < -2) children under five (0-59 months)	29.0	26.5	31.6	2,596	125,643	45.4	1.30	1.5
Male	34.2	30.2	38.1	1,269	60,045	48.0	1.98	1.5
Female	24.4	21.5	27.2	1,327	65,599	42.5	1.42	1.2
Prevalence of stunted children (HAZ < -2) children under five (0-59 months)	38.1	35.9	40.3	2,572	124,397	48.6	1.11	1.2
Male	43.2	39.7	46.7	1,254	59,299	50.2	1.76	1.2
Female	33.5	30.7	36.3	1,318	65,098	46.7	1.41	1.1
Prevalence of wasted children (WHZ < -2) children under five (0-59 months)	11.2	9.7	12.7	2,577	124,483	31.5	0.76	1.2
Male	12.4	10.3	14.5	1,259	59,475	33.4	1.05	1.1
Female	10.0	8.0	12.0	1,318	65,008	29.7	1.00	1.2
Percentage of children under age 5 who had diarrhea in the last two weeks	31.6	28.9	34.2	2,779	134,915	46.5	1.33	1.5
Male	30.6	27.2	33.9	1,349	64,041	46.6	1.68	1.3
Female	32.4	29.2	35.6	1,430	70,874	46.3	1.61	1.3
Percentage of children under age 5 with diarrhea treated with ORT	84.1	81.0	87.2	862	42,571	36.6	1.57	1.3
Male	82.1	77.5	86.8	404	19,591	38.7	2.33	1.2
Female	85.8	81.7	89.9	458	22,980	34.2	2.07	1.3
Prevalence of exclusive breast-feeding of children under six months of age	73.5	66.8	80.2	301	14,436	44.2	3.38	1.3
Male	76.7	69.7	83.8	147	6,927	43.3	3.55	1.0
Female	70.5	60.3	80.7	154	7,509	45.1	5.13	1.4
Prevalence of children 6-23 months of age receiving a minimum acceptable diet (MAD)	8.4	5.6	11.3	757	35,315	27.8	1.46	1.4
Male	8.4	4.8	12.0	385	17,589	28.7	1.83	1.2
Female	8.5	4.9	12.1	372	17,726	27.8	1.82	1.3
Prevalence of children 6-23 months who consume targeted nutrient-rich commodities	11.4	8.3	14.5	757	35,315	31.8	1.58	1.4
Male	12.3	7.6	16.9	385	17,589	33.9	2.32	1.3
Female	10.6	7.0	14.1	372	17,726	30.7	1.77	1.1
Bio-fortified beans	3.7	1.9	5.5	679	31,704	18.8	0.91	1.3
Bio-fortified maize or sorghum	10.8	7.8	13.9	679	31,704	31.1	1.52	1.3
Orange-flesh sweet potatoes	1.8	-0.2	3.9	679	31,704	13.4	1.04	2.0
GENDER INDICATORS								
Percentage of men and women in union who earned cash in the past 12 months	41.4	37.1	45.6	4,604	211,675	49.3	2.12	2.9
Male	41.7	37.2	46.2	2,169	99,142	49.9	2.26	2.1
Female	41.0	36.4	45.7	2,435	112,533	49.3	2.33	2.3
Percentage of women in union and earning cash who report participation in decisions about the use of self-earned cash	85.0	81.4	88.6	867	45,498	35.7	1.81	1.5
Percentage of women in union and earning cash who report participation in decisions about the use of spouse/partner's self-earned cash	58.0	51.8	64.3	576	30,076	49.4	3.14	1.5
Percentage of men in union and earning cash who report spouse/partner participation in decisions about the use of self-earned cash	48.8	43.7	53.9	703	41,465	50.0	2.59	1.4
Percentage of men and women in union with children under two who have knowledge of maternal and child health and nutrition (MCHN) practices	80.6	77.2	83.9	1,431	72,873	39.6	1.67	1.6
Male	70.8	65.7	75.9	592	32,171	44.0	2.58	1.4
Female	88.3	85.3	91.2	839	40,702	33.0	1.49	1.3
Percentage of men in union with children under two who make maternal health and nutrition decisions alone	22.4	18.5	26.2	592	32,171	41.7	1.96	1.1
Percentage of women in union with children under two who make maternal health and nutrition decisions alone	42.5	37.7	47.2	839	40,702	49.5	2.39	1.4
Percentage of men in union with children under two who make maternal health and nutrition decisions jointly with spouse/partner	42.5	37.4	47.7	592	32,171	49.5	2.58	1.3

Table A6.1. FFP Uganda Baseline Indicators - Combined Project Areas
Indicators, 95% Confidence Intervals and Base Population [Uganda, 2018]

	Indicator Value	Confidence Interval		Number of Records	Weighted Population	Standard Deviation	Standard Error	DEFT
		Lower	Upper					
Percentage of women in union with children under two who make maternal health and nutrition decisions jointly with spouse/partner	34.5	30.3	38.8	839	40,702	47.6	2.13	1.3
Percentage of men in union with children under two who make child health and nutrition decisions alone	12.8	9.4	16.3	592	32,171	33.5	1.75	1.3
Percentage of women in union with children under two who make child health and nutrition decisions alone	36.8	31.2	42.3	839	40,702	48.2	2.78	1.7
Percentage of men in union with children under two who make child health and nutrition decisions jointly with spouse/partner	49.0	43.9	54.1	592	32,171	50.0	2.56	1.2
Percentage of women in union with children under two who make child health and nutrition decisions jointly with spouse/partner	41.5	36.5	46.5	839	40,702	49.3	2.51	1.5
RESILIENCE INDICATORS								
Shock exposure index	5.0	4.6	5.3	2,799	130,970	2.9	0.19	3.5
Cumulative impact of shock exposure index (severity weighted shock exposure)	27.4	25.3	29.5	2,726	127,687	16.9	1.05	3.3
Absorptive capacity index	21.1	19.8	22.4	2,799	130,970	12.7	0.66	2.8
Adaptive capacity index	38.2	36.5	39.9	2,799	130,970	15.1	0.87	3.1
Transformative capacity index	40.4	35.8	45.1	2,799	130,970	21.9	2.34	5.6
Ability to recover from shocks and stressors index	4.1	4.0	4.3	2,332	109,042	1.3	0.07	2.6
Proportion of households participating in group-based savings, micro-finance or lending	37.2	31.8	42.6	1,682	79,370	0.5	0.27	2.3
Index of Social Capital at the household level	54.0	51.8	56.3	2,799	130,970	24.1	1.14	2.5
CUSTOM INDICATORS								
Average rating of government's ability to be responsive to citizens' needs (including transparency, inclusivity, effectiveness) as measured on 12 item scorecard	4.7	4.6	4.9	2,787	130,295	2.0	0.08	2.2
Percent of target population who can state at least one health benefit of waiting at least two years after last live birth before attempting the next pregnancy	96.8	95.1	98.6	1,513	76,810	17.5	0.89	2.0
Male	96.6	94.7	98.5	594	32,244	17.5	0.96	1.3
Female	97.0	95.2	98.9	919	44,566	17.4	0.92	1.6

¹ Project-defined minimums for CRS: 3 for overall, 3 for crops, 3 for livestock and 2 for NRM. Project-defined minimums for MC: 5 for overall, 3 for crops, 4 for livestock and 2 for NRM
N/A = Not available

Table A6.2. FFP Uganda Baseline Indicators - Catholic Relief Services (CRS) Nuyok Project Area
Indicators, 95% Confidence Intervals and Base Population [Uganda, 2018]

	Indicator Value	Confidence Interval		Number of Records	Weighted Population	Standard Deviation	Standard Error	DEFT
		Lower	Upper					
FOOD SECURITY INDICATORS								
Average Household Dietary Diversity Score (HDDS)	3.1	2.7	3.4	1,036	51,883	1.9	0.18	3.0
Prevalence of moderate and severe food insecurity in the population, based on the Food Insecurity Experience Scale (FIES) [30 day recall]	90.4	87.6	93.1	1,235	61,006	24.4	1.41	2.1
Male and female adults	90.7	88.1	93.4	953	46,484	23.5	1.34	1.8
Adult female, no adult male	90.7	86.0	95.3	240	12,348	24.7	2.37	1.5
Adult male, no adult female	80.7	71.9	89.5	42	2,174	36.6	4.49	0.8
Child, no adults	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Prevalence of moderate and severe food insecurity in the population, based on the Food Insecurity Experience Scale (FIES) [one year recall]	94.0	92.3	95.7	1,235	61,006	18.2	0.88	1.7
Male and female adults	94.3	92.7	95.9	953	46,484	17.8	0.82	1.4
Adult female, no adult male	94.1	91.3	96.9	240	12,348	17.5	1.41	1.3
Adult male, no adult female	88.0	79.3	96.7	42	2,174	28.3	4.44	1.0
Child, no adults	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
POVERTY INDICATORS								
Per capita expenditures (as a proxy for income) of USG-assisted areas	\$0.99	\$0.86	\$1.13	6,831	337,266	1.5	0.07	1.6
Male and female adults	\$0.98	\$0.83	\$1.12	5,764	280,735	1.4	0.07	1.6
Adult female, no adult male	\$0.99	\$0.80	\$1.18	983	51,245	1.8	0.09	0.8
Adult male, no adult female	\$1.88	\$0.73	\$3.03	84	5,286	4.2	0.57	0.9
Child, no adults	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Prevalence of poverty: Percentage of people living on less than \$1.90/day	88.0	85.0	91.1	6,831	337,266	32.5	1.51	1.7
Male and female adults	88.1	84.6	91.6	5,764	280,735	31.2	1.73	1.7
Adult female, no adult male	89.3	85.1	93.6	983	51,245	34.7	2.11	0.9
Adult male, no adult female	71.1	48.0	94.2	84	5,286	66.9	11.44	1.1
Child, no adults	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Depth of Poverty: Mean percentage shortfall relative to the \$1.90 poverty line	53.0	49.8	56.2	6,831	337,266	27.4	1.57	2.0
Male and female adults	53.3	49.9	56.8	5,764	280,735	26.5	1.70	2.0
Adult female, no adult male	51.7	47.0	56.3	983	51,245	29.7	2.30	1.2
Adult male, no adult female	46.6	29.1	64.0	84	5,286	47.0	8.62	1.2
Child, no adults	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Depth of Poverty of the Poor: Mean percentage shortfall relative to the \$1.90 poverty line	60.2	58.1	62.2	5,994	296,895	20.5	1.01	1.6
Male and female adults	60.5	58.4	62.7	5,067	247,361	19.7	1.04	1.5
Adult female, no adult male	57.9	54.3	61.4	882	45,776	22.8	1.77	1.1
Adult male, no adult female	N/A	N/A	N/A	45	3,758	N/A	N/A	N/A
Child, no adults	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
WASH INDICATORS								
Percentage of households using an improved drinking water source	40.4	32.4	48.4	1,259	62,225	49.1	3.95	2.9
Available on premises	3.5	1.5	5.5	1,259	62,225	18.5	0.99	1.9
Available in 30 minutes or less (round trip)	25.3	18.0	32.6	1,259	62,225	43.5	3.63	3.0
Available in more than 30 minutes (round trip)	11.6	7.0	16.2	1,259	62,225	32.0	2.26	2.5
Percentage of households practicing correct use of recommended household water treatment technologies	7.9	5.3	10.4	1,259	62,225	26.9	1.28	1.7
Chlorination	2.0	0.5	3.4	1,259	62,225	13.9	0.71	1.8
Flocculent/Disinfectant	0.2	-0.1	0.4	1,259	62,225	4.1	0.12	1.1
Filtration	1.3	0.4	2.2	1,259	62,225	11.3	0.44	1.4
Solar	0.0			1,259	62,225	0.0		0.0
Boiling	5.4	3.5	7.3	1,259	62,225	22.6	0.93	1.5
Percentage of households that can obtain drinking water in less than 30 minutes (round trip)	47.8	38.5	57.1	1,259	62,225	50.0	4.61	3.3

Table A6.2. FFP Uganda Baseline Indicators - Catholic Relief Services (CRS) Nuyok Project Area
Indicators, 95% Confidence Intervals and Base Population [Uganda, 2018]

	Indicator Value	Confidence Interval		Number of Records	Weighted Population	Standard Deviation	Standard Error	DEFT
		Lower	Upper					
Percentage of households with access to a basic sanitation facility	6.7	3.5	9.8	1,259	62,225	25.0	1.56	2.2
Male and female adults	6.9	3.2	10.6	974	47,485	25.5	1.82	2.2
Adult female, no adult male	5.3	0.0	10.7	242	12,508	22.0	2.66	1.9
Adult male, no adult female	10.2	-0.1	20.5	43	2,231	29.6	5.11	1.1
Child, no adults	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Percentage of households in target areas practicing open defecation	66.9	59.6	74.2	1,259	62,225	47.1	3.60	2.7
Percentage of households with soap and water at a handwashing station commonly used by family members	3.9	1.3	6.5	1,259	62,225	19.3	1.29	2.4
AGRICULTURAL INDICATORS								
Percentage of farmers who used financial services (savings, agricultural credit, and/or agricultural insurance) in the past 12 months	21.7	16.6	26.7	1,651	88,266	41.2	2.49	2.5
Male	21.5	17.1	25.9	737	37,867	41.9	2.15	1.4
Female	21.8	15.5	28.1	914	50,399	40.7	3.11	2.3
Percentage of farmers who practiced value chain activities promoted by the project in the past 12 months	35.0	29.7	40.2	1,651	88,266	47.7	2.59	2.2
Male	38.7	32.3	45.1	737	37,867	49.7	3.17	1.7
Female	32.2	26.5	37.9	914	50,399	46.0	2.81	1.8
Percentage of farmers who used at least 3 sustainable agriculture (crop, livestock, and NRM) practices and/or technologies in the past 12 months	41.7	35.5	48.0	1,651	88,266	49.3	3.09	2.5
Male	46.0	39.4	52.6	737	37,867	50.9	3.26	1.7
Female	38.6	31.3	45.8	914	50,399	48.0	3.61	2.3
Percentage of farmers who used at least 3 sustainable crop practices and/or technologies in the past 12 months	34.1	28.1	40.1	1,651	88,266	47.4	2.98	2.6
Male	36.4	30.1	42.7	737	37,867	49.1	3.12	1.7
Female	32.3	25.8	38.8	914	50,399	46.1	3.21	2.1
Percentage of farmers who used at least 3 sustainable livestock practices and/or technologies in the past 12 months	8.1	5.6	10.6	1,651	88,266	27.3	1.22	1.8
Male	11.8	7.9	15.7	737	37,867	32.9	1.92	1.6
Female	5.3	3.1	7.6	914	50,399	22.1	1.10	1.5
Percentage of farmers who used at least 2 sustainable NRM practices and/or technologies in the past 12 months	2.6	0.6	4.6	1,651	88,266	15.9	0.99	2.5
Male	3.2	0.8	5.5	737	37,867	17.8	1.16	1.8
Female	2.2	0.3	4.1	914	50,399	14.3	0.94	2.0
Percentage of farmers who used improved storage practices in the past 12 months	50.5	44.3	56.7	1,651	88,266	50.0	3.07	2.5
Male	48.0	41.1	54.9	737	37,867	51.0	3.42	1.8
Female	52.4	45.9	58.9	914	50,399	49.2	3.22	2.0
WOMEN'S HEALTH AND NUTRITION INDICATORS								
Prevalence of underweight (BMI < 18.5) women of reproductive age	38.6	34.3	42.8	872	45,075	48.7	2.11	1.3
Prevalence of women of reproductive age consuming a diet of minimum diversity	12.5	8.9	16.1	1,062	62,450	33.1	1.77	1.7
Contraceptive Prevalence Rate	14.5	9.9	19.1	636	36,582	35.3	2.27	1.6
Modern methods	14.2	9.7	18.7	636	36,582	34.9	2.24	1.6
Traditional methods	0.4	-0.1	0.8	636	36,582	6.0	0.22	0.9
Percentage of births receiving at least four antenatal care (ANC) visits during pregnancy	77.9	74.4	81.4	746	44,505	41.5	1.71	1.1
Prevalence of women of reproductive age who consume targeted nutrient-rich commodities	6.7	4.0	9.4	1,062	62,450	25.0	1.32	1.7
Bio-fortified beans	1.6	0.6	2.7	1,062	62,450	12.7	0.51	1.3
Bio-fortified maize or sorghum	5.0	2.8	7.2	1,062	62,450	21.8	1.08	1.6
Orange-flesh sweet potatoes	1.3	0.0	2.6	1,062	62,450	11.2	0.65	1.9
CHILDREN'S HEALTH AND NUTRITION INDICATORS								
Prevalence of healthy weight (WHZ ≤ 2 and ≥ -2) among children under five (0-59 months)	87.6	85.5	89.6	1,188	61,974	33.0	1.00	1.0
Male	86.7	83.8	89.6	590	29,509	34.9	1.43	1.0

Table A6.2. FFP Uganda Baseline Indicators - Catholic Relief Services (CRS) Nuyok Project Area
Indicators, 95% Confidence Intervals and Base Population [Uganda, 2018]

	Indicator Value	Confidence Interval		Number of Records	Weighted Population	Standard Deviation	Standard Error	DEFT
		Lower	Upper					
Female	88.4	85.3	91.4	598	32,465	31.4	1.50	1.2
Age 0-23 months	83.5	80.0	86.9	461	22,561	37.2	1.71	1.0
Age 24-59 months	89.9	87.1	92.7	727	39,414	30.1	1.38	1.2
Prevalence of underweight children (WAZ < -2) children under five (0-59 months)	27.8	23.5	32.0	1,196	62,570	44.8	2.11	1.6
Male	34.8	27.9	41.7	595	29,808	48.9	3.42	1.7
Female	21.3	16.8	25.8	601	32,763	40.1	2.21	1.4
Prevalence of stunted children (HAZ < -2) children under five (0-59 months)	35.7	32.2	39.1	1,186	61,936	47.9	1.71	1.2
Male	42.7	36.8	48.7	589	29,480	50.8	2.94	1.4
Female	29.2	25.6	32.9	597	32,456	44.6	1.82	1.0
Prevalence of wasted children (WHZ < -2) children under five (0-59 months)	11.5	9.4	13.7	1,188	61,974	31.9	1.06	1.1
Male	11.7	8.9	14.4	590	29,509	33.0	1.37	1.0
Female	11.4	8.3	14.5	598	32,465	31.1	1.52	1.2
Percentage of children under age 5 who had diarrhea in the last two weeks	31.6	28.0	35.3	1,264	66,557	46.5	1.80	1.4
Male	31.6	27.3	35.9	624	31,256	47.7	2.13	1.1
Female	31.7	27.0	36.4	640	35,301	45.5	2.32	1.3
Percentage of children under age 5 with diarrhea treated with ORT	83.3	79.9	86.8	400	21,063	37.3	1.70	0.9
Male	82.3	76.5	88.2	197	9,866	39.6	2.89	1.0
Female	84.2	78.7	89.7	203	11,197	35.2	2.72	1.1
Prevalence of exclusive breast-feeding of children under six months of age	72.6	60.7	84.5	135	6,945	44.8	5.87	1.5
Male	82.7	71.9	93.4	61	2,897	40.6	5.31	1.0
Female	65.4	48.8	82.1	74	4,048	45.8	8.22	1.5
Prevalence of children 6-23 months of age receiving a minimum acceptable diet (MAD)	6.6	2.1	11.2	355	17,354	24.9	2.24	1.7
Male	5.6	0.8	10.4	180	8,487	24.5	2.35	1.3
Female	7.6	1.9	13.4	175	8,867	26.5	2.84	1.4
Prevalence of children 6-23 months who consume targeted nutrient-rich commodities	8.6	4.6	12.6	355	17,354	28.0	1.98	1.3
Male	11.6	4.5	18.8	180	8,487	34.1	3.54	1.4
Female	5.6	2.0	9.3	175	8,867	23.0	1.78	1.0
Bio-fortified beans	2.2	0.2	4.1	319	15,738	14.6	0.96	1.2
Bio-fortified maize or sorghum	7.5	4.2	10.7	319	15,738	26.3	1.61	1.1
Orange-flesh sweet potatoes	2.5	-1.5	6.5	319	15,738	15.7	1.98	2.3
GENDER INDICATORS								
Percentage of men and women in union who earned cash in the past 12 months	47.4	39.4	55.5	1,993	96,385	49.9	3.97	3.6
Male	47.2	38.5	55.9	931	44,777	50.7	4.31	2.6
Female	47.6	39.2	56.1	1,062	51,608	50.0	4.18	2.7
Percentage of women in union and earning cash who report participation in decisions about the use of self-earned cash	86.6	82.2	91.1	435	24,013	34.1	2.20	1.3
Percentage of women in union and earning cash who report participation in decisions about the use of spouse/partner's self-earned cash	64.8	55.6	74.0	299	16,282	47.8	4.56	1.6
Percentage of men in union and earning cash who report spouse/partner participation in decisions about the use of self-earned cash	56.6	49.5	63.6	359	21,849	49.6	3.47	1.3
Percentage of men and women in union with children under two who have knowledge of maternal and child health and nutrition (MCHN) practices	85.0	80.2	89.8	664	35,769	35.8	2.38	1.7
Male	79.0	71.2	86.8	269	15,153	39.8	3.85	1.6
Female	89.4	85.1	93.6	395	20,616	31.3	2.10	1.3
Percentage of men in union with children under two who make maternal health and nutrition decisions alone	26.1	19.3	32.9	269	15,153	44.0	3.36	1.3
Percentage of women in union with children under two who make maternal health and nutrition decisions alone	45.4	38.5	52.3	395	20,616	49.9	3.42	1.4
Percentage of men in union with children under two who make maternal health and nutrition decisions jointly with spouse/partner	41.8	34.7	48.9	269	15,153	49.4	3.50	1.2

Table A6.2. FFP Uganda Baseline Indicators - Catholic Relief Services (CRS) Nuyok Project Area
Indicators, 95% Confidence Intervals and Base Population [Uganda, 2018]

	Indicator Value	Confidence Interval		Number of Records	Weighted Population	Standard Deviation	Standard Error	DEFT
		Lower	Upper					
Percentage of women in union with children under two who make maternal health and nutrition decisions jointly with spouse/partner	36.3	29.9	42.7	395	20,616	48.1	3.16	1.3
Percentage of men in union with children under two who make child health and nutrition decisions alone	15.7	10.1	21.3	269	15,153	36.5	2.78	1.3
Percentage of women in union with children under two who make child health and nutrition decisions alone	39.7	31.1	48.2	395	20,616	49.0	4.23	1.7
Percentage of men in union with children under two who make child health and nutrition decisions jointly with spouse/partner	51.1	44.0	58.2	269	15,153	50.1	3.50	1.1
Percentage of women in union with children under two who make child health and nutrition decisions jointly with spouse/partner	42.1	34.5	49.7	395	20,616	49.4	3.75	1.5
RESILIENCE INDICATORS								
Shock exposure index	5.5	4.9	6.2	1,251	61,809	2.8	0.31	3.8
Cumulative impact of shock exposure index (severity weighted shock exposure)	31.9	28.6	35.3	1,226	60,992	16.7	1.66	3.5
Absorptive capacity index	22.0	19.5	24.4	1,251	61,809	13.7	1.21	3.1
Adaptive capacity index	39.2	36.3	42.0	1,251	61,809	14.3	1.41	3.5
Transformative capacity index	44.7	38.0	51.4	1,251	61,809	17.8	3.32	6.6
Ability to recover from shocks and stressors index	4.1	3.9	4.4	1,060	52,954	1.3	0.10	2.5
Proportion of households participating in group-based savings, micro-finance or lending	40.1	30.1	50.1	775	38,475	0.5	0.05	2.9
Index of Social Capital at the household level	55.4	51.5	59.4	1,251	61,809	24.9	1.94	2.8
CUSTOM INDICATORS								
Average rating of government's ability to be responsive to citizens' needs (including transparency, inclusivity, effectiveness) as measured on 12 item scorecard	4.7	4.5	5.0	1,250	61,655	1.8	0.13	2.5
Percent of target population who can state at least one health benefit of waiting at least two years after last live birth before attempting the next pregnancy	96.8	93.8	99.8	706	37,917	17.7	1.49	2.2
Male	97.0	93.9	100.2	270	15,175	16.7	1.56	1.5
Female	96.6	93.5	99.7	436	22,743	18.3	1.53	1.7

N/A = Not available

Table A6.3. FFP Uganda Baseline Indicators - Mercy Corps (MC) Apolou Project Area
Indicators, 95% Confidence Intervals and Base Population [Uganda, 2018]

	Indicator Value	Confidence Interval		Number of Records	Weighted Population	Standard Deviation	Standard Error	DEFT
		Lower	Upper					
FOOD SECURITY INDICATORS								
Average Household Dietary Diversity Score (HDDS)	3.6	3.3	3.8	1,223	54,286	2.0	0.12	2.1
Prevalence of moderate and severe food insecurity in the population, based on the Food Insecurity Experience Scale (FIES) [30 day recall]	91.6	89.2	94.1	1,535	68,495	22.6	1.23	2.2
Male and female adults	91.3	88.7	93.9	1,216	53,730	23.1	1.32	2.0
Adult female, no adult male	93.7	90.5	96.9	259	12,137	18.9	1.63	1.4
Adult male, no adult female	89.2	81.0	97.5	56	2,429	28.0	4.21	1.1
Child, no adults	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Prevalence of moderate and severe food insecurity in the population, based on the Food Insecurity Experience Scale (FIES) [one year recall]	93.4	91.6	95.3	1,535	68,495	19.3	0.96	2.0
Male and female adults	93.0	90.9	95.1	1,216	53,730	20.1	1.09	1.9
Adult female, no adult male	95.4	92.9	97.9	259	12,137	15.0	1.27	1.4
Adult male, no adult female	92.6	86.8	98.3	56	2,429	22.0	2.93	1.0
Child, no adults	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
POVERTY INDICATORS								
Per capita expenditures (as a proxy for income) of USG-assisted areas	\$1.09	\$0.84	\$1.34	8,638	386,461	3.6	0.13	1.4
Male and female adults	\$1.10	\$0.83	\$1.37	7,358	327,037	3.5	0.13	1.3
Adult female, no adult male	\$1.01	\$0.57	\$1.45	1,090	50,468	3.8	0.22	0.9
Adult male, no adult female	\$1.48	\$0.49	\$2.47	164	7,667	4.5	0.49	0.8
Child, no adults	N/A	N/A	N/A	26	1,289	N/A	N/A	N/A
Prevalence of poverty: Percentage of people living on less than \$1.90/day	89.5	85.7	93.3	8,638	386,461	30.7	1.88	2.4
Male and female adults	89.4	85.8	93.1	7,358	327,037	29.7	1.81	2.2
Adult female, no adult male	91.6	86.7	96.5	1,090	50,468	31.3	2.43	1.3
Adult male, no adult female	76.6	57.2	96.0	164	7,667	58.2	9.62	1.3
Child, no adults	N/A	N/A	N/A	26	1,289	N/A	N/A	N/A
Depth of Poverty: Mean percentage shortfall relative to the \$1.90 poverty line	55.9	52.3	59.6	8,638	386,461	26.2	1.83	2.8
Male and female adults	55.1	51.5	58.7	7,358	327,037	25.2	1.79	2.5
Adult female, no adult male	61.1	56.6	65.7	1,090	50,468	27.5	2.27	1.3
Adult male, no adult female	52.1	38.6	65.7	164	7,667	48.5	6.73	1.1
Child, no adults	N/A	N/A	N/A	26	1,289	N/A	N/A	N/A
Depth of Poverty of the Poor: Mean percentage shortfall relative to the \$1.90 poverty line	62.5	60.6	64.4	7,661	345,770	18.9	0.95	1.9
Male and female adults	61.6	59.6	63.6	6,536	292,390	18.2	1.00	1.8
Adult female, no adult male	66.7	63.9	69.6	977	46,220	18.3	1.41	1.2
Adult male, no adult female	68.1	58.5	77.6	122	5,871	28.3	4.74	1.0
Child, no adults	N/A	N/A	N/A	26	1,289	N/A	N/A	N/A
WASH INDICATORS								
Percentage of households using an improved drinking water source	41.0	34.9	47.0	1,576	70,607	49.2	3.01	2.4
Available on premises	1.8	0.7	2.9	1,576	70,607	13.4	0.54	1.6
Available in 30 minutes or less (round trip)	27.3	20.4	34.3	1,576	70,607	44.6	3.45	3.1
Available in more than 30 minutes (round trip)	11.8	7.6	16.0	1,576	70,607	32.3	2.08	2.6
Percentage of households practicing correct use of recommended household water treatment technologies	12.0	8.9	15.1	1,576	70,607	32.5	1.55	1.9
Chlorination	1.7	0.6	2.7	1,576	70,607	12.8	0.54	1.7
Flocculent/Disinfectant	0.2	-0.1	0.5	1,576	70,607	4.5	0.13	1.1
Filtration	1.0	0.3	1.7	1,576	70,607	10.0	0.33	1.3
Solar	0.0			1,576	70,607	0.0		0.0
Boiling	9.9	7.2	12.7	1,576	70,607	29.9	1.36	1.8
Percentage of households that can obtain drinking water in less than 30 minutes (round trip)	42.8	34.5	51.0	1,576	70,607	49.5	4.11	3.3

Table A6.3. FFP Uganda Baseline Indicators - Mercy Corps (MC) Apolou Project Area
Indicators, 95% Confidence Intervals and Base Population [Uganda, 2018]

	Indicator Value	Confidence Interval		Number of Records	Weighted Population	Standard Deviation	Standard Error	DEFT
		Lower	Upper					
Percentage of households with access to a basic sanitation facility	10.0	5.6	14.3	1,576	70,607	30.0	2.16	2.9
Male and female adults	11.1	6.2	16.0	1,242	54,907	31.6	2.44	2.7
Adult female, no adult male	5.8	2.1	9.4	261	12,226	22.8	1.80	1.3
Adult male, no adult female	9.7	1.4	18.1	59	2,588	29.9	4.15	1.1
Child, no adults	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Percentage of households in target areas practicing open defecation	64.4	55.2	73.6	1,576	70,607	47.9	4.58	3.8
Percentage of households with soap and water at a handwashing station commonly used by family members	3.1	1.2	5.1	1,576	70,607	17.4	0.97	2.2
AGRICULTURAL INDICATORS								
Percentage of farmers who used financial services (savings, agricultural credit, and/or agricultural insurance) in the past 12 months	19.4	15.3	23.4	2,013	94,516	39.5	2.01	2.3
Male	20.7	16.1	25.3	894	41,800	40.6	2.31	1.7
Female	18.3	13.7	23.0	1,119	52,716	38.6	2.30	2.0
Percentage of farmers who practiced value chain activities promoted by the project in the past 12 months	27.4	23.3	31.5	2,013	94,516	44.6	2.03	2.0
Male	32.1	26.8	37.4	894	41,800	46.8	2.63	1.7
Female	23.6	19.9	27.3	1,119	52,716	42.4	1.84	1.4
Percentage of farmers who used at least 5 sustainable agriculture (crop, livestock, and NRM) practices and/or technologies in the past 12 months	15.4	12.4	18.4	2,013	94,516	36.1	1.49	1.8
Male	18.5	14.4	22.6	894	41,800	38.9	2.04	1.6
Female	12.9	10.3	15.5	1,119	52,716	33.5	1.29	1.3
Percentage of farmers who used at least 3 sustainable crop practices and/or technologies in the past 12 months	52.6	47.1	58.2	2,013	94,516	49.9	2.76	2.5
Male	54.9	48.9	60.9	894	41,800	49.9	2.97	1.8
Female	50.9	45.1	56.7	1,119	52,716	49.9	2.88	1.9
Percentage of farmers who used at least 4 sustainable livestock practices and/or technologies in the past 12 months	7.1	5.2	8.9	2,013	94,516	25.6	0.93	1.6
Male	12.1	9.0	15.2	894	41,800	32.7	1.54	1.4
Female	3.1	1.6	4.6	1,119	52,716	17.2	0.75	1.5
Percentage of farmers who used at least 2 sustainable NRM practices and/or technologies in the past 12 months	1.1	0.3	1.9	2,013	94,516	10.4	0.39	1.7
Male	1.3	0.3	2.4	894	41,800	11.6	0.51	1.3
Female	0.9	0.2	1.6	1,119	52,716	9.4	0.37	1.3
Percentage of farmers who used improved storage practices in the past 12 months	49.3	42.8	55.8	2,013	94,516	50.0	3.23	2.9
Male	47.6	41.1	54.1	894	41,800	50.0	3.22	1.9
Female	50.6	43.6	57.6	1,119	52,716	49.9	3.49	2.3
WOMEN'S HEALTH AND NUTRITION INDICATORS								
Prevalence of underweight (BMI < 18.5) women of reproductive age	31.0	26.7	35.4	1,016	49,014	46.3	2.16	1.5
Prevalence of women of reproductive age consuming a diet of minimum diversity	19.6	15.0	24.3	1,360	74,589	39.7	2.32	2.2
Contraceptive Prevalence Rate	13.1	9.2	17.0	745	41,026	33.8	1.93	1.6
Modern methods	12.9	9.0	16.8	745	41,026	33.6	1.93	1.6
Traditional methods	0.3	0.0	0.7	745	41,026	5.6	0.18	0.9
Percentage of births receiving at least four antenatal care (ANC) visits during pregnancy	78.8	75.0	82.6	893	48,440	40.9	1.89	1.4
Prevalence of women of reproductive age who consume targeted nutrient-rich commodities	10.5	6.1	14.8	1,360	74,589	30.6	2.16	2.6
Bio-fortified beans	4.1	2.1	6.2	1,360	74,589	19.9	1.01	1.9
Bio-fortified maize or sorghum	9.3	4.8	13.8	1,360	74,589	29.1	2.23	2.8
Orange-flesh sweet potatoes	1.0	0.3	1.7	1,360	74,589	9.9	0.36	1.3
CHILDREN'S HEALTH AND NUTRITION INDICATORS								
Prevalence of healthy weight (WHZ ≤ 2 and ≥ -2) among children under five (0-59 months)	88.2	86.1	90.4	1,389	62,509	32.2	1.08	1.2
Male	86.3	83.2	89.5	669	29,965	34.4	1.56	1.2

Table A6.3. FFP Uganda Baseline Indicators - Mercy Corps (MC) Apolou Project Area
Indicators, 95% Confidence Intervals and Base Population [Uganda, 2018]

	Indicator Value	Confidence Interval		Number of Records	Weighted Population	Standard Deviation	Standard Error	DEFT
		Lower	Upper					
Female	90.0	87.4	92.6	720	32,543	30.0	1.29	1.2
Age 0-23 months	84.4	80.7	88.2	540	24,181	36.3	1.87	1.2
Age 24-59 months	90.6	88.6	92.7	849	38,328	29.1	1.02	1.0
Prevalence of underweight children (WAZ < -2) children under five (0-59 months)	30.3	27.2	33.5	1,400	63,073	46.0	1.56	1.3
Male	33.5	29.5	37.5	674	30,237	47.3	1.99	1.1
Female	27.4	24.0	30.8	726	32,836	44.6	1.69	1.0
Prevalence of stunted children (HAZ < -2) children under five (0-59 months)	40.5	37.5	43.6	1,386	62,461	49.1	1.50	1.1
Male	43.7	39.7	47.6	665	29,819	49.7	1.97	1.0
Female	37.7	33.6	41.7	721	32,642	48.5	2.02	1.1
Prevalence of wasted children (WHZ < -2) children under five (0-59 months)	10.8	8.7	13.0	1,389	62,509	31.1	1.08	1.3
Male	13.2	10.0	16.4	669	29,965	33.9	1.59	1.2
Female	8.6	6.3	11.0	720	32,543	28.1	1.18	1.1
Percentage of children under age 5 who had diarrhea in the last two weeks	31.5	27.5	35.4	1,515	68,358	46.5	1.95	1.6
Male	29.7	24.5	34.8	725	32,786	45.6	2.57	1.5
Female	33.1	28.7	37.6	790	35,572	47.1	2.22	1.3
Percentage of children under age 5 with diarrhea treated with ORT	84.9	79.6	90.2	462	21,508	35.9	2.63	1.6
Male	81.9	74.5	89.3	207	9,726	37.9	3.68	1.4
Female	87.3	81.2	93.4	255	11,783	33.0	3.04	1.5
Prevalence of exclusive breast-feeding of children under six months of age	74.3	67.0	81.5	166	7,491	43.8	3.61	1.1
Male	72.4	63.2	81.7	86	4,030	43.9	4.61	1.0
Female	76.4	65.8	87.0	80	3,461	43.3	5.29	1.1
Prevalence of children 6-23 months of age receiving a minimum acceptable diet (MAD)	10.2	6.4	13.9	402	17,961	30.3	1.86	1.2
Male	11.0	5.7	16.4	205	9,102	31.5	2.67	1.2
Female	9.3	4.7	13.9	197	8,859	29.1	2.28	1.1
Prevalence of children 6-23 months who consume targeted nutrient-rich commodities	14.1	9.1	19.2	402	17,961	34.9	2.50	1.4
Male	12.9	6.7	19.0	205	9,102	33.7	3.04	1.3
Female	15.5	9.2	21.7	197	8,859	36.3	3.11	1.2
Bio-fortified beans	5.2	2.2	8.2	360	15,967	22.2	1.50	1.3
Bio-fortified maize or sorghum	14.2	9.0	19.3	360	15,967	34.9	2.57	1.4
Orange-flesh sweet potatoes	1.2	0.0	2.3	360	15,967	10.7	0.58	1.0
GENDER INDICATORS								
Percentage of men and women in union who earned cash in the past 12 months	36.3	32.1	40.4	2,611	115,290	48.1	2.05	2.2
Male	37.2	32.7	41.7	1,238	54,365	48.8	2.25	1.6
Female	35.4	30.8	40.1	1,373	60,925	47.9	2.31	1.8
Percentage of women in union and earning cash who report participation in decisions about the use of self-earned cash	83.3	77.2	89.4	432	21,485	37.4	3.04	1.7
Percentage of women in union and earning cash who report participation in decisions about the use of spouse/partner's self-earned cash	50.1	42.1	58.0	277	13,794	50.1	3.93	1.3
Percentage of men in union and earning cash who report spouse/partner participation in decisions about the use of self-earned cash	40.2	33.8	46.5	344	19,616	49.1	3.14	1.2
Percentage of men and women in union with children under two who have knowledge of maternal and child health and nutrition (MCHN) practices	76.3	71.9	80.7	767	37,104	42.6	2.19	1.4
Male	63.5	57.0	70.0	323	17,018	46.1	3.22	1.3
Female	87.1	82.9	91.4	444	20,086	34.6	2.11	1.3
Percentage of men in union with children under two who make maternal health and nutrition decisions alone	19.0	14.8	23.3	323	17,018	39.3	2.11	1.0
Percentage of women in union with children under two who make maternal health and nutrition decisions alone	39.5	33.0	45.9	444	20,086	48.9	3.21	1.4
Percentage of men in union with children under two who make maternal health and nutrition decisions jointly with spouse/partner	43.2	35.7	50.7	323	17,018	49.6	3.74	1.4

Table A6.3. FFP Uganda Baseline Indicators - Mercy Corps (MC) Apolou Project Area
Indicators, 95% Confidence Intervals and Base Population [Uganda, 2018]

	Indicator Value	Confidence Interval		Number of Records	Weighted Population	Standard Deviation	Standard Error	DEFT
		Lower	Upper					
Percentage of women in union with children under two who make maternal health and nutrition decisions jointly with spouse/partner	32.7	26.8	38.7	444	20,086	47.0	2.95	1.3
Percentage of men in union with children under two who make child health and nutrition decisions alone	10.3	6.1	14.5	323	17,018	30.4	2.07	1.2
Percentage of women in union with children under two who make child health and nutrition decisions alone	33.8	26.8	40.7	444	20,086	47.3	3.45	1.5
Percentage of men in union with children under two who make child health and nutrition decisions jointly with spouse/partner	47.1	39.5	54.7	323	17,018	50.0	3.77	1.4
Percentage of women in union with children under two who make child health and nutrition decisions jointly with spouse/partner	41.0	34.2	47.7	444	20,086	49.2	3.36	1.4
RESILIENCE INDICATORS								
Shock exposure index	4.4	4.1	4.8	1,548	69,161	2.8	0.18	2.6
Cumulative impact of shock exposure index (severity weighted shock exposure)	23.3	21.2	25.3	1,500	66,695	15.9	1.03	2.5
Absorptive capacity index	20.3	19.0	21.5	1,548	69,161	11.6	0.63	2.1
Adaptive capacity index	37.3	35.2	39.5	1,548	69,161	15.7	1.06	2.7
Transformative capacity index	36.6	29.8	43.4	1,548	69,161	24.7	3.39	5.4
Ability to recover from shocks and stressors index	4.1	3.9	4.3	1,272	56,088	1.3	0.10	2.6
Proportion of households participating in group-based savings, micro-finance or lending	34.5	29.6	39.4	907	40,895	0.5	0.02	1.5
Index of Social Capital at the household level	52.8	50.4	55.1	1,548	69,161	23.1	1.17	2.0
CUSTOM INDICATORS								
Average rating of government's ability to be responsive to citizens' needs (including transparency, inclusivity, effectiveness) as measured on 12 item scorecard	4.8	4.5	5.0	1,537	68,640	2.1	0.11	2.0
Percent of target population who can state at least one health benefit of waiting at least two years after last live birth before attempting the next pregnancy	96.9	94.9	98.9	807	38,893	17.3	1.01	1.7
Male	96.3	93.9	98.6	324	17,069	18.2	1.17	1.2
Female	97.4	95.4	99.4	483	21,823	16.4	1.01	1.4

N/A = Not available

Table A6.4. FFP Uganda Baseline Indicators - Comparison Across Project Areas
Indicators, 95% Confidence Intervals and Base Population [Uganda, 2018]

	BASELINE INDICATOR VALUES		
	AI	CRS	MC
FOOD SECURITY INDICATORS			
Average Household Dietary Diversity Score (HDDS)	3.3	3.1	3.6
Prevalence of moderate and severe food insecurity in the population, based on the Food Insecurity Experience Scale (FIES) [30 day recall]	91.0	90.4	91.6
Male and female adults	91.0	90.7	91.3
Adult female, no adult male	92.1	90.7	93.7
Adult male, no adult female	85.2	80.7	89.2
Child, no adults	N/A	N/A	N/A
Prevalence of moderate and severe food insecurity in the population, based on the Food Insecurity Experience Scale (FIES) [one year recall]	93.7	94.0	93.4
Male and female adults	93.6	94.3	93.0
Adult female, no adult male	94.7	94.1	95.4
Adult male, no adult female	90.4	88.0	92.6
Child, no adults	N/A	N/A	N/A
POVERTY INDICATORS			
Per capita expenditures (as a proxy for income) of USG-assisted areas	\$1.04	\$0.99	\$1.09
Male and female adults	\$1.04	\$0.98	\$1.10
Adult female, no adult male	\$1.00	\$0.99	\$1.01
Adult male, no adult female	\$1.64	\$1.88	\$1.48
Child, no adults	N/A	N/A	N/A
Prevalence of poverty: Percentage of people living on less than \$1.90/day	88.8	88.0	89.5
Male and female adults	88.8	88.1	89.4
Adult female, no adult male	90.4	89.3	91.6
Adult male, no adult female	74.3	71.1	76.6
Child, no adults	N/A	N/A	N/A
Depth of Poverty: Mean percentage shortfall relative to the \$1.90 poverty line	54.6	53.0	55.9
Male and female adults	54.3	53.3	55.1
Adult female, no adult male	56.4	51.7	61.1
Adult male, no adult female	49.9	46.6	52.1
Child, no adults	N/A	N/A	N/A
Depth of Poverty of the Poor: Mean percentage shortfall relative to the \$1.90 poverty line	61.4	60.2	62.5
Male and female adults	61.1	60.5	61.6
Adult female, no adult male	62.3	57.9	66.7
Adult male, no adult female	67.1	N/A	68.1
Child, no adults	N/A	N/A	N/A
WASH INDICATORS			
Percentage of households using an improved drinking water source	40.7	40.4	41.0
Available on premises	2.6	3.5	1.8
Available in 30 minutes or less (round trip)	26.4	25.3	27.3
Available in more than 30 minutes (round trip)	11.7	11.6	11.8
Percentage of households practicing correct use of recommended household water treatment technologies	10.0	7.9	12.0
Chlorination	1.8	2.0	1.7
Flocculent/Disinfectant	0.2	0.2	0.2
Filtration	1.1	1.3	1.0
Solar	0.0	0.0	0.0
Boiling	7.8	5.4	9.9
Percentage of households that can obtain drinking water in less than 30 minutes (round trip)	45.1	47.8	42.8
Percentage of households with access to a basic sanitation facility	8.4	6.7	10.0
Male and female adults	9.1	6.9	11.1
Adult female, no adult male	5.6	5.3	5.8
Adult male, no adult female	9.9	10.2	9.7
Child, no adults	N/A	N/A	N/A
Percentage of households in target areas practicing open defecation	65.6	66.9	64.4
Percentage of households with soap and water at a handwashing station commonly used by family members	3.5	3.9	3.1
AGRICULTURAL INDICATORS			
Percentage of farmers who used financial services (savings, agricultural credit, and/or agricultural insurance) in the past 12 months	20.5	21.7	19.4
Male	21.1	21.5	20.7
Female	20.0	21.8	18.3

Table A6.4. FFP Uganda Baseline Indicators - Comparison Across Project Areas
Indicators, 95% Confidence Intervals and Base Population [Uganda, 2018]

	BASELINE INDICATOR VALUES		
	AI	CRS	MC
Percentage of farmers who practiced value chain activities promoted by the project in the past 12 months	31.0	35.0	27.4
Male	35.2	38.7	32.1
Female	27.8	32.2	23.6
Percentage of farmers who used at least <i>[project-defined minimum number]</i> ¹ sustainable agriculture (crop, livestock, and NRM) practices and/or technologies in the past 12 months	28.1	41.7	15.4
Male	31.6	46.0	18.5
Female	25.5	38.6	12.9
Percentage of farmers who used at least <i>[project-defined minimum number]</i> ¹ sustainable crop practices and/or technologies in the past 12 months	43.7	34.1	52.6
Male	46.1	36.4	54.9
Female	41.8	32.3	50.9
Percentage of farmers who used at least <i>[project-defined minimum number]</i> ¹ sustainable livestock practices and/or technologies in the past 12 months	7.6	8.1	7.1
Male	11.9	11.8	12.1
Female	4.2	5.3	3.1
Percentage of farmers who used at least <i>[project-defined minimum number]</i> ¹ sustainable NRM practices and/or technologies in the past 12 months	1.8	2.6	1.1
Male	2.2	3.2	1.3
Female	1.5	2.2	0.9
Percentage of farmers who used improved storage practices in the past 12 months	49.9	50.5	49.3
Male	47.8	48.0	47.6
Female	51.5	52.4	50.6
WOMEN'S HEALTH AND NUTRITION INDICATORS			
Prevalence of underweight (BMI < 18.5) women of reproductive age	34.6	38.6	31.0
Prevalence of women of reproductive age consuming a diet of minimum diversity	16.4	12.5	19.6
Contraceptive Prevalence Rate	13.8	14.5	13.1
Modern methods	13.5	14.2	12.9
Traditional methods	0.3	0.4	0.3
Percentage of births receiving at least four antenatal care (ANC) visits during pregnancy	78.4	77.9	78.8
Prevalence of women of reproductive age who consume targeted nutrient-rich commodities	8.7	6.7	10.5
Bio-fortified beans	3.0	1.6	4.1
Bio-fortified maize or sorghum	7.3	5.0	9.3
Orange-flesh sweet potatoes	1.1	1.3	1.0
CHILDREN'S HEALTH AND NUTRITION INDICATORS			
Prevalence of healthy weight (WHZ ≤ 2 and ≥ -2) among children under five (0-59 months)	87.9	87.6	88.2
Male	86.5	86.7	86.3
Female	89.2	88.4	90.0
Age 0-23 months	84.0	83.5	84.4
Age 24-59 months	90.3	89.9	90.6
Prevalence of underweight children (WAZ < -2) children under five (0-59 months)	29.0	27.8	30.3
Male	34.2	34.8	33.5
Female	24.4	21.3	27.4
Prevalence of stunted children (HAZ < -2) children under five (0-59 months)	38.1	35.7	40.5
Male	43.2	42.7	43.7
Female	33.5	29.2	37.7
Prevalence of wasted children (WHZ < -2) children under five (0-59 months)	11.2	11.5	10.8
Male	12.4	11.7	13.2
Female	10.0	11.4	8.6
Percentage of children under age 5 who had diarrhea in the last two weeks	31.6	31.6	31.5
Male	30.6	31.6	29.7
Female	32.4	31.7	33.1
Percentage of children under age 5 with diarrhea treated with ORT	84.1	83.3	84.9
Male	82.1	82.3	81.9
Female	85.8	84.2	87.3
Prevalence of exclusive breast-feeding of children under six months of age	73.5	72.6	74.3
Male	76.7	82.7	72.4
Female	70.5	65.4	76.4
Prevalence of children 6-23 months of age receiving a minimum acceptable diet (MAD)	8.4	6.6	10.2
Male	8.4	5.6	11.0

Table A6.4. FFP Uganda Baseline Indicators - Comparison Across Project Areas
Indicators, 95% Confidence Intervals and Base Population [Uganda, 2018]

	BASELINE INDICATOR VALUES		
	ALL	CRS	MC
Female	8.5	7.6	9.3
Prevalence of children 6-23 months who consume targeted nutrient-rich commodities	11.4	8.6	14.1
Male	12.3	11.6	12.9
Female	10.6	5.6	15.5
Bio-fortified beans	3.7	2.2	5.2
Bio-fortified maize or sorghum	10.8	7.5	14.2
Orange-flesh sweet potatoes	1.8	2.5	1.2
GENDER INDICATORS			
Percentage of men and women in union who earned cash in the past 12 months	41.4	47.4	36.3
Male	41.7	47.2	37.2
Female	41.0	47.6	35.4
Percentage of women in union and earning cash who report participation in decisions about the use of self-earned cash	85.0	86.6	83.3
Percentage of women in union and earning cash who report participation in decisions about the use of spouse/partner's self-earned cash	58.0	64.8	50.1
Percentage of men in union and earning cash who report spouse/partner participation in decisions about the use of self-earned cash	48.8	56.6	40.2
Percentage of men and women in union with children under two who have knowledge of maternal and child health and nutrition (MCHN) practices	80.6	85.0	76.3
Male	70.8	79.0	63.5
Female	88.3	89.4	87.1
Percentage of men in union with children under two who make maternal health and nutrition decisions alone	22.4	26.1	19.0
Percentage of women in union with children under two who make maternal health and nutrition decisions alone	42.5	45.4	39.5
Percentage of men in union with children under two who make maternal health and nutrition decisions jointly with spouse/partner	42.5	41.8	43.2
Percentage of women in union with children under two who make maternal health and nutrition decisions jointly with spouse/partner	34.5	36.3	32.7
Percentage of men in union with children under two who make child health and nutrition decisions alone	12.8	15.7	10.3
Percentage of women in union with children under two who make child health and nutrition decisions alone	36.8	39.7	33.8
Percentage of men in union with children under two who make child health and nutrition decisions jointly with spouse/partner	49.0	51.1	47.1
Percentage of women in union with children under two who make child health and nutrition decisions jointly with spouse/partner	41.5	42.1	41.0
RESILIENCE INDICATORS			
Shock exposure index	5.0	5.5	4.4
Cumulative impact of shock exposure index (severity weighted shock exposure)	27.4	31.9	23.3
Absorptive capacity index	21.1	22.0	20.3
Adaptive capacity index	38.2	39.2	37.3
Transformative capacity index	40.4	44.7	36.6
Ability to recover from shocks and stressors index	4.1	4.1	4.1
Proportion of households participating in group-based savings, micro-finance or lending	37.2	40.1	34.5
Index of Social Capital at the household level	54.0	55.4	52.8
CUSTOM INDICATORS			
Average rating of government's ability to be responsive to citizens' needs (including transparency, inclusivity, effectiveness) as measured on 12 item scorecard	4.7	4.7	4.8
Percent of target population who can state at least one health benefit of waiting at least two years after last live birth before attempting the next pregnancy	96.8	96.8	96.9
Male	96.6	97.0	96.3
Female	97.0	96.6	97.4

¹ Project-defined minimums for CRS: 3 for overall, 3 for crops, 3 for livestock and 2 for NRM. Project-defined minimums for MC: 5 for overall, 3 for crops, 4 for livestock and 2 for NRM

N/A = Not available

Annex 7: List of Variables for Correlation or Regression Analyses

Table A7.1. Estimated Population in the Baseline Survey Project Areas
[Uganda, 2018]

	Overall	CRS	MC
Total population	723,726	337,266	386,461
Male	333,182	155,960	177,222
Female	390,544	181,305	209,239
Adults age 15 or older	334,085	154,061	180,024
Male	151,563	68,619	82,944
Female	182,522	85,443	97,079
Cash earners (age 15 or older)	120,345	61,933	58,413
Male	53,600	27,280	26,320
Female	66,745	34,652	32,093
Farmers (age 15 or older)	183,844	89,424	94,420
Male	80,644	38,297	42,347
Female	103,200	51,127	52,073
Women of reproductive age (15-49 years)	137,039	62,450	74,589
Women 15-49 years who are not pregnant	103,505	48,798	54,707
Women 15-49 years who are married or in a union	107,223	49,162	58,061
Women 15-49 years with a live birth within the past five years	89,197	43,132	46,065
Young female 15-24 years	55,203	25,211	29,992
Young female 15-24 years who are married or in a union	26,202	12,453	13,749
Adolescents 10-19 years of age	150,096	68,821	81,274
Males 10-19 years of age	71,769	33,817	37,952
Females 10-19 years of age	78,327	35,005	43,322
Children under 5 years of age	134,915	66,557	68,358
Males under 5 years of age	64,041	31,256	32,786
Females under 5 years of age	70,874	35,301	35,572
Children 6-23 months of age	35,315	17,354	17,961
Males 6-23 months of age	17,589	8,487	9,102
Females 6-23 months of age	17,726	8,867	8,859
Children under 6 months of age	14,436	6,945	7,491
Males under 6 months of age	6,927	2,897	4,030
Females under 6 months of age	7,509	4,048	3,461
Parents of children under 2 years of age	77,267	38,367	38,901
Male	32,392	15,360	17,032
Female	44,875	23,007	21,868

Source: FFP 2018 baseline survey weighted population estimates

Table A7.2. Household Characteristics in the in the Baseline Survey Project Areas

[Uganda, 2018]

	Overall	CRS	MC
Total households (Number of households)¹	132,832	62,225	70,607
Male and female adults	102,392	47,485	54,907
Female adult(s) only	24,734	12,508	12,226
Male adult(s) only	4,819	2,231	2,588
Child(ren) only (no adults)	887	0	887
Gendered household type (Percent of households)	100.0	100.0	100.0
Male and female adults	77.1	76.3	77.8
Female adult(s) only	18.6	20.1	17.3
Male adult(s) only	3.6	3.6	3.7
Child(ren) only (no adults)	0.7	0.0	1.3
Average household size (Number of persons)	5.4	5.4	5.5
Average number of adults 15 and older per household	2.5	2.5	2.5
Average number of farmers 15 and older per household	1.4	1.4	1.4
Percent of households with children under 5 years of age	61.5	62.7	60.5
Percent of households with a child 6-23 months of age	24.5	26.1	23.0
Percent of households with a child under 6 months of age	10.0	10.3	9.8
Household headship (Percent male)	60.6	62.1	59.2
Education level of head of household (Percent of households)			
No formal education	71.7	65.9	76.9
Primary	15.4	19.5	11.7
Secondary	7.9	9.2	6.8
Higher	5.0	5.4	4.6
Number of responding households	2,835	1,259	1,576
Male and female adults	2,216	974	1,242
Female adult(s) only	503	242	261
Male adult(s) only	102	43	59
Child(ren) only (no adults)	14	0	14

¹ Adults are defined as individuals 18 or older.

Table A7.3. Household Dietary Diversity
[Uganda, 2018]

	Overall	CRS	MC
Cereals	71.5	62.0	80.6
Root and tubers	15.2	21.4	9.3
Vegetables	66.7	60.8	72.4
Fruits	9.8	10.2	9.3
Meat, poultry, organ meat	9.1	4.1	13.9
Eggs	3.5	1.6	5.4
Fish and seafood	3.9	5.1	2.6
Pulses/legumes/nuts	24.5	24.6	24.3
Milk and milk products	24.2	17.3	30.9
Oil/fats	31.1	28.4	33.7
Sugar/honey	15.6	11.9	19.0
Miscellaneous (tea, coffee, condiments, etc.)	57.4	57.3	57.4
Number of responding households	2,303	1,053	1,250

Table A7.4. Crops Raised by Farmers

Percentage of farmers by type of crops and project area [Uganda, 2018]

	Overall	CRS	MC
1. MAIZE	55.1	43.4	65.9
2. WHEAT	0.5	0.2	0.7
3. MILLET	6.4	4.6	8.0
4. BARLEY	0.1	0.0	0.2
5. SORGHUM	82.4	85.9	79.0
6. SOYBEAN	1.8	2.6	1.1
7. LEGUME (BEAN, LENTIL)	39.8	43.9	36.0
8. OILSEED (SUNFLOWER, MUSTARD, SESAME)	18.6	29.3	8.7
9. FRUITS	0.2	0.4	0.0
10. POTATO	2.7	5.4	0.2
11. CHAT	0.0	0.1	0.0
13. GROUNDNUTS	10.2	8.7	11.6
15. VEGETABLES	7.9	7.1	8.6
97. OTHER1	6.2	7.0	5.4
98. OTHER2	1.2	1.9	0.6
Number of farmers that raised crops	3664	1651	2013

Table A7.5. Crops Raised by Farmers

Percentage of male and female farmers by type of crop and project area [Uganda, 2018]

	Overall		Sig.	CRS			MC	
	Male	Female		Male	Female		Male	Female
1. MAIZE	57.0	52.8	*	46.6	40.5		66.3	64.5
2. WHEAT	0.5	0.5		0.4	0.1		0.5	0.8
3. MILLET	6.1	6.4		4.1	5.0		7.9	7.9
4. BARLEY	0.2	0.1		0.1	0.0		0.3	0.2
5. SORGHUM	80.4	82.7	*	83.7	86.6	†	77.4	78.9
6. SOYBEAN	2.2	1.5		2.8	2.4		1.6	0.6
7. LEGUME (BEAN, LENTIL)	40.3	38.8		43.9	43.5		37.1	34.4
8. OILSEED (SUNFLOWER, MUSTARD, SESAME)	17.0	19.6		27.9	30.0		7.3	9.6
9. FRUITS	0.3	0.2		0.6	0.3		0.0	0.1
10. POTATO	3.1	2.4		6.0	4.8		0.4	0.1
11. CHAT	0.0	0.1	†	0.0	0.2	†	0.0	0.0
13. GROUNDNUTS	10.7	9.6		8.7	8.6		12.5	10.6
15. VEGETABLES	6.8	8.7	†	6.2	7.7		7.2	9.6
97. OTHER1	6.9	5.5	†	7.6	6.4		6.3	4.6
98. OTHER2	1.5	0.9	†	2.5	1.4	†	0.6	0.5

Male/Female group differences: *** p<0.001, ** p<0.01, * p<0.05, † p<0.10

Table A7.6. Livestock Raised by Farmers

Percentage of livestock farmers by type of livestock and project area [Uganda, 2018]

	Overall	CRS	MC
Cattle	60.2	49.1	66.3
Goats	61.8	47.9	69.4
Sheep	23.5	13.9	28.8
Donkeys	3.0	1.3	4.0
Camel	0.1	0.0	0.2
Poultry	22.7	19.9	24.2
Pigs	1.4	2.5	0.9
Other	0.5	0.8	0.3
Number of farmers that raised livestock	1,294	437	857

Table A7.7. Land Ownership by farmer's gender [Uganda, 2018]				
	Own	Rent	Share	None
CRS				
Male	77.8	12.5	9.7	3.0
Female	78.4	9.0*	12.3	4.0+
Farmers with a yes response	1,258	190	145	58
MC				
Male	84.3	6.0	9.8	5.0
Female	75.0***	7.6	21.0***	5.5
Farmers with a yes response	1,477	139	285	112

Male/Female group differences: *** p<0.001, ** p<0.01, * p<0.05, + p<0.10

Table A7.8. Financial Services

Percentage of farmers by type of financial service and project area [Uganda, 2018]

	Overall	CRS	MC
Credit			
Yes	10.4	12.8	8.1
No	89.6	87.2	91.9
Savings			
Yes	17.6	18.1	17.1
No	82.4	81.9	82.9
Agricultural Insurance			
Yes	1.7	2.8	0.6
No	98.3	97.2	99.4
Did not use any financial services	79.5	78.3	80.6
Number of responding farmers	3,664	1,651	2,013

Table A7.9. Value Chain Activities

Percentage of farmers by value chain activity and project area [Uganda, 2018]

	Overall	CRS	MC
Percentage of farmers who plant crops or raise/buy livestock with the specific intention to sell or resell to earn income	38.2	42.7	34.1
Value Chain Activities			
Procurement of inputs for crops	19.7	27.4	12.5
Procurement of inputs for livestock	3.7	3.8	3.6
Tillage of land	23.4	27.1	20.0
Bulk transporting of inputs produced	0.5	0.4	0.6
Bulk transporting of animals (on foot or by vehicle)	0.2	0.1	0.3
Sorting produce	13.2	17.6	9.1
Grading produce	4.5	7.0	2.1
Drying and processing produce	12.0	14.9	9.3
Trading or marketing (wholesale, retail, or export) for either animals or crops	4.3	6.8	2.0
Use of supplements to increase livestock production	0.7	0.6	0.7
Feed production	0.3	0.2	0.4
Other activity	0.3	0.3	0.2
Total number of farmers who plant crops or raise/buy livestock	3664	1651	2013

Note: highlighted cells represent project promoted value chain practices or technologies

Table A7.10. Sustainable Agricultural Practices

Percentage of farmers by type of agricultural practice and project area [Uganda, 2018]

	Overall	CRS	MC
Crops			
Soil preparation by hand	76.5	79.2	73.9
Soil preparation with ox plow	40.4	42.5	38.4
Soil preparation with tractor	2.7	1.7	3.7
Broadcasting seed	70.7	74.0	67.6
Planting seeds in rows	22.5	22.1	22.9
Crop rotation	8.3	12.2	4.7
Fertilizer application	1.4	1.5	1.3
Intercropping	36.0	43.1	29.3
Pest and disease control	6.3	4.6	7.9
Weed control	57.9	59.9	56.0
Mulching	7.4	9.0	5.9
Thinning	15.4	15.2	15.6
Contouring land with berms and swales	1.8	0.4	3.1
Other	1.6	3.1	0.1
None of these practices	2.5	0.2	4.6
Number of farmers that raised crops	3,646	1,649	1,997
Livestock			
Animal shelters	42.4	43.8	41.7
Kraals	50.9	32.8	60.9
Vaccinations	40.7	39.0	41.7
Deworming	36.1	35.1	36.7
Homemade animal feeds made of locally available products	7.1	9.6	5.7
Used the services of community animal health workers	9.4	9.2	9.5
Purchased drugs/medicines to give to animals	26.5	22.3	28.8
Rotational grazing	5.8	10.6	3.2
Dehorning	4.1	3.5	4.4
Castration	10.3	9.7	10.6
Did not use any of these practices in the past 12 months	11.6	9.2	12.9
Number of farmers that raised livestock	1,294	437	857
Natural resource management			
Management of watersheds or reforestation	3.7	1.5	5.8
Agro-forestry or cultivation of fruit trees	2.1	2.8	1.5
Management of forest plantation	1.6	1.3	2.0
Management of natural regeneration	4.1	5.8	2.5
Collecting products from forest plants	0.4	0.2	0.6
Soil conservation on hillsides	3.0	1.9	4.0
Construction of water catchments	6.2	8.5	4.0
Did not use any of these practices in the past 12 months	83.4	83.4	83.3
Number of farmers that raised crops or livestock	3,664	1,651	2,013

Table A7.11. Improved Storage Practices

Percentage of farmers by storage practice and project area [Uganda, 2018]

	Overall	CRS	MC
Storage practices			
Cereal bank	0.4	0.1	0.6
Granary	49.8	50.5	49.1
Super grain / PICS bags	26.0	28.9	23.3
Manufactured silo	0.4	0.3	0.5
Other	5.2	4.9	5.5
Did not use any of these methods	27.7	25.9	29.4
Number of responding farmers	3,646	1,649	1,997

Table A7.12. Household Sanitation and Drinking Water

Sanitation facility, source of drinking water and treatment for drinking water by project area [Uganda, 2018]

	Overall	CRS	MC
Improved, not shared sanitation facility			
Flush to piped sewer system	0.2	0.0	0.4
Flush to septic tank	0.0	0.0	0.1
Ventilated improved pit latrine	1.0	0.3	1.6
Pit latrine with slab	6.7	6.2	7.2
Ecosan Latrine	0.5	0.2	0.7
Improved, shared sanitation facility			
Flush to piped sewer system	0.0	0.0	0.1
Flush to septic tank	0.0	0.0	0.0
Ventilated improved pit latrine	2.9	2.0	3.7
Pit latrine with slab	9.6	12.3	7.3
Ecosan Latrine	0.4	0.3	0.5
Non-improved sanitation facility			
Flush to somewhere else	0.0	0.0	0.0
Flush to don't know where	0.0	0.0	0.0
Latrine Without Slab/Open Pit	10.3	10.5	10.2
Latrine with Open Pit/Hole (previously called Flush to pit latrine ¹)	0.1	0.0	0.2
Bucket toilet	0.4	0.4	0.4
Dig and bury	1.4	1.0	1.7
No Facility/Bush/Field	65.2	66.5	64.1
Other	0.3	0.3	0.4
Improved source of drinking water			
Piped into dwelling	0.3	0.1	0.6
Piped into yard/plot	0.4	0.0	0.8
Piped to public tap/standpipe	4.8	1.4	7.8
Tubewell or borehole	79.2	86.6	72.7
Protected well	0.4	0.2	0.6
Protected spring	0.1	0.1	0.2
Rainwater	0.2	0.0	0.3
Bottled water	0.0	0.0	0.0
Non-improved source of drinking water			
Unprotected well	3.0	0.8	5.0
Unprotected spring	1.8	1.5	2.0
Rock catchments	0.3	0.0	0.5
Surface water (river/dam/ lake/ponds/stream/canal/irrigation channel)	7.9	8.1	7.6
Other	0.5	0.9	0.2
Water availability			
Water is generally available from this source year round (% 'Yes')	55.5	56.3	54.8
Water was unavailable for a day or more during the last two weeks (% 'Yes')	29.9	27.1	32.4
Water treatment prior to drinking			
Chlorination	1.8	2.0	1.7
Flocculent/Disinfectant	0.2	0.2	0.2
Filtration	1.1	1.3	1.0
Solar Disinfection	0.0	0.0	0.0
Boiling	7.8	5.4	9.9
Other	0.1	0.1	0.2
No treatment	90.0	92.1	88.0
Number of households	2,835	1,259	1,576

Table A7.13. Nutritional Status of Non-pregnant Women of Reproductive Age
 Women's height and BMI levels by project area [Uganda, 2018]

	Overall	CRS	MC
Percent less than 145 cm	0.4	0.4	0.5
Mean Body Mass Index (BMI)	19.7	19.5	19.8
Normal			
18.5-24.9 (total normal)	61.2	57.8	64.3
Underweight			
<18.5 (total underweight)	34.6	38.6	31.0
17.0-18.4 (mildly underweight)	22.4	23.8	21.2
<17 (moderately and severely underweight)	12.2	14.8	9.8
Overweight/obese			
≥25 (total overweight or obese)	4.2	3.6	4.7
25.0-29.9 (overweight)	3.3	2.5	4.0
≥30.0 (obese)	0.9	1.1	0.7
Number of non-pregnant women of reproductive age	1,888	872	1,016

Table A7.14. Women's Dietary Diversity

Percentage of women 15-49 years of age consuming 10 MDD-W food groups by project area

[Uganda, 2018]	Overall	CRS	MC
Grains, roots and tubers	75.8	76.6	75.0
Legumes and beans	25.5	29.3	22.4
Nuts and seeds	4.6	4.0	5.1
Dairy products (milk, yogurt, cheese)	22.8	16.4	28.2
Eggs	4.0	2.4	5.4
Flesh foods including organ meat and misc. small animal protein	16.1	11.1	20.3
Vitamin A dark green leafy vegetables	42.5	35.6	48.3
Other Vitamin A rich vegetables and fruits	32.4	33.1	31.8
Other vegetables	72.0	73.8	70.5
Other fruits	13.5	9.3	16.9
Number of responding women 15-49 years	2,422	1,062	1,360

Table A7.15. Contraceptive Prevalence

Percentage of women 15-49 years married or in a union that used a contraceptive method by type of contraceptive method and project area [Uganda, 2018]

	Overall	CRS	MC
Modern Methods			
Female sterilization	0.3	0.6	0.0
Male sterilization	0.0	0.0	0.0
Inter-uterine device	0.7	1.1	0.4
Injectables	2.1	2.0	2.1
Implants	2.2	2.7	1.7
Pill	0.7	0.6	0.7
Condom	1.1	1.6	0.6
Female condom	0.2	0.2	0.2
Emergency contraception	0.0	0.0	0.0
Other modern method	2.4	3.2	1.8
Any modern method	9.2	11.3	7.3
Traditional Methods			
Standard days method	3.2	2.2	4.1
Lactational amenorrhea method	1.6	0.7	2.4
Rhythm	0.2	0.1	0.2
Withdrawal	0.2	0.2	0.1
Other traditional method	0.0	0.0	0.0
Any traditional method	4.9	3.3	6.3
Any Method	13.8	14.5	13.2
Number of women 15-49 years married or in a union	1,381	636	745

Table A7.16. Children's Nutritional Status

Prevalence of stunted, underweight, and wasted children by age in months and project area [Uganda,

2018]	Overall	CRS	MC
Prevalence of stunted children 0-59 months			
<6	17.5	11.5	22.7
6-11	28.8	18.4	37.8
12-17	47.1	45.7	48.4
18-23	41.6	39.6	43.8
24-29	43.8	40.7	46.9
30-35	45.9	39.4	51.8
36-41	42.1	39.5	44.0
42-47	36.9	39.8	32.6
48-53	35.2	35.8	34.4
54-59	46.3	47.2	43.8
Number of children 0-59 months with valid height measurement	2,572	1,186	1,386
Prevalence of underweight children 0-59 months			
<6	15.6	14.0	17.0
6-11	31.9	30.4	33.2
12-17	38.7	39.5	38.0
18-23	28.9	25.3	33.0
24-29	32.5	32.4	32.6
30-35	27.8	20.4	34.6
36-41	31.6	27.4	34.7
42-47	22.9	20.8	26.2
48-53	25.1	26.6	23.5
54-59	39.4	43.7	26.6
Number of children 0-59 months with valid weight measurement	2,596	1,196	1,400
Prevalence of wasted children 0-59 months			
<6	9.4	10.9	8.1
6-11	18.0	19.8	16.5
12-17	20.8	21.1	20.5
18-23	9.9	9.3	10.6
24-29	10.1	12.2	8.0
30-35	6.7	6.0	7.5
36-41	9.8	8.6	10.6
42-47	3.7	2.5	5.4
48-53	11.2	12.1	10.2
54-59	10.8	13.0	4.0
Number of children 0-59 months with valid measurements	2,577	1,188	1,389

NOTE: The results for these subgroup analyses are based on small sample sizes and may be unreliable.

Table A7.17. Breastfeeding Status

Breastfeeding status for children 0-23 months by age in months and project area

[Uganda, 2018]	Overall	CRS	MC
Not breastfeeding			
<2	0.0	0.0	0.0
2-3	0.0	0.0	0.0
4-5	1.2	0.0	2.2
6-8	0.0	0.0	0.0
9-11	4.0	2.0	5.8
12-17	8.8	10.1	7.5
18-23	28.2	35.2	19.9
Exclusively breastfed			
<2	90.9	90.5	91.4
2-3	89.9	91.8	88.3
4-5	42.0	38.2	45.5
6-8	15.3	13.1	17.0
9-11	0.5	0.4	0.5
12-17	2.3	1.9	2.7
18-23	0.3	0.6	0.0
Breastfed and plain water only			
<2	5.8	7.5	4.1
2-3	6.2	2.5	9.3
4-5	15.5	10.5	20.1
6-8	7.0	8.3	6.0
9-11	5.5	5.9	5.1
12-17	0.2	0.0	0.4
18-23	1.5	1.7	1.2
Breastfed and non-milk liquids			
<2	0.0	0.0	0.0
2-3	0.0	0.0	0.0
4-5	6.9	10.5	3.5
6-8	6.8	8.0	5.9
9-11	4.7	8.4	1.5
12-17	2.0	1.5	2.3
18-23	0.0	0.0	0.0
Breastfed and other milk			
<2	0.0	0.0	0.0
2-3	2.6	5.7	0.0
4-5	6.5	2.1	10.5
6-8	3.3	2.3	4.1
9-11	0.0	0.0	0.0
12-17	0.5	0.4	0.5
18-23	0.8	0.0	1.7
Breastfed and complementary foods			
<2	3.3	2.0	4.5
2-3	1.3	0.0	2.4
4-5	28.0	38.7	18.1
6-8	67.5	68.3	67.0
9-11	85.3	83.3	87.0
12-17	86.4	86.0	86.7
18-23	69.3	62.6	77.2
Number of children	1,058	490	568

NOTE: The results for these subgroup analyses are based on small sample sizes and may be unreliable.

Table A7.18. Minimum Acceptable Diet (MAD)

Components of MAD indicator for children 6-23 months by project area [Uganda, 2018]

	Overall	CRS	MC
Breastfed children 6-8 months			
Percent with minimum meal frequency (2 or more)	50.5	51.1	49.9
Percent with minimum dietary diversity (4 or more)	16.8	12.5	20.2
Grains, roots, and tubers	52.3	44.1	58.9
Legumes and nuts	17.9	22.2	14.4
Dairy products (milk, yogurt, cheese)	28.5	20.0	35.2
Flesh foods (meat, fish, poultry, and liver/organ meats)	5.8	2.1	8.7
Eggs	7.7	5.3	9.5
Vitamin A-rich fruits and vegetables	26.3	24.0	28.2
Other fruits and vegetables	33.3	38.8	28.9
Number of children	116	53	63
Breastfed children 9-23 months			
Percent with minimum meal frequency (3 or more)	18.2	16.1	20.2
Percent with minimum dietary diversity (4 or more)	22.3	20.1	24.4
Grains, roots, and tubers	83.4	82.6	84.2
Legumes and nuts	28.3	30.3	26.4
Dairy products (milk, yogurt, cheese)	34.5	27.8	40.6
Flesh foods (meat, fish, poultry, and liver/organ meats)	13.6	9.4	17.5
Eggs	7.8	4.8	10.6
Vitamin A-rich fruits and vegetables	45.4	42.2	48.4
Other fruits and vegetables	60.4	66.0	55.1
Number of children	554	254	300
Non-breastfed children 6-23 months			
Percent with minimum meal frequency (4 or more + 2 milk)	17.5	14.2	22.9
Percent with minimum dietary diversity (4 or more)	19.6	19.5	19.6
Grains, roots, and tubers	81.3	90.7	66.0
Legumes and nuts	26.9	25.6	29.0
Dairy products (milk, yogurt, cheese)	30.1	26.1	36.4
Flesh foods (meat, fish, poultry, and liver/organ meats)	15.1	11.0	21.8
Eggs	4.1	0.0	10.8
Vitamin A-rich fruits and vegetables	52.5	59.5	41.1
Other fruits and vegetables	53.5	60.4	42.3
Number of children	87	48	39

NOTE: The results for these subgroup analyses are based on small sample sizes and may be unreliable.

Table A7.19. Livelihood Activities

Percentage of households by type of livelihood activities and DFSA area [Uganda, 2018]

	Overall	CRS	MC
Livelihood activities			
Farming/crop production and sales	65.6	73.1	58.8
Livestock production/fattening and sales	21.9	15.0	28.0
Agricultural wage labor	43.7	60.6	28.6
Non-agricultural wage labor	30.0	32.4	27.9
Salaried work	9.1	8.9	9.3
Sale of wild/bush products (including charcoal, firewood)	39.2	39.6	38.7
Honey production and sales	3.1	2.4	3.7
Petty trade (selling other products, e.g., grain, veggies, oil, sugar, etc.)	8.4	6.4	10.2
Petty trade (selling own products, e.g., local beer, sex work)	21.5	17.4	25.2
Other self-employment/own business (agricultural, e.g., buying/reselling chat)	7.0	5.5	8.3
Other self-employment/own business (non-agricultural, e.g., stone cutting, hair braiding, etc.)	4.0	3.2	4.8
Rental of land, house, rooms	2.6	2.0	3.2
Remittances	8.6	8.8	8.4
Gifts/inheritance	24.9	24.2	25.6
Safety net food/cash assistance	12.3	10.6	13.9
Artisanal mining/quarrying	4.9	2.8	6.8
Other (specify):	1.8	1.1	2.5
Number of households	2799	1251	1548

Table A7.20. Sources of drinking water by poverty status

Sources of drinking water by DFSA area and poverty status [Uganda, 2018]

	CRS		MC	
	Poor	Non-poor	Poor	Non-poor
Piped into dwelling	0.0	0.5	0.1	3.9
Piped into yard/plot	0.0	--	0.3	4.3
Piped to public tap/standpipe	0.9	3.8	6.0	22.5
Tubewell or borehole	87.0	85.5	76.3	56.0
Protected well	0.3	--	0.7	--
Unprotected well	0.8	0.7	4.7	8.0
Protected spring	0.1	--	0.2	--
Unprotected spring	1.6	0.5	2.2	1.1
Rainwater	--	--	0.4	--
Rockcatchments	--	--	0.6	--
Tanker Truck	--	--	--	--
Cart with small tank	--	0.9	0.0	0.6
Surface water (river/dam/ lake/ponds/stream/canal/irrigation channel)	8.2	7.7	8.4	3.0
Bottled Water	--	--	--	--
Other	1.0	0.4	0.2	0.6
Number of households	1063	195	1354	205

Highlighted drinking water sources are considered improved sources

Water availability

Water is generally available from this source year round (% 'Yes')	56.9	53.3	56.8	47.1
Water was unavailable for a day or more during the last two weeks (% 'Yes')	25.9	32.9	31.8	36.3

Annex 8: Descriptive Tables

Annex 8: List of variables considered for correlation and/or regression analyses on different outcome variables

Variable name	Definition	Variable type
HDDS	Household Dietary Diversity Score (0-12)	Discrete Score (0=min, 12=max)
Fies_score12m	FIES score for 12 months recall questions	Continuous Score
Genhhstype	Adult male and female, 2= Adult female only, 3= adult male only, 4= child only	Nominal
Hhsize	Household size	Discrete
La_typeacc	1=Own, 2=Rent, 3= Sharecrop, 4=None	Nominal
La_hecsz	Access to land, 0 is no land, 1 is <=1 hector, 2 is >1 & <=2, 3 is >2 & <=3, 4 is >3	Ordinal
Hhmem_edu	Household members' highest level of education: 1= preschool or no schooling, 2= primary level, 3= secondary level, 4= university/tertiary level	Ordinal
Agri_finance	Farmers who used financial services (saving) in the past 12 months	Dichotomous
Hh_cashearner	HH with at least 1 adult >15age who earn cash or cash/kind	Dichotomous
Wealthq	HH wealth quintile- 1- poorest, 5 richest	Ordinal (1=poorest, 5=richest)
Poverty	Prevalence of poverty- percentage of people living below US\$ 1.90/day (PPP 2011)	Dichotomous
Povgap_index1	Depth of poverty of the poor based on US\$ 1.90 poverty line (PPP 2011)	Continuous score
Svcash	Household regularly saves cash (0-1)	Dichotomous
Acctorem	Access to remittances (0-1)	Dichotomous
Asset_prod	Productive assets count (0-24)	Discrete score (min=0, max=24)
Asset_lvsk	Livestock assets count (0-7)	Discrete score (min=0, max=7)
Asset_durable	Durable assets count (0-22)	Discrete score (min=0, max=22)
I_prepmitt	Index of shock preparedness and mitigation (0-4)	Discrete score (min=0, max=4)
Human_asst	Availability of humanitarian assistance from gov't and/or NGO (0-1)	Dichotomous
I_aspiration	Index of aspirations/confidence to adapt (0-16)	Discrete score (min=0, max=16)
I_bonding	Index for Bonding Social Capital (0-6)	Discrete score (min=0, max=6)
I_bridging	Index for bridging social capital (0-6)	Discrete score (min=0, max=6)
I_linking	Index for linking social capital- government officials and NGO (0-4)	Discrete score (min=0, max=4)
I_lvhdv	Index of livelihood diversification (0-17)	Discrete score (min=0, max=17)

Variable name	Definition	Variable type
I_infoexp	Index for information exposure (0-19)	Discrete score (min=0, max=19)
I_fsn	Access to formal safety nets (0-3)	Discrete score (min=0, max=3)
I_accfinc	Index for access to financial institutions (0-2)	Discrete score (min=0, max=2)
Accb_market	Index for access to markets within 5km of a village (0-3)	Ordinal (min=0, max=3)
Accb_natres	Index for access to communal natural resources (0-4)	Ordinal (min=0, max=4)
I_bserv	Index for access to basic services (0-3)	Discrete score (min=0, max=3)
I_agext	Index for access to agricultural extension services (0-1)	Dichotomous
I_lvskserv	Index for access to livestock services (0-1)	Dichotomous
Asset_lvsk	Livestock assets count (0-7)	Discrete score (min=0, max=7)
Partic_loc	Participation in local decision making (0-1)	Dichotomous
Shock_clim	Household experienced climate shocks (0-1)	Dichotomous
Shock_biol	Household experienced biological shocks (0-1)	Dichotomous
Shock_econ	Household experienced economic shocks (0-1)	Dichotomous
Shock_confl	Household experienced conflict shocks (0-1)	Dichotomous
I_shocksev	Index of shock severity impact - none, slight decrease, severe decrease etc. (2-8)	Discrete score (min=0, max=8)
Atr	Ability to recover shock severity index	Continuous
Agri_finance	Farmers who used financial services (saving) in the past 12 months	Dichotomous
Agri_valuechain	Farmers who practiced ≥ 1 value chain activities promoted by the project in the	Dichotomous
Agri_sustagri	Farmers who used ≥ 3 sustainable agriculture practices &/or technologies in the past 12	Dichotomous
Agri_storage	Farmers who used improved storage practices in the past 12 months	Dichotomous
Basic_sanitation	% of HHs using an basic sanitation facility	Dichotomous
Cash_earned	Men & women who earned cash in the past 12 months	Dichotomous
Time_water	% of households that can obtain drinking water in less than 30 minutes round trip)	Dichotomous
Correct_watertreat	Percent of HHs practicing correct use of recommended household water treatment technology	Dichotomous
Water_improved	Percentage of HHs using improved water sources	Dichotomous
Open_defecation	% of HHs practicing open defecation	Dichotomous
Proper_handwashing	% of HHs with soap and water at a handwashing station commonly used by family members	Dichotomous
Chn_diarrhea	% of children 0-59 months (1,825 days) of age who had diarrhea in the prior two weeks	Dichotomous
Chn_mad	children 6-23 months receiving a minimum acceptable diet	Dichotomous
Chn_nutrich	Prevalence of children (6-23m) who consume targeted nutrient-rich commodities	Dichotomous

Annex 9: Multivariate Analyses Tables

Table 10.1a: Correlation results on HDDS

Variables	HDDS		
	CRS	MC	
genhhstype	0.02 (0.74) 1004	-0.09 (0.04) 1215	*
hhsize	-0.02 (0.69) 1004	0.07 (0.04) 1215	*
la_typeacc	-0.04 (0.36) 868	-0.14 (0.00) 1043	***
la_hecsz	0.02 (0.73) 843	0.09 (0.04) 993	*
hhmem_edu	0.29 (0.00) 868	0.29 (0.00) 1043	***
agri_finance	0.33 (0.00) 866	0.25 (0.00) 1040	***
hh_cashearer	0.21 (0.00) 868	0.19 (0.00) 1043	***
Wealth Index Quintile	0.17 (0.00) 998	0.11 (0.03) 1196	*
poverty	-0.26 (0.00) 1004	-0.26 (0.00) 1215	***

Pearson's correlation coefficient, P value in parenthesis

†p<0.10, *p<0.05, **p<0.01, *** p<0.001. ^ small sample size

Table 10.2b: Correlation results on HDDS

Variables	HDDS			
	CRS		MC	
svcash	0.33	***	0.27	***
	(0.00)		(0.00)	
	998		1206	
acctorem	0.06	+	0.01	
	(0.06)		(0.74)	
	998		1206	
asset_prod	0.14	*	0.04	
	(0.01)		(0.38)	
	998		1206	
asset_lvsk	0.22	***	0.13	*
	(0.00)		(0.01)	
	998		1206	
asset_durable	0.38	***	0.36	***
	(0.00)		(0.00)	
	998		1206	
i_prepmit	0.20	***	0.23	***
	(0.00)		(0.00)	
	998		1206	
human_asst	0.00		0.03	
	(0.99)		(0.30)	
	998		1206	
i_aspiration	0.16	***	0.28	***
	(0.00)		(0.00)	
	998		1206	
i_bonding	0.02		0.04	
	(0.65)		(0.32)	
	998		1206	
i_bridging	0.00		0.06	
	(0.98)		(0.12)	
	998		1206	
i_linking	0.23	***	0.14	*
	(0.00)		(0.01)	
	998		1206	

Pearson's correlation coefficient, P value in parenthesis

†p<0.10, *p<0.05, **p<0.01, *** p<0.001. ^ small sample size

Table 10.2c: Correlation results on HDDS

Variables	HDDS			
	CRS		MC	
i_lvhddiv	0.17 (0.00) 998	***	0.14 (0.01) 1206	**
i_infoexp	0.32 (0.00) 998	***	0.16 (0.00) 1206	***
i_fsn	-0.03 (0.80) 998		-0.05 (0.18) 1206	
i_accfinc	0.28 (0.00) 998	***	0.07 (0.22) 1206	
accb_market	0.08 (0.44) 998		0.09 (0.13) 1206	
accb_natres	-0.04 (0.70) 998		0.05 (0.50) 1206	
i_bserv	0.06 (0.48) 998		0.05 (0.55) 1206	
i_agext	0.11 (0.17) 998		0.22 (0.01) 1206	*
i_lvkserv	0.19 (0.03) 998	*	0.18 (0.01) 1206	*
partic_loc	0.30 (0.00) 998	***	0.13 (0.00) 1206	***

Pearson's correlation coefficient, P value in parenthesis

†p<0.10, *p<0.05, **p<0.01, *** p<0.001. ^ small sample size

Table 10.2d: Correlation results on HDDS

Variables	HDDS			
	CRS		MC	
shock_clim	0.04		0.12	***
	(0.19)		(0.00)	
	998		1206	
shock_biol	0.10	+	0.02	
	(0.06)		(0.62)	
	998		1206	
shock_econ	0.17	***	0.10	*
	(0.00)		(0.01)	
	998		1206	
shock_confl	0.22	***	0.09	+
	(0.00)		(0.05)	
	998		1206	
i_shocksev	0.01		0.03	
	(0.80)		(0.45)	
	979		1162	
atr	0.02		0.16	***
	(0.79)		(0.00)	
	867		998	

Pearson's correlation coefficient, P value in parenthesis

†p<0.10, *p<0.05, **p<0.01, *** p<0.001. ^ small sample size

Table 10.2: Poisson Regression on HDDS with other variables

VARIABLES	CRS		MC	
	OR	se	OR	se
Household Dietary Diversity Score (0-12)	.	(.)	.	(.)
Gendered household type = 2, FemaleOnly	1.16*	(0.06)	0.96	(0.06)
Gendered household type = 3, MaleOnly	1.07	(0.18)	0.95	(0.17)
(sum) hhsz	0.99	(0.01)	1.00	(0.01)
1=Own, 2=Rent, 3= Sharecrop, 4=None = 2	1.07	(0.10)	0.83*	(0.07)
1=Own, 2=Rent, 3= Sharecrop, 4=None = 3	0.96	(0.08)	0.90*	(0.04)
1=Own, 2=Rent, 3= Sharecrop, 4=None = 4	0.90	(0.17)	0.77	(0.12)
Access to land, 0 no land, 1 is <=1 hector, 4 is >3 = 2	0.97	(0.05)	1.03	(0.05)
Access to land, 0 no land, 1 is <=1 hector, 4 is >3 = 3	1.01	(0.07)	0.98	(0.06)
Access to land, 0 no land, 1 is <=1 hector, 4 is >3 = 4	0.71*	(0.09)	0.99	(0.08)
Household members' highest level of education = 2, Primary	1.03	(0.05)	1.02	(0.06)
Household members' highest level of education = 3, Secondary	1.13+	(0.08)	1.15+	(0.08)
Household members' highest level of education = 4, Tertiary/University	1.28**	(0.10)	1.22**	(0.08)
(max) agri_finance	1.06	(0.07)	1.07	(0.06)
HH with at least 1 adult>15age who earn cash or cash/kind	1.15*	(0.06)	1.07	(0.05)
HH wealth quintile- 1- poorest, 5 richest = 2	1.00	(0.06)	1.04	(0.08)
HH wealth quintile- 1- poorest, 5 richest = 3	1.11	(0.09)	1.09	(0.09)
HH wealth quintile- 1- poorest, 5 richest = 4	1.15	(0.12)	1.17*	(0.08)
HH wealth quintile- 1- poorest, 5 richest = 5	1.13	(0.18)	1.16	(0.12)
Prevalance of poverty- percentage of people living below US\$ 1.90/day				
poverty li	0.93	(0.06)	0.94	(0.05)
Household regularly saves cash (0-1)	0.99	(0.07)	1.09	(0.06)
Access to remittances (0-1)	1.00	(0.06)	1.05	(0.07)
Productive assets count (0-24)	1.01	(0.01)	1.00	(0.01)
Livestock assets count (0-7)	1.01	(0.03)	1.00	(0.02)
Durable assets count (0-22)	1.03**	(0.01)	1.04**	(0.01)
Index of shock preparedness and mitigation (0-4)	0.98	(0.02)	1.03	(0.02)
Index of aspirations/confidence to adapt (0-16)	1.00	(0.02)	1.04***	(0.01)
Index for linking social capital- gov officials and NGO (0-4)	1.06**	(0.02)	1.00	(0.01)
Index of livelihood diversification (0-17)	1.01	(0.01)	1.02	(0.01)
Index for information exposure (0-19)	1.02*	(0.01)	1.01	(0.01)
Index for access to financial institutions (0-2)	1.07	(0.07)	0.94*	(0.02)
Index for access to agricultural extension services (0-1)	0.93	(0.08)	1.03	(0.07)
Index for access to livestock services (0-1)	1.03	(0.10)	1.07	(0.06)
Participation in local decision making (0-1)	1.23**	(0.09)	1.07+	(0.04)
Household experienced climate shocks (0-1)	0.80	(0.17)	1.39***	(0.12)
Household experienced biological shocks (0-1)	1.10	(0.12)	1.03	(0.07)
Household experienced economic shocks (0-1)	0.94	(0.08)	0.98	(0.04)
Household experienced conflict shocks (0-1)	1.16*	(0.07)	0.98	(0.05)
Ability to recover shock severity index	1.01	(0.02)	1.03*	(0.01)
Constant	1.71+	(0.52)	1.20	(0.25)
Observations	748		823	
F-statistic	11.17		8.934	
Prob>F	0.0855		0.000125	

seEform in parentheses

*** p<0.001, ** p<0.01, * p<0.05, + p<0.10

Table 10.2a: Correlation results on FIES Score (12 Month Recall)

Variables	Food Insecurity Experience Score (FIES- 12 month)		
	CRS	MC	
HDDS	-0.06 (0.16) 1004	-0.14 (0.02) 1215	*
genhhtype	-0.04 (0.13) 1235	0.03 (0.28) 1535	
hhsize	0.07 (0.05) 1235	† (0.55) 1535	
la_typeacc	-0.05 (0.45) 1072	-0.01 (0.84) 1276	
la_hecsz	-0.06 (0.17) 1041	-0.01 (0.78) 1212	
hhmem_edu	-0.10 (0.04) 1072	* (0.00) 1276	***
agri_finance	-0.02 (0.48) 1070	-0.10 (0.03) 1271	*
hh_cashearer	0.02 (0.60) 1072	-0.01 (0.80) 1276	
Wealth Index Quintile	-0.03 (0.28) 1228	-0.01 (0.69) 1511	
poverty	0.01 (0.63) 1235	0.21 (0.00) 1535	***

Pearson's correlation coefficient, P value in parenthesis

†p<0.10, *p<0.05, **p<0.01, *** p<0.001. ^ small sample size

Table 10.2b: Correlation results on FIES Score (12 Month Recall)

Variables	Food Insecurity Experience Score (FIES- 12 month)		
	CRS	MC	
svcash	-0.03 (0.39) 1228	-0.10 (0.07) 1522	*
acctorem	-0.03 (0.45) 1228	0.04 (0.08) 1522	+
asset_prod	0.02 (0.55) 1228	0.03 (0.26) 1522	
asset_lvsk	-0.02 (0.62) 1228	-0.03 (0.36) 1522	
asset_durable	-0.03 (0.55) 1228	-0.15 (0.02) 1522	
i_prepmit	0.00 (0.92) 1228	0.00 (0.99) 1522	
human_asst	-0.03 (0.41) 1228	0.03 (0.33) 1522	*
i_aspiration	0.03 (0.41) 1228	-0.03 (0.44) 1522	
i_bonding	-0.02 (0.73) 1228	0.06 (0.04) 1522	*
i_bridging	-0.02 (0.75) 1228	0.06 (0.06) 1522	+
i_linking	0.00 (0.96) 1228	-0.03 (0.43) 1522	

Pearson's correlation coefficient, P value in parenthesis

†p<0.10, *p<0.05, **p<0.01, *** p<0.001. ^ small sample size

Table 10.2c: Correlation results on FIES Score (12 Month Recall)

Variables	Food Insecurity Experience Score (FIES- 12 month)			
	CRS		MC	
i_lvhddiv	-0.01 (0.73) 1228		0.11 (0.01) 1522	*
i_infoexp	0.01 (0.74) 1228		0.05 (0.32) 1522	
i_fsn	0.04 (0.43) 1228		-0.01 (0.68) 1522	
i_accfinc	-0.05 (0.39) 1228		0.08 (0.12) 1522	
accb_market	-0.01 (0.78) 1228		-0.04 (0.32) 1522	
accb_natres	-0.09 (0.05) 1228	+	0.03 (0.46) 1522	
i_bserv	-0.02 (0.61) 1228		-0.08 (0.13) 1522	
i_agext	0.00 (0.94) 1228		-0.11 (0.07) 1522	+
i_lvkserv	-0.04 (0.50) 1228		-0.04 (0.42) 1522	
partic_loc	-0.02 (0.49) 1228		0.01 (0.71) 1522	

Pearson's correlation coefficient, P value in parenthesis

†p<0.10, *p<0.05, **p<0.01, *** p<0.001. ^ small sample size

Table 10.2d: Correlation results on FIES Score (12 Month Recall)

Variables	Food Insecurity Experience Score (FIES- 12 month)			
	CRS		MC	
shock_clim	0.07		0.02	
	(0.14)		(0.50)	
	1228		1522	
shock_biol	0.13	*	0.15	***
	(0.01)		(0.00)	
	1228		1522	
shock_econ	0.08	*	0.06	
	(0.04)		(0.15)	
	1228		1522	
shock_confl	0.07	*	0.05	
	(0.02)		(0.10)	
	1228		1522	
i_shocksev	0.04		0.09	*
	(0.40)		(0.01)	
	1204		1467	
atr	0.04		-0.03	
	(0.41)		(0.55)	
	1043		1251	

Pearson's correlation coefficient, P value in parenthesis

†p<0.10, *p<0.05, **p<0.01, *** p<0.001. ^ small sample size

Table 10.4: Regression on FIES-12 month with other variables

VARIABLES	CRS		MC	
	coeff	se	coeff	se
FIES score for 12 months recall questions	.	(.)	.	(.)
Household Dietary Diversity Score (0-12)	0.01	(0.01)	0.00	(0.00)
(sum) hhsz	0.01+	(0.00)	-0.00	(0.00)
Household members' highest level of education = 2, Primary	-0.06**	(0.02)	-0.00	(0.01)
Household members' highest level of education = 3, Secondary	-0.07+	(0.04)	-0.06	(0.04)
Household members' highest level of education = 4, Tertiary/University	-0.04	(0.02)	-0.16***	(0.04)
(max) agri_finance	-0.01	(0.02)	-0.03+	(0.02)
Prevalance of poverty- percentage of people living below US\$ 1.90/day poverty li	-0.01	(0.02)	0.05+	(0.03)
Household regularly saves cash (0-1)	-0.02	(0.02)	0.01	(0.02)
Access to remittances (0-1)	-0.01	(0.02)	-0.00	(0.02)
Availability of humanitarian assistance from gov't and/or NGO (0-1)	-0.00	(0.02)	0.03*	(0.01)
Index for Bonding Social Capital (0-6)	0.00	(0.01)	0.00	(0.01)
Index for bridging social captial (0-6)	-0.01	(0.01)	0.00	(0.01)
Index of livelihood diversification (0-17)	-0.01*	(0.00)	0.00	(0.00)
Index for access to communal natural resources (0-4)	-0.01+	(0.01)	0.01*	(0.01)
Index for access to agricultural extension services (0-1)	0.01	(0.01)	-0.02	(0.02)
Household experienced biological shocks (0-1)	0.05*	(0.02)	0.02	(0.02)
Household experienced economic shocks (0-1)	0.03*	(0.02)	0.02	(0.01)
Household experienced conflict shocks (0-1)	0.02+	(0.01)	0.02	(0.01)
Index of shock severity impact - none, slight decrease, severe decrease, worst e	-0.00	(0.01)	0.00	(0.00)
Constant	0.95***	(0.07)	0.84***	(0.04)
Observations	890		1,033	
R-squared	0.07		0.09	
F-statistic	2.54		2.059	
Prob>F	0.0206		0.0359	

Standard errors in parentheses

*** p<0.001, ** p<0.01, * p<0.05, + p<0.10

Table 10.5a: Correlation results on Poverty

Variables	Poverty	
	CRS	MC
genhhstype	-0.02 (0.44) 1259	-0.01 (0.73) 1576
hhsize	0.13 ** (0.00) 1259	-0.04 (0.43) 1576
la_typeacc	0.02 (0.76) 1092	0.04 (0.24) 1299
la_hecsz	-0.17 *** (0.00) 1061	-0.08 * (0.03) 1233
hhmem_edu	-0.22 *** (0.00) 1092	-0.33 *** (0.00) 1299
agri_finance	-0.20 *** (0.00) 1090	-0.22 *** (0.00) 1293
hh_cashearer	-0.07 + (0.09) 1092	-0.06 (0.15) 1299
Wealth Index Quintile	-0.14 ** (0.00) 1247	0.00 (0.97) 1537

Pearson's correlation coefficient, P value in parenthesis

†p<0.10, *p<0.05, **p<0.01, *** p<0.001. ^ small sample size

Table 10.5b: Correlation results on Poverty

Variables	Poverty			
	CRS		MC	
svcash	-0.21	***	-0.24	***
	(0.00)		(0.00)	
	1251		1548	
acctorem	-0.12	**	0.02	
	(0.01)		(0.48)	
	1251		1548	
asset_prod	-0.06		0.04	
	(0.10)		(0.20)	
	1251		1548	
asset_lvsk	-0.17	***	-0.03	
	(0.00)		(0.43)	
	1251		1548	
asset_durable	-0.33	***	-0.36	***
	(0.00)		(0.00)	
	1251		1548	
i_prepmit	-0.18	***	-0.14	**
	(0.00)		(0.00)	
	1251		1548	
human_asst	-0.02		0.02	
	(0.71)		(0.60)	
	1251		1548	
i_aspiration	-0.08	*	-0.14	***
	(0.02)		(0.00)	
	1251		1548	
i_bonding	-0.13	***	0.03	
	(0.00)		(0.33)	
	1251		1548	
i_bridging	-0.11	*	0.02	
	(0.01)		(0.43)	
	1251		1548	
i_linking	-0.13	*	-0.13	*
	(0.02)		(0.02)	
	1251		1548	

Pearson's correlation coefficient, P value in parenthesis

†p<0.10, *p<0.05, **p<0.01, *** p<0.001. ^ small sample size

Table 10.5c: Correlation results on Poverty

Variables	Poverty			
	CRS		MC	
i_lvdiv	-0.21 (0.00) 1251	***	0.00 (0.91) 1548	
i_infoexp	-0.25 (0.00) 1251	***	-0.09 (0.03) 1548	*
i_fsn	-0.04 (0.45) 1251		0.02 (0.54) 1548	
i_accfinc	-0.14 (0.01) 1251	*	-0.08 (0.14) 1548	
accb_market	-0.02 (0.68) 1251		-0.09 (0.10) 1548	
accb_natres	0.09 (0.11) 1251		-0.13 (0.09) 1548	+
i_bserv	-0.02 (0.70) 1251		-0.16 (0.05) 1548	+
i_agext	-0.10 (0.08) 1251	+	-0.26 (0.00) 1548	**
i_lvkserv	-0.16 (0.00) 1251	**	-0.19 (0.01) 1548	**
partic_loc	-0.14 (0.00) 1251	**	-0.06 (0.02) 1548	*

Pearson's correlation coefficient, P value in parenthesis

†p<0.10, *p<0.05, **p<0.01, *** p<0.001. ^ small sample size

Table 10.5d: Correlation results on Poverty

Variables	Poverty			
	CRS		MC	
shock_clim	-0.04	*	-0.05	+
	(0.02)		(0.07)	
	1251		1548	
shock_biol	-0.06	+	0.01	
	(0.15)		(0.83)	
	1251		1548	
shock_econ	-0.14	***	-0.08	*
	(0.00)		(0.01)	
	1251		1548	
shock_confl	-0.16	**	-0.08	+
	(0.00)		(0.05)	
	1251		1548	
i_shocksev	-0.06	*	0.04	
	(0.02)		(0.21)	
	1226		1491	
atr	-0.01		-0.09	*
	(0.88)		(0.03)	
	1060		1272	

Pearson's correlation coefficient, P value in parenthesis

†p<0.10, *p<0.05, **p<0.01, *** p<0.001. ^ small sample size

Table 10.6: Logistic Regression on Prevalance of Poverty with other variables

VARIABLES	CRS		MC	
	OR	se	OR	se
Prevalance of poverty- percentage of people living below US\$ 1.90/day poverty(I)			.	(.)
(sum) hhsz	1.39***	(0.10)	1.04	(0.07)
Access to land, 0 no land, 1 is <=1 hector, 4 is >3 = 2	0.82	(0.24)	0.92	(0.29)
Access to land, 0 no land, 1 is <=1 hector, 4 is >3 = 3	0.56	(0.29)	0.85	(0.39)
Access to land, 0 no land, 1 is <=1 hector, 4 is >3 = 4	0.19**	(0.10)	0.77	(0.41)
Household members' highest level of education = 2, Primary	1.05	(0.44)	0.52*	(0.17)
Household members' highest level of education = 3, Secondary	0.94	(0.40)	0.22**	(0.10)
Household members' highest level of education = 4, Tertiary/University	0.09***	(0.05)	0.14***	(0.07)
(max) agri_finance	0.61	(0.22)	0.50**	(0.12)
HH with at least 1 adult>15age who earn cash or cash/kind	1.34	(0.35)	1.19	(0.37)
HH wealth quintile- 1- poorest, 5 richest = 2	0.86	(0.36)	2.62*	(1.24)
HH wealth quintile- 1- poorest, 5 richest = 3	0.84	(0.32)	1.27	(0.81)
HH wealth quintile- 1- poorest, 5 richest = 4	0.94	(0.67)	1.97	(1.14)
HH wealth quintile- 1- poorest, 5 richest = 5	0.74	(0.73)	2.43	(2.06)
Household regularly saves cash (0-1)	0.93	(0.32)	0.63	(0.22)
Access to remittances (0-1)	1.06	(0.46)	1.00	(0.73)
Livestock assets count (0-7)	0.88	(0.17)	0.80	(0.14)
Index of shock preparedness and mitigation (0-4)	0.81	(0.16)	0.73	(0.15)
Index of aspirations/confidence to adapt (0-16)	1.01	(0.06)	0.89	(0.07)
Index for Bonding Social Capital (0-6)	0.86	(0.12)	1.31	(0.28)
Index for bridging social capial (0-6)	1.08	(0.17)	0.85	(0.19)
Index for linking social capital- gov officials and NGO (0-4)	0.96	(0.19)	1.02	(0.12)
Index of livelihood diversification (0-17)	0.69***	(0.07)	1.15	(0.10)
Index for information exposure (0-19)	0.95+	(0.03)	0.97	(0.04)
Index for access to financial institutions (0-2)	0.88	(0.14)	1.54+	(0.36)
Index for access to communal natural resources (0-4)	1.29	(0.24)	0.73+	(0.13)
Index for access to basic services (0-3)	0.90	(0.25)	1.01	(0.39)
Index for access to agricultural extension services (0-1)	0.95	(0.36)	0.40	(0.24)
Index for access to livestock services (0-1)	0.52+	(0.20)	0.94	(0.45)
Participation in local decision making (0-1)	0.88	(0.33)	0.88	(0.24)
Household experienced climate shocks (0-1)	0.86	(1.16)	0.15*	(0.14)
Household experienced biological shocks (0-1)	1.34	(0.61)	0.88	(0.32)
Household experienced economic shocks (0-1)	1.05	(0.30)	0.61	(0.18)
Household experienced conflict shocks (0-1)	0.61+	(0.17)	1.09	(0.43)
Index of shock severity impact - none, slight decrease, severe decrease, worst e	0.97	(0.11)	1.13	(0.15)
Ability to recover shock severity index	0.82	(0.11)	0.93	(0.12)
Constant	77.77*	(163.62)	284.85**	(485.20)
Observations	913		1,015	
F-statistic	5.83		5.379	
Prob>F	0.0285		0.000555	

seEform in parentheses

*** p<0.001, ** p<0.01, * p<0.05, + p<0.10

Table 10.7a: Correlation results on Depth of Poverty of Poor

Variables	Depth of Poverty of Poor			
	CRS		MC	
genhhstype	-0.01		0.19	**
	(0.82)		(0.00)	
	1064		1371	
hhsize	0.10	*	0.06	
	(0.04)		(0.19)	
	1064		1371	
la_typeacc	0.03		0.12	***
	(0.46)		(0.00)	
	926		1142	
la_hecsz	-0.06	+	-0.11	*
	(0.18)		(0.02)	
	897		1088	
hhmem_edu	-0.20	***	-0.15	*
	(0.00)		(0.01)	
	926		1142	
agri_finance	-0.29	***	-0.14	***
	(0.00)		(0.00)	
	925		1139	
hh_cashearer	-0.07	+	-0.15	***
	(0.06)		(0.00)	
	926		1142	
Wealth Index Quintile	-0.07	+	-0.09	*
	(0.09)		(0.02)	
	1053		1334	

Pearson's correlation coefficient, P value in parenthesis

†p<0.10, *p<0.05, **p<0.01, *** p<0.001. ^ small sample size

Variables	Poverty	
	CRS	MC
genhhtype	-0.02 (0.44) 1259	-0.01 (0.73) 1576
hhsize	0.13 ** (0.00) 1259	-0.04 (0.43) 1576
la_typeacc	0.02 (0.76) 1092	0.04 (0.24) 1299
la_hecsz	-0.17 *** (0.00) 1061	-0.08 * (0.03) 1233
hhmem_edu	-0.22 *** (0.00) 1092	-0.33 *** (0.00) 1299
agri_finance	-0.20 *** (0.00) 1090	-0.22 *** (0.00) 1293
hh_cashearn	-0.07 + (0.09) 1092	-0.06 (0.15) 1299
Wealth Index Quintile	-0.14 ** (0.00) 1247	0.00 (0.97) 1537

Pearson's correlation coefficient, P value in parenthesis

†p<0.10, *p<0.05, **p<0.01, *** p<0.001. ^ small sample size

Table 10.7b: Correlation results on Depth of Poverty of Poor

Variables	Depth of Poverty of Poor			
	CRS		MC	
svcash	-0.29	***	-0.10	**
	(0.00)		(0.00)	
	1056		1344	
acctorem	-0.08	*	-0.03	
	(0.04)		(0.50)	
	1056		1344	
asset_prod	-0.13	*	0.01	
	(0.02)		(0.79)	
	1056		1344	
asset_lvsk	-0.10	*	-0.13	***
	(0.03)		(0.00)	
	1056		1344	
asset_durable	-0.38	***	-0.30	***
	(0.00)		(0.00)	
	1056		1344	
i_prepmit	-0.25	***	-0.07	+
	(0.00)		(0.06)	
	1056		1344	
human_asst	-0.09	+	-0.03	
	(0.09)		(0.49)	
	1056		1344	
i_aspiration	-0.12	**	-0.11	**
	(0.00)		(0.00)	
	1056		1344	
i_bonding	-0.16	**	-0.06	+
	(0.00)		(0.08)	
	1056		1344	
i_bridging	-0.11	*	-0.05	
	(0.04)		(0.17)	
	1056		1344	
i_linking	-0.13	*	-0.05	
	(0.02)		(0.29)	
	1056		1344	

Pearson's correlation coefficient, P value in parenthesis

†p<0.10, *p<0.05, **p<0.01, *** p<0.001. ^ small sample size

Variables	Poverty			
	CRS		MC	
svcash	-0.21	***	-0.24	***
	(0.00)		(0.00)	
	1251		1548	
acctorem	-0.12	**	0.02	
	(0.01)		(0.48)	
	1251		1548	
asset_prod	-0.06		0.04	
	(0.10)		(0.20)	
	1251		1548	
asset_lvsk	-0.17	***	-0.03	
	(0.00)		(0.43)	
	1251		1548	
asset_durable	-0.33	***	-0.36	***
	(0.00)		(0.00)	
	1251		1548	
i_prepmit	-0.18	***	-0.14	**
	(0.00)		(0.00)	
	1251		1548	
human_asst	-0.02		0.02	
	(0.71)		(0.60)	
	1251		1548	
i_aspiration	-0.08	*	-0.14	***
	(0.02)		(0.00)	
	1251		1548	
i_bonding	-0.13	***	0.03	
	(0.00)		(0.33)	
	1251		1548	
i_bridging	-0.11	*	0.02	
	(0.01)		(0.43)	
	1251		1548	
i_linking	-0.13	*	-0.13	*
	(0.02)		(0.02)	
	1251		1548	

Pearson's correlation coefficient, P value in parenthesis

†p<0.10, *p<0.05, **p<0.01, *** p<0.001. ^ small sample size

Table 10.7c: Correlation results on Depth of Poverty of Poor

Variables	Depth of Poverty of Poor			
	CRS		MC	
i_lvdiv	-0.16 (0.01) 1056	*	-0.12 (0.02) 1344	*
i_infoexp	-0.33 (0.00) 1056	***	-0.07 (0.10) 1344	
i_fsn	0.02 (0.70) 1056		0.05 (0.26) 1344	
i_accfinc	-0.18 (0.02) 1056	*	0.04 (0.40) 1344	
accb_market	0.01 (0.88) 1056		-0.04 (0.40) 1344	
accb_natres	0.16 (0.02) 1056	*	0.06 (0.34) 1344	
i_bserv	-0.01 (0.87) 1056		0.02 (0.74) 1344	
i_agext	-0.09 (0.22) 1056	+	-0.13 (0.02) 1344	*
i_lvkserv	-0.19 (0.00) 1056	**	-0.10 (0.08) 1344	+
partic_loc	-0.22 (0.00) 1056	***	-0.06 (0.09) 1344	+

Pearson's correlation coefficient, P value in parenthesis

†p<0.10, *p<0.05, **p<0.01, *** p<0.001. ^ small sample size

Variables	Poverty			
	CRS		MC	
i_lvdiv	-0.21 (0.00) 1251	***	0.00 (0.91) 1548	
i_infoexp	-0.25 (0.00) 1251	***	-0.09 (0.03) 1548	*
i_fsn	-0.04 (0.45) 1251		0.02 (0.54) 1548	
i_accfinc	-0.14 (0.01) 1251	*	-0.08 (0.14) 1548	
accb_market	-0.02 (0.68) 1251		-0.09 (0.10) 1548	
accb_natres	0.09 (0.11) 1251		-0.13 (0.09) 1548	+
i_bserv	-0.02 (0.70) 1251		-0.16 (0.05) 1548	+
i_agext	-0.10 (0.08) 1251	+	-0.26 (0.00) 1548	**
i_lvskserv	-0.16 (0.00) 1251	**	-0.19 (0.01) 1548	**
partic_loc	-0.14 (0.00) 1251	**	-0.06 (0.02) 1548	*

Pearson's correlation coefficient, P value in parenthesis

†p<0.10, *p<0.05, **p<0.01, *** p<0.001. ^ small sample size

Table 10.7d: Correlation results on Depth of Poverty of Poor

Variables	Depth of Poverty of Poor		
	CRS	MC	
shock_clim	-0.01 (0.77) 1056	-0.08 (0.05) 1344	+
shock_biol	-0.15 (0.00) 1056	** (0.39) 1344	
shock_econ	-0.23 (0.00) 1056	*** (0.06) 1344	+
shock_confl	-0.21 (0.00) 1056	** (0.69) 1344	
i_shocksev	-0.06 (0.22) 1032	-0.02 (0.59) 1293	
atr	0.04 (0.49) 873	-0.06 (0.17) 1100	

Pearson's correlation coefficient, P value in parenthesis

†p<0.10, *p<0.05, **p<0.01, *** p<0.001. ^ small sample size

Variables	Poverty			
	CRS		MC	
shock_clim	-0.04	*	-0.05	+
	(0.02)		(0.07)	
	1251		1548	
shock_biol	-0.06	+	0.01	
	(0.15)		(0.83)	
	1251		1548	
shock_econ	-0.14	***	-0.08	*
	(0.00)		(0.01)	
	1251		1548	
shock_confl	-0.16	**	-0.08	+
	(0.00)		(0.05)	
	1251		1548	
i_shocksev	-0.06	*	0.04	
	(0.02)		(0.21)	
	1226		1491	
atr	-0.01		-0.09	*
	(0.88)		(0.03)	
	1060		1272	

Pearson's correlation coefficient, P value in parenthesis

†p<0.10, *p<0.05, **p<0.01, *** p<0.001. ^ small sample size

Table 10.8: Linear Regression on Depth of Poverty of the Poor with other variables

VARIABLES	CRS		MC	
	coeff	se	coeff	se
Depth of poverty of the poor based on US\$ 1.90 poverty line (PPP 2011)	.	(.)	.	(.)
Gendered household type = 2, FemaleOnly	-3.74+	(1.93)	2.81+	(1.61)
Gendered household type = 3, MaleOnly	4.03+	(2.36)	8.03+	(4.00)
Household members' highest level of education = 2, Primary	-1.29	(1.61)	-2.46	(1.58)
Household members' highest level of education = 3, Secondary	-2.72	(2.36)	-12.90*	(4.85)
Household members' highest level of education = 4, Tertiary/University	-9.43	(8.64)	-12.85	(8.19)
(sum) hhsz	0.90*	(0.44)	1.09***	(0.31)
1=Own, 2=Rent, 3= Sharecrop, 4=None = 2	-1.03	(2.24)	5.80*	(2.60)
1=Own, 2=Rent, 3= Sharecrop, 4=None = 3	-8.64**	(2.80)	6.03**	(1.91)
1=Own, 2=Rent, 3= Sharecrop, 4=None = 4	-0.63	(2.40)	4.62	(2.92)
Access to land, 0 no land, 1 is <=1 hector, 4 is >3 = 2	-2.83	(1.72)	-1.34	(1.71)
Access to land, 0 no land, 1 is <=1 hector, 4 is >3 = 3	-4.28	(2.88)	-3.28	(3.04)
Access to land, 0 no land, 1 is <=1 hector, 4 is >3 = 4	1.18	(3.77)	-6.07*	(2.69)
(max) agri_finance	-5.00**	(1.71)	-3.40+	(1.88)
HH with at least 1 adult>15age who earn cash or cash/kind	2.96+	(1.62)	-5.01**	(1.54)
HH wealth quintile- 1- poorest, 5 richest = 2	0.18	(1.87)	3.82+	(2.03)
HH wealth quintile- 1- poorest, 5 richest = 3	-1.42	(2.29)	-0.96	(2.52)
HH wealth quintile- 1- poorest, 5 richest = 4	-0.02	(4.04)	-0.92	(3.55)
HH wealth quintile- 1- poorest, 5 richest = 5	-7.25	(5.43)	-0.13	(4.99)
Household regularly saves cash (0-1)	-3.57	(2.48)	-0.47	(1.87)
Access to remittances (0-1)	4.90	(2.91)	-3.26	(2.95)
Livestock assets count (0-7)	0.48	(1.27)	-0.94	(1.03)
Index of shock preparedness and mitigation (0-4)	-0.57	(1.11)	-0.96	(0.89)
Index of aspirations/confidence to adapt (0-16)	-0.35	(0.31)	-0.12	(0.31)
Index for Bonding Social Capital (0-6)	-2.87***	(0.72)	0.76	(1.14)
Index for bridging social captial (0-6)	1.95*	(0.75)	-0.59	(1.02)
Index for linking social capital- gov officials and NGO (0-4)	-0.64	(0.81)	0.01	(0.69)
Index of livelihood diversification (0-17)	-1.13	(0.68)	-0.17	(0.41)
Index for information exposure (0-19)	-0.74**	(0.22)	0.13	(0.16)
Index for access to financial institutions (0-2)	-1.30	(1.05)	1.69	(1.01)
Index for access to communal natural resources (0-4)	0.65	(0.73)	0.98	(1.13)
Index for access to agricultural extension services (0-1)	3.39	(2.91)	-4.04	(4.28)
Index for access to livestock services (0-1)	-6.82*	(2.75)	-1.56	(2.97)
Participation in local decision making (0-1)	-0.30	(1.87)	-0.46	(1.47)
Household experienced climate shocks (0-1)	-1.33	(6.91)	-6.99***	(1.77)
Household experienced biological shocks (0-1)	-2.83	(1.71)	-0.50	(1.67)
Household experienced economic shocks (0-1)	-1.16	(2.09)	-0.23	(1.53)
Household experienced conflict shocks (0-1)	-1.47	(2.29)	-2.59	(2.10)
Constant	79.53***	(9.00)	65.58***	(5.02)
Observations	891		1,071	
R-squared	0.28		0.19	
F-statistic	5.26		10.92	
Prob>F	0.0974		4.34e-05	

Standard errors in parentheses

*** p<0.001, ** p<0.01, * p<0.05, + p<0.10

Table 10.9a: Correlation results on Improved Water Sources

Variables	Percentage of HHs with access to	
	CRS	MC
povgap_index1	-0.01 (0.87) 1064	-0.01 (0.86) 1371

Pearson's correlation coefficient, P value in parenthesis

†p<0.10, *p<0.05, **p<0.01, *** p<0.001. ^ small sample size

Table 10.9c: Correlation results on Basic Sanitation

Variables	Basic Sanitation		
	CRS	MC	
hhsz	0.03 (0.46) 1259	0.08 (0.03) 1576	*
hhmem_edu	0.19 (0.00) 1092	0.18 (0.02) 1299	*
hh_cashearer	0.04 (0.43) 1092	-0.06 (0.14) 1299	
Wealth Index Quintile	0.02 (0.52) 1247	0.00 (0.90) 1537	
poverty	-0.16 (0.00) 1259	** (0.18) 1576	
asset_durable	0.24 (0.00) 1251	*** (0.31) 1548	
human_asst	0.02 (0.50) 1251	0.03 (0.54) 1548	
partic_loc	0.12 (0.01) 1251	* (0.72) 1548	
water_time	-0.04 (0.31) 1259	0.03 (0.65) 1576	
i_bserv	0.07 (0.15) 1251	0.13 (0.03) 1548	*

Pearson's correlation coefficient, P value in parenthesis

†p<0.10, *p<0.05, **p<0.01, *** p<0.001. ^ small sample size

water_time is time to obtain any kind of drinking water within 30 minutes

Table 10.9b: Correlation results on time to obtain drinking water

Variables	Percentage of HHs who can obtain	
	CRS	MC
povgap_index1	0.07 (0.17) 1064	0.05 (0.16) 1371

Pearson's correlation coefficient, P value in parenthesis

†p<0.10, *p<0.05, **p<0.01, *** p<0.001. ^ small sample size

Table 10.9d: Correlation results on Open Defecation

Variables	Open defecation	
	CRS	MC
hhsiz	0.01 (0.70) 1259	-0.01 (0.72) 1576
hhmem_edu	-0.28 (0.00) 1092	*** (0.00) 1299
hh_cashearer	-0.09 (0.09) 1092	+ (0.56) 1299
Wealth Index Quintile	-0.02 (0.43) 1247	0.07 (0.15) 1537
poverty	0.26 (0.00) 1259	*** (0.00) 1576
asset_durable	-0.41 (0.00) 1251	*** (0.05) 1548
human_asst	-0.04 (0.39) 1251	-0.02 (0.63) 1548
partic_loc	-0.16 (0.00) 1251	*** (0.62) 1548
water_time	0.10 (0.09) 1259	+ (0.95) 1576
i_bserv	-0.07 (0.47) 1251	-0.26 (0.01) 1548

Pearson's correlation coefficient, P value in parenthesis

†p<0.10, *p<0.05, **p<0.01, *** p<0.001. ^ small sample size

Table 10.10: Logistic regression on basic sanitation services

VARIABLES	CRS		MC	
	OR	se	OR	se
% of HHs using an basic sanitation facility	.	(.)	.	(.)
(sum) hhsz	1.05	(0.05)	1.07+	(0.04)
HH with at least 1 adult>15age who earn cash or cash/kind	1.06	(0.51)	0.54*	(0.15)
HH wealth quintile- 1- poorest, 5 richest = 2	0.58	(0.26)	0.85	(0.38)
HH wealth quintile- 1- poorest, 5 richest = 3	0.91	(0.39)	1.98+	(0.75)
HH wealth quintile- 1- poorest, 5 richest = 4	0.60	(0.26)	1.46	(0.48)
HH wealth quintile- 1- poorest, 5 richest = 5	0.61	(0.33)	1.44	(0.59)
Prevalance of poverty- percentage of people living below US\$ 1.00/day poverty	0.09*	(0.16)	0.54	(0.27)
Durable assets count (0-22)	1.36***	(0.09)	0.99	(0.07)
Participation in local decision making (0-1)	1.69	(0.87)	0.76	(0.21)
Availability of humanitarian assistance from gov't and/or NGO (0-1)	0.175	(0.37)	1.93	(1.16)
% of hhs that can obtain drinking water in less than 30 minutes round trip	0.92	(0.27)	1.09	(0.51)
Index for access to basic services (0-3)	2.28+	(1.10)	1.96*	(0.51)
Constant	0.01***	(0.01)	0.03***	(0.02)
Observations	1,085		1,280	
F-statistic	3.79		2.938	
Prob>F	0.0022		0.00562	

seEform in parentheses

*** p<0.001, ** p<0.01, * p<0.05, + p<0.10

Table 10.11: Logistic regression on Open Defecation services

VARIABLES	CRS		MC	
	OR	se	OR	se
% of HHs practicing open defecation	.	(.)	.	(.)
(sum) hhsz	1.02	(0.03)	0.95	(0.04)
HH with at least 1 adult>15age who earn cash or cash/kind	0.90	(0.23)	1.00	(0.21)
HH wealth quintile- 1- poorest, 5 richest = 2	0.76	(0.19)	1.03	(0.28)
HH wealth quintile- 1- poorest, 5 richest = 3	0.89	(0.16)	0.85	(0.27)
HH wealth quintile- 1- poorest, 5 richest = 4	0.98	(0.29)	1.04	(0.32)
HH wealth quintile- 1- poorest, 5 richest = 5	2.00*	(0.67)	1.11	(0.40)
Prevalance of poverty- percentage of people living below US\$ 1.25/day poverty	2.05*	(0.61)	2.51**	(0.70)
Durable assets count (0-22)	0.58***	(0.05)	0.88*	(0.06)
Availability of humanitarian assistance from gov't and/or NGO (0-1)	0.39	(0.32)	0.57	(0.23)
% of hhs that can obtain drinking water in less than 30 minutes round trip	1.36	(0.29)	0.97	(0.27)
Constant	4.09**	(1.82)	1.95	(0.90)
Observations	1,085		1,280	
F-statistic	5.22		1.740	
Prob>F	0.0002		0.105	

seEform in parentheses

*** p<0.001, ** p<0.01, * p<0.05, + p<0.10

Table 10.12a: Correlation results on MDD_W

Variables	MDD_W			
	CRS		MC	
hdds	0.36	***	0.42	***
	(0.00)		(0.00)	
	913		1118	
fies_score12m	0.00		-0.05	
	(0.98)		(0.18)	
	1056		1354	
genhhstype	0.00		-0.07	*
	(1.00)		(0.01)	
	1062		1360	
hysize	0.02		0.02	
	(0.72)		(0.68)	
	1062		1360	
la_typeacc	0.00		-0.08	+
	(0.93)		(0.05)	
	955		1168	
la_heysize	0.06		0.06	
	(0.26)		(0.20)	
	926		1111	
hhmem_edu	0.07		0.15	*
	(0.25)		(0.01)	
	955		1168	
agri_finance	0.02		0.11	+
	(0.65)		(0.07)	
	644		825	
hh_cashearer	0.03		-0.04	
	(0.42)		(0.43)	
	955		1168	
Wealth Index Quintile	0.15	***	0.08	*
	(0.00)		(0.04)	
	1052		1341	
poverty	-0.15	***	-0.12	**
	(0.00)		(0.01)	
	1062		1360	

Pearson's correlation coefficient, P value in parenthesis

†p<0.10, *p<0.05, **p<0.01, *** p<0.001. ^ small sample size

Table 10.12b: Correlation results on MDD_W

Variables	MDD_W			
	CRS		MC	
svcash	0.15	**	0.12	**
	(0.00)		(0.01)	
	1054		1350	
acctorem	-0.02		0.08	
	(0.59)		(0.13)	
	1054		1350	
asset_prod	0.13	**	0.10	+
	(0.00)		(0.06)	
	1054		1350	
asset_lvsk	0.17	***	0.09	+
	(0.00)		(0.06)	
	1054		1350	
asset_durable	0.13	**	0.14	*
	(0.00)		(0.01)	
	1054		1350	
i_prepmit	0.07	+	0.10	*
	(0.09)		(0.03)	
	1054		1350	
human_asst	0.05		0.11	+
	(0.36)		(0.07)	
	1054		1350	
i_aspiration	0.05		0.17	***
	(0.19)		(0.00)	
	1054		1350	
i_bonding	0.06		0.06	
	(0.15)		(0.18)	
	1054		1350	
i_bridging	0.05		0.08	+
	(0.21)		(0.06)	
	1054		1350	
i_linking	0.05		0.14	**
	(0.34)		(0.00)	
	1054		1350	

Pearson's correlation coefficient, P value in parenthesis

†p<0.10, *p<0.05, **p<0.01, *** p<0.001. ^ small sample size

Table 10.12c: Correlation results on MDD_W

Variables	MDD_W			
	CRS		MC	
i_lvdiv	0.16 (0.00) 1054	***	0.18 (0.00) 1350	**
i_infoexp	0.20 (0.00) 1054	***	0.07 (0.10) 1350	+
i_fsn	0.03 (0.57) 1054		0.08 (0.38) 1350	
i_accfinc	0.01 (0.86) 1054		0.02 (0.65) 1350	
accb_market	0.00 (0.98) 1054		0.01 (0.89) 1350	
accb_natres	0.03 (0.55) 1054		0.05 (0.34) 1350	
i_bserv	-0.04 (0.38) 1054		0.09 (0.04) 1350	*
i_agext	0.05 (0.34) 1054		0.08 (0.19) 1350	
i_lvkserv	0.09 (0.10) 1054	+	0.08 (0.19) 1350	
partic_loc	0.08 (0.08) 1054	+	0.14 (0.00) 1350	***

Pearson's correlation coefficient, P value in parenthesis

†p<0.10, *p<0.05, **p<0.01, *** p<0.001. ^ small sample size

Table 10.12D: Correlation results on MDD_W

Variables	MDD_W		
	CRS	MC	
shock_clim	-0.02 (0.68) 1054	0.08 (0.00) 1350	**
shock_biol	0.05 (0.24) 1054	0.00 (0.96) 1350	
shock_econ	0.04 (0.34) 1054	-0.05 (0.22) 1350	
shock_confl	0.11 (0.06) 1054	+ (0.50) 1350	
i_shocksev	0.05 (0.24) 1036	0.07 (0.04) 1309	*
atr	-0.03 (0.62) 907	0.16 (0.00) 1124	**

Pearson's correlation coefficient, P value in parenthesis

†p<0.10, *p<0.05, **p<0.01, *** p<0.001. ^ small sample size

Table 10.13: Correlation results with use of modern contraception

Variables	Use of modern contraception			
	CRS		MC	
hhmem_edu	0.11	**	0.32	**
	(0.00)		(0.00)	
	573		663	
poverty	-0.08	+	-0.12	+
	(0.07)		(0.07)	
	636		741	
partic_loc	0.11	**	0.03	
	(0.00)		(0.39)	
	632		736	
i_bserv	0.06		0.08	
	(0.17)		(0.26)	
	632		736	
i_bridging	0.07		-0.01	
	(0.23)		(0.78)	
	632		736	
i_linking	0.07		0.17	**
	(0.14)		(0.00)	
	632		736	
i_infoexp	0.13	*	0.10	*
	(0.02)		(0.03)	
	632		736	

Pearson's correlation coefficient, P value in parenthesis

†p<0.10, *p<0.05, **p<0.01, *** p<0.001. ^ small sample size

Table 10.14a: Correlation with Stunting

Variables	Stunting		
	CRS	MC	
hdds	-0.03 (0.46) 1012	-0.04 (0.20) 1155	
fies_score12m	0.02 (0.73) 1180	0.01 (0.81) 1379	
genhhtype	0.05 (0.27) 1186	0.00 (0.94) 1386	
hysize	0.04 (0.20) 1186	-0.02 (0.35) 1386	
la_typeacc	-0.01 (0.69) 1071	0.03 (0.41) 1209	
la_hecsz	0.04 (0.39) 1040	-0.11 (0.00) 1159	***
hhmem_edu	-0.11 (0.00) 1071	*** (0.29) 1209	
hh_cashearer	0.02 (0.54) 1071	-0.01 (0.73) 1209	
Wealth Index Quintile	0.02 (0.46) 1179	-0.08 (0.02) 1368	*
poverty	0.00 (0.89) 1186	0.09 (0.03) 1386	*

Pearson's correlation coefficient, P value in parenthesis

†p<0.10, *p<0.05, **p<0.01, *** p<0.001. ^ small sample size

Table 10.14b: Correlation with Stunting

Variables	Stunting		
	CRS	MC	
svcash	-0.03 (0.55) 1181	-0.07 (0.04) 1379	*
acctorem	-0.04 (0.44) 1181	-0.07 (0.04) 1379	*
asset_prod	0.01 (0.68) 1181	0.02 (0.59) 1379	
asset_lvsk	-0.01 (0.65) 1181	-0.03 (0.37) 1379	
asset_durable	-0.06 (0.14) 1181	-0.08 (0.05) 1379	+
i_prepmit	0.00 (0.94) 1181	0.01 (0.69) 1379	
human_asst	0.01 (0.60) 1181	0.00 (0.91) 1379	
i_aspiration	0.00 (0.97) 1181	-0.06 (0.05) 1379	+
i_bonding	-0.01 (0.76) 1181	0.02 (0.54) 1379	
i_bridging	-0.04 (0.23) 1181	0.03 (0.37) 1379	
i_linking	-0.04 (0.29) 1181	0.00 (0.98) 1379	

Pearson's correlation coefficient, P value in parenthesis

†p<0.10, *p<0.05, **p<0.01, *** p<0.001. ^ small sample size

Table 10.14c: Correlation with Stunting

Variables	Stunting			
	CRS		MC	
i_lvdiv	-0.01 (0.85) 1181		0.01 (0.64) 1379	
i_infoexp	0.02 (0.61) 1181		0.05 (0.22) 1379	
i_fsn	-0.03 (0.16) 1181		0.00 (0.95) 1379	
i_accfinc	-0.08 (0.02) 1181	*	0.03 (0.46) 1379	
accb_market	0.01 (0.88) 1181		0.03 (0.33) 1379	
accb_natres	-0.05 (0.20) 1181		0.01 (0.82) 1379	
i_bserv	-0.03 (0.36) 1181		0.05 (0.17) 1379	
i_agext	0.04 (0.27) 1181		-0.06 (0.14) 1379	
i_lvkserv	-0.02 (0.56) 1181		-0.06 (0.11) 1379	
partic_loc	-0.05 (0.16) 1181		-0.08 (0.00) 1379	**
water_improved	-0.04 (0.22) 1186		0.06 (0.04) 1386	*

Pearson's correlation coefficient, P value in parenthesis

†p<0.10, *p<0.05, **p<0.01, *** p<0.001. ^ small sample size

Table 10.14D: Correlation with Stunting

Variables	Stunting	
	CRS	MC
shock_clim	0.03 (0.26) 1181	-0.01 (0.70) 1379
shock_biol	0.01 (0.72) 1181	0.05 (0.18) 1379
shock_econ	-0.06 (0.16) 1181	0.02 (0.66) 1379
shock_confl	-0.01 (0.73) 1181	-0.05 (0.16) 1379
i_shocksev	0.01 (0.69) 1164	0.04 (0.25) 1339
atr	-0.05 (0.20) 1030	-0.04 (0.24) 1141
chn_diarrhea	0.08 (0.01) 1186	0.09 (0.02) 1386
chn_mad	0.04 (0.67) 335	-0.09 (0.09) 380
chn_nutrich	0.04 (0.56) 335	0.01 (0.87) 380
chn_exbrfeed	0.05 (0.52) 122	0.00 (1.00) 155

Pearson's correlation coefficient, P value in parenthesis

†p<0.10, *p<0.05, **p<0.01, *** p<0.001. ^ small sample size

Table 10.15a: Correlation with Wasting

Variables	Wasting	
	CRS	MC
hdds	-0.05 (0.29) 1015	-0.05 (0.22) 1157
fies_score12m	-0.01 (0.86) 1182	0.03 (0.19) 1382
genhhtype	0.01 (0.89) 1188	0.00 (0.96) 1389
hysize	0.02 (0.45) 1188	0.01 (0.70) 1389
la_typeacc	0.00 (0.93) 1072	-0.03 (0.45) 1213
la_heysize	0.03 (0.40) 1041	0.00 (0.98) 1163
hhmem_edu	-0.06 (0.02) 1072	* (0.73) 1213
hh_cashearer	0.02 (0.52) 1072	0.00 (0.96) 1213
Wealth Index Quintile	-0.07 (0.01) 1181	* (0.16) 1371
poverty	0.07 (0.00) 1188	** (0.40) 1389
chn_exbrfeed	-0.19 (0.19) 123	-0.12 (0.24) 156

Pearson's correlation coefficient, P value in parenthesis

†p<0.10, *p<0.05, **p<0.01, *** p<0.001. ^ small sample size

Table 10.15b: Correlation with Wasting

Variables	Wasting			
	CRS		MC	
svcash	-0.08	*	-0.04	
	(0.04)		(0.33)	
	1183		1382	
acctorem	-0.05		0.02	
	(0.14)		(0.57)	
	1183		1382	
asset_prod	0.03		0.04	
	(0.33)		(0.14)	
	1183		1382	
asset_lvsk	-0.07	*	-0.03	
	(0.01)		(0.28)	
	1183		1382	
asset_durable	-0.09	**	-0.06	*
	(0.00)		(0.03)	
	1183		1382	
i_prepmit	-0.10	***	0.05	
	(0.00)		(0.23)	
	1183		1382	
human_asst	-0.03		0.09	*
	(0.26)		(0.03)	
	1183		1382	
i_aspiration	-0.02		-0.02	
	(0.46)		(0.52)	
	1183		1382	
i_bonding	-0.03		0.02	
	(0.36)		(0.50)	
	1183		1382	
i_bridging	-0.02		0.01	
	(0.25)		(0.59)	
	1183		1382	
i_linking	-0.02		-0.03	
	(0.48)		(0.34)	
	1183		1382	

Pearson's correlation coefficient, P value in parenthesis

†p<0.10, *p<0.05, **p<0.01, *** p<0.001. ^ small sample size

Table 10.15c: Correlation with Wasting

Variables	Wasting			
	CRS		MC	
i_lvdiv	-0.08 (0.02) 1183	*	0.04 (0.27) 1382	
i_infoexp	-0.06 (0.09) 1183	+	0.02 (0.53) 1382	
i_fsn	0.04 (0.35) 1183		-0.01 (0.53) 1382	
i_accfinc	-0.07 (0.03) 1183	*	0.00 (0.94) 1382	
accb_market	0.03 (0.29) 1183		0.04 (0.33) 1382	
accb_natres	0.02 (0.70) 1183		-0.05 (0.30) 1382	
i_bserv	0.02 (0.47) 1183		0.04 (0.16) 1382	
i_agext	-0.03 (0.35) 1183		0.01 (0.71) 1382	
i_lvkserv	-0.07 (0.04) 1183		0.03 (0.45) 1382	
partic_loc	-0.03 (0.46) 1183		-0.02 (0.65) 1382	

Pearson's correlation coefficient, P value in parenthesis

†p<0.10, *p<0.05, **p<0.01, *** p<0.001. ^ small sample size

Table 10.15D: Correlation with Wasting

Variables	Wasting	
	CRS	MC
shock_clim	-0.02 (0.60) 1183	0.02 (0.31) 1382
shock_biol	-0.01 (0.82) 1183	0.01 (0.79) 1382
shock_econ	-0.07 (0.11) 1183	-0.05 (0.10) 1382
shock_confl	-0.05 (0.09) 1183	+ (0.39) 1382
i_shocksev	0.03 (0.42) 1166	0.03 (0.20) 1343
atr	0.01 (0.83) 1030	-0.03 (0.45) 1142
correct_watertreat	0.01 (0.85) 1188	-0.06 (0.02) 1389
water_improved	0.01 (0.77) 1188	-0.02 (0.48) 1389
chn_diarrhea	0.00 (0.95) 1188	0.12 (0.00) 1389
chn_mad	-0.09 (0.07) 336	+ (0.13) 382
chn_nutrich	0.09 (0.40) 336	0.09 (0.13) 382

Pearson's correlation coefficient, P value in parenthesis

†p<0.10, *p<0.05, **p<0.01, *** p<0.001. ^ small sample size

Table 10.16a: Correlation with Diarrhea

Variables	Diarrhea			
	CRS		MC	
fies_score12m	0.09	*	0.06	*
	(0.01)		(0.03)	
	1257		1506	
genhhstype	0.03		0.03	
	(0.55)		(0.51)	
	1264		1515	
hhsize	-0.02		0.06	
	(0.58)		(0.10)	
	1264		1515	
la_typeacc	0.00		0.11	*
	(0.98)		(0.01)	
	1142		1326	
la_hecsz	0.04		0.03	
	(0.39)		(0.37)	
	1109		1271	
hhmem_edu	0.11	*	0.04	
	(0.02)		(0.38)	
	1142		1326	
hh_cashearer	0.08	*	0.05	
	(0.03)		(0.18)	
	1142		1326	
Wealth Index Quintile	0.06		-0.06	
	(0.11)		(0.10)	
	1255		1492	
poverty	-0.12	**	-0.01	
	(0.00)		(0.76)	
	1264		1515	
chn_exbrfeed	-0.28	*	-0.27	*
	(0.02)		(0.02)	
	135		166	
i_bserv	-0.09	*	0.10	*
	(0.02)		(0.01)	
	1257		1504	

Pearson's correlation coefficient, P value in parenthesis

†p<0.10, *p<0.05, **p<0.01, *** p<0.001. ^ small sample size

Table 10.16b: Correlation with Diarrhea

Variables	Diarrhea	
	CRS	MC
shock_clim	0.02 (0.51) 1257	0.01 (0.67) 1504
shock_biol	0.03 (0.41) 1257	0.04 (0.22) 1504
shock_econ	0.08 (0.08) 1257	+ (0.63) 1504
shock_confl	0.10 (0.01) 1257	* (0.48) 1504
i_shocksev	0.03 (0.40) 1240	0.05 (0.20) 1463
human_asst	0.06 (0.22) 1257	0.05 (0.23) 1504
correct_watertreat	-0.01 (0.85) 1264	0.02 (0.58) 1515
water_improved	-0.04 (0.20) 1264	0.00 (0.91) 1515
time_water	0.04 (0.27) 1264	0.06 (0.16) 1515
open_defecation	-0.04 (0.32) 1264	-0.05 (0.21) 1515
proper_handwashing	-0.02 (0.80) 1264	0.01 (0.75) 1515

Pearson's correlation coefficient, P value in parenthesis

†p<0.10, *p<0.05, **p<0.01, *** p<0.001. ^ small sample size

Table 10.17a: Correlation with Poverty

Variables	Poverty			
	CRS		MC	
agri_finance	-0.16	***	-0.18	**
	(0.00)		(0.00)	
	1651		2013	
agri_valuechain	-0.08	+	-0.12	*
	(0.10)		(0.01)	
	1651		2013	
agri_storage	-0.08		0.08	
	(0.15)		(0.10)	
	1651		2013	
la_own	0.01		-0.07	*
	(0.91)		(0.03)	
	1670		2035	
la_rent	0.03		0.03	
	(0.30)		(0.21)	
	1670		2035	
la_sharecr	-0.08		0.08	**
	(0.31)		(0.00)	
	1670		2035	
la_none	0.06	*	-0.02	
	(0.03)		(0.59)	
	1670		2035	
la_hecpt5	0.09	*	0.02	
	(0.04)		(0.41)	
	1670		2035	
la_hecpt5to1	-0.01		0.00	
	(0.89)		(0.90)	
	1670		2035	
la_hecpt1more	-0.09		-0.02	
	(0.26)		(0.53)	
	1670		2035	

Pearson's correlation coefficient, P value in parenthesis

†p<0.10, *p<0.05, **p<0.01, *** p<0.001. ^ small sample size

Table 10.17b: Correlation with Depth of Poverty

Variables	Depth of Poverty			
	CRS		MC	
agri_finance	-0.24	***	-0.15	***
	(0.00)		(0.00)	
	1383		1782	
agri_valuechain	-0.10	+	-0.05	
	(0.08)		(0.23)	
	1383		1782	
agri_storage	-0.12	**	0.01	
	(0.00)		(0.77)	
	1383		1782	
la_own	-0.01		-0.15	***
	(0.81)		(0.00)	
	1399		1802	
la_rent	0.04		0.11	**
	(0.29)		(0.00)	
	1399		1802	
la_sharecr	-0.08		0.07	+
	(0.11)		(0.08)	
	1399		1802	
la_none	0.08	+	0.07	+
	(0.01)		(0.05)	
	1399		1802	
la_hecpt5	0.06		0.10	*
	(0.26)		(0.01)	
	1399		1802	
la_hecpt5to1	0.03		0.01	
	(0.48)		(0.74)	
	1399		1802	
la_hecpt1more	-0.09	+	-0.10	*
	(0.07)		(0.03)	
	1399		1802	

Pearson's correlation coefficient, P value in parenthesis

†p<0.10, *p<0.05, **p<0.01, *** p<0.001. ^ small sample size

Annex 10: Uganda Detailed Resilience Analyses

UGANDA RESILIENCE ANALYSIS:

BASELINE STUDY OF THE FOOD FOR PEACE DEVELOPMENT FOOD ASSISTANCE PROJECTS IN UGANDA

TANGO International, 2018

I. INTRODUCTION

I.1 OBJECTIVES

The objective of this research is to provide implementing partners, Catholic Relief Services (CRS), Mercy Corps (MC), and the United States Agency for International Development (USAID) Office of Food for Peace (FFP) with insights into factors that strengthen household and community resilience in Uganda. This research complements the baseline study prepared by ICF International. It examines factors that can serve as the foundation for an evidence base for improving resilience programming across the two DFSA areas of the implementing partners. The research aims to address the following questions:

1. Which resilience capacities are associated with positive well-being outcomes, including expenditures, poverty, dietary diversity, and ability to recover from shock?
2. Which resilience capacity components are significant drivers of positive well-being outcomes?
3. Which coping strategies are more likely to be adopted based on level of resilience capacity?

I.2 ORGANIZATION OF THE REPORT

The report is organized to provide both context and understanding of the projects in relation to how the resilience capacities and well-being indicators are measured and analyzed. To begin, Section 2 describes the methodology used to conduct this research. Sections 3 and 4 describe the types of shocks households experienced in the past 12 months and the extent to which households utilized coping strategies to recover from shock. Section 5 provides baseline estimates for select well-being outcome indicators used in this study. These include: per capita daily expenditures, prevalence of poverty, Household Dietary Diversity Scores (HDDS), and ability to recover from shock. Section 6 presents the findings for the absorptive, adaptive, and transformative resilience capacity index scores, and their respective individual components. Section 7 demonstrates the predicted effects of each resilience capacity and their respective components on well-being outcomes. Section 8 examines the association of shock coping strategies and well-being outcomes. Finally, Section 9 provides an overview of the report findings.

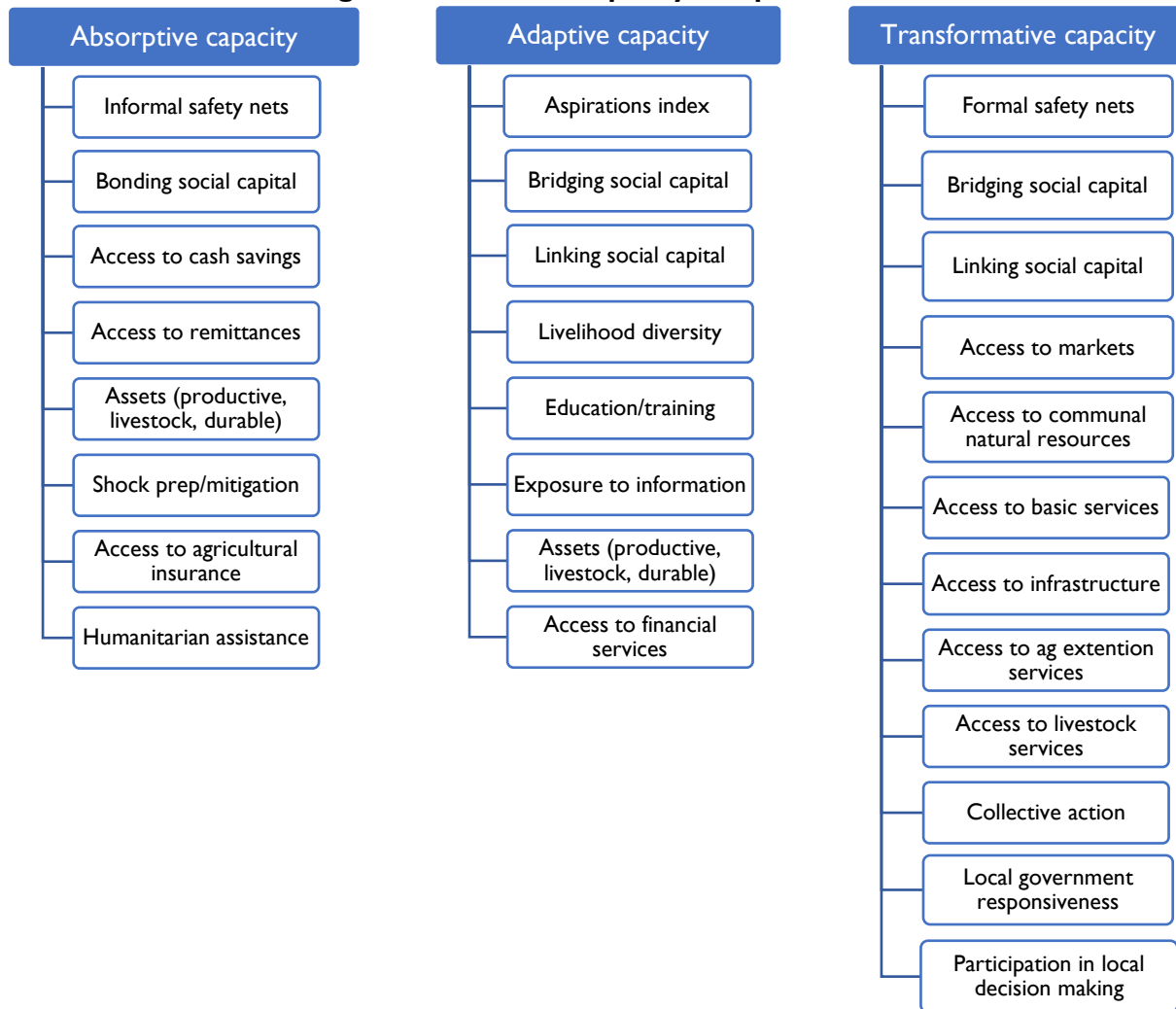
2. METHODOLOGY

This section briefly outlines the methodology utilized in the descriptive and multivariate analyses that explore the objectives of this deep dive.

2.1 DESCRIPTIVE ANALYSIS

The descriptive analysis is conducted on the following indicators: household exposure to shocks and their perceived level of severity, coping strategies, resilience capacities, and well-being outcomes. Household exposure to shocks is the total number of shocks (out of a possible 18) that a household experienced in the 12 months prior to the survey. The cumulative impact of those shocks on a household's food and income indicates the perceived level of severity experienced and can range from 1 to 144. The three resilience capacities (absorptive, adaptive and transformative) are indexes constructed from a number of indicators (see Figure 1) at the household and community levels. The indexes range in value from 0-100. The indicators used to measure well-being at the household level include per capita expenditure, poverty, dietary diversity and recovery. Per capita expenditure is a proxy for income and is measured using USD, prevalence of poverty is based on USD \$1.90 daily per capita income threshold, the Household Dietary Diversity Score (HDDS) is a count of 12 food groups consumed by a household in the previous 24 hours, and ability to recover is an index that measures a household's ability to recover from the most salient shocks exposed to in the previous 12 months.

Figure 1: Resilience capacity components



2.2 MULTIVARIATE ANALYSIS

The methodology used for deriving the resilience capacity indexes is principle components factor analysis, which normalizes the index so that the factor scores, which are the basis for computing the indexes, have a mean of zero and standard deviation of one. Thus, it is not meaningful to compare the values across indexes to conclude, for example, that the transformative capacity is ‘higher’ than absorptive capacity because the index value is higher. Rather, the value of the index score is a measure of the skewness of the distribution of the resilience capacity index. A value close to 50 means that the distribution of the index is quite symmetric, with about half the values above the mean and half the values below the mean. A high value (greater than 50) means that the distribution of the index is skewed to the right – that there is a higher proportion of the sample with index values above the mean value than below the mean. Similarly, an overall value less than 50 means that there are a greater proportion of sample values are below the mean.

The multiple regression analyses explore the relationships between resilience capacity and the four well-being outcomes, per capita expenditure, poverty, HDDS, and ability to recover. Different estimators, appropriately chosen, are utilized across the analyses depending on the particular specification and distribution of the dependent variable or well-being outcome. For the purposes of the regression analyses, recovery across the five most salient shocks was dichotomized so that a value of 1 indicates the household reports having recovered fully or better and a 0 indicates the household has not recovered or has only partially recovered.

To begin, the resilience capacity indexes are analyzed separately across the four well-being outcomes. The model is designed to capture the ability of the resilience capacity index (absorptive, adaptive or transformative) to explain the variation in the well-being outcomes of interest. Other determinants, used as controls, include cumulative impact of shock exposure, structural household characteristics, and project area (CRS, MC).

$$\text{Outcomes} = f \left[\begin{array}{c} \textbf{Resilience capacity indexes} \\ \textit{(Absorptive, Adaptive, Transformative)} \\ \textbf{Cumulative impact of shock exposure} \\ \textbf{Household characteristics} \\ \textit{(gendered household type, size of household and} \\ \textit{household demographics)} \\ \textbf{Project area} \end{array} \right]$$

In the second model, the resilience capacities indicators (see Figure 1) are analyzed across the well-being outcomes.

$$\text{Outcomes} = f \left[\begin{array}{c} \textbf{Resilience capacity indicators} \\ (i.e., bonding social capital, access to remittances, \\ participation in local decision making, etc.) \\ \\ \textbf{Cumulative impact of shock exposure} \\ \\ \textbf{Household characteristics} \\ (gendered household type, size of household and \\ household demographics) \\ \\ \textbf{Project area} \end{array} \right]$$

To answer the third and final objective of this analysis, multivariate regression analyses are performed with key coping strategies as the dependent variable. Coping strategies are selected if they are adopted by at least five percent of the sample (Table 3). The specification above helps us determine which shock coping strategies are utilized by wealthier and poorer households when using per capita expenditures as a proxy for wealth.

$$\text{Adoption of Coping Strategy} = f \left[\begin{array}{c} \textbf{Per capita expenditure} \\ \\ \textbf{Cumulative impact of shock exposure} \\ \\ \textbf{Household characteristics} \\ (gendered household type, size of household and \\ household demographics) \\ \\ \textbf{Project area} \end{array} \right]$$

The formula below illustrates the model used to analyze the propensity to adopt, or not, coping strategies as a function of resilience.

$$\text{Adoption of Coping Strategy} = f \left[\begin{array}{c} \textbf{Resilience capacity} \\ (absorptive, adaptive, transformative) \\ \\ \textbf{Cumulative impact of shock exposure} \\ \\ \textbf{Household characteristics} \\ (gendered household type, size of household and \\ household demographics) \\ \\ \textbf{Project area} \end{array} \right]$$

Finally, the last model as illustrated below explores the relationship between the select coping strategies and the resilience capacity indicators.

$$\text{Adoption of Coping Strategy} = f \left[\begin{array}{l} \text{Resilience capacity indicators} \\ \text{(i.e., bonding social capital, access to remittances,} \\ \text{participation in local decision making, etc.)} \\ \\ \text{Cumulative impact of shock exposure} \\ \\ \text{Household characteristics} \\ \text{(gendered household type, size of household and} \\ \text{household demographics)} \\ \\ \text{Project area} \end{array} \right]$$

2.3 PREDICTED VALUE OF OUTCOME

In Sections 7 and 8 of this report, the relationships between resilience capacities, coping strategies, and well-being outcomes are presented using percent change as the predicted values or probabilities of the outcome. The predicted values of the outcome are computed by comparing the “low” and “high” values in the sample. In general, the “low” and “high” values are set at the 25th and 75th percentiles for continuous variables, and 0 and 1 for binary variable while holding all values of other explanatory variables constant at their means. The results are presented as a percent change from “high” to “low”, and provides a depiction of the strength, or magnitude, of the relationship between the well-being outcome and explanatory variables of interest. Further, the percent change allows for comparability across variables that use different scales.

3. HOUSEHOLD EXPOSURE TO SHOCK

This section describes the types of shocks experienced by surveyed households in the 12 months prior to the baseline survey. As shown in Table 1, households across all the two DFSA areas experienced an average of 5.0 shocks over the past 12 months. The perceived severity of these shocks is measured by their impact on food consumption and income security at the household level (index ranges from 1-144). The mean impact across all DFSA areas is 27.4.

Table 1. Shock exposure and severity, by DFSA area

SHOCK EXPOSURE / SEVERITY	Overall	CRS	MC
Shock Exposure Index (mean, 0-18)	5.0	5.5	4.4
<i>N</i>	2799	1251	1548
Cumulative impact of shock exposure index ^{a/} (mean, 1-144)	27.4	31.9	23.3
<i>n</i>	2726	1226	1500

^{a/} Only includes households experiencing a shock in previous 12 months

Table 2 provides a list of shocks households experienced in the 12 months preceding the baseline survey. The most salient shock was excessive rains (81.8 percent); this is especially true for the CRS project area, where 86.6 percent of households reported this particular shock. The second most experienced shock

was flooding (59.5 percent), followed by drought (54.4 percent), increasing food prices (49.1 percent), and crop disease (45.5 percent).

Table 2: Shocks experienced in past 12 months, by DFSA area

Type of shock	Overall	CRS	MC
Climate shocks (%)			
Excessive rains	81.8	86.6	77.5
Flooding	59.5	72.1	48.2
Drought	54.4	61.3	48.2
Variable rain (early/late)	27.6	32.0	23.6
Hail/frost	10.4	20.0	1.9
Landslides/Erosion	8.0	14.0	2.7
Biologic shocks (%)			
Crop disease (e.g., rust on wheat, sorghum)	45.5	41.4	49.3
Crop pests (e.g., locusts)	37.0	45.9	29.0
Weeds (e.g., associated with Strega)	37.0	40.7	33.8
Livestock disease	23.2	21.4	24.8
Human disease outbreaks (from contaminated water)	19.3	15.7	22.5
Conflict shocks (%)			
Theft or destruction of assets	8.1	7.9	8.2
Theft of livestock (raids)	7.0	4.9	8.9
Land conflict	9.2	10.3	8.1
Water conflict	2.4	2.2	2.6
Gender-based violence	5.8	7.5	4.2
Economic shocks (%)			
Delay in food assistance	10.0	12.8	7.5
Increasing food prices	49.1	57.8	41.4
<i>n</i>	2799	1251	1548

4. COPING STRATEGIES

This section provides data on coping strategies utilized by households across all shocks, and across the five most salient shocks as reported in Table 2. These include excessive rain, flooding, drought, increase food prices, and crop disease. The findings presented are a summary of the overall results; data across shocks and DFSA areas that can be found in the Supplementary Annex: Table 11-Table 13.

Table 3 shows that fifty percent of households reduced food consumption when faced with any shock. This is mostly driven by households experiencing increases in food prices, especially in the CRS project area where 65.6 percent adopted this strategy. Households are also likely to take up new/additional work and to sell livestock when faced with any shock at 33.6 and 16.8 percent, respectively. When comparing across DFSA areas, CRS households were more likely to take up new/additional work whereas MC households are more likely to sell livestock as a coping mechanism. The strategy of taking up new/additional work is most often utilized when households are faced with landslides or erosion (49.1 percent), increases in food prices (28.3 percent), variable rain (25.0 percent), and drought (24.3 percent). Households were also more likely to sell livestock when faced with livestock disease (37.1 percent) and theft of livestock (32.3 percent)

Table 3: Coping strategies adopted to recover from ANY shock, by DFSA area

COPING STRATEGIES ^{a/}	Overall	CRS	MC
Livestock and land holdings (%)			
Send livestock in search of pasture	4.8	2.1	7.4
Sell livestock	16.8	9.9	23.3
Slaughter livestock	8.9	6.2	11.3
Lease out land	10.2	10.5	9.9
Migration (%)			
HH member migrated for work	8.0	7.8	8.3
Migrate (the whole family)	3.7	3.5	3.9
Send children or an adult to stay with relatives	8.4	7.4	9.4
Coping strategies to reduce current expenditures (%)			
Take children out of school	3.9	4.6	3.2
Move to less expensive housing	2.5	2.8	2.2
Reduce food consumption (quantity/meal; # of meals/day)	50.0	62.5	38.4
Reduce non-essential HH expenses	16.2	17.9	14.6
Got food on credit from a local merchant	6.1	7.8	4.6
Coping strategies to get more food or money (%)			
Take up new/additional work (casual labor, wage labor)	33.6	40.4	27.2
Sell household items (e.g., radio, bed)	1.1	0.4	1.7
Sell productive assets (e.g., plough, water pump)	1.9	1.6	2.1
Take out a loan (with interest) from a (formal) bank	0.7	0.3	1.0
Take out a loan (with interest) from an MFI or village savings group	5.1	4.9	5.2
Take out a loan (with interest) from a money-lender	1.7	2.0	1.4
Take out a loan (no interest) from friends or relatives within the community (bonding)	3.6	3.5	3.7

Take out a loan (no interest) from friends or relatives outside of the community (bridging)	1.5	1.7	1.4
Gift of money (not remittances) or food from family, friends, church or other group within community (bonding)	3.6	3.4	3.7
Gift of money (not remittances) or food from family, friends, church or other group outside of community (bridging)	2.9	2.5	3.4
Send children to work for money (e.g., domestic service)	2.6	1.5	3.7
Receive emergency food aid from the government or NGO	2.1	1.8	2.4
Receive emergency cash transfer from the government or NGO	3.1	3.7	2.6
Participate in government or NGO food-for-work or cash-for-work activities	2.8	1.1	4.4
Use money from savings	5.1	5.1	5.2
Remittances from a relative that migrated	3.0	3.0	3.0
Other	26.8	21.7	31.6
Did nothing	11.0	9.4	12.5
<i>n</i>	2677	1213	1464

a/ Only for those households who experienced and were impacted by a shock in the last 12 months.

Table 4 provides a summary of coping strategies by the most salient shocks. Strategies with adoption at greater than five percent across all shocks are highlighted below. Overall, reduction in food consumption is the most adopted strategy across the five most salient shocks, followed by taking up new/additional work and selling livestock. However, households facing increases in food prices are more likely to reduce non-essential household expenses in comparison to those faced with excessive rain, flooding, drought, and crop disease.

Table 4: Adoption of coping strategies, by most salient shocks

COPING STRATEGIES ^{a/}	ALL shock	Excessive Rain	Flooding	Drought	Increase Food Prices	Crop Disease
Reduce food consumption (quantity/meal; # of meals/day)	50.0	23.5	23.5	30.9	54.7	24.1
Take up new/additional work (casual labor, wage labor)	33.6	16.4	16.4	24.3	28.3	20.7
Sell livestock	16.8	2.8	1.2	3.4	5.4	2.2
Reduce non-essential HH expenses	16.2	6.8	6.8	6.9	18.6	3.5
Lease out land	10.2	3.1	3.1	3.0	1.3	3.8
Slaughter livestock	8.9	0.6	0.5	0.9	0.6	0.8
Send children or an adult to stay with relatives	8.4	2.3	2.3	3.3	3.2	1.8
HH member migrated for work	8.0	3.6	3.6	5.0	1.1	1.5
Got food on credit from a local merchant	6.1	1.7	1.7	2.5	4.5	1.5
Use money from savings	5.1	1.7	1.7	0.9	2.1	1.8
Take out a loan (with interest) from an MFI or village savings group	5.1	1.7	1.7	1.1	3.0	2.6
Other (specify)	26.8	5.8	5.8	3.5	3.9	6.5
Did nothing	11.0	5.2	5.2	3.1	2.6	6.4

	<i>n</i>	2677	2251	1591	1459	1314	1229
a/ Only for those households who experienced and were impacted by a shock in the last 12 months.							

5. HOUSEHOLD WELL-BEING OUTCOMES

As shown in Table 5, the overall mean per capita expenditure, as a proxy for income, is \$1.05 USD¹. Households in the MC project area have higher expenditures compared to those in the CRS region. Prevalence of poverty measures the percentage of those households living on less than \$1.90 USD per day. A majority of households in this sample are considered “poor” across all DFSA areas (88.7 percent). As expected, based on the results from per capita expenditures, MC has the highest prevalence of poverty while CRS has the lowest.

The food security measure used in this study is HDDS. On a scale from 0 to 12, the overall mean dietary diversity is 3.3. MC households have the highest HDDS at 3.6. Recovery is the final well-being outcome used in this analysis. When comparing across the five most salient shocks (excessive rain, flooding, drought, increase food price, and crop disease), households reported recovering to the same level or better on a range from 3.5 percent for crop disease to 10.8 percent for drought. CRS households had better recovery than MC households for drought and increase food prices.

Table 5: Well-being outcome indicators, by DFSA area

Well-being indicator		Overall	CRS	MC
Per capita expenditures (USD) ^{a/}		1.05	1.00	1.10
	<i>n</i>	2799	1251	1548
Prevalence of poverty (%) ^{a/}		88.7	87.9	89.4
	<i>n</i>	2799	1251	1548
HDDS (mean, 0-12)		3.3	3.0	3.6
	<i>n</i>	2287	1047	1240
Recovery from salient shocks ^{b/}				
Excessive rain (%)		5.7	3.4	8.4
	<i>n</i>	1860	943	917
Flooding (%)		7.4	4.7	11.3
	<i>n</i>	1437	801	636
Drought (%)		10.8	12.3	8.7
	<i>n</i>	1177	622	555
Increase food price (%)		8.5	10.1	6.2
	<i>n</i>	1193	632	561
Crop disease (%)		3.5	2.2	4.6
	<i>n</i>	1078	443	635

a/ Values vary slightly from the baseline report because the sample is restricted to the household level.

b/ Only for those households who experienced and were impacted by a shock in the last 12 months.

¹ This value varies slightly from the baseline report because the sample is restricted to the household level.

6. HOUSEHOLD RESILIENCE CAPACITIES

This section presents the descriptive results for the three resilience capacity indexes (absorptive, adaptive and transformative), disaggregated by project area (CRS and MC), and includes the indicators that constitute each index. Note that some indicators are components of more than one index (e.g., asset scores are a component of both the absorptive and adaptive capacity indexes). All resilience capacity indicators included in this section are presented in their original scales to facilitate understanding of the disparate factors – and their differing measurement – contributing to resilience capacities.

6.1 ABSORPTIVE CAPACITY

The absorptive capacity index (ranging from 0-100) is constructed using 10 indicators and measures the ability of households to minimize their exposure to shocks through preventive measures and appropriate coping strategies to avoid permanent, negative impacts of shocks. As shown in Table 6, the mean absorptive capacity across the two DFSA areas is 23.2. Of the indicators, a small percentage of households have access to agricultural insurance, remittances, and/or humanitarian assistance. Households also report low bonding social capital, defined as the bonds between community or group members. They are also limited in their ability to prepare and mitigate the effects of shocks, indicate a relatively low availability of informal safety nets, and possess relatively few assets. In contrast, one-quarter of households have access to cash savings. Across DFSA areas, CRS has the greatest availability of humanitarian assistance, agricultural insurance, and informal safety nets, as well as the greatest bonding social capital and assets (durable and productive). This likely accounts for CRS having the highest level of absorptive capacity across the DFSA areas (CRS value of 25.0 and MC value of 23.2).

6.2 ADAPTIVE CAPACITY

Adaptive capacity measures the ability of households to make proactive and informed choices about alternative livelihood strategies based on an understanding of changing conditions. It is comprised of 11 indicators. With an index ranging from 0-100, the mean adaptive capacity across the two DFSA areas is 37.0 with CRS having the greatest value at 38.1. Livelihood diversification indicates that households were engaged in an average of 3.1 activities over the last year. Of the other indicators, households have low scores for bridging and linking social capital, which measure the bonds between members of other communities or groups and the bonds between households and government officials and/or NGO leaders, respectively. In contrast, households tend to score higher on the aspirations index and access to financial institutions for credit and/or savings. Finally, nearly all households adopted one or more improved agricultural practices for crop and livestock production, natural resource management, and/or crop storage.

6.3 TRANSFORMATIVE CAPACITY

The transformative capacity index is computed on the basis of 13 indicators that measure governance mechanisms, policies, infrastructure, community networks and formal and informal social protections that enable systemic change. The mean value for the transformative capacity index across the DFSA areas is 37.2 (on a scale of 0-100). Included within the transformative capacity index is a gender norms index that measures gender dimensions of socially acceptable practices within the household and community. Data from Table 6 show that the mean gender norm is 2.6 out of a possible score of 4 across the DFSA areas.

This index takes into account gender-neutral practices (e.g., men helping with childcare and/or carrying water) at the community level. Of the other indicators within transformative capacity, communities have little access to formal safety nets and infrastructure; however, nearly all communities report high local government responsiveness, half of communities have access to agricultural extension services, and one-quarter have access to livestock services. Interestingly, households report low levels of engagement in collective activities that benefit the village, but more than half report participation in local decision-making.

Table 6: Resilience capacity indexes and their indicators, by DFSA area

Resilience capacities and indicators	Overall	CRS	MC
Absorptive capacity index (mean, 0-100)	23.2	25.0	23.2
Availability of informal safety nets (mean, 0-6)	2.0	2.1	1.9
Bonding social capital (mean, 0-6)	2.3	2.4	2.3
Access to cash savings (%)	24.2	23.6	23.5
Access to remittances (%)	9.2	9.2	9.2
<i>Asset ownership</i>			
Productive asset index (mean, 0-24)	4.9	5.0	4.9
Livestock asset index (mean, 0-7)	1.4	0.8	1.7
Durable goods asset index (mean, 0-22)	2.4	2.5	2.2
Shock prep and mitigation (mean, 0-4)	0.6	0.7	0.5
Access to agricultural insurance (%)	2.0	3.7	1.0
Availability of humanitarian assistance (%)	8.6	11.5	7.1
Adaptive capacity index (mean, 0-100) ^{a/}	37.0	38.1	36.1
Aspirations/confidence to adapt (mean, 0-16)	10.7	10.8	10.6
Bridging social capital (mean, 0-6)	2.2	2.4	2.2
Linking social capital (mean, 0-4)	0.9	1.0	0.9
Education/training (mean, 0-3)	0.7	0.8	0.6
Livelihood diversification (mean, 0-17)	3.1	3.1	3.0
Exposure to information (mean, 0-19)	4.7	5.4	4.4
Adoption of improved practices (%)	81.1	84.8	79.6
Access to financial institutions (mean, 0-2)	1.2	1.2	1.3
Transformative capacity index (mean, 0-100) ^{b/}	37.2	40.9	33.9
Availability of formal safety nets (mean, 0-3)	0.1	0.1	0.0
Availability of markets (mean, 0-3)	1.7	1.8	1.6
Access to communal natural resources (mean, 0-4)	1.9	1.7	2.0
Access to basic services (mean, 0-3)	1.8	1.7	1.9
Access to infrastructure (mean, 0-4)	1.1	1.2	0.8
Access to ag extension services (%)	25.7	31.3	16.4
Access to livestock services (%)	44.3	53.4	31.8
Collective action (mean, 0-10)	0.3	0.3	0.2
Local government responsiveness (%)	87.2	82.8	91.1
Participation in local decision making (%)	54.4	50.9	53.6
<i>Gender Indicators</i>			
Gender norms index (mean, 0-4)	2.6	2.8	2.5
Gender equitable decision-making (mean, 0-3) ^{c/}	0.4	0.4	0.3
<i>n</i>	2779	1251	1548

a/ The asset ownership index is not shown under adaptive capacity as it is previously listed under absorptive capacity.

b/ Bridging social capital is not shown under transformative capacity as it is previously listed under adaptive capacity.

c/ Gender indicators are not used when computing the overall index due to missing values.

7. RESILIENCE CAPACITIES AND WELL-BEING OUTCOMES

This section presents results that compare the three resilience capacity index scores against key well-being outcome measures of per capita daily expenditures, poverty, food security, and ability to recover from shock, including the direction and magnitude of any statistically significant relationships. These relationships are assessed using regression analysis, with the well-being outcome variables as dependent variables and the resilience capacities, cumulative impact of shock exposure, and other household characteristics as explanatory variables. The findings inform our understanding of the kinds of outcomes we can expect given investments in a particular resilience capacity, and give some idea of the magnitude of this influence. It is important to emphasize that all of the following regression results are based on statistical methods exploring the relationships between resilience capacity and well-being outcomes while controlling for the cumulative impact of shock exposure. Relationships found between the resilience capacities and well-being outcomes suggest an association between the two, and does not give insight into the causality in one direction or another.

7.1 RESILIENCE CAPACITIES AND WELL-BEING OUTCOMES

Table 7 presents key information for purposes of discussion, and full analysis results are available in Supplementary Annex A: Table 14-Table 21.

7.1.1 Per capita expenditure

Data in Table 7 show a significant and positive relationship between per capita daily expenditure and the three resilience capacities (absorptive, adaptive and transformative). Increases in expenditures across the capacities from the lowest to the highest quartiles averages around 34 percent, indicating that households who are more resilient are that much more likely to have more money to spend compared to those who are less resilient.

7.1.2 Poverty

As expected, the results for poverty mirror the results for per capita expenditures. Results in Table 7 show that poverty and the three resilience capacities are negatively associated at the 0.01 level. This indicates that households who are more resilient are less likely to live in poverty. Across the capacities, the reduction in poverty ranges from 10 to 12 percent.

7.1.3 Dietary diversity

In Table 7, dietary diversity and the three resilience capacities are positively associated and significant at the 0.01 level. These results imply that households with more resilience are 16.6 to 25.4 percent more likely to consume more food groups compared to those with lower levels of resilience.

7.1.4 Recovery

The recovery variable is dichotomized such that a value of '0' indicates a household has not recovered or has only recovered partially and a value of '1' if it has recovered fully for each of the five most salient shocks.² Results in Table 7 show that household absorptive capacity is a significant predictor of their ability to recover from excessive rain, flooding, and increased food prices. Similarly, greater adaptive

² Refer to Table 2.

capacity is associated with recovery from all five salient shocks. Transformative capacity, conversely, is negatively associated with recovery from drought.

Table 7: Relationship between resilience capacity and well-being outcomes

Outcome	Absorptive		Adaptive		Transformative	
	Coef.	% change	Coef.	% change	Coef.	% change
Expenditure	0.022***	34.7	0.024**	35.6	0.011***	33.3
Poverty	-0.028***	-10.1	-0.035***	-12.3	-0.015***	-11.2
HDDS	0.012***	20.6	0.016***	25.4	0.005***	16.6
Recovery ^{a/}						
Excessive rain	0.012**	36.5	0.015***	41.9	0.003	22.9
Flooding	0.010**	31.6	0.009*	27.2	0.004	23.3
Drought	-0.002	-5.5	0.013***	33.1	-0.009*	-67.4
Increase food prices	0.011**	32.4	0.022***	51.3	-0.003	-23.4
Crop disease	0.008	29.4	0.016***	46.7	-0.001	-4.9

Note: Asterisks represent statistical significance at the 0.01 (***), 0.05 (**), and 0.10 (*) levels.

"% change" represents the percent change from the lowest to highest quartile (25th to 75th percentile) of the sample for indicators measured as continuous variables (absorptive, adaptive, transformative).

a/ Only for those households who experienced and were impacted by a shock in the last 12 months.

7.2 DECOMPOSING ABSORPTIVE, ADAPTIVE AND TRANSFORMATIVE CAPACITIES

This section of the report explores the relationship between the well-being outcomes and the indicators that comprise the three resilience capacity indexes. Table 8 shows the results from that analysis, including the percent change of values from "low" to "high" for each indicator. For continuous variables, with the exception of access to basic services and collective action, the values of the indicators are set at the 25th ("low") and 75th ("high") percentiles of the sample. For access to basic services and collective action, the "low" and "high" range values are set at the first and 99th percentiles of the sample, respectively, which allows for differences in the percent change from "high" to "low" to be observed. The percent change for binary variables is defined as the difference between the absence of (a value of '0') and presence of that indicator (a value of '1') (e.g., not having versus having access to remittances). This permits comparability across variables that use different scales.³

7.2.1 Per capita expenditures

As shown in Table 8, a number of household-level indicators are significantly associated with increases in per capita expenditures. The strongest indicators, those that are associated with the largest percent change in expenditures, are durable assets, access to cash savings, and exposure to information. Other significant contributors are livestock assets and education/training. At the community level, access to agricultural extension services accounts for a 22.5 percent increase in daily expenditures. Interestingly, improved practices, access to financial institutions, and productive assets are inversely related to expenditures.

³ Although availability of formal safety nets ranges from 0-3, respondents identified no more than one formal safety nets within their communities and thus, it is treated within this analysis as a binary variable.

7.2.2 Poverty

Findings for the analysis of predicting poverty by resilience indicators follow a similar pattern seen for the expenditure analysis, except in the opposite direction, as is expected. The following household-level indicators are most strongly associated with reduction in poverty: access to cash savings, durable and livestock assets, shock preparation and mitigation, and education/training. Access to infrastructure is the only community-level indicator shown to significantly reduce the likelihood of poverty. It has the greatest impact at 6.7 percent. However, similar to the results for expenditures, productive assets have a significant, but negative, relationship with poverty.

7.2.3 Dietary diversity

Improvement in food security is significantly predicted by several resilience capacity components presented in Table 8. At the household level, access to cash savings, livestock and durable assets, aspirations/confident to adapt, and education/training are significantly associated with greater access to a wider variety of foods. Community-level results show that access to infrastructure and participation in local decision making also result in households consuming more food types. Of these capacity indicators, access to infrastructure has the greatest positive impact on food security at 12.0 percent change. However, access to basic services is negatively related to HDDS with a percent change of -33.6. Thus, households with less access to basic services such as primary schools, and health and financial services have greater dietary diversity. Also contrary to expectation, cumulative impact of shock exposure is positively related to food security, implying that households with greater cumulative exposure to shocks are more likely to consume more food types. This may be a result of households having greater reliance on more varied food sources due to lack of availability and/or resources in times of shocks.

7.2.4 Recovery

The data in Table 8 show the increasing likelihood of a household to recover from the five most salient shocks (excessive rain, flooding, drought, increase food prices, and crop disease). Access to agricultural insurance and exposure to information are positively associated with household's ability to recover across four of the five shocks. Local government responsiveness is also significant across most of the shocks, however the relationship is positive for excessive rain and flooding but negative for increase food prices and crop disease. The negative relationship may be a result of program targeting households who are considered less able to recover. Overall, the ability of a household to recover is largely dependent on a variety of resilience indicators and thus, trends could not easily be established across the shocks.

Table 8: Relationship between resilience capacity indicators and well-being outcomes

CAPACITY COMPONENTS	Expenditure	Poverty	HDDS	Recovery (Excessive rain) ^{b/}	Recovery (Flooding) ^{b/}	Recovery (Drought) ^{b/}	Recovery (Increase food prices) ^{b/}	Recovery (Crop disease) ^{b/}
	Percent change (%)							
Absorptive capacity indicators								
Availability of informal safety nets (0-6)	-1.1	0.5	-0.012	-14.8	-16.8	-10.8	6.5	-36.0
Bonding social capital (0-6)	6.2	-1.0	-0.013	-4.0	12.8	-43.8**	24.1**	-20.4
Access to cash savings (0-1)	19.6*	-4.1**	0.110***	26.1	59.0***	-21.0	5.8	16.1
Access to remittances (0-1)	10.1	0.0	-0.017	8.8	-19.0	-266.4***	-2.4	-24.0
Productive assets index (0-24)	-10.7**	2.1***	0.003	-6.3	-6.4	-2.4	-7.4	-95.6***
Durable assets index (0-22)	41.4***	-5.4***	0.053***	12.8	-17.4	11.8	12.5***	18.9*
Livestock assets index (0-7)	14.5**	-3.6***	0.038***	15.3	3.7	2.3	5.3	38.3**
Shock prep and mitigation (0-4)	5.0	-2.6***	0.019	-1.7	17.3	6.4	-31.1**	-7.6
Access to agricultural insurance (0-1)	24.2	-2.6	0.076	59.2*	61.0*	62.6**	69.0***	56.9
Availability of humanitarian assistance (0-1)	-16.8	2.8	-0.070	38.4	-82.8	-87.2	-81.1	-47.1
Adaptive capacity indicators								
Aspirations/confidence to adapt (0-16)	-4.8	-1.0	0.028***	9.8	15.7	-1.5	3.3	-2.3
Bridging social capital (0-6)	0.0	0.0	0.009	-2.9	-14.0	6.4	-34.1***	-2.1
Linking social capital (0-4)	-14.9	1.0	0.013	4.7	20.5	17.8	12.1	3.1
Education/training (0-3)	13.7**	-3.8***	0.076***	18.1	28.0*	13.8	-5.0	-8.7
Livelihood diversification (0-17)	2.0	-0.9	0.013	-18.3	-27.8**	10.5	10.3	-14.0
Improved practices (0-1)	-48.9*	0.6	-0.056	-3.2	22.2	40.3*	-21.7	87.3**
Exposure to information (0-19)	17.0**	-2.1	0.004	49.8***	22.6	51.3***	56.2***	72.2***
Access to financial institutions (0-2)	-27.7**	2.6	0.014	-29.6	-257.3***	32.5	34.5	7.2
Transformative capacity indicators								
Availability of formal safety nets (0-3)	-6.5	-4.3	-0.044	-286.1	-49.4	-39.0	-430.2*	48.5
Availability of markets (0-3)	3.8	-0.3	0.026	53.0***	26.2	-22.2	-20.6	-13.8
Access to communal natural resources (0-4)	-14.7	0.0	-0.004	11.5	20.8	-57.9*	-9.6	-20.2
Access to basic services (0-3) ^{a/}	26.1	2.3	-0.097**	-2.6	-86.5	-14.1	38.1	74.6
Access to infrastructure (0-4)	13.9	-6.7***	0.064**	-21.7	52.9***	-94.7	-15.5	-119.9*
Access to ag extension services (0-1)	22.5**	-3.4	0.009	-6.4	11.6	34.6	-50.8	8.5
Access to livestock services (0-1)	-12.1	1.3	-0.029	-10.1	-5.3	-146.2**	-43.0	12.1

Collective action (0-10) ^{a/}	-25.0	2.9	0.004	43.6	-27.0	-81.6	50.1*	-73.2
Local government responsiveness (0-1)	-21.9	3.2	0.021	52.0*	56.9***	-20.5	-128.1**	-211.9***
Participation in local decision making (0-1)	-10.4	-1.8	0.109***	-69.8	-19.1	23.4	-17.3	-4.0
Observations	2799	2797	2287	1859	1436	1177	1191	1078

Asterisks represent statistical significance at the 0.01 (***), 0.05 (**), and 0.10 (*) levels.

“% change” represents the percent change from the lowest to highest quartile (25th to 75th percentile) of the sample for indicators measured as continuous variables. For binary variables, the change is defined as the difference between 0 and 1. Formal safety nets is also used as a binary predictor because responses only ranged from 0-1.

a/ This represents the percent change from the 1st to the 99th percentile of the sample.

b/ Only for those households who experienced and were impacted by a shock in the last 12 months.

8. SHOCK COPING STRATEGIES, EXPENDITURES, AND RESILIENCE CAPACITIES

This section explores the relationship among coping strategies, expenditures, and resilience capacities. Coping strategies were selected for this analysis if they were adopted by at least five percent of the sampled households.⁴ These include: reduce food consumption, take up new/additional work, sell livestock, reduce non-essential household expenses, lease out land, slaughter livestock, send children or adult to stay with relatives, household member migrated for work, got food on credit from a local merchant, use money from savings, and take out a loan from MFI or village savings groups. The findings presented in this section are a summary of the results that can be found in the Supplementary Annex: Table 23-Table 34.

8.1 EXPENDITURES AND ADOPTION OF COPING STRATEGIES

Table 9 shows which coping mechanisms are more likely to be adopted by wealthier and poorer households. Using per capita expenditures as a proxy for income, results show that compared to poorer households, wealthier households are more likely to use money from savings, take out a loan with interest from MFI or village savings groups, get food on credit from a local merchant, reduce non-essential household expenses, and sell livestock. This makes intuitive sense since wealthier households have significantly more assets and better access to savings.⁵ Wealthier households may also have greater accessibility to food and money through credit and/or loans because they are assumed to have the ability to reimburse those costs. Findings in Table 9 show no significant relationship between poorer households and utilization of coping strategies.

8.2 RESILIENCE AND UTILIZATION OF COPING STRATEGIES

In this section, coping is analyzed as a function of resilience in order to measure the likelihood households will engage in select coping strategies depending on their levels of absorptive, adaptive or transformative capacity. Households are more likely to get food on credit, use money from savings, and take out a loan from MFI or village savings groups across all three resilience capacities. These show the greatest positive percent changes across the selected coping strategies. It is interesting to note that wealthier households are also more likely to engage in these coping mechanisms. Other strategies in which absorptive and adaptive are positively associated include slaughtering livestock, reducing non-essential expenses, and selling livestock. However, households with greater resilience capacity are also more likely to reduce household consumption which is assumed to be an intuitively negative strategy because it has a direct negative impact on the household's well-being.

Table 9 shows that transformative capacity is negatively associated with selling livestock, leasing out land, and migrating for work with percent changes ranging from -35.7 to -74.4 percent. These large negative percent changes may be accounted for by the fact that transformative

⁴ Refer to Table 3 above.

⁵ Refer to Table 8 above.

capacity is a community-level index derived from indicators measuring availability and accessibility to community resources and services. Thus, household members are less likely to engage in these strategies if there are more abundant resources and means to support themselves within their communities.

Table 9: Use of coping strategy predicted by expenditures and resilience capacity

Coping strategies	Expenditure	Absorptive	Adaptive	Transformative
	% change	% change	% change	% change
Reduce food consumption	0.9	13.1***	16.4***	-3.5
Take up new/additional work	-1.3	-5.0	2.4	-11.1
Sell livestock	1.5*	21.7**	32.8***	-49.5***
Reduce non-essential HH expenses	2.2*	37.6***	49.0***	0.9
Lease out land	-1.4	11.4	18.6	-35.7**
Slaughter livestock	1.3	31.6***	52.7***	-8.6
Send child or adult to stay with relatives	0.1	16.2	-23.9	7.7
HH member migrate for work	-2.2	7.0	-35.5	-74.4***
Gotten food on credit from local merchant	4.2***	53.1***	57.0***	40.0***
Use money from savings	7.7***	70.1***	73.3***	56.3***
Take out a loan with interest from MFI or village savings group	4.5***	68.5***	66.2***	28.0*

Asterisks represent statistical significance at the 0.01 (***), 0.05 (**), and 0.10 (*) levels.

"% change" represents the percent change from the lowest to highest quartile (25th to 75th percentile) of the sample for indicators measured as continuous variables. For binary variables, the change is defined as the difference between 0 and 1.

*The model includes shock exposure, household characteristics, and projects as independent variables.

8.3 RESILIENCE CAPACITY INDICATORS AND UTILIZATION OF COPING STRATEGIES

This section explores the relationship between resilience capacity indicators and key coping strategies identified in the previous sections. Table 10 provides the level of significance and percent change of values from “low” to “high” for each indicator. The complete table can be found in the Supplementary Annex: Table 35.

The results from Table 10 explore in detail which resilience capacity indicators either promote or discourage households from using certain strategies. Overall, the results exploring the relationship between resilience capacity indicators and coping vary across the strategies, and thus, no specific trends could be identified. However, when comparing the resilience capacity indicators of the coping mechanisms that were positively associated with the three resilience capacities in Table 9 (getting food on credit from a local merchant, using money from savings, and taking out a loan from MFI or village saving groups), durable assets is the only commonly associated indicator for household adoption of these strategies. In addition to durable assets, households were also more likely to get food on credit with greater shock preparation and mitigation, aspirations/confidence to adapt, livelihood diversity, and education/training.

Households who use savings or take out a loan, on the other hand, had greater access to cash savings, financial institutions, and collective action. In the previous section 8.2, selling livestock, leasing out land, and migrating for work are negatively associated with transformative capacity. In Table 10, the resilience capacity indicators that drive these results at the community level vary across these strategies. For example, households are less likely to sell livestock if they have greater access to basic services and infrastructure with percent changes at -127.6 and -36.5 percent, respectively. Leasing out land, in comparison, is negatively associated with availability of markets and agriculture extension services. Household members are also less likely to migrate for work with greater access to infrastructure at -91.9 percent change.

Table 10: Relationship between resilience capacity indicators and key coping strategies, percent change (%)

CAPACITY INDICATORS	Reduce food	New work	Sell livestock	Reduce expenses	Lease land	Slaughter livestock	Child stay with relatives	Migrate for work	Food credit	Use savings	Loan from MFI/VSG
Percent change (%)											
Absorptive capacity indicators											
Availability of informal safety nets (0-6)	-5.1	-8.5	-2.2	-26.1**	0.9	-4.6	5.7	13.4	-3.2	-0.1	1.5
Bonding social capital (0-6)	2.3	8.1*	2.6	12.9**	9.7	-4.3	0.3	13.7	-2.4	8.7	5.7
Access to cash savings (0-1)	9.4*	1.8	-4.2	28.4**	-29.6	6.9	24.2	-9.6	4.2	63.8***	78.6***
Access to remittances (0-1)	-11.5	-33.1*	5.0	-18.2	-46.1	25.1	16.4	33.9	11.0	-8.1	17.4
Durable assets index (0-22)	4.2	-9.1*	6.6	26.8***	12.0	-3.5	-10.9	-39.6***	22.1*	26.8**	19.1*
Livestock assets index (0-7)	-9.3***	-26.3***	55.5***	-13.9*	2.1	48.5***	-15.9*	15.0	-20.1	11.3	-39.2**
Productive assets (0-24)	1.7	-0.8	-17.2**	3.6	2.5	-19.1*	6.8	11.2	-38.9**	-20.5*	18.4*
Shock prep and mitigation (0-4)	15.5***	11.3**	-2.8	25.0***	8.1	-14.3*	9.7	14.5	31.7***	16.6	0.8
Access to agricultural insurance (0-1)	-8.7	-39.4	-10.3	-7.5	34.6	-4.9	0.5	36.6	20.7	57.3**	36.9
Availability of humanitarian assistance (0-1)	-51.8***	-14.0	-3.8	-1.9	-10.1	-5.7	14.9	-17.1	2.9	-1.0	-2.3
Adaptive capacity indicators											
Aspirations/Confidence to adapt (0-16)	-3.3	9.6	0.6	-2.7	-2.0	27.2***	-13.3	-5.2	21.0**	1.2	15.1
Bridging social capital (0-6)	2.5	-17.6***	-14.3***	14.7**	-29.1***	-7.6	-17.4*	-21.3*	-2.9	-34.3**	-9.7
Linking social capital (0-4)	9.7**	-19.3*	23.0***	22.6**	12.6	23.4**	-22.4	-41.5*	-37.2**	16.5	-26.2
Education/training (0-3)	-1.5	-8.3*	-6.6	-4.8	10.2	-5.6	-1.1	19.5*	26.8**	-0.4	15.4
Livelihood diversification (0-17)	4.0	26.5***	12.4*	-7.5	20.3**	20.8***	11.8	-0.3	32.9***	5.1	19.2*
Improved practices (0-1)	-8.5	17.7**	-23.2	23.3	-88.2***	21.3	-143.0***	-72.1**	18.0	3.6	-22.7
Exposure to information (0-19)	15.7***	10.3	21.2**	14.8	-15.7	9.0	-22.9	-27.2	-6.1	26.0	-19.6
Access to financial institutions (0-2)	4.3	17.8*	-34.4**	43.3***	14.6	19.5	-44.1**	-92.5***	22.7	44.2*	49.8*
Transformative capacity indicators											
Availability of formal safety nets (0-3)	-3.7	26.6**	24.0	-70.8	-83.5	-17.8	31.5	58.7***	3.4	-223.6**	-826.2**
Availability of markets (0-3)	1.1	24.3**	-0.3	-53.0**	-100.7***	-20.6	-12.4	-20.0	-20.1	-9.3	-43.4
Access to communal natural resources (0-4)	-8.7*	-3.5	-16.3	-6.3	7.0	11.4	9.7	-38.0	-0.3	3.7	-57.5**
Access to basic services (0-3) ^{a/}	-95.1***	-92.5**	-127.6**	4.6	-14.6	1.9	37.3	71.5*	-3.1	3.2	51.9
Access to infrastructure (0-4)	7.5	-43.7**	-36.5**	25.2	34.1	-15.5	16.7	-91.9**	24.8	43.0**	-37.9
Access to ag extension services (0-1)	17.2***	14.3	-0.2	2.7	-108.6***	-67.5***	-21.1	37.6	11.8	-84.0**	-26.9
Access to livestock services (0-1)	-15.5**	12.5	15.3	-58.7*	-9.2	31.3**	7.7	-47.3	-10.4	21.5	-9.6

Collective action (0-10) ^{a/}	-7.2	11.5	13.7	-30.6	36.4**	50.5***	63.5***	33.6	28.8	46.2**	51.3***
Local government responsiveness (0-1)	15.3	-22.7	17.4	52.6**	35.0	-11.4	49.5**	2.8	11.3	18.2	-5.8
Participation in local decision making (0-1)	-5.7	-7.2	6.4	-8.3	-1.1	-5.4	-26.5	-1.7	14.1	-6.9	36.6
Observations	2675	2677	2675	2675	2675	2675	2675	2675	2675	2675	2675

Asterisks represent statistical significance at the 0.01 (***), 0.05 (**), and 0.10 (*) levels.

Component indicators that are not significant across the seven identified coping strategies are not included (productive assets, linking social capital, aspirations/confidence to adapt); refer to the Annex for the complete table.

“% change” represents the percent change from the lowest to highest quartile (25th to 75th percentile) of the sample for indicators measured as continuous variables. For binary variables, the change is defined as the difference between 0 and 1. Formal safety nets is also used as a binary predictor because responses only ranged from 0-1.

a/ This represents the percent change from the 1st to the 99th percentile of the sample.

(/Percent 30+), (/Adult Male and Female), and (/CRS) indicate the comparison group.

9. CONCLUSIONS

Using data from the 2018 baseline (BL) population-based survey (PBS) of two Food for Peace (FFP) Development Food Security Activities (DFSAs) in Uganda, this study identifies various factors that strengthen household and community resilience in Uganda. Following are summary conclusions that address the three research questions posed for this study.

Research question 1: *Which resilience capacities are associated with positive well-being outcomes, including expenditures, poverty, dietary diversity, and recovery from shock?*

Based on the analysis for this report, findings strongly suggest that high levels of resilience are linked with improved well-being. For per capita expenditures, poverty, and dietary diversity, the three resilience capacities are significantly associated in the anticipated direction, even when controlling for different degree of shock exposure.

Data for recovery indicate that adaptive capacity improves household ability to recover from all five salient shocks (excessive rain, flooding, drought, increased food prices, and crop disease). Comparatively, absorptive capacity is only positively associated with recovery from excessive rain, flooding and drought whereas transformative capacity is negatively associated with recovery from drought.

Research question 2: *Which resilience capacity indicators are significant drivers of positive well-being outcomes?*

For expenditures, poverty, and dietary diversity, there is evidence of opportunities available for improved well-being outcomes directly through four significant resilience indicators, including increases in access to cash savings, durable assets, livestock assets, and human capital (education/training). Additional indicators that directly increase expenditures include exposure to information and access to agricultural extension services. A reduction in poverty is also predicted by shock preparedness and mitigation, and access to infrastructure. Improvements in dietary diversity are driven, in addition to the four indicators mentioned above, by increases in aspirations/confidence to adapt, and participation in local decision making. It is interesting to note certain indicators are inversely related to the well-being outcomes. These include productive assets (for expenditures and poverty), improved practices (for expenditures), and access to basic services (dietary diversity).

Resilience capacity indicator results for recovery vary across the shocks; however, access to information is significantly associated with recovery from excessive rain, drought, increase food prices, and crop disease. Additionally, when comparing the community-level capacity indicators for the negative association between transformative capacity and drought recovery, it is largely impacted by the availability to community natural resources and livestock services. This may be attributed to programming efforts within these DFSA areas and need further exploration.

Research question 3: *Does resilience capacity determine which coping strategies households are more likely to adopt?*

Coping strategies adopted by wealthier households include: selling livestock, reducing non-essential expenses, getting food on credit from a local merchant, using money from savings, and

taking out a loan from MFI or village savings groups. The results, however, show no significant negative relationship between expenditures and coping, and thus, the adoption of coping strategies by poorer households could not be established.

Similar to the per capita expenditure results above, households with higher levels of resilience capacity are most likely to get food on credit, use money from savings, and take out a loan from MFI or village savings groups across all three resilience capacities. Other strategies in which absorptive and adaptive capacities are positively associated include slaughtering livestock, reducing non-essential expenses, and selling livestock. However, households with greater resilience capacity are also more likely to reduce household consumption which is assumed to be an intuitively negative strategy because it has a direct negative impact on the household's well-being.

Transformative capacity, on the other hand, is negatively associated with selling livestock, leasing out land, and migrating for work and may be accounted for by the fact that transformative capacity is a community-level index derived from indicators measuring availability and accessibility to community resources and services. Thus, household members are less likely to engage in these strategies if there are more abundant resources and means to support themselves within their communities.

The results exploring the relationship between resilience capacity indicators and selected coping strategies varied. Among those indicators that showed greater adoption by wealthier households and were positively associated with all three resilience capacities (getting food on credit, using money from savings, and taking out a loan from MFI or village savings groups), durable assets was the only significant indicator positively associated between these strategies. In addition to durable assets, households were also more likely to get food on credit with greater shock preparation and mitigation, aspirations/confidence to adapt, livelihood diversity, and education/training. Households who use savings or take out a loan, on the other hand, had greater access to cash savings, financial institutions, and collective action.

For selling livestock, leasing out land, and migrating for work (shown to have a significant negative association with transformative capacity), the resilience capacity indicator analysis also varied at the community-level across these strategies. For example, households are less likely to sell livestock if they have greater access to basic services and infrastructure whereas leasing out land is negatively associated with availability of markets and ag extension services. Household members are also less likely to migrate for work with greater access to infrastructure.

Programming implications

These findings suggest some implications with respect to programming to enhance resilience. First, traditional economic development activities that are directed to increase household income and wealth—increasing human capital, promotion of value chains, and investment in infrastructure—are also means to enhance household and community resilience capacities. The importance of savings on household economic status and dietary diversity suggests that supporting savings and loans groups and other mechanisms to promote savings can have important impacts on resilience. Strategies that promote bonding and linking social capital formation, for example, through savings and loans groups and other community-based or collective organizations, can also be beneficial. Reduction in poverty can also be supported by investments in shock preparedness and mitigation efforts.

Secondly, strengthening community access to markets, agricultural extension services, and livestock services would work to promote livestock production and ownership at the household level, which has been shown to enhance both household economic status and dietary diversity. The results also point to the importance of intervention strategies that promote access to information, especially for recovery efforts. However, interventions that focus on recovery must be tailored specifically to the type of shock as resilience indicators vary across recovery well-being outcomes. This is also true for coping strategies where investments may vary depending the type of coping adoption promoted within program areas.

I0. SUPPLEMENTARY ANNEX

Table I1: Coping strategies adopted to recover from most salient shocks, Overall

COPING STRATEGIES ^{a/}	Excessive Rain	Flooding	Drought	Increase Food Prices	Crop Disease
Livestock and land holdings (%)					
Send livestock in search of pasture	0.9	0.4	1.9	0.4	0.9
Sell livestock	2.8	1.2	3.4	5.4	2.2
Slaughter livestock	0.6	0.5	0.9	0.6	0.8
Lease out land	3.1	3.1	3.0	1.3	3.8
Migration (%)					
HH member migrated for work	3.6	3.6	5.0	1.1	1.5
Migrate (the whole family)	0.9	0.9	1.1	0.3	1.1
Send children or an adult to stay with relatives	2.3	2.3	3.3	3.2	1.8
Coping strategies to reduce current expenditures (%)					
Take children out of school	0.6	0.6	1.3	1.8	0.8
Move to less expensive housing	0.4	0.4	0.7	1.0	1.0
Reduce food consumption (quantity/meal; # of meals/day)	23.5	23.5	30.9	54.7	24.1
Reduce non-essential HH expenses	6.8	6.8	6.9	18.6	3.5
Got food on credit from a local merchant	1.7	1.7	2.5	4.5	1.5
Coping strategies to get more food or money (%)					
Take up new/additional work (casual labor, wage labor)	16.4	16.4	24.3	28.3	20.7
Sell household items (e.g., radio, bed)	0.3	0.3	0.1	0.1	0.5
Sell productive assets (e.g., plough, water pump)	0.2	0.2	0.4	0.2	0.7
Take out a loan (with interest) from a (formal) bank	0.1	0.1	0.2	0.0	0.3
Take out a loan (with interest) from an MFI or village savings group	1.7	1.7	1.1	3.0	2.6
Take out a loan (with interest) from a money-lender	0.3	0.3	0.1	1.4	0.2
Take out a loan (no interest) from friends or relatives within the community (bonding)	0.6	0.6	0.7	2.2	0.7
Take out a loan (no interest) from friends or relatives outside of the community (bridging)	0.1	0.1	0.3	0.6	0.5
Gift of money (not remittances) or food from family, friends, church or other group within community (bonding)	0.8	0.8	0.8	1.0	1.6
Gift of money (not remittances) or food from family, friends, church or other group outside of community (bridging)	0.8	0.8	0.8	1.0	1.0
Send children to work for money (e.g., domestic service)	0.7	0.7	0.9	0.9	1.1
Receive emergency food aid from the government or NGO	0.3	0.3	1.2	0.4	0.9
Receive emergency cash transfer from the government or NGO	2.0	2.0	1.6	1.0	1.1
Participate in government or NGO food-for-work or cash-for-work activities	0.6	0.6	1.5	0.7	2.3
Use money from savings	1.7	1.7	0.9	2.1	1.8
Remittances from a relative that migrated	0.7	0.7	0.9	0.4	1.1

Other	5.8	5.8	3.5	3.9	6.5
Did nothing	5.2	5.2	3.1	2.6	6.4
	<i>n</i>	<i>2231</i>	<i>1589</i>	<i>1459</i>	<i>1310</i>
					<i>1225</i>

a/ Only for those households who experienced and were impacted by a shock in the last 12 months.

Table 12: Coping strategies adopted to recover from most salient shocks, CRS

COPING STRATEGIES ^{a/}	Excessive Rain	Flooding	Drought	Increase Food Prices	Crop Disease
Livestock and land holdings (%)					
Send livestock in search of pasture	0.3	0.0	0.7	0.2	0.2
Sell livestock	1.5	1.2	0.8	1.8	1.7
Slaughter livestock	0.5	0.4	0.2	0.3	0.2
Lease out land	2.1	5.1	1.8	0.5	1.9
Migration (%)					
HH member migrated for work	1.5	3.2	4.2	1.8	1.3
Migrate (the whole family)	1.5	1.9	0.7	0.4	0.2
Send children or an adult to stay with relatives	2.1	1.8	3.1	3.2	0.8
Coping strategies to reduce current expenditures (%)					
Take children out of school	1.0	1.2	1.2	2.5	0.3
Move to less expensive housing	0.5	1.2	0.7	1.4	0.5
Reduce food consumption (quantity/meal; # of meals/day)	29.3	27.9	35.0	65.6	34.8
Reduce non-essential HH expenses	6.8	5.1	5.9	19.6	4.3
Got food on credit from a local merchant	2.3	2.7	2.9	6.0	1.6
Coping strategies to get more food or money (%)					
Take up new/additional work (casual labor, wage labor)	22.5	22.8	26.8	31.8	24.2
Sell household items (e.g., radio, bed)	0.2	0.0	0.0	0.1	0.0
Sell productive assets (e.g., plough, water pump)	0.2	0.2	0.1	0.3	0.4
Take out a loan (with interest) from a (formal) bank	0.1	0.0	0.1	0.0	0.0
Take out a loan (with interest) from an MFI or village savings group	1.5	0.8	0.4	2.9	1.6
Take out a loan (with interest) from a money-lender	0.2	0.1	0.0	1.6	0.2
Take out a loan (no interest) from friends or relatives within the community (bonding)	0.6	0.8	0.5	2.9	0.6
Take out a loan (no interest) from friends or relatives outside of the community (bridging)	0.1	0.0	0.4	1.0	0.2
Gift of money (not remittances) or food from family, friends, church or other group within community (bonding)	0.7	0.7	0.4	1.5	0.7
Gift of money (not remittances) or food from family, friends, church or other group outside of community (bridging)	0.5	0.2	0.4	1.1	0.3
Send children to work for money (e.g., domestic service)	0.4	0.3	0.0	0.7	0.3
Receive emergency food aid from the government or NGO	0.2	0.2	0.9	0.7	0.4
Receive emergency cash transfer from the government or NGO	2.8	2.7	2.3	1.6	1.0

Participate in government or NGO food-for-work or cash-for-work activities	0.3	0.2	0.2	0.0	0.7
Use money from savings	1.6	0.7	0.8	1.8	2.2
Remittances from a relative that migrated	0.9	0.4	0.2	0.4	0.5
Other	4.8	8.1	3.0	2.1	4.8
Did nothing	4.4	7.4	3.0	1.2	4.8
<i>n</i>	1044	842	703	672	477

^{a/} Only for those households who experienced and were impacted by a shock in the last 12 months.

Table 13: Coping strategies adopted to recover from most salient shocks, MC

COPING STRATEGIES ^{a/}	Excessive Rain	Flooding	Drought	Increase Food Prices	Crop Disease
Livestock and land holdings (%)					
Send livestock in search of pasture	1.5	0.8	3.4	0.5	1.4
Sell livestock	4.2	1.3	6.4	10.1	2.6
Slaughter livestock	0.8	0.7	1.6	1.1	1.2
Lease out land	4.1	1.8	4.4	2.4	5.3
Migration (%)					
HH member migrated for work	5.7	8.5	6.0	0.3	1.7
Migrate (the whole family)	0.4	0.6	1.5	0.1	1.8
Send children or an adult to stay with relatives	2.6	4.5	3.5	3.1	2.5
Coping strategies to reduce current expenditures (%)					
Take children out of school	0.2	1.5	1.3	0.9	1.2
Move to less expensive housing	0.4	0.4	0.6	0.5	1.4
Reduce food consumption (quantity/meal; # of meals/day)	17.7	16.4	26.1	41.0	16.0
Reduce non-essential HH expenses	6.8	6.6	8.0	17.2	2.9
Got food on credit from a local merchant	1.2	0.6	2.1	2.7	1.4
Coping strategies to get more food or money (%)					
Take up new/additional work (casual labor, wage labor)	10.2	9.0	21.4	24.0	18.0
Sell household items (e.g., radio, bed)	0.4	0.0	0.3	0.0	0.9
Sell productive assets (e.g., plough, water pump)	0.3	0.1	0.7	0.0	0.9
Take out a loan (with interest) from a (formal) bank	0.2	0.0	0.3	0.0	0.5
Take out a loan (with interest) from an MFI or village savings group	1.8	1.0	1.9	3.1	3.4
Take out a loan (with interest) from a money-lender	0.5	0.7	0.1	1.1	0.3
Take out a loan (no interest) from friends or relatives within the community (bonding)	0.7	0.6	1.0	1.3	0.7
Take out a loan (no interest) from friends or relatives outside of the community (bridging)	0.1	0.2	0.3	0.0	0.6
Gift of money (not remittances) or food from family, friends, church or other group within community (bonding)	0.9	0.2	1.2	0.4	2.3
Gift of money (not remittances) or food from family, friends, church or other group outside of community (bridging)	1.1	0.8	1.3	0.9	1.5
Send children to work for money (e.g., domestic service)	1.0	0.7	1.8	1.2	1.6
Receive emergency food aid from the government or NGO	0.4	0.1	1.4	0.0	1.3

Receive emergency cash transfer from the government or NGO	1.2	0.5	0.7	0.3	1.2
Participate in government or NGO food-for-work or cash-for-work activities	1.0	0.3	2.9	1.6	3.5
Use money from savings	1.8	1.1	0.9	2.5	1.6
Remittances from a relative that migrated	0.5	0.6	1.6	0.4	1.6
Other	6.9	14.1	4.0	6.1	7.9
Did nothing	6.0	13.6	3.2	4.3	7.7
<i>n</i>	1187	747	753	638	748

^{a/} Only for those households who experienced and were impacted by a shock in the last 12 months.

Table 14: Relationship between resilience capacity indexes and per capita expenditure (in constant USD 2010)

Dependent Variable: Per Capita Expenditure OLS estimator	Resilience Capacity Indexes		
	(Absorptive)	(Adaptive)	(Transformative)
Absorptive capacity	0.022***		
Adaptive capacity		0.024**	
Transformative capacity			0.011***
Cumulative shock exposure index (1-144)	-0.006	-0.006*	0.002
Household demographics (/Percent 30+)			
Percent 0-15	-0.911**	-0.951*	-0.910**
Percent 16-30	0.538	0.425	0.454
Gender HH type (/Adult Male and Female)			
Adult Female Only	0.179	0.219	0.071
Adult Male Only	0.634*	0.509	0.442
Child Only	-0.824***	-0.334	-0.955***
Project Area (/CRS)			
MC	0.059	0.067	0.165
Constant	0.997***	0.691***	0.883***
Observations	2799	2799	2799
R2	0.019	0.019	0.017

Note: Asterisks represent statistical significance at the 0.01 (***), 0.05 (**), and 0.10 (*) levels. (/Percent 30+), (/Adult Male and Female), and (/CRS) indicate the comparison group.

Table 15: Relationship between resilience capacity indexes and prevalence of poverty (based on USD \$1.90 daily per capita income threshold)

Dependent Variable: Poverty Probit estimator	Resilience Capacity Indexes		
	(Absorptive)	(Adaptive)	(Transformative)
Absorptive capacity	-0.028***		
Adaptive capacity		-0.035***	
Transformative capacity			-0.015***
Cumulative shock exposure index (1-144)	0.002	0.003	-0.009***
Household size	0.028	0.034*	0.035*
Household demographics (/Percent 30+)			
Percent 0-15	0.707***	0.700***	0.629**
Percent 16-30	-0.510**	-0.388	-0.413*
Gender HH type (/Adult Male and Female)			
Adult Female Only	-0.101	-0.168	0.079
Adult Male Only	-0.647**	-0.478*	-0.317
Child Only	0.000	0.000	0.000
Project Area (/CRS)			
MC	0.012	0.037	-0.063
Constant	1.516***	2.065***	1.674***
Observations	2797	2797	2797

Note: Asterisks represent statistical significance at the 0.01 (***), 0.05 (**), and 0.10 (*) levels. (/Percent 30+), (/Adult Male and Female), and (/CRS) indicate the comparison group.

Table 16: Relationship between resilience capacity indexes and HDDS

Dependent Variable: HDDS Poisson estimator	Resilience Capacity Indexes		
	(Absorptive)	(Adaptive)	(Transformative)
Absorptive capacity	0.012***		
Adaptive capacity		0.016***	
Transformative capacity			0.005***
Cumulative shock exposure index (I-I44)	0.002**	0.001	0.007***
Household size	-0.004	-0.005	-0.002
Household demographics (/Percent 30+)			
Percent 0-15	0.162	0.151	0.184*
Percent 16-30	0.374***	0.302***	0.370***
Gender HH type (/Adult Male and Female)			
Adult Female Only	-0.055	-0.009	-0.104**
Adult Male Only	0.121	0.037	0.005
Child Only	-0.019	0.311	-0.049
Project Area (/CRS)			
MC	0.209***	0.198***	0.237***
Constant	0.577***	0.335***	0.562***
Observations	2287	2287	2287
R2	N/A	N/A	N/A

Note: Asterisks represent statistical significance at the 0.01 (***), 0.05 (**), and 0.10 (*) levels.
(/Percent 30+), (/Adult Male and Female), and (/CRS) indicate the comparison group.

Table 17: Relationship between resilience capacity indexes and recovery from excessive rain

Dependent Variable: Recovery (excessive rain) Probit estimator	Resilience Capacity Indexes		
	(Absorptive)	(Adaptive)	(Transformative)
Absorptive capacity	0.012**		
Adaptive capacity		0.015***	
Transformative capacity			0.003
Cumulative shock exposure index (1-144)	-0.012**	-0.013**	-0.008*
Household size	0.003	-0.000	0.007
Household demographics (/Percent 30+)			
Percent 0-15	-0.010	0.006	-0.025
Percent 16-30	0.300	0.226	0.309
Gender HH type (/Adult Male and Female)			
Adult Female Only	0.022	0.050	-0.006
Adult Male Only	-0.071	-0.138	-0.174
Child Only	0.000	0.000	0.000
Project Area (/CRS)			
MC	0.377***	0.376***	0.402***
Constant	-1.805***	-2.011***	-1.781***
Observations	1859	1859	1859

Note: Asterisks represent statistical significance at the 0.01 (***), 0.05 (**), and 0.10 (*) levels. (/Percent 30+), (/Adult Male and Female), and (/CRS) indicate the comparison group.

Table 18: Relationship between resilience capacity indexes and recovery from flooding

Dependent Variable: Recovery (flooding) Probit estimator	Resilience Capacity Indexes		
	(Absorptive)	(Adaptive)	(Transformative)
Absorptive capacity	0.010**		
Adaptive capacity		0.009*	
Transformative capacity			0.004
Cumulative shock exposure index (1-144)	-0.010**	-0.010**	-0.006
Household size	0.052*	0.052*	0.053*
Household demographics (/Percent 30+)			
Percent 0-15	-0.113	-0.090	-0.096
Percent 16-30	0.201	0.181	0.198
Gender HH type (/Adult Male and Female)			
Adult Female Only	-0.146	-0.145	-0.193
Adult Male Only	0.235	0.186	0.175
Child Only	0.000	0.000	0.000
Project Area (/CRS)			
MC	0.425***	0.421***	0.452***
Constant	-1.863***	-1.937***	-1.885***
Observations	1436	1436	1436

Note: Asterisks represent statistical significance at the 0.01 (***), 0.05 (**), and 0.10 (*) levels. (/Percent 30+), (/Adult Male and Female), and (/CRS) indicate the comparison group.

Table 19: Relationship between resilience capacity indexes and recovery from drought

Dependent Variable: Recovery (drought) Probit estimator	Resilience Capacity Indexes		
	(Absorptive)	(Adaptive)	(Transformative)
Absorptive capacity	-0.002		
Adaptive capacity		0.013***	
Transformative capacity			-0.009*
Cumulative shock exposure index (1-144)	0.002	-0.004	0.001
Household size	-0.071***	-0.080***	-0.059**
Household demographics (/Percent 30+)			
Percent 0-15	0.523	0.533	0.479
Percent 16-30	0.034	-0.116	0.139
Gender HH type (/Adult Male and Female)			
Adult Female Only	-0.075	-0.028	-0.051
Adult Male Only	0.652**	0.674**	0.750***
Child Only	0.000	0.000	0.000
Project Area (/CRS)			
MC	-0.169	-0.178	-0.220
Constant	-1.093***	-1.361***	-0.836***
Observations	1177	1177	1177

Note: Asterisks represent statistical significance at the 0.01 (***), 0.05 (**), and 0.10 (*) levels.
(/Percent 30+), (/Adult Male and Female), and (/CRS) indicate the comparison group.

Table 20: Relationship between resilience capacity indexes and recovery from increase food prices

Dependent Variable: Recovery (increase food prices) Probit estimator	Resilience Capacity Indexes		
	(Absorptive)	(Adaptive)	(Transformative)
Absorptive capacity	0.011**		
Adaptive capacity		0.022***	
Transformative capacity			-0.003
Cumulative shock exposure index (1-144)	-0.009*	-0.012**	-0.007*
Household size	-0.068**	-0.084**	-0.044
Household demographics (/Percent 30+)			
Percent 0-15	0.197	0.329	0.123
Percent 16-30	0.636**	0.560**	0.730***
Gender HH type (/Adult Male and Female)			
Adult Female Only	-0.538***	-0.502***	-0.538***
Adult Male Only	0.283	0.183	0.260
Child Only	0.000	0.000	0.000
Project Area (/CRS)			
MC	-0.309**	-0.305*	-0.363**
Constant	-1.118***	-1.613***	-0.810***
Observations	1191	1191	1191

Note: Asterisks represent statistical significance at the 0.01 (***), 0.05 (**), and 0.10 (*) levels.
(/Percent 30+), (/Adult Male and Female), and (/CRS) indicate the comparison group.

Table 21: Relationship between resilience capacity indexes and recovery from crop disease

Dependent Variable: Recovery (crop disease) Probit estimator	Resilience Capacity Indexes		
	(Absorptive)	(Adaptive)	(Transformative)
Absorptive capacity	0.008		
Adaptive capacity		0.016***	
Transformative capacity			-0.001
Cumulative shock exposure index (I-I44)	-0.013**	-0.016***	-0.011**
Household size	0.003	0.001	0.010
Household demographics (/Percent 30+)			
Percent 0-15	0.044	0.002	0.039
Percent 16-30	-0.006	-0.105	0.046
Gender HH type (/Adult Male and Female)			
Adult Female Only	-0.214	-0.167	-0.237
Adult Male Only	0.409	0.364	0.334
Child Only	0.000	0.000	0.000
Project Area (/CRS)			
MC	0.185	0.169	0.184
Constant	-1.703***	-1.995***	-1.569***
Observations	1078	1078	1078

Note: Asterisks represent statistical significance at the 0.01 (***), 0.05 (**), and 0.10 (*) levels. (/Percent 30+), (/Adult Male and Female), and (/CRS) indicate the comparison group.

Table 22: Relationship between resilience capacity indicators and well-being outcomes

CAPACITY INDICATORS	Expenditure		Poverty		HDDS	
	Coef.	% change	Coef.	% change	Coef.	% change
Absorptive capacity indicators						
Availability of informal safety nets (0-6)	-0.006	-1.1	0.014	0.5	-0.012	-2.5
Bonding social capital (0-6)	0.068	6.2	-0.058	-1.0	-0.013	-1.3
Access to cash savings (0-1)	0.242*	19.6	-0.227**	-4.1	0.110***	10.4
Access to remittances (0-1)	0.117	10.1	0.000	0.0	-0.017	-1.7
Productive assets index (0-24)	-0.054**	-10.7	0.062***	2.1	0.003	-0.9
Durable assets index (0-22)	0.248***	41.4	-0.176***	-5.4	0.053***	10.1
Livestock assets index (0-7)	0.080**	14.5	-0.115***	-3.6	0.038***	7.3
Shock prep and mitigation (0-4)	0.054	5.0	-0.164***	-2.6	0.019	1.9
Access to agricultural insurance (0-1)	0.332	24.2	-0.145	-2.6	0.076	7.3
Availability of humanitarian assistance (0-1)	-0.153	-16.8	0.189	2.8	-0.070	-7.2
Adaptive capacity indicators						
Aspirations/confidence to adapt (0-16)	-0.016	-4.8	-0.019	-1.0	0.028***	8.0
Bridging social capital (0-6)	0.052	0.0	0.020	0.0	0.009	0.9
Linking social capital (0-4)	-0.073	-14.9	0.030	1.0	0.013	2.5
Education/training (0-3)	0.149**	13.7	-0.249***	-3.8	0.076***	7.3
Livelihood diversification (0-17)	0.011	2.0	-0.027	-0.9	0.013	2.5
Improved practices (0-1)	-0.479*	-48.9	0.036	0.6	-0.056	-5.8
Exposure to information (0-19)	0.024**	17.0	-0.016	-2.1	0.004	3.1
Access to financial institutions (0-2)	-0.131**	-27.7	0.077	2.6	0.014	2.7
Transformative capacity indicators						
Availability of formal safety nets (0-3)	-0.065	-6.5	-0.227	-4.3	-0.044	-4.5
Availability of markets (0-3)	0.013	3.8	-0.006	-0.3	0.026	7.5
Access to communal natural resources (0-4)	-0.071	-14.7	0.001	0.0	-0.004	-0.7
Access to basic services (0-3) ^{ai}	0.102	26.1	0.046	2.3	-0.097**	-33.6
Access to infrastructure (0-4)	0.078	13.9	-0.200***	-6.7	0.064**	12.0

Access to ag extension services (0-1)	0.285**	22.5	-0.194	-3.4	0.009	0.9
Access to livestock services (0-1)	-0.119	-12.1	0.077	1.3	-0.029	-2.9
Collective action (0-10) ^{a/}	-0.072	-25.0	0.064	2.9	0.004	1.3
Local government responsiveness (0-1)	-0.224	-21.9	0.180	3.2	0.021	2.1
Participation in local decision making (0-1)	-0.104	-10.4	-0.112	-1.8	0.109***	10.3
Household characteristics						
Cumulative shock exposure index (1-144)	-0.004		-0.001		0.003***	
Household size	N/A		0.046**		-0.007	
Household demographics (/Percent 30+)						
Percent 0-15	-0.982*		0.942***		0.111	
Percent 16-30	0.123		0.107		0.142**	
Gender HH type (/Adult Male and Female)						
Adult Female Only	0.168		-0.186*		-0.007	
Adult Male Only	0.187		-0.380		0.005	
Child Only	-1.050*		0.000		0.340	
Project (/CRS)						
MC	0.187*		-0.114		0.222***	
Constant	1.418***		1.692***		0.371***	
Observations	2799		2797		2287	
R2	0.056		N/A		N/A	

CAPACITY INDICATORS	Recovery from excessive rain ^{b/}		Recovery from flooding ^{b/}		Recovery from drought ^{b/}		Recovery from increase food prices ^{b/}		Recovery from crop disease ^{b/}	
	Coef.	% change	Coef.	% change	Coef.	% change	Coef.	% change	Coef.	% change
Absorptive capacity indicators										
Availability of informal safety nets (0-6)	-0.039	-14.8	-0.049	-16.8	-0.024	-10.8	0.016	6.5	-0.055	-36.0
Bonding social capital (0-6)	-0.022	-4.0	0.087	12.8	-0.250**	-43.8	0.194**	24.1	-0.099	-20.4
Access to cash savings (0-1)	0.170	26.1	0.574***	59.0	-0.132	-21.0	0.041	5.8	0.095	16.1
Access to remittances (0-1)	0.052	8.8	-0.107	-19.0	-0.797***	-266.4	-0.017	-2.4	-0.115	-24.0
Productive assets index (0-24)	-0.017	-6.3	-0.020	-6.4	-0.006	-2.4	-0.025	-7.4	-0.126***	-95.6
Durable assets index (0-22)	0.038	12.8	-0.051	-17.4	0.044	11.8	0.089***	12.5	0.112*	18.9
Livestock assets index (0-7)	0.046	15.3	0.012	3.7	0.008	2.3	0.019	5.3	0.126**	38.3
Shock prep and mitigation (0-4)	-0.009	-1.7	0.117	17.3	0.046	6.4	-0.197**	-31.1	-0.040	-7.6
Access to agricultural insurance (0-1)	0.552*	59.2	0.661*	61.0	0.791**	62.6	0.926***	69.0	0.488	56.9
Availability of humanitarian assistance (0-1)	0.284	38.4	-0.354	-82.8	-0.409	-87.2	-0.390	-81.1	-0.204	-47.1
Adaptive capacity indicators										
Aspirations/confidence to adapt (0-16)	0.029	9.8	0.035	15.7	-0.005	-1.5	0.006	3.3	-0.006	-2.3
Bridging social capital (0-6)	-0.016	-2.9	-0.081	-14.0	0.046	6.4	-0.206***	-34.1	-0.011	-2.1
Linking social capital (0-4)	0.013	4.7	0.072	20.5	0.068	17.8	0.045	12.1	0.009	3.1
Education/training (0-3)	0.109	18.1	0.197*	28.0	0.103	13.8	-0.034	-5.0	-0.045	-8.7
Livelihood diversification (0-17)	-0.047	-18.3	-0.077**	-27.8	0.038	10.5	0.025	10.3	-0.024	-14.0
Improved practices (0-1)	-0.018	-3.2	0.153	22.2	0.341*	40.3	-0.139	-21.7	0.963**	87.3
Exposure to information (0-19)	0.047***	49.8	0.018	22.6	0.060***	51.3	0.076***	56.2	0.083***	72.2
Access to financial institutions (0-2)	-0.073	-29.6	-0.420***	-257.3	0.137	32.5	0.142	34.5	0.020	7.2
Transformative capacity indicators										
Availability of formal safety nets (0-3)	-0.669	-286.1	-0.240	-49.4	-0.221	-39.0	-0.979*	-430.2	0.380	48.5
Availability of markets (0-3)	0.138***	53.0	0.063	26.2	-0.047	-22.2	-0.043	-20.6	-0.023	-13.8
Access to communal natural resources (0-4)	0.034	11.5	0.073	20.8	-0.155*	-57.9	-0.064	-9.6	-0.101	-20.2
Access to basic services (0-3) ^{a/}	-0.005	-2.6	-0.132	-86.5	-0.031	-14.1	0.110	38.1	0.242	74.6

Access to infrastructure (0-4)	-0.055	-21.7	0.236***	52.9	-0.228	-94.7	-0.050	-15.5	-0.219*	-119.9
Access to ag extension services (0-1)	-0.035	-6.4	0.077	11.6	0.314	34.6	-0.281	-50.8	0.048	8.5
Access to livestock services (0-1)	-0.054	-10.1	-0.032	-5.3	-0.604**	-146.2	-0.250	-43.0	0.070	12.1
Collective action (0-10) ^{a/}	0.112	43.6	-0.049	-27.0	-0.130	-81.6	0.173*	50.1	-0.071	-73.2
Local government responsiveness (0-1)	0.387*	52.0	0.488***	56.9	-0.133	-20.5	-0.622**	-128.1	-0.669***	-211.9
Participation in local decision making (0-1)	-0.297*	-69.8	-0.109	-19.1	0.187	23.4	-0.111	-17.3	-0.021	-4.0
Household characteristics										
Cumulative shock exposure index (1-144)	-0.017***		-0.011*		-0.009*		-0.016***		-0.021***	
Household size	-0.009		0.057**		-0.073**		-0.048		0.030	
Household demographics (/Percent 30+)										
Percent 0-15	0.006		-0.372		0.396		0.284		-0.070	
Percent 16-30	0.152		-0.115		-0.182		0.716**		-0.120	
Gender HH type (/Adult Male and Female)										
Adult Female Only	-0.022		-0.036		0.075		-0.564***		-0.142	
Adult Male Only	-0.475*		-0.071		0.977***		0.014		0.158	
Child Only	0.000		0.000		0.000		0.000		0.000	
Project (/CRS)										
MC	0.392***		0.626***		-0.214		-0.406**		0.017	
Constant	-2.115***		-2.283***		-0.391		-0.684		-1.401*	
Observations	1859		1436		1177		1191		1078	
R2	N/A		N/A		N/A		N/A		N/A	

Asterisks represent statistical significance at the 0.01 (***), 0.05 (**), and 0.10 (*) levels.

“% change” represents the percent change from the lowest to highest quartile (25th to 75th percentile) of the sample for indicators measured as continuous variables. For binary variables, the change is defined as the difference between 0 and 1. Formal safety nets is also used as a binary predictor because responses only ranged from 0-1.

a/ This represents the percent change from the 1st to the 99th percentile of the sample.

b/ Only for those households who experienced and were impacted by a shock in the last 12 months.

(/Percent 30+), (/Adult Male and Female), and (/CRS) indicate the comparison group.

Table 23: Relationship between expenditures and coping strategies

Dependent variable: Coping strategies Probit estimator ^{a/}	Reduce food consumption		Take up new/additional work		Sell livestock		Reduce non-essential expenses	
	Coef.	% change	Coef.	% change	Coef.	% change	Coef.	% change
Per capita expenditures	0.0224	0.9	-0.0236	-1.3	0.0208*	1.5	0.0262*	2.2
Receive formal assistance (food/cash transfer/food-for-work)	-0.321*		-0.00791		0.414***		-0.100	
Household characteristics								
Cumulative Shock Exposure Index(2-144)	0.0300***		0.0203***		0.0221***		0.0181***	
Household size	0.00416		-0.0131		-0.0161		-0.00599	
Household demographics (/Percent 30+)								
Percent 0-15	-0.0716		0.466**		0.428*		-0.129	
Percent 16-30	-0.0607		0.285*		-0.0275		0.0517	
Gender HH type (/Adult Male and Female)								
Adult Female Only	-0.138		-0.279***		-0.637***		-0.129	
Adult Male Only	-0.366*		-0.628***		-0.451**		-0.0716	
Child Only	0		1.536*		0		0	
Project (/CRS)								
MC	-0.431***		-0.239*		0.786***		0.0163	
Constant	-0.540***		-1.022***		-2.159***		-1.459***	
Observations	2675		2677		2675		2675	

Note: Non-significant coping strategies are not included.

Asterisks represent statistical significance at the 0.01 (***), 0.05 (**), and 0.10 (*) levels.

"% change" represents the percent change from the lowest to highest quartile (25th to 75th percentile) of the sample for indicators measured as continuous variables (expenditures).

a/ Only for those households who experienced and were impacted by a shock in the last 12 months.

Table 23: Relationships between expenditures and coping strategies

Dependent variable: Coping strategies Probit estimator ^{a/}	Lease out land		Slaughter livestock		Send child/adult to stay with relatives		HH member migrate for work	
	Coef.	% change	Coef.	% change	Coef.	% change	Coef.	% change
Per capita expenditures	-0.0126	-1.4	0.0147	1.3	0.00312	0.1	-0.0188	-2.2
Receive formal assistance (food/cash transfer/food-for-work)	0.276		0.138		0.372*		0.369*	
Household characteristics								
Cumulative Shock Exposure Index (2-144)	0.00807***		0.0268***		0.0160***		-0.000232	
Household size	0.0145		-0.00897		0.000130		0.0138	
Household demographics (/Percent 30+)								
Percent 0-15	-0.157		0.209		0.554**		-0.409	
Percent 16-30	-0.200		0.139		-0.877***		-0.306	
Gender HH type (/Adult Male and Female)								
Adult Female Only	-0.308**		-0.346**		-0.0587		-0.0381	
Adult Male Only	0.0466		-0.234		0.271		0.393**	
Child Only	0		0		0		0	
Project (/CRS)								
MC	0.0243		0.561***		0.294***		0.0467	
Constant	-1.443***		-2.587***		-2.210***		-1.252***	
Observations	2675		2675		2675		2675	

Note: Non-significant coping strategies are not included.

Asterisks represent statistical significance at the 0.01 (***), 0.05 (**), and 0.10 (*) levels.

“% change” represents the percent change from the lowest to highest quartile (25th to 75th percentile) of the sample for indicators measured as continuous variables (expenditures).

a/ Only for those households who experienced and were impacted by a shock in the last 12 months.

Table 23: Relationships between expenditures and coping strategies

Dependent variable: Coping strategies Probit estimator ^{a/}	Gotten food on credit		Use money from savings		Take out loan from MFI/VSG	
	Coef.	% change	Coef.	% change	Coef.	% change
Per capita expenditures	0.0415***	4.2	0.0717***	7.7	0.0439***	4.5
Receive formal assistance (food/cash transfer/food-for-work)	0.217		0.546***		0.719***	
Household characteristics						
Cumulative Shock Exposure Index (2-144)	0.0168***		0.00779**		0.0110***	
Household size	0.0179		0.0249		0.0362*	
Household demographics (/Percent 30+)						
Percent 0-15	0.376		0.535*		0.355	
Percent 16-30	0.0617		0.785***		0.690**	
Gender HH type (/Adult Male and Female)						
Adult Female Only	-0.183		-0.0930		-0.146	
Adult Male Only	-0.113		0.126		-1.359***	
Child Only	0		0		0	
Project (/CRS)						
MC	-0.132		0.0381		0.0706	
Constant	-2.367***		-2.624***		-2.644***	
Observations	2675		2675		2675	

Note: Non-significant coping strategies are not included.

Asterisks represent statistical significance at the 0.01 (***), 0.05 (**), and 0.10 (*) levels.

"% change" represents the percent change from the lowest to highest quartile (25th to 75th percentile) of the sample for indicators measured as continuous variables (expenditures).

a/ Only for those households who experienced and were impacted by a shock in the last 12 months.

Table 24: Relationship between resilience capacity indexes and reducing food consumption

Dependent Variable: Reducing food consumption Probit estimator ^{a/}	Absorptive		Adaptive		Transformative	
	Coef.	% change	Coef.	% change	Coef.	% change
Absorptive capacity	0.0105***	13.1				
Adaptive capacity			0.0134***	16.4		
Transformative capacity					-0.00137	-3.5
Receive formal assistance (food/cash transfer/ food-for-work)	-0.362**		-0.366**		-0.335*	
Cumulative Shock Exposure Index (2-144)	0.0272***		0.0262***		0.0300***	
Household demographics (/Percent 30+)						
Percent 0-15	-0.0843		-0.0930		-0.108	
Percent 16-30	-0.0920		-0.154		-0.0386	
Household size	-0.00412		-0.00801		0.00552	
Gender HH type (/Adult Male and Female)						
Adult Female Only	-0.113		-0.0833		-0.128	
Adult Male Only	-0.291		-0.353*		-0.325	
Child Only	0		0		0	
Project Area (/CRS)						
MC	-0.442***		-0.437***		-0.440***	
Constant	-0.627***		-0.814***		-0.454**	
Observations	2675		2675		2675	

Note: Asterisks represent statistical significance at the 0.01 (***), 0.05 (**), and 0.10 (*) levels.

(/Percent 30+), (/Adult Male and Female), and (/CRS) indicate the comparison group.

“% change” represents the percent change from the lowest to highest quartile (25th to 75th percentile) of the sample for indicators measured as continuous variables (absorptive, adaptive, transformative).

a/ Only for those households who experienced and were impacted by a shock in the last 12 months.

Table 25: Relationship between resilience capacity indexes and taking up new/additional work

Dependent Variable: Take up new/additional work Probit estimator ^{a/}	Absorptive		Adaptive		Transformative	
	Coef.	% change	Coef.	% change	Coef.	% change
Absorptive capacity	-0.00257	-5.0				
Adaptive capacity			0.00125	2.4		
Transformative capacity					-0.00281	-11.1
Receive formal assistance (food/cash transfer/food-for-work)	0.00479		-0.00647		-0.0191	
Cumulative Shock Exposure Index (2-144)	0.0210***		0.0197***		0.0201***	
Household demographics (/Percent 30+)						
Percent 0-15	0.495**		0.497**		0.480**	
Percent 16-30	0.289*		0.272		0.304*	
Household size	-0.0104		-0.0130		-0.00745	
Gender HH type (/Adult Male and Female)						
Adult Female Only	-0.287***		-0.275***		-0.268***	
Adult Male Only	-0.663***		-0.650***		-0.631***	
Child Only	1.537*		1.592*		1.526*	
Project Area (/CRS)						
MC	-0.237*		-0.240*		-0.262**	
Constant	-1.035***		-1.092***		-0.971***	
Observations	2677		2677		2677	

Note: Asterisks represent statistical significance at the 0.01 (***), 0.05 (**), and 0.10 (*) levels.

(/Percent 30+), (/Adult Male and Female), and (/CRS) indicate the comparison group.

“% change” represents the percent change from the lowest to highest quartile (25th to 75th percentile) of the sample for indicators measured as continuous variables (absorptive, adaptive, transformative).

a/ Only for those households who experienced and were impacted by a shock in the last 12 months.

Table 26: Relationship between resilience capacity indexes and sell livestock

Dependent Variable: Sell livestock Probit estimator ^{a/}	Absorptive		Adaptive		Transformative	
	Coef.	% change	Coef.	% change	Coef.	% change
Absorptive capacity	0.00952**	21.7				
Adaptive capacity			0.0153***	32.8		
Transformative capacity					-0.00807***	-49.5
Receive formal assistance (food/cash transfer/food-for-work)	0.384***		0.367***		0.380***	
Cumulative Shock Exposure Index (2-144)	0.0192***		0.0176***		0.0221***	
Household demographics (/Percent 30+)						
Percent 0-15	0.413*		0.409*		0.300	
Percent 16-30	-0.0409		-0.115		0.00842	
Household size	-0.0247		-0.0277*		0.000364	
Gender HH type (/Adult Male and Female)						
Adult Female Only	-0.606***		-0.564***		-0.593***	
Adult Male Only	-0.387*		-0.479**		-0.368	
Child Only	0		0		0	
Project Area (/CRS)						
MC	0.792***		0.793***		0.718***	
Constant	-2.249***		-2.521***		-1.861***	
Observations	2675		2675		2675	

Note: Asterisks represent statistical significance at the 0.01 (***), 0.05 (**), and 0.10 (*) levels.

(/Percent 30+), (/Adult Male and Female), and (/CRS) indicate the comparison group.

“% change” represents the percent change from the lowest to highest quartile (25th to 75th percentile) of the sample for indicators measured as continuous variables (absorptive, adaptive, transformative).

a/ Only for those households who experienced and were impacted by a shock in the last 12 months.

Table 27: Relationship between resilience capacity indexes and reduce non-essential household expenses

Dependent Variable: Reduce non-essential HH expenses Probit estimator ^{a/}	Absorptive		Adaptive		Transformative	
	Coef.	% change	Coef.	% change	Coef.	% change
Absorptive capacity	0.0162***	37.6				
Adaptive capacity			0.0228***	49.0		
Transformative capacity					0.000165	0.9
Receive formal assistance (food/cash transfer/food-for-work)	-0.132		-0.160		-0.107	
Cumulative Shock Exposure Index (2-144)	0.0133***		0.0114***		0.0182***	
Household demographics (/Percent 30+)						
Percent 0-15	-0.134		-0.148		-0.160	
Percent 16-30	0.0122		-0.0990		0.0594	
Household size	-0.0215		-0.0249		-0.00807	
Gender HH type (/Adult Male and Female)			0		0	
Adult Female Only	-0.0865		-0.0244		-0.127	
Adult Male Only	0.0267		-0.0712		-0.0447	
Child Only	0		0		0	
Project Area (/CRS)						
MC	0.0347		0.0257		0.0163	
Constant	-1.632***		-2.005***		-1.410***	
Observations	2675		2675		2675	

Note: Asterisks represent statistical significance at the 0.01 (***), 0.05 (**), and 0.10 (*) levels.

(/Percent 30+), (/Adult Male and Female), and (/CRS) indicate the comparison group.

“% change” represents the percent change from the lowest to highest quartile (25th to 75th percentile) of the sample for indicators measured as continuous variables (absorptive, adaptive, transformative).

a/ Only for those households who experienced and were impacted by a shock in the last 12 months.

Table 28: Relationship between resilience capacity indexes and lease land

Dependent Variable: Lease land Probit estimator ^{a/}	Absorptive		Adaptive		Transformative	
	Coef.	% change	Coef.	% change	Coef.	% change
Absorptive capacity	0.00365	11.4				
Adaptive capacity			0.00623	18.6		
Transformative capacity					-0.00475**	-35.7
Receive formal assistance (food/cash transfer/food-for-work)	0.271		0.260		0.250	
Cumulative Shock Exposure Index (2-144)	0.00681**		0.00603*		0.00772***	
Household demographics (/Percent 30+)						
Percent 0-15	-0.134		-0.140		-0.197	
Percent 16-30	-0.218		-0.257		-0.168	
Household size	0.0120		0.0100		0.0242	
Gender HH type (/Adult Male and Female)						
Adult Female Only	-0.302**		-0.285**		-0.276**	
Adult Male Only	0.0556		0.0233		0.0797	
Child Only	0		0		0	
Project Area (/CRS)						
MC	0.0217		0.0233		-0.0122	
Constant	-1.508***		-1.612***		-1.305***	
Observations	2675		2675		2675	

Note: Asterisks represent statistical significance at the 0.01 (***), 0.05 (**), and 0.10 (*) levels.

(/Percent 30+), (/Adult Male and Female), and (/CRS) indicate the comparison group.

“% change” represents the percent change from the lowest to highest quartile (25th to 75th percentile) of the sample for indicators measured as continuous variables (absorptive, adaptive, transformative).

a/ Only for those households who experienced and were impacted by a shock in the last 12 months.

Table 29: Relationship between resilience capacity indexes and slaughter livestock

Dependent Variable: Slaughter livestock Probit estimator ^{a/}	Absorptive		Adaptive		Transformative	
	Coef.	% change	Coef.	% change	Coef.	% change
Absorptive capacity	0.0118***	31.6				
Adaptive capacity			0.0224***	52.7		
Transformative capacity					-0.00138	-8.6
Receive formal assistance (food/cash transfer/food-for-work)	0.107		0.0684		0.127	
Cumulative Shock Exposure Index (2-144)	0.0233***		0.0203***		0.0268***	
Household demographics (/Percent 30+)						
Percent 0-15	0.205		0.207		0.174	
Percent 16-30	0.122		0.0104		0.154	
Household size	-0.0199		-0.0260		-0.00671	
Gender HH type (/Adult Male and Female)						
Adult Female Only	-0.310**		-0.245*		-0.336**	
Adult Male Only	-0.165		-0.278		-0.208	
Child Only	0		0		0	
Project Area (/CRS)						
MC	0.574***		0.573***		0.545***	
Constant	-2.728***		-3.177***		-2.508***	
Observations	2675		2675		2675	

Note: Asterisks represent statistical significance at the 0.01 (***), 0.05 (**), and 0.10 (*) levels.

(/Percent 30+), (/Adult Male and Female), and (/CRS) indicate the comparison group.

“% change” represents the percent change from the lowest to highest quartile (25th to 75th percentile) of the sample for indicators measured as continuous variables (absorptive, adaptive, transformative).

a/ Only for those households who experienced and were impacted by a shock in the last 12 months.

Table 30: Relationship between resilience capacity indexes and send child/adult to stay at relatives

Dependent Variable: Send child/adult to stay at relatives Probit estimator ^{a/}	Absorptive		Adaptive		Transformative	
	Coef.	% change	Coef.	% change	Coef.	% change
Absorptive capacity	0.00535	16.2				
Adaptive capacity			-0.00669	-23.9		
Transformative capacity					0.00126	7.7
Receive formal assistance (food/cash transfer/ food-for-work)	0.357*		0.398*		0.381*	
Cumulative Shock Exposure Index (2-144)	0.0143***		0.0181***		0.0161***	
Household demographics (/Percent 30+)						
Percent 0-15	0.563**		0.550**		0.562**	
Percent 16-30	-0.888***		-0.828***		-0.887***	
Household size	-0.00406		0.00392		-0.00211	
Gender HH type (/Adult Male and Female)						
Adult Female Only	-0.0439		-0.0908		-0.0663	
Adult Male Only	0.303		0.269		0.265	
Child Only	0		0		0	
Project Area (/CRS)						
MC	0.293***		0.296**		0.303***	
Constant	-2.274***		-2.044***		-2.249***	
Observations	2675		2675		2675	

Note: Asterisks represent statistical significance at the 0.01 (***), 0.05 (**), and 0.10 (*) levels.

(/Percent 30+), (/Adult Male and Female), and (/CRS) indicate the comparison group.

"% change" represents the percent change from the lowest to highest quartile (25th to 75th percentile) of the sample for indicators measured as continuous variables (absorptive, adaptive, transformative).

a/ Only for those households who experienced and were impacted by a shock in the last 12 months.

Table 31: Relationship between resilience capacity indexes and household member migrate for work

Dependent Variable: HH member migrate for work Probit estimator ^{a/}	Absorptive		Adaptive		Transformative	
	Coef.	% change	Coef.	% change	Coef.	% change
Absorptive capacity	0.00207	7.0				
Adaptive capacity			-0.00871	-35.5		
Transformative capacity					-0.00802***	-74.4
Receive formal assistance (food/cash transfer/ food-for-work)	0.368*		0.406**		0.327	
Cumulative Shock Exposure Index (2-144)	-0.000980		0.00255		-0.000378	
Household demographics (/Percent 30+)						
Percent 0-15	-0.387		-0.392		-0.485*	
Percent 16-30	-0.326*		-0.245		-0.262	
Household size	0.0132		0.0212		0.0296	
Gender HH type (/Adult Male and Female)						
Adult Female Only	-0.0328		-0.0825		-0.00222	
Adult Male Only	0.391*		0.380**		0.459**	
Child Only	0		0		0	
Project Area (/CRS)						
MC	0.0444		0.0484		-0.0147	
Constant	-1.306***		-1.089***		-1.027***	
Observations	2675		2675		2675	

Note: Asterisks represent statistical significance at the 0.01 (***), 0.05 (**), and 0.10 (*) levels.

(/Percent 30+), (/Adult Male and Female), and (/CRS) indicate the comparison group.

“% change” represents the percent change from the lowest to highest quartile (25th to 75th percentile) of the sample for indicators measured as continuous variables (absorptive, adaptive, transformative).

a/ Only for those households who experienced and were impacted by a shock in the last 12 months.

Table 32: Relationship between resilience capacity indexes and gotten food on credit from local merchant

Dependent Variable: Gotten food on credit Probit estimator ^{a/}	Absorptive		Adaptive		Transformative	
	Coef.	% change	Coef.	% change	Coef.	% change
Absorptive capacity	0.0195***	53.1				
Adaptive capacity			0.0219***	57.0		
Transformative capacity					0.00732***	40.0
Receive formal assistance (food/cash transfer/ food-for-work)	0.175		0.159		0.257	
Cumulative Shock Exposure Index (2-144)	0.00993***		0.0100***		0.0176***	
Household demographics (/Percent 30+)						
Percent 0-15	0.322		0.342		0.350	
Percent 16-30	-0.0158		-0.0938		0.00885	
Household size	-0.000118		0.00147		0.00386	
Gender HH type (/Adult Male and Female)						
Adult Female Only	-0.120		-0.0693		-0.205	
Adult Male Only	0.0187		-0.112		-0.137	
Child Only	0		0		0	
Project Area (/CRS)						
MC	-0.130		-0.148		-0.0782	
Constant	-2.514***		-2.866***		-2.552***	
Observations	2675		2675		2675	

Note: Asterisks represent statistical significance at the 0.01 (***), 0.05 (**), and 0.10 (*) levels.

(/Percent 30+), (/Adult Male and Female), and (/CRS) indicate the comparison group.

“% change” represents the percent change from the lowest to highest quartile (25th to 75th percentile) of the sample for indicators measured as continuous variables (absorptive, adaptive, transformative).

a/ Only for those households who experienced and were impacted by a shock in the last 12 months.

Table 33: Relationship between resilience capacity indexes and use money from savings

Dependent Variable: Use money from savings Probit estimator ^{a/}	Absorptive		Adaptive		Transformative	
	Coef.	% change	Coef.	% change	Coef.	% change
Absorptive capacity	0.0293***	70.1				
Adaptive capacity			0.0319***	73.3		
Transformative capacity					0.0110***	56.3
Receive formal assistance (food/cash transfer/ food-for-work)	0.490***		0.460***		0.606***	
Cumulative Shock Exposure Index (2-144)	-0.00239		-0.00219		0.00919**	
Household demographics (/Percent 30+)						
Percent 0-15	0.371		0.447		0.492	
Percent 16-30	0.679***		0.570***		0.680***	
Household size	-0.00511		-0.00370		-0.00526	
Gender HH type (/Adult Male and Female)						
Adult Female Only	0.0266		0.0648		-0.130	
Adult Male Only	0.350		0.163		0.124	
Child Only	0		0		0	
Project Area (/CRS)						
MC	0.0494		0.0228		0.105	
Constant	-2.831***		-3.319***		-2.838***	
Observations	2675		2675		2675	

Note: Asterisks represent statistical significance at the 0.01 (***), 0.05 (**), and 0.10 (*) levels.

(/Percent 30+), (/Adult Male and Female), and (/CRS) indicate the comparison group.

“% change” represents the percent change from the lowest to highest quartile (25th to 75th percentile) of the sample for indicators measured as continuous variables (absorptive, adaptive, transformative).

a/ Only for those households who experienced and were impacted by a shock in the last 12 months.

Table 34: Relationship between resilience capacity indexes and take out a loan (with interest) from MFI or village savings group

Dependent Variable: Take out a loan from MFI/VSG Probit estimator ^{a/}	Absorptive		Adaptive		Transformative	
	Coef.	% change	Coef.	% change	Coef.	% change
Absorptive capacity	0.0282***	68.5				
Adaptive capacity			0.0269***	66.2		
Transformative capacity					0.00457*	28.0
Receive formal assistance (food/cash transfer/ food-for-work)	0.679***		0.662***		0.737***	
Cumulative Shock Exposure Index (2-144)	0.00189		0.00295		0.0114***	
Household demographics (/Percent 30+)						
Percent 0-15	0.327		0.323		0.278	
Percent 16-30	0.604**		0.489*		0.613**	
Household size	0.00915		0.0156		0.0253	
Gender HH type (/Adult Male and Female)						
Adult Female Only	-0.0433		0.0108		-0.151	
Adult Male Only	-1.172***		-1.425***		-1.368***	
Child Only	0		0		0	
Project Area (/CRS)						
MC	0.0958		0.0701		0.101	
Constant	-2.992***		-3.311***		-2.673***	
Observations	2675		2675		2675	

Note: Asterisks represent statistical significance at the 0.01 (***), 0.05 (**), and 0.10 (*) levels.

(/Percent 30+), (/Adult Male and Female), and (/CRS) indicate the comparison group.

“% change” represents the percent change from the lowest to highest quartile (25th to 75th percentile) of the sample for indicators measured as continuous variables (absorptive, adaptive, transformative).

a/ Only for those households who experienced and were impacted by a shock in the last 12 months.

Table 35: Relationship between resilience capacity indicators and key coping strategies

CAPACITY INDICATORS ^{a/}	Reduce food consumption		Take up new/additional work		Sell livestock		Reduce HH non-essential expenses	
	Coef.	% change	Coef.	% change	Coef.	% change	Coef.	% change
Absorptive capacity indicators								
Availability of informal safety nets (0-6)	-0.0404	-5.1	-0.0461	-8.5	-0.0101	-2.2	-0.0969**	-26.1
Bonding social capital (0-6)	0.0366	2.3	0.0958*	8.1	0.0255	2.6	0.107**	12.9
Access to cash savings (0-1)	0.162*	9.4	0.0199	1.8	-0.0382	-4.2	0.272**	28.4
Access to remittances (0-1)	-0.169	-11.5	-0.305*	-33.1	0.0477	5	-0.133	-18.2
Durable assets index (0-22)	0.0340	4.2	-0.0494*	-9.1	0.0325	6.6	0.117***	26.8
Livestock assets index (0-7)	-0.0723***	-9.3	-0.133***	-26.3	0.299***	55.5	-0.0533*	-13.9
Productive assets index (0-24)	0.00929	1.7	-0.00293	-0.8	-0.0529**	-17.2	0.00981	3.6
Shock prep and mitigation (0-4)	0.257***	15.5	0.130**	11.3	-0.0293	-2.8	0.220***	25.0
Access to agricultural insurance (0-1)	-0.130	-8.7	-0.344	-39.4	-0.0901	-10.3	-0.0581	-7.5
Availability of humanitarian assistance (0-1)	-0.592***	-51.8	-0.143	-14	-0.0348	-3.8	-0.0153	-1.9
Adaptive capacity indicators								
Aspirations/confidence to adapt (0-16)	-0.0174	-3.3	0.0373	9.6	0.00301	0.6	-0.00710	-2.7
Bridging social capital (0-6)	0.0407	2.5	-0.183***	-17.6	-0.125***	-14.3	0.124**	14.7
Linking social capital (0-4)	0.0813**	9.7	-0.0981*	-19.3	0.115***	23.0	0.101**	22.6
Education/training (0-3)	-0.0238	-1.5	-0.0901*	-8.3	-0.0595	-6.6	-0.0383	-4.8
Livelihood diversification (0-17)	0.0323	4	0.160***	26.5	0.0567*	12.4	-0.0296	-7.5
Improved practices (0-1)	-0.135	-8.5	0.209**	17.7	-0.200	-23.2	0.206	23.3
Exposure to information (0-19)	0.0328***	15.7	0.0150	10.3	0.0263**	21.2	0.0157	14.8
Access to financial institutions (0-2)	0.0353	4.3	0.109*	17.8	-0.141**	-34.4	0.219***	43.3
Transformative capacity indicators								
Availability of formal safety nets (0-3)	-0.0581	-3.7	0.375**	26.6	0.264	24	-0.404	-70.8
Availability of markets (0-3)	0.00582	1.1	0.103**	24.3	0.00577	-0.3	-0.115**	-53.0
Access to communal natural resources (0-4)	-0.0660*	-8.7	-0.0195	-3.5	-0.0752	-16.3	-0.0246	-6.3
Access to basic services (0-3) ^{b/}	-0.372***	-95.1	-0.251**	-92.5	-0.253**	-127.6	0.0127	4.6

Access to infrastructure (0-4)	0.0623	7.5	-0.204**	-43.7	-0.134**	-36.5	0.116	25.2
Access to ag extension services (0-1)	0.316***	17.2	0.178	14.3	-0.00212	-0.2	0.0221	2.7
Access to livestock services (0-1)	-0.232**	-15.5	0.151	12.5	0.150	15.3	-0.376*	-58.7
Collective action (0-10) ^{b/}	-0.0363	-7.2	0.0471	11.5	0.0463	13.7	-0.0700	-30.6
Local government responsiveness (0-1)	0.250	15.3	-0.243	-22.7	0.173	17.4	0.539**	52.6
Participation in local decision making (0-1)	-0.0888	-5.7	-0.0776	-7.2	0.0566	6.4	-0.0650	-8.3
Household characteristics								
Receive formal assistance (food/cash transfer/ food-for-work)	-0.311**		-0.0754		0.418***		-0.135	
Cumulative shock exposure index (1-144)	0.0230***		0.0156** *		0.0178***		0.0125***	
Household size	0.0220		-0.0131		0.00566		-0.00778	
Household demographics (/Percent 30+)								
Percent 0-15	-0.250		0.393*		0.194		-0.169	
Percent 16-30	-0.199		0.340*		-0.0110		-0.0966	
Gender HH type (/Adult Male and Female)								
Adult Female Only	-0.0920		-0.292***		-0.402***		-0.0710	
Adult Male Only	-0.457**		-0.670***		-0.451*		-0.382	
Child Only	0		1.510*		0		0	
Project (/CRS)								
MC	-0.369***		-0.136		0.524***		0.0371	
Constant	-0.0624		-0.909**		-1.648***		-2.726***	
Observations	2675		2677		2675		2675	

Asterisks represent statistical significance at the 0.01 (***), 0.05 (**), and 0.10 (*) levels.

“% change” represents the percent change from the lowest to highest quartile (25th to 75th percentile) of the sample for indicators measured as continuous variables. For binary variables, the change is defined as the difference between 0 and 1. Formal safety nets is also used as a binary predictor because responses only ranged from 0-1.

a/ Only for those households who experienced and were impacted by a shock in the last 12 months.

b/ This represents the percent change from the 1st to the 99th percentile of the sample.

(/Percent 30+), (/Adult Male and Female), and (/CRS) indicate the comparison group.

CAPACITY INDICATORS ^{a/}	Lease land		Slaughter livestock		Send child/adult to stay with relatives		HH member migrate for work	
	Coef.	% change	Coef.	% change	Coef.	% change	Coef.	% change
Absorptive capacity indicators								
Availability of informal safety nets (0-6)	0.00290	0.9	-0.0161	-4.6	0.0189	5.7	0.0438	13.4
Bonding social capital (0-6)	0.0655	9.7	-0.0304	-4.3	0.00171	0.3	0.0901	13.7
Access to cash savings (0-1)	-0.162	-29.6	0.0515	6.9	0.181	24.2	-0.0553	-9.6
Access to remittances (0-1)	-0.232	-46.1	0.210	25.1	0.116	16.4	0.260	33.9
Durable assets index (0-22)	0.0399	12	-0.0125	-3.5	-0.0334	-10.9	-0.101***	-39.6
Livestock assets index (0-7)	0.00673	2.1	0.210***	48.5	-0.0475*	-15.9	0.0489	15
Productive assets index (0-24)	0.00535	2.5	-0.0435*	-19.1	0.0150	6.8	0.0237	11.2
Shock prep and mitigation (0-4)	0.0527	8.1	-0.0990*	-14.3	0.0640	9.7	0.0941	14.5
Access to agricultural insurance (0-1)	0.283	34.6	-0.0345	-4.9	0.00340	0.5	0.292	36.6
Availability of humanitarian assistance (0-1)	-0.0605	-10.1	-0.0395	-5.7	0.104	14.9	-0.0948	-17.1
Adaptive capacity indicators								
Aspirations/confidence to adapt (0-16)	-0.00410	-2	0.0732***	27.2	-0.0269	-13.3	-0.0102	-5.2
Bridging social capital (0-6)	-0.159***	-29.1	-0.0528	-7.6	-0.102*	-17.4	-0.118*	-21.3
Linking social capital (0-4)	0.0422	12.6	0.0934**	23.4	-0.0649	-22.4	-0.105*	-41.5
Education/training (0-3)	0.0673	10.2	-0.0392	-5.6	-0.00724	-1.1	0.130*	19.5
Livelihood diversification (0-17)	0.0698**	20.3	0.0779***	20.8	0.0397	11.8	-0.000777	-0.3
Improved practices (0-1)	-0.425***	-88.2	0.168	21.3	-0.604***	-143.0	-0.343**	-72.1
Exposure to information (0-19)	-0.0117	-15.7	0.00830	9	-0.0169	-22.9	-0.0184	-27.2
Access to financial institutions (0-2)	0.0495	14.6	0.0771	19.5	-0.119**	-44.1	-0.196***	-92.5
Transformative capacity indicators								
Availability of formal safety nets (0-3)	-0.359	-83.5	-0.116	-17.8	0.251	31.5	0.591***	58.7
Availability of markets (0-3)	-0.145***	-100.7	-0.0447	-20.6	-0.0251	-12.4	-0.0369	-20
Access to communal natural resources (0-4)	0.0231	7	0.0439	11.4	0.0328	9.7	-0.0968	-38
Access to basic services (0-3) ^{b/}	-0.0287	-14.6	0.00453	1.9	0.0989	37.3	0.247*	71.5
Access to infrastructure (0-4)	0.133	34.1	-0.0516	-15.5	0.0588	16.7	-0.190**	-91.9

Access to ag extension services (0-1)	-0.439***	-108.6	-0.359***	-67.5	-0.121	-21.1	0.302	37.6
Access to livestock services (0-1)	-0.0557	-9.2	0.275**	31.3	0.0516	7.7	-0.228	-47.3
Collective action (0-10) ^{b/}	0.0997**	36.4	0.175***	50.5	0.231***	63.5	0.0857	33.6
Local government responsiveness (0-1)	0.260	35	-0.0786	-11.4	0.407**	49.5	0.0170	2.8
Participation in local decision making (0-1)	-0.00695	-1.1	-0.0381	-5.4	-0.152	-26.5	-0.0101	-1.7
Household characteristics								
Receive formal assistance (food/cash transfer/ food-for-work)	0.156		-0.0945		0.320*		0.312*	
Cumulative shock exposure index (1-144)	0.00648*		0.0231***		0.0166***		-0.00150	
Household size	0.0234		-0.0234		-0.00477		0.0199	
Household demographics (/Percent 30+)								
Percent 0-15	-0.221		0.234		0.722**		-0.334	
Percent 16-30	-0.413**		0.144		-0.936***		-0.131	
Gender HH type (/Adult Male and Female)								
Adult Female Only	-0.283**		-0.168		-0.239*		-0.0576	
Adult Male Only	0.0885		-0.384		0.239		0.625***	
Child Only	0		0		0		0	
Project (/CRS)								
MC	-0.0502		0.275**		0.289**		-0.0681	
Constant	-1.235***		-3.507***		-1.834***		-0.810*	
Observations	2675		2675		2675		2675	

Asterisks represent statistical significance at the 0.01 (***), 0.05 (**), and 0.10 (*) levels.

“% change” represents the percent change from the lowest to highest quartile (25th to 75th percentile) of the sample for indicators measured as continuous variables. For binary variables, the change is defined as the difference between 0 and 1. Formal safety nets is also used as a binary predictor because responses only ranged from 0-1.

a/ Only for those households who experienced and were impacted by a shock in the last 12 months.

b/ This represents the percent change from the 1st to the 99th percentile of the sample.

(/Percent 30+), (/Adult Male and Female), and (/CRS) indicate the comparison group.

CAPACITY INDICATORS ^{a/}	Gotten credit for food from local merchant		Use money from savings		Take out loan from MFI or village saving groups	
	Coef.	% change	Coef.	% change	Coef.	% change
Absorptive capacity indicators						
Availability of informal safety nets (0-6)	-0.00951	-3.2	-0.000192	-0.1	0.00506	1.5
Bonding social capital (0-6)	-0.0148	-2.4	0.0586	8.7	0.0389	5.7
Access to cash savings (0-1)	0.0260	4.2	0.593***	63.8	0.922***	78.6
Access to remittances (0-1)	0.0710	11	-0.0492	-8.1	0.129	17.4
Durable assets index (0-22)	0.0726*	22.1	0.0908**	26.8	0.0673*	19.1
Livestock assets index (0-7)	-0.0560	-20.1	0.0380	11.3	-0.114**	-39.2
Productive assets index (0-24)	-0.0690**	-38.9	-0.0405*	-20.5	0.0438*	18.4
Shock prep and mitigation (0-4)	0.210***	31.7	0.112	16.6	0.00542	0.8
Access to agricultural insurance (0-1)	0.144	20.7	0.584**	57.3	0.319	36.9
Availability of humanitarian assistance (0-1)	0.0178	2.9	-0.00656	-1	-0.0150	-2.3
Adaptive capacity indicators						
Aspirations/confidence to adapt (0-16)	0.0464**	21.0	0.00254	1.2	0.0353	15.1
Bridging social capital (0-6)	-0.0173	-2.9	-0.186**	-34.3	-0.0615	-9.7
Linking social capital (0-4)	-0.0983**	-37.2	0.0561	16.5	-0.0791	-26.2
Education/training (0-3)	0.179**	26.8	-0.00268	-0.4	0.107	15.4
Livelihood diversification (0-17)	0.111***	32.9	0.0167	5.1	0.0678*	19.2
Improved practices (0-1)	0.119	18	0.0233	3.6	-0.139	-22.7
Exposure to information (0-19)	-0.00455	-6.1	0.0229	26	-0.0153	-19.6
Access to financial institutions (0-2)	0.0772	22.7	0.175*	44.2	0.215*	49.8
Transformative capacity indicators						
Availability of formal safety nets (0-3)	0.0208	3.4	-0.675**	-223.6	-1.224**	-826.2
Availability of markets (0-3)	-0.0375	-20.1	-0.0189	-9.3	-0.0807	-43.4
Access to communal natural resources (0-4)	-0.00102	-0.3	0.0120	3.7	-0.147**	-57.5
Access to basic services (0-3) ^{b/}	-0.00624	-3.1	0.00681	3.2	0.158	51.9

Access to infrastructure (0-4)	0.0855	24.8	0.171**	43.0	-0.109	-37.9
Access to ag extension services (0-1)	0.0768	11.8	-0.389**	-84.0	-0.157	-26.9
Access to livestock services (0-1)	-0.0606	-10.4	0.152	21.5	-0.0612	-9.6
Collective action (0-10) ^{b/}	0.0696	28.8	0.134**	46.2	0.164***	51.3
Local government responsiveness (0-1)	0.0724	11.3	0.126	18.2	-0.0375	-5.8
Participation in local decision making (0-1)	0.0914	14.1	-0.0430	-6.9	0.288	36.6

Household characteristics						
Cumulative shock exposure index (1-144)	0.200		0.619***		0.639***	
Receive formal assistance (food/cash transfer/ food-for-work)	0.00871***		0.00180		0.00693*	
Household size	-0.0108		-0.0176		0.00809	
Household demographics (/Percent 30+)						
Percent 0-15	0.249		0.558		0.260	
Percent 16-30	-0.479*		0.443*		0.278	
Gender HH type (/Adult Male and Female)						
Adult Female Only	-0.0801		-0.107		-0.0133	
Adult Male Only	-0.105		-0.0411		-1.462***	
Child Only	0		0		0	
Project (/CRS)						
MC	-0.0281		0.0573		0.0945	
Constant	-3.017***		-3.129***		-3.556***	
Observations	2675		2675		2675	

Asterisks represent statistical significance at the 0.01 (***), 0.05 (**), and 0.10 (*) levels.

“% change” represents the percent change from the lowest to highest quartile (25th to 75th percentile) of the sample for indicators measured as continuous variables. For binary variables, the change is defined as the difference between 0 and 1. Formal safety nets is also used as a binary predictor because responses only ranged from 0-1.

a/ Only for those households who experienced and were impacted by a shock in the last 12 months.

b/ This represents the percent change from the 1st to the 99th percentile of the sample.

(/Percent 30+), (/Adult Male and Female), and (/CRS) indicate the comparison group.