



Baseline Survey Report

A Title II Development Food Aid Assistance Program August 2011- July 2016

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List of Acronyms

ACT	Artemisin-based Combination Therapy
CI	Confidence Interval
DRC	Democratic Republic of Congo
EHA	Essential Hygiene Action
ENA	Essential Nutrition Action
FANTA	Food and Nutrition Technical Assistance
FAO	Food and Agriculture Organization
FH	Food for the Hungry
FFP	Food for Peace
GM/P	Growth Monitoring Promotion
Ha	Hectare
HAZ	Height for Age Z-score
HDDS	Household Dietary Diversity Score
HHS	Household Hungry Scale
HH	Household
HIV	Human Immunodeficiency Virus
IDDS	Individual Dietary Diversity Score
IPTT	Indicator Performance Tracking Table
ITN	Insecticide Treated Net
IYCF	Infant and Young Child Feeding
Kg	kilogram
Km	kilometer
KPC	Knowledge, Practice, Coverage
LQAS	Lot Quality Assurance Sampling
MAD	Minimum Acceptable Diet
MOH	Ministry of Health
MUAC	Mid-upper Arm Circumference
MYAP	Multi-Year Assistance Program
NGO	Non-Governmental Organization
ORS	Oral Rehydration Salts
ORT	Oral Rehydration Therapy
PPS	Probability proportionate to size
SD	Standard deviation
SO	Strategic Objective-
SYAP	Single Year Assistance Program
TBA	Traditional Birth Attendant
UNICEF	United Nations Children's Fund
US	United States
USAID	United States Agency for International Development
WASH	Water and Sanitation/Hygiene
WAZ	Weight for Age Z-score
WDDS	Women's Dietary Diversity Score
WHO	World Health Organization
WHZ	Weight for Height Z-score

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Introduction

DRC ranks 187 of 187 countries in the Human Development Ranking¹ with 80% of the population living below the absolute poverty line (less than \$1 a day). The infant and under-five mortality rates (U5MR) are among the highest in Sub-Saharan Africa and 502,000 children under five years of age die annually in the DRC.² The 2010 MICS (Multiple Indicator Cluster Survey) reports that 43% of children under than five years of age are stunted in DRC. In Katanga 43% of children and in South Kivu 50% of children are stunted or too short for their age indicating chronic malnutrition for nearly half of all children (0-59 months). Among children less than five years of age, 21% in Katanga and 27% in South Kivu are underweight or too thin for their age³. The situation for women is equally bleak. The maternal mortality is 1,300 maternal deaths for every 100,000 live births.⁴ On the maternal mortality rate index, DRC ranks 153 out of 181 countries globally.⁵

Food insecurity in the DRC results from many factors, including low productivity, poor market access and infrastructure, conflict, and poor nutritional practices. The program is a USAID/FFP funded five-year program which will be implemented by Food for the Hungry – FH (Prime) and Search for Common Ground – SFCG (Sub) over 2011-2016 in Eastern DRC (Katanga and South Kivu) in the territories of Kalemie, Moba and Walungu. All program areas will have agriculture, livelihoods, and civil society strengthening and health/nutrition activities.

Through partnership with Search for Common Ground (SFCG), FH intends to create a constructive, participative and culturally appropriate dialogue around issues of gender inequity. Using a diverse range of tools including participatory theatre, and radio production, FH/SFCG will raise knowledge, shift behavior, and improve the status of women in the targeted communities. The link between gender issues and achieving improved availability, access, and utilization of food has been carefully incorporated into each SO and IR in the proposed program framework. A redesigned and expanded agricultural extension model will ensure equal gender representation and inclusion at all levels under FH's Livelihoods Strategic Objective 1.

Purpose of the baseline study

FH/DRC conducted this baseline solely for the purpose of getting the indicator baseline values and setting targets for the program. The baseline quantitative survey was designed as the first step in a two-part study, with the final evaluation as the second step with both surveys comparable. The baseline assessments collected information for all major planned activities so that progress over time may be measured. Data from the baseline survey helped provide benchmarks against which progress, impact and effectiveness of the program will be measured. The purpose of the baseline survey was therefore to:

¹ HDR 2011 <http://hdr.undp.org/en/statistics/>

² State of the World's Children Report 2009

³ Underweight is defined as weight for age Z-score (WAZ) of less than -2.

⁴ World Bank 2008 from the DRC FSCF

⁵ Hogan MC, Foreman KJ, Naghavi M, Ahn SY, Wang M, Makela SM, Lopez AD, Lozano R, Murray CJL. Maternal mortality for 181 countries, 1980-2008: a systematic analysis of progress towards Millennium Development Goal 5. *The Lancet*. 2010 Apr 12; 375:1609-23.

- Determine the baseline values of key impact and outcome level indicators
- Collect data comparable to what will be collected during the final evaluation to determine the level of change on impact and outcome indicators between baseline and final evaluation
- Help establish annual and endline targets for those indicators

Baseline Survey Methodology

As outlined in the project proposal, this study involved a comprehensive population based cross-sectional baseline evaluation using an adequacy⁶ design. Quantitative data was collected at household level and anthropometric data was collected among children 0-5 years to assess nutritional status of the population. All data collected was used to gauge the degree to which food insecurity reduces over the life of activity (LOA). One baseline was conducted for the entire program, inclusive of all target areas.

a) Composition of the Baseline Survey/Study Team

The baseline team was led by one external Team Leader (consultant) who worked with FH technical and program staff as the survey team from within FH. The team included the following:

- FH Food Security Programs Coordinator, based in Washington, D.C.
- FH DRC Program Health Unit backstop office, based in Washington, D.C.
- DRC Program Director – Bukavu
- DRC Program Officer – Bukavu
- DRC Agriculture and Health Program Coordinators
- DRC Monitoring & Evaluation Manager and Officers;
- DRC Logistics and additional program staff as needed.
- DRC Agriculture and nutrition promoters

A Survey Coordinator (FH DRC Program Officer) was appointed who served as the principal local manager and coordinator for in the baseline survey process. The Survey Coordinator was responsible for coordinating all aspects of the survey (in coordination with the consulting Baseline Team Leader and the FH Food Security Officer). Additionally, a Data Coordinator (FH Monitoring and Evaluation Manager) was appointed with responsibility for data entry, cleaning of data, and quality control of the data. Enumerators included FH’s agriculture, health and nutrition staff; but also included enumerators contracted specifically for this survey.

The Baseline Team worked together to refine the proposed action plan for the study (establishing the data collection plan and sites, number of enumerators needed, etc.), as well as review evaluation tools drafted/proposed by the Baseline Team Leader.

b) Sampling

The principle indicator used for sampling for the entire survey was stunting and therefore the target group was children 0-59 months of age. The sample size was calculated so that the project can reliably document an expected reduction of at least

⁶ Adequacy design is a pre-post design without control groups.

nine percentage points in the stunting level among children 0-59 months over the life of the project using the formula given by FANTA.²⁷

B) Formula for calculating the number of households (HH) that need to be visited.	
number HH = n/(% of the pop in the age group * average HH size)	
n (sample size from above)=	735
% of pop in the age group=	0.238
average HH size=	6.5
# of HH to visit=	474.9069188

C) Add 10% for non-response	
n (number of HH from above)=	475
10%	47
Final number of households to visit	522

c) Sampling procedure

FHDRC used a two staged 30 X 20 cluster randomization methodology to identify 600 households for this baseline survey. The 30 clusters were selected using probability proportional to size (PPS) approach⁸ and a total of 600⁹ households were visited to collect information on agriculture, health and nutrition.

At the first stage, the sample size was determined by inputting necessary information into the ENA for SMART. The information included was the estimated household numbers (as per the most recent health zone census data¹⁰), stunting rates, the desired precision and the design effect. The software generated probability samples of 30 villages for inclusion in the study based on probability proportionate to size approach. The number of clusters per village was determined by the number of households in each village.

At the second stage of sampling, households were selected using a systematic sampling methodology. Lists of households per cluster were collected and a sampling interval was calculated by dividing the total number of households in the village by

⁷ Formulas used to calculate this indicator were provided by a Fanta2 led workshop and can be found in the excel filed annexed to this terms of reference, titled "DRC cluster sample size calculator agriculture". They are based on the assumption that the target population is males 20-49 years of age, or 17.7% of the total population and households average size is 6.

⁸ Probability proportional to size (PPS) is a sampling technique for use with surveys or mini-surveys in which the probability of selecting a sampling unit (e.g., village, zone, district, health center) is proportional to the size of its population. It gives a probability (i.e., random, representative) sample.

⁹ Formulas used to calculate this indicator were provided by a Fanta2 led workshop and can be found in the Excel filed annexed to this terms of reference, titled "DRC cluster sample size calculator agriculture". They are based on the findings of a recent final evaluation of MYAP in FH program sites (September 2010).

¹⁰ FH team has conducted a census in all the health zones of the program area (August –September 2011)

the number of households that must be visited (20 for each cluster). This sampling interval varied by cluster. Using the lists of households, the first household in each cluster was chosen by drawing a random number between 1 and the sampling interval. The next household to be included in our sample was found by adding the sampling interval to the first household selected (or counting the number of households along the household list) until the number of households to be visited in the cluster is reached. In case where the number of households and children required were not obtained from the first village, the study team moved to the closest village until the number of study participants required per cluster was obtained.

d) Target population

All children between 0-59 months in sampled household were recruited into the study for anthropometric measurements. All women of reproductive age (15-49 years) were also recruited for anthropometric measurements. All households were assessed for food security, water and sanitation as well as gender irrespective of whether they had children in the target age group or not. Primary caregivers of children 0-24 months were recruited into the study to assess the health and nutrition status of the children. When there was one caregiver for more than one child (0-24 months), the caregiver was interviewed separately for each child. In the situation where multiple households occupy one dwelling, one family was chosen at random to be included in the survey. For clusters that fall within township settings, where many households may stay within the same building or where households were arranged in blocks and/or lines, segments were drawn using geographical landmarks like roads. A list of segments was obtained from which, one segment was randomly selected and surveyed as above. The sampling frame used to calculate the sample sizes is attached (Appendix 1)

e) Training/ Field Manual

A five day training was conducted for enumerators and supervisors. A field manual was developed for use by survey enumerators and supervisors (Appendix 4). The manual included a quick reference with instructions on sampling, conducting interviews and what to do in challenging situations (e.g. when the respondent is not at home). It also described the roles and responsibilities of the field staff and it contained a question by question explanation of the questionnaire. A thorough training on taking anthropometric measurements was also conducted with the survey team which emphasized techniques that increased accuracy and precision. In addition, a step by step explanation of sampling techniques and data collection methods was conducted. The training curriculum was prepared by the consultant and the survey core team and was delivered largely by select members of the FH DRC Core Survey Team with supervision and assistance of the consultant. The survey comprised 60 enumerators, 12 supervisors, 9 data entry clerks and 3 data entry supervisors. In addition, data entry supervisors received one full day of intensive training on controlling the quality of data entry prior to initiating data entry efforts.

f) Data collection methods and instruments

Finalizing survey questionnaires was led by the consultant serving as the baseline survey team leader and included consultation with Food for the Hungry project staff in the DRC and as appropriate with FH's partner Search for Common Ground (SFCG). Quantitative data were collected by a single questionnaire with various

modules (Appendix 2), administered face-to-face to eligible respondents in each household¹¹ chosen to be included in the survey.

Once the modules for each survey instrument were finalized, the individual modules were reviewed, reorganized, renumbered and compiled into units for each “respondent group” as appropriate. Survey instruments were then pre-tested and revised as appropriate prior to the start of the survey training. When this process was completed, indicator tabulation plans were finalized; and the data entry and analysis programs were finalized in Epi-Info for Windows Version 3.5.2, 95% confidence intervals were calculated with the design effect of 2.0, chosen because of the cluster sampling methodology used in the survey.

Prior to conducting the survey, the selected communities were visited and made aware of whom FH would like to interview and requested them to be at home during the scheduled day of interview. The day and timing of the interviews was scheduled to ensure that community events do not exclude any group of participants from being present during the survey time period. All eligible respondents (heads of households, caregivers of children 0-23 months, and women of reproductive age) were identified prior to the interview using the household registers and each respondent was interviewed with the appropriate module. During the first visit, when any of the respondents were not present, a member of household or neighbor was asked to call the missing respondent to the residence for the next visit. The enumerators returned to the household or pre-arranged meeting place up to two times during the same day, before considering the individual a non-respondent.

The data collection tool was developed in English but a translated version of the tool in French and Kiswahili was used for training and to administer the questionnaire. Data was collected simultaneously in all the 4 health zones (Niemba, Kalemie, Kamsimba and Moba) of North Katanga and two health zones in South Kivu (Mubumbano and Walungu) by trained research assistants. For successful data collection in DRC, the use of local and civic leaders was imperative. In this regard, local officials were identified and used as guides to identify households for interviews and to support anthropometric measurements.

g) Quality assurance procedures during data collection

To ensure that enumerators collected accurate information, the following quality assurance measures were put in place:

- All enumerators worked in pairs to ensure that responses were accurately recorded. Enumerators were required to review and make adjustments to data at the point of data collection. This enabled effective correction and verification of data collected;
- The supervisors reviewed all questionnaires received from their enumerators and ensured that they were correct and complete while in the field;
- A record of daily activities showing the number of questionnaires completed, by whom and the location were filled out and reviewed by the Core Team; and
- A daily debriefing with the research team was organized at the end of each day’s activities.

¹¹ A household for the case of this baseline survey will be a group of persons who eat from the “same pot”

h) Data management

Data was managed by the Data Coordinator assisted by nine data entry clerks. Data was entered daily in Epi-Info 3.5.1 for Windows software by clerks who were based in the field. Anthropometric data was analyzed using WHO 2005 standards with WHO Anthro software. Before performing the anthropometric calculations for weight for age, height for age, and weight for height, the data were cleaned to remove the outliers, as defined by WHO Anthro Software.

A non-response adjustment was made since the analysis was not weighted considering that systematic sampling method was employed for this study. Indicator values were tabulated for the entire program area and 95% confidence intervals were calculated.

i) Survey Schedule

Preparation for the baseline began in July 2011. Training and fieldwork for the survey ran from October to November 2011. The survey experienced delays due to several factors such as; a) the delay in the data collection process due to rains b) the late addition of a parallel sample for anthropometrics of children under five and c) the consultant was unavailable to conduct the analysis and the drafting of the report. Also a major factor was the disruption of activities during the election period in November and December 2011. Due to these delays the final baseline report was produced in February 2012.

j) Limitations and Challenges

Limitations of the study related to data collection and analysis include the following:

- The scope of this baseline survey is quantitative, neither focus groups nor key informant interviews were conducted as part of the survey. In some cases therefore, while it is possible to generalize results from a sample to the general population, information needed to more fully understand reasons and motivations underlying the results has not yet been collected. Qualitative follow-up through semi-structured interviews and formative research will be required in the coming months to supplement the analysis of the baseline survey results.
- Missing data was usually excluded from the analysis, unless its presence needed to be accounted for in an analysis calculation. For this reason, some of the percentages representing the answers to the questions from the survey may not total 100%. This is also the reason behind inconsistent denominators in the analysis calculations.
- The required number of children under five was not reached during the survey; a parallel sampling of [(30*10)] =300 households was done to have the actual number of children under 5 to perform the anthropometric analysis. For this, only Packet A and Packet D were administered to the sampled HHs.
- In some areas, heavy rains have delayed the data collection process especially in Mubumbano. This delayed the process and required additional days to finish with data collection.

Baseline Survey Results

This chapter describes the findings of the baseline study. After briefly discussing the underlying socio-economic characteristics of the population, the chapter presents findings on the two main programming components and their sub-components, as well as an overall view of all program indicators, as follows:

1. Improved livelihood of vulnerable households
2. Improved Health and Nutrition of individuals within vulnerable households
3. Improved Water, Sanitation and Hygiene
 - a. Improved Gender Equity in Decision Making and Labor Sharing
 - b. Improved community engagement in sustainable development
4. Summary of Monitoring & Evaluation and Baseline Indicators

General Household Information

A total of 872 households were interviewed for the survey. Considering all of the inhabitants in each of the households, the distribution of ages show that 45.4% of the population is less than 18 years of age, 43.4% are between 19-49 years and 9.3% are between 50-69 years of age. Only 1.8% of the population is above 70 years old. The population consists of 48.5% men and 51.5% women.

For the anthropometry study, of the 883 children 0-59 months that were weighed, 49.7% were male and 50.3% were female. The distribution of ages among children is found on Table 1. Just over half of the children were 24-59 months of age, while 15.2% were under six months of age.

Table a: Proportion of children by age (N=883)

Age range	Number of children	Percent of children
0-5.9 months	134	15.2
6-23 months	243	27.5
24-59 months	506	57.3

1. IMPROVED LIVELIHOODS

Strategic Objective: Improved Livelihoods of Vulnerable Households in communities supported by Food for the Hungry

Sub objectives:

- a) Increased agricultural production
- b) Improved use, conservation, and management of natural resources
- c) Increased access to credit
- d) Improved marketing of agricultural produce

For this strategic objective, two key indicators were measured to assess the impact of the program in the intervention areas. These impact indicators collected in the baseline and final evaluations provide an overall picture of the program in terms of its goals in improving livelihoods. The impact indicators used are the Household **Hunger** Scale and the Household Dietary Diversity Score.

1.1 Household Hunger Scale (HHS)

Under strategic objective one, Food for the Hungry aims to improve access to food production, sales and consumption among the farming communities in the program area. Adequate access to food would be beneficial in that households will have adequate food supply throughout the year. In order to measure the efforts made towards access to food in the previous year, access to food was assessed using the Household Hunger Scale (HHS)¹². This scale measured levels of food deprivation using each of these three questions:

1. No food at all in the house;
2. Went to bed hungry,
3. Went all day and night without eating.

This was measured through the number of days in a month a family had enough food from their own resources.

The results from this survey show that 48.2% (95% CI: 43.9-52.5) of HHs experience little to no hunger while 47.8% (95% CI: 43.5-52.1) and 4% (95% CI: 2.6-6.2) experience moderate and severe hunger respectively. The majority [58.4% (95% CI: 54.10-62.50)] of HH reported lack of resources to get food over the past month for a time when there was no food to eat of any kind in their house. Of the respondents who stated that during the past month they had no food to eat in their house, 39.9% (95% CI: 34.5-45.5) reported that this occurred 1-2 times, while 53.3% (95% CI: 47.6-58.8) reported that it occurred 3-10 times; and 5.9% (95% CI 3.7-9.2) stated that it occurred more than 10 times. This indicates that the majority of households in our program area experience a problem of **access to food**, with a high percentage having to face this problem multiple times during the last month.

Table 1.0: Frequency of going to bed hungry because of lack of available food in the house within the last month

Frequency	Number of households	Percentage (95% CI)
Rarely (1-2 times)	134	45.7 (39.9 - 51.6)
Sometimes (3-10 times)	147	50.2 (44.2 - 56.0)
Often (10+ times)	12	4.11 (2.1-7.0)

More than half of the households interviewed recalled that someone in their household went to sleep at night hungry because there was not enough food in the last month [53.0% (95% CI: 48.7-57.2%)]. If a respondent answered that at least one member of their household went to sleep hungry, they were asked about the frequency of this occurrence in the last month. Most of the respondents experienced this between 3-10 times in the last month (Table 1.0).

In order to complete the hunger scale, a third component was assessed on whether a household member had gone a whole day and night without eating anything in the past month. Among all survey respondents, 42.2% (95% CI: 38.0-46.4) reported that at least one member of their household went at least 24 hours without eating. Among the respondents, 50.6% (95% CI: 44.0-57.2) reported that it occurred rarely, while

¹² The Household Hunger Scale (HHS) is a food deprivation scale that measures percent of households experiencing the following three categories of food deprivation: little to no hunger, moderate hunger, and severe hunger.

41.2% (95% CI: 34.8-47.8) mentioned that it sometimes happened, and 7.7% (95% CI: 4.6-11.9) experienced it often.

1.2 Household Dietary Diversity Score (HDDS)

Dietary diversity at the household level remains an adequate proxy for food availability and access. In order to determine the number of individual food groups consumed at the household level, respondents were asked the type of food groups they ate the previous day (24 hours) in line with the guidelines provided by FANTA (FANTA 2004)¹³. The average household dietary diversity score was 3.8 with the median of 4.

	Obs	Total	Mean	Variance	Std Dev
	531	2018	3.8	2.8	1.7
	Minimum	25%	Median	75%	Maximum
	0.0	3.0	4.0	5.0	10.0
					Mode
					3.0

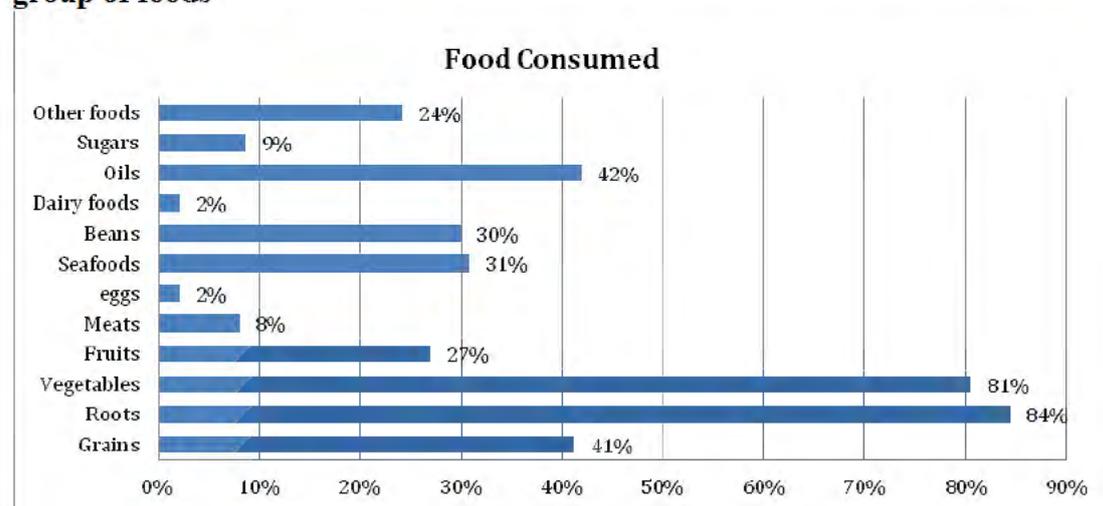
The percentage of households with the HDDS equal to or greater than four food groups is 52.0% (95% CI: 47.6-56.3) while the percentage of households with an HDDS of less than four food groups is 48.0% (95% CI: 43.7-52.4).

Table 1.2: HDDS equal to or greater than 4 food groups (N=531)

HDDS	Frequency	Percent	95% CI
HDDS Score is equal to or greater than 4 food groups	276	52.0%	(47.6 - 56.3)
HDDS Score is less than 4 food groups	255	48.0%	(43.7 - 52.4)

Survey respondents were asked to indicate types of foods they, or anyone else in their household, ate the previous day or night. Figure 1.0 shows the percentage of households that consumed each food group during the last 24 hours.

Figure 1.0: Proportion of respondents who reported that they consumed each group of foods



¹³ Source: Household Dietary Diversity Score (HDDS) for Measurement of Household Food Access: Indicator Guide (Version 2), FANTA, 2006

In terms of the total number of food groups that each household ate in the last day, no household consumed more than ten food groups in the previous day. Responses revealed that food access and diversity as measured by Household Dietary Diversity Score (HDDS) was an average of four (4) out of the twelve food groups as per the FANTA grouping. An average of four food groups is an indication that the food consumption pattern offers some diversity of a balanced diet. HDDS is not only a measure of food diversity but also a proxy for household income. Increased income improves a households' ability to access food. Therefore, lower income reduces food access and results in a lower HDDS (ibid). This parameter provides insight into the households' purchasing power and income. The FH Program will look into ways to increase the diversity score and thereby increase purchasing power and income of the vulnerable households.

1.3 Long term access rights to land

As farming is the mainstay of the economy and livelihoods for the population of eastern DRC, access to farmland is essential. **The rationale behind this indicator was to explore access to land and land ownership in our intervention areas. In the program area and mainly in South Kivu where access to land is critical, many small farmers do not have sole proprietary rights to their land. Most of the areas are owned by landlords. Farmers may have access to land from landlords, but without ownership rights to the land, the farmer cannot make decisions on what he/she can farm on the land. Only with ownership rights to the land can the farmer be sure that the farming rights would not be taken from him/her. Long-term access rights to land means that farmers have a legal title for the land they farm.** Reasons that these households lack access was not explored during the baseline survey, follow-up via semi-structured interviews and/or key informants is recommended to determine the nature of the problem and the extent to which the project might be able to provide advocacy or assistance in acquiring needed access to land. Since the program intends to promote land opening and increase acreage on which crops are planted, it was essential to know the extent to which this currently exists.

During the survey, respondents were asked whether they had long term access rights to at least ½ ha farmland. The results show that only 39.2% (95% CI: 34.9-43.6) of the respondents reported having a long term access to half or more hectare of land. Among male farmers, 50.0% (95% CI: 44.8-56.6) reported that they had long term access to a half hectare or more, while only 23.0% (95% CI: 17.4-29.3) of all female farmers reported that they had long term access to a half hectare or more. This confirms that women have less access to land than men.

1.4 Size of farmland cultivated

The size of land under crop cultivation is a good indicator of efforts being made to open up land for farming especially at a time when almost all land has been fallow for many years due to the insurgency. Respondents were asked if they had long term access rights to at least ½ ha of land that they cultivated. Majority [60.8% (95% CI: 56.4-65.1)] reported not having long term access to at least ½ ha of farm land. It can be assumed that the respondents who did not have farmland but cultivated may have borrowed or rented land as the yield from less than an acre would be very small.

FH will advocate for more favorable and longer-term land use rights for smallholder farmers. Community forums will be held to discuss this issue, as well as conversing with territory and provincial level representatives. Securing a certain level of community recognized land rights for smallholder farmers will provide the foundation for farmer investment in sustainable agricultural and natural resource management practices. FH will build the capacity of local actors to participate and speak into provincial level coordination mechanisms who can further advocate for land access rights.

1.5 Cultivated crops and perceived increase in production between the last two harvests

Methods of quantifying farmer production through population-based surveys remain controversial as various methods in the agriculture research field have been proven ineffective or overly time-consuming. Farmer recall estimating quantities of harvest produced in the last planting season are flawed because farmer recall is often inaccurate and can be highly biased. Measuring crop cuts were not feasible since this survey was not collected during the harvest season but during the lean season.

However, agriculture production remains an integral part of FH’s program, so it was decided to incorporate a proxy indicator to assess farmers’ perception of their production. Farmers’ perception of the amount of production in the most recent harvest season compared to the last harvest season provides an estimate of increase in production levels from the perspective of the farmer.

Six different crops were incorporated into the analysis. Among the crops that the farmers cited that they cultivated in the last two seasons, they were asked to compare the production level between the last season and the season before the last season. This analysis was isolated by crop. The most cultivated crop was cassava, and the least cultivated crop was groundnuts.

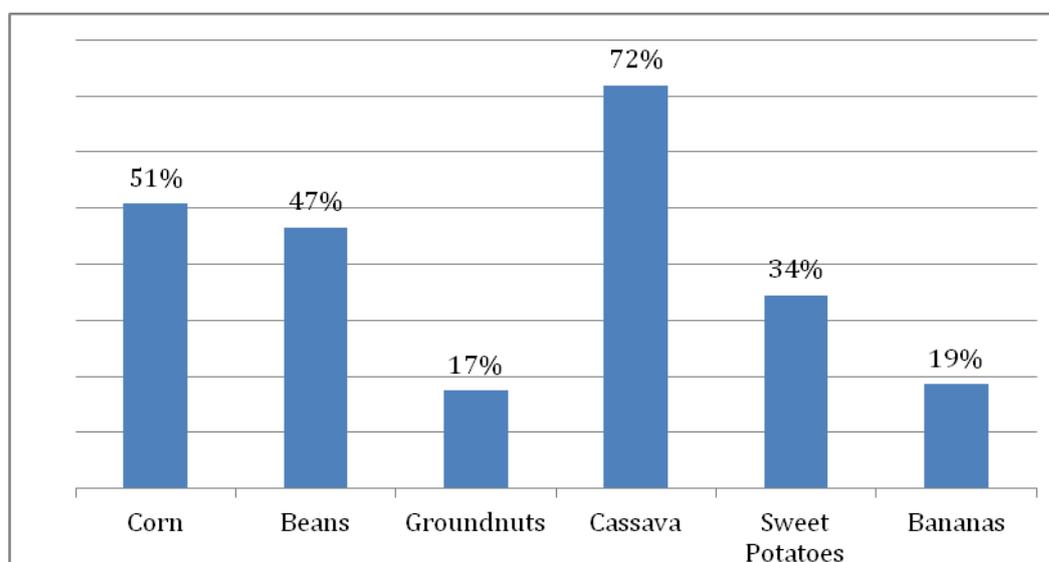


Figure 1.2: Proportion of percent of farmer respondents cultivating each crop

In terms of corn, the percentage of farmers who responded that they perceived an increase in the most recent harvest season compared to the previous season was

19.4% (95% CI: 14.8-24.7). For those who cited a decrease in production between the two seasons, the main reason cited was drought, while another noteworthy reason was the infertility of soil. Plant diseases were also cited as causes of the decreased production.

For beans, the percentage of farmers who responded that they perceived an increase in the most recent harvest season compared to the previous season was 24.0% (95% CI 18.8-29.8). For those who cited a decrease in production between the two seasons for beans, the main reason cited was drought, while the next most cited reason was plant diseases followed by the infertility of soil.

For groundnuts, the percentage of farmers who responded that they perceived an increase in the most recent harvest season compared to the previous season was 13.0% (95% CI 6.9-21.7). Those who reported having a decreased perceived production cited drought as the principle reason.

For cassava, the percentage of farmers who responded that they perceived an increase in the most recent harvest season compared to the previous season was 18.2% (95% CI: 14.5-22.5). More than half of the respondents (55%) who cited that harvest quantities were lower in the most recent season compared to the last season cited plant sickness as the principle cause. Most likely they are referring to mosaic disease which ravages cassava plants throughout eastern DRC.

For sweet potatoes, the percentage of farmers who responded that they perceived an increase in the most recent harvest season compared to the previous season was 29.7% (95% CI: 23.1-36.9). The primary reason for a decrease in production was plant sicknesses. This finding helps to shed light on the importance of introducing improved varieties of sweet potatoes that are resistant to local diseases.

For bananas, the percentage of farmers who responded that they perceived an increase in the most recent harvest season compared to the previous season was 21.1% (95% CI: 13.4-30.0). The primary reason cited for this increase in production was good rains, though the primary reason cited among farmers who reported a decrease in harvest was plant diseases. Similar to the explanations surrounding decreased sweet potato and cassava production, diseases that ravage bananas are important to note in our intervention areas.

It should however be noted that there is a big variation in the rainy season between the south Kivu and Katanga provinces which explains the farmers' reports of drought and adequate rain/water in the same periods. Planting trees is a large component of the program, which may help to reduce drought in intervention areas.

1.6 Sustainable Agricultural Practices or Technologies

Through the course of the program, Farmer Leaders (FL) and Farmer Beneficiaries (FB) will be trained on a series of sustainable agriculture practices and technologies. A set of eight practices/technologies have been identified and will be promoted during the program. These include the following:

Sustainable agriculture practices

Improved post-harvest processing techniques	Mulching
Incorporation of organic matter	Integrated pest management
Recommended planting density	Crop rotation/intercropping
Composting	Using improved crop varieties
Use of green manure/cover crops	Improved grain storage technologies

The sustainable agricultural technologies reported being used by respondents by both female and male farmers during the last growing season is summarized in the following figure. The percentage of farmers who used a minimum of four (4) sustainable agricultural practices or technologies in the most recent growing season was 10.8% (95% CI: 9.6-12.2). Interestingly, a higher percentage of female farmers [12.3% (95% CI: 10.6-14.2)] practiced 4 or more agriculture technologies compared to males [8.7% (95% CI: 10.6-14.2)] farmers.

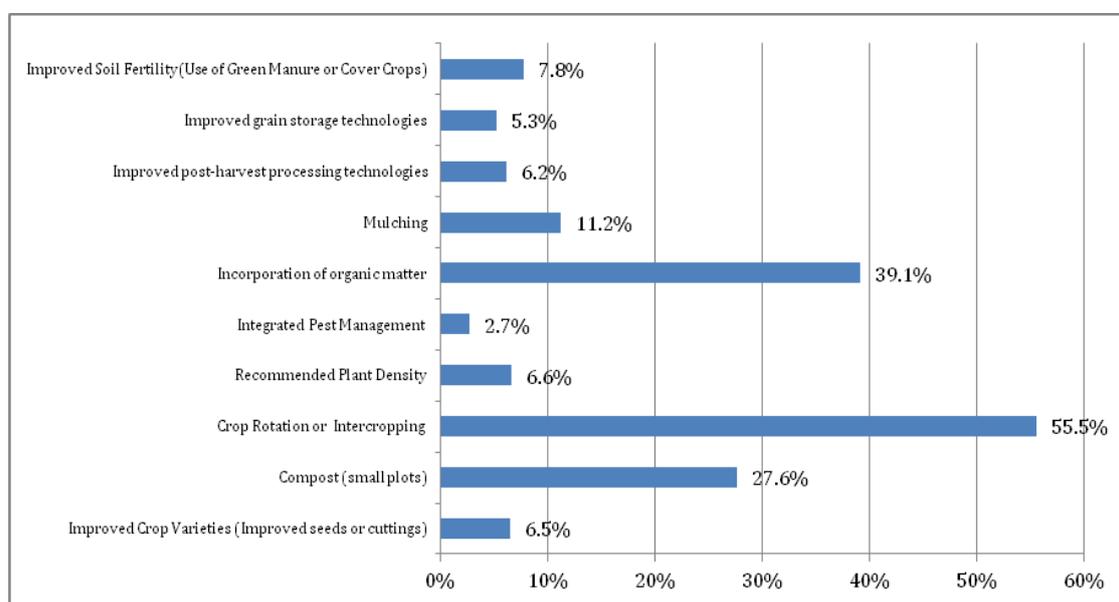


Figure 1.3: Proportion of respondents using sustainable agricultural technologies

Integrated pest management and improved grain storage technologies were least practiced among farmer respondents, while more than half of the respondents already practice crop rotation or intercropping. Different approaches for integrated pest management will be taught to farmers in order to bridge this gap. Further evaluations will take place to identify the most effective techniques and to identify local plants that could be used to treat plant diseases.

1.7 Use of Improved Crop Varieties (including disease resistant crops)

The percentage of farmers using improved crop varieties (including disease resistant crops) was 6.5% (95% CI: 5.5-7.6) as illustrated in Figure 1.4. For each crop cultivated by the respondent farmers, they were asked whether they used an improved crop variety in the last growing season.

Figure 1.4: Crops for which farmers used improved varieties

Less than 10% of farmers who cultivate any of the staple crops use improved varieties. Given the high prevalence of cassava mosaic disease and banana wilt bacteria as well as other plant sicknesses in the program intervention area, there is still ample room for FH and other implementing partners to intervene by multiplying and disseminating locally adapted varieties of these crops.

1.8 Households animal ownership (Tropical Livestock units – TLU’s)

Livestock are vital to subsistence and economic development in sub-Saharan Africa. They contribute to household livelihoods through a variety of direct and indirect ways. Livestock provide cash income or income in kind through the sale of animals and /or the sale and consumption of milk, meat, eggs and other animal products. Also, livestock are a form of savings (capital growth through herd growth) and insurance, as the sale of animals provides immediate cash to deal with significant or unexpected expenditures (for example, school or medical fees). In addition, livestock provide manure, and transport services, which can be used on the household farm or exchanged on the market (for example, rentals of bulls for plowing). Being a source of wealth, livestock not only contribute to social status but may possibly facilitate access to financial services, both in formal and informal markets. Finally, because some livestock can be kept close to the homestead and require few labor inputs, such as a small flock of poultry birds, these can be tended by women while managing other time-consuming activities (for example, cooking or child care), thereby falling under their control and providing some degree of empowerment. Given these diverse outputs, which comprise both monetized and non-monetized goods and services, it is difficult to quantify the overall contribution of livestock to household livelihoods, and only few have tried¹⁴.

¹⁴Alary, V., Corniaux, C. and Gautier, D. (2011) Livestock’s Contribution to Poverty Alleviation: How to Measure It? World Development.

The concept of Tropical Livestock Units (TLU) provides a convenient method for quantifying a wide range of different livestock types and sizes in a standardized manner. A tropical livestock unit (TLU) is commonly taken to be an animal of 250 kg live weight, which was applied to the DRC context.

The TLU methodology for measuring livestock production has been used by at least one organization working in the livelihoods sector in DRC though a nationwide survey with data about the average TLU per households has not been accomplished. Therefore CIAT¹⁵ (International Center for Tropical Agriculture) assessed livelihood activities in South Kivu province in DR Congo to obtain in depth knowledge of constraints and opportunities related to mixed farming systems in the region of South Kivu. This survey showed that farmers largely concentrate on small livestock, such as poultry, swine, guinea pigs and rabbits. The results from this survey showed that livestock keeping households owned an average of 1.84 tropical livestock units (TLU). Overall, the livestock help families to accumulate household reserves that were then used towards covering child education costs and other household needs. There several publications available on the use of the TLU in DRC using the definition of 1 TLU = 250kg of live weight.

The TLU is used in the permitting, registration, and the environmental review process because they allow equal standards for all animals based on size and manure production. It is calculated by multiplying the number of animals by an animal unit factor for the specific type of animal. When more than one type of animal is planned for a feedlot, the number of TLUs is the sum of the TLUs for each type of animal.

An animal unit factor was used for each type of animal available in the communities. For this survey, the following factors were used to estimate the TLUs depending on common livestock varieties:

Animal	Animal unit factor (TLUs)
Goat	0.1
Sheep	0.1
Duck	0.01
Chicken	0.01
Rabbit	0.01
Guinea Pig	0.01

First, the total number of animals was determined by type and the number for each type of animal was multiplied by the animal unit factor to give the number of animal units by animal type. Then, all the number of animal units by animal type was added to get the total number of animal units for the intervention area¹⁶. Then the percentage of households owning at least one TLU was calculated per respondent over the total number of households of the sample size. The percentage of households owning at least 1 Tropical Livestock Unit (TLU) was 0.8% (95% CI: 0.2-2.1). This broken

¹⁵ [Brigitte L. Maass, Dieudonné Katunga Musale, Wanjiku L. Chiuri and Michael Peters. 2010 : Diagnostic survey of livestock production in South Kivu/DR Congo, CIAT Working Document No. 210, Nairobi.](#)

¹⁶ [http://yosemite.epa.gov/r10/water_nsf/40db6e4de7be6d888256c78007f8ff7/bc30f88057c7455088256c870082cd07/\\$file/id-cafo-gp-a.pdf](http://yosemite.epa.gov/r10/water_nsf/40db6e4de7be6d888256c78007f8ff7/bc30f88057c7455088256c870082cd07/$file/id-cafo-gp-a.pdf)

down further by site shows that animal ownership in Mubumbano is relatively higher than in Kalemie and Moba. Mubumbano households have on average twice the level of animal ownership than the sites located in Katanga Province as shown in Table 1.3.

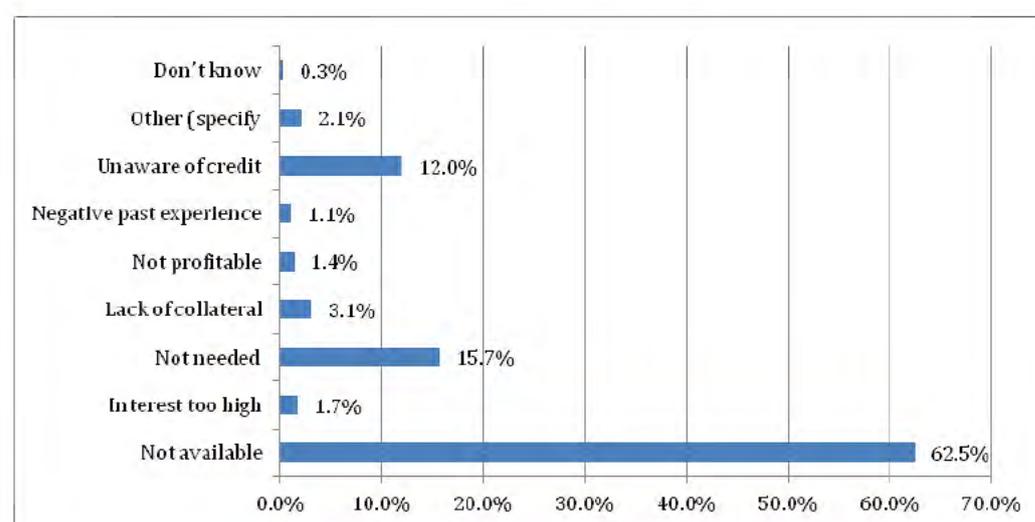
Table 1.3: Average Tropical Livestock Units per household by site

Site	No of Households	Mean	Standard Deviation
Mubumbano	199	0.12	0.17
Kalemie	178	0.06	0.16
Moba	151	0.05	0.18

1.9 Access to Financial Services (credit, savings, insurance)

A key focus of the FH program is to enable smallholder farmers to move beyond subsistence agriculture and effectively engage in select value chains to transform and sell agricultural products. Results of this baseline indicate that only 18.0% (95% CI: 15.5-20.9) of the respondents reported that they took any agricultural credit, in cash or in kind, during most recent growing season. No significant difference was observed between the male [18.3% (95% CI: 14.4-22.9)] and female [17.8% (95% CI: 14.5-21.7)] farmers in relation to the use of financial service in the most recent season for both South Kivu and North Katanga provinces.

Majority (62.5%) of the respondents indicated that they did not take any agricultural credits in the last growing season because such services were not available (Figure 1.5), undergirding the absence of formal or informal financial institutions¹⁷ or associations in program areas. While only a quarter (15.7%) of the respondents felt they had no need credit and 12% were unaware for the existence of such services, only 8.7% (95% CI 6.8-11.1) reported having saved some money; in other words they have put some money aside to use later the last growing season.



¹⁷ According to FFP, financial services refer to services provided by formal or non-formal groups for the management of money. This includes credit (loans), savings, and insurance schemes run by for-profit, non-profit, and governmental organizations.

Figure 1.5: Reasons for not using financial services

Due to the underdeveloped finance sector and limited access to appropriate credit mechanisms, farmers in Eastern DRC have difficulty in acquiring capital to improve or expand their agricultural activities. FH therefore aims to facilitate the establishment of community-based Village Savings and Loans Associations (VSLA) and connect farmers to credible microfinance institutions (MFIs). It is envisaged that through its support to FLGs, FH will assist agricultural producers to evaluate different credit options as they develop their business and marketing plans and therefore help improve incomes and wellbeing of the vulnerable households.

1.10 Improved Marketing of Agricultural Produce

Rural smallholder farmers may attain basic household food security by improving their agricultural production, but in order to move past subsistence farming, they need to be able to successfully engage with the market. Under the marketing for agricultural produce, FH aims to increase market analysis and business skill capacities of agricultural producers, improve treatment, storage and value-added processing techniques and strengthen market linkages through collective marketing and sale of identified agricultural products.

a. Use of Improved Storage Techniques

Community level post-harvest handling and storage techniques are a critical step in reducing losses and increasing the shelf-life of agricultural products. However, producers who succeed in bringing their produce to markets are often forced to sell at cut-rate prices at the end of the day rather than incur added costs of transporting unsold produce back to their villages. The percentage of farmers who used at least two improved storage techniques in the last postharvest period (for maize, cassava, beans, and groundnuts) was 5.56% (95% CI: 4.2-7.4) with no significant difference between the male (6.9% (95% CI: 4.6-10.3) and female farmers [4.7% (95% CI: 3.1-7.0)].

b. Value chain Activities

The overall percentage of farmers who participated in postharvest value chain activities in the most recent growing season was 10.7% (95% CI: 8.7-13.1). Disaggregated by gender, 11.5% (95% CI: 8.4-15.5) of male farmers reported participating in one of these value chain activities against 10.1% (95% CI 7.6-13.3) of female farmers.

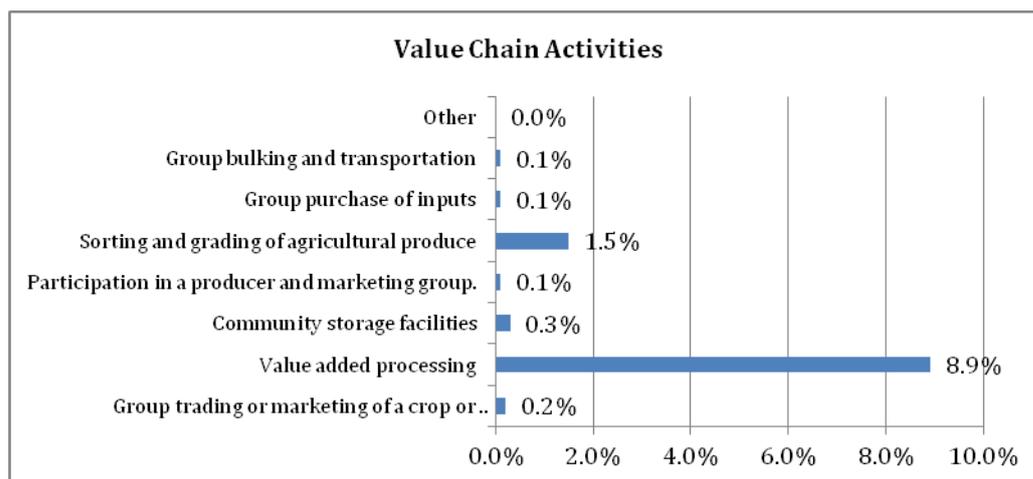


Figure 1.6: Proportion of respondents participating in different value chain activities

Due to poorly developed infrastructure, many agriculturally productive areas across DRC are completely isolated from local or regional markets. However, in the Katanga territories of Kalemie and Moba, USAID and other donors have made significant investments in opening up access to interior locations. Since 2001, FH has rehabilitated over 600 km¹⁸ of road including 34 bridges and 58 culverts in these two territories. While many road sections have deteriorated due to lack of maintenance, the key infrastructure elements, namely bridges, have kept principal axes open. For agricultural producers, this provides the opportunity to get their produce not only to local markets in Kalemie and Moba, but to regional markets by boat on Lake Tanganyika.

Prolonged time in reaching markets will hinder access to essential commodities like seeds and tools. In addition, poor market access is a disincentive to increase sales and distribution. Although the contribution of infrastructure (mainly roads) can have ambiguous effects on agricultural production in marginally productive areas compared to productive areas, the overall effect is increased household income (Simbwa 2007)¹⁹. Reducing the time and improving value of the produce to market through postharvest handling practices empowers farmers to become net sellers in the markets as well as net buyers. Therefore, in addition to the income and substitution effects when market prices change, profit effect will also be created. This discourages middlemen and improves the profit margins for farmers allowing them to further boost production, increase household income, and reinforce their safety net.

A list of value chain activities that will be promoted in the FH program were compiled so that the baseline survey was able to measure the percentage of farmers that are already practicing these specific value chain activities.

2. IMPROVED HEALTH AND NUTRITION

Strategic Objective: Improved health and nutrition of individuals within vulnerable households

¹⁸ Including 178 km rehabilitated in Kalemie and Moba between 2005-2008 with USAID/FFP SYAP resources, and 455 km of road between 2006-2009 with USDS/BPRM resources.

¹⁹ Simbwa, A. (2007). Land Tenure and Investment on land., UMB, Aas

Sub-objectives:

1. Improved Use of Essential Nutrition Behaviors
2. Increased Diversity and Consumption of Nutritious Food
3. Improved Household and Community Management of Conditions and Diseases that Exacerbate Malnutrition
4. Improved Use of Clean Water, Sanitation Facilities, and Hygiene Behaviors

2.1. Nutritional Status of Children

Anthropometric measurements were performed on 884 children aged 0-59 months and their height-for-age, weight-for-age, and weight-for-height were used to determine under nutrition at -2 standard deviations of Z-scores based on the WHO (2006) International Reference Standards. The overall level of prevalence of stunting (height-for-age) and underweight (weight-for-age) malnutrition shown in Figure 2.1 must be addressed to enable children to attain their full growth potential. For a number of the anthropometry data, the presentation was made by program site for better comparison.

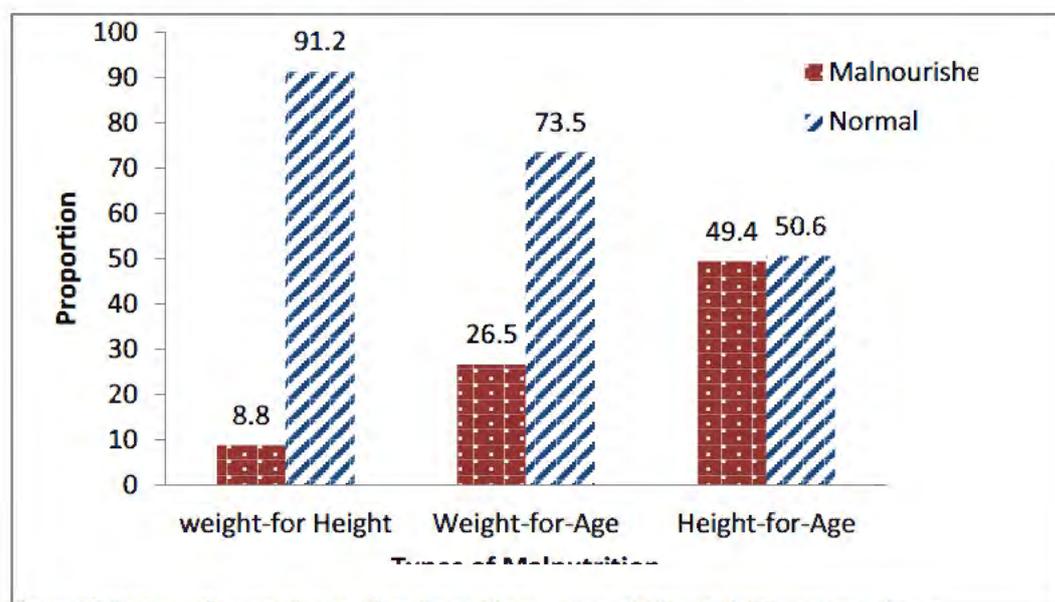


Figure 2.1: Overall prevalence of malnutrition among children 0-59 months of age

2.2 Global Acute Malnutrition (GAM) or wasting

The global acute malnutrition (GAM) rate or wasting is defined as weight for length/height Z score < -2 SD from the global reference standard. The prevalence rate of GAM among all children less than five years of age was found to be 8.8% (95% CI: 6.9- 10.8) and the prevalence of Severe Acute Malnutrition (SAM) was 3.2 % (95% CI 2.0-4.5). Interestingly, boys were found to have a higher level of acute malnutrition than girls (12.3% vs. 5.3%). All results are based on weight-for-height Z-scores (Table 2.1).

Table 2.1 Acute malnutrition rates by site, sex, and age

Indicator	Kalemie % (95% CI)	Moba % (95% CI)	Mubumbano % (95% CI)	Combined % (95% CI)
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GAM (WHZ<2)				
Males	16.3(10.2-24.0)	11.5(7.1-17.4)	9.9 (5.5-16.0)	12.3(9.4-15.9)
Females	4.2(1.6 -9.0)	3.9 (1.6-7.9)	8.9 (4.4-15.8)	5.3 (3.5-8.0)
Total	9.8 (6.0-13.6)	7.6 (4.6-10.5)	9.4 (5.7-13.2)	8.8 (6.9-10.8)
SAM (WHZ<3)				
Males	6.5 (2.8-12.4)	4.2 (1.7-8.5)	3.5 (1.2-8.0)	4.7 (2.9-7.2)
Females	0.7 (0-3.9)	1.1 (0.1-4.0)	4.5 (1.5-10.1)	1.9 (0.9-3.8)
Total	3.4 (1.0-5.8)	2.6 (0.8-4.5)	3.9 (1.3-6.5)	3.2 (2.0-4.5)
GAM by age				
0 - 5 months	18.5 (6.3,38.1)	10.4 (3.5,22.7)	13.2 (5.5,25.3)	13.3 (7, 19.6)
6 - 11 months	6.9 (0.8,22.8)	18.2 (7.0,35.5)	10.0 (1.2,31.7)	12.2 (4.5,19.9)
12 - 23 months	5.1 (0.6,17.3)	11.8 (5.6,21.3)	12.8 (4.3,27.4)	10.4 (5.2,15.5)
24 - 35 months	10.0 (3.8,20.5)	4.2 (0.9,11.9)	7.3 (2.0,17.6)	7.0 (3.1,10.9)
36 - 47 months	11.3 (4.7,21.9)	2.9 (0.4,10.2)	10.6 (3.5,23.1)	7.9 (3.7,12.2)
48 - 60 months	8.5 (2.4,20.4)	2.1 (0.1,11.3)	2.5 (0.1,13.2)	4.5 (0.6,8.4)
Mean WH Z- score (Mean±SD)	-0.06±1.51	-0.30±1.20	-0.05±1.52	-0.15±1.40

Wasting in individual children can change rapidly and show marked seasonal patterns associated with changes in food availability or disease prevalence to which the measurement is very sensitive. A value for wasting of 8.8% is, however, not typical of a healthy free-living population.

2.3 Chronic malnutrition (Stunting)

A deficit in height-for-age is referred to as stunting and a low height-for-age index reflects past under-nutrition or chronic malnutrition and is an indicator of general growth failure. Slow growth of a child results in a failure to achieve expected height as compared to a healthy, well-nourished child of the same age. The level of stunting among children was found to be 49.4% (95% CI: 46.0- 52.7), while 24.5% (95% CI: 21.7 – 27.5) were severely stunted (Table 2.2). Nearly half of the children under five in the intervention area are stunted. This level of stunting surpasses the threshold of 40 percent set by the World Health Organization (WHO) to measure “very high” levels of chronic malnutrition and is over 30 points higher than the expected stunting level in a healthy well-nourished population. This stunting result was higher than was reported for Katanga (43%) and about the same for South Kivu (50%) in the 2010 MICS.²⁰ The prevalence is even higher than the stunting level (46%) among children 0-59 months in the whole of DRC.²¹ This high level of chronic malnutrition shows that the zones of intervention are important areas to target with health programming.

²⁰ The 2010 MICS (Multiple Indicator Cluster Survey) reports that 43% of children less than five years of age are stunted in DRC. In Katanga 43% of children and in South Kivu 50% of children are stunted or too short for their age, indicating chronic malnutrition for nearly half of all children

²¹ DRC DHS 2007

Table 2.2: Prevalence of Stunting among children 0-59 months by site, sex, and age

Indicator	Kalemie %(95% CI)	Moba % (95% CI)	Mubumbano %(95% CI)	Combined %(95% CI)
Stunting (HAZ<2)				
Males	51.6 (42.5-60.6)	61.3 (53.4-68.9)	55.0 (46.4-63.4)	56.4 (51.6-61.1)
Females	47.6 (39.2-56.0)	37.0 (30.0-44.5)	44.6 (35.2-54.3)	42.5 (37.8-47.3)
Total	49.4 (43.3-55.6)	48.5 (43.2-54.0)	50.4 (44.1-56.7)	49.4 (46.0-52.7)
Severe stunting (HAZ<3)	21.4 (16.7-26.8)	25.3 (20.9-30.3)	26.6 (21.2-3.5)	24.5 (21.7-27.5)
Stunting by age				
0 - 5 months	13.3 (3.8,30.7)	14.0 (5.8,26.7)	13.5 (5.6,25.8)	13.6 (7.4,19.9)
6 - 11 months	12.9 (3.6,29.8)	24.2 (11.1,42.3)	23.8 (8.2,47.2)	20.0 (10.9,29.1)
12 - 23 months	53.8 (37.2,69.9)	57.3 (45.4,68.7)	57.9 (40.8,73.7)	56.6 (48.4,64.8)
24 - 35 months	59.0 (45.7,71.4)	62.5 (50.3,73.6)	60.7 (46.8,73.5)	60.8 (53.6,68.1)
36 - 47 months	61.3 (48.1,73.4)	59.7 (47.0,71.5)	58.7 (43.2,73.0)	60.0 (52.5,67.5)
48 - 60 months	64.6 (49.5,77.8)	51.1 (36.1,65.9)	82.1 (66.5,92.5)	64.9 (56.5,73.4)
Mean HFA Z- score (Mean±SD)	-1.76± 1.65	-1.83± 1.67	-1.83± 1.90	-1.81±1.73

These findings suggest that children are exposed to poor nutrition in their early childhood and therefore cannot attain the expected height/length for age. This means that the area of intervention has a very high level of importance in terms of public health significance. With an overall stunting percentage (HAZ<-2) of 49.4%, the zones of intervention are important areas to target with health programming. FH's health and nutrition program will therefore aim to reduce this level of malnutrition through various activities including Care Groups, radio broadcasting, and recipe competitions to improve infant and young child feeding practices in the vulnerable households.

Generally, children above two years of age have the highest rates of chronic malnutrition while children < 24 months of age had the highest rates of wasting. The results of this baseline show that children under 59 months suffer from high rates of malnutrition which remains a public health concern, even compared to the national rates of malnutrition. Therefore, proper feeding practice needs to be emphasized by the health providers in this age group.

2.4 Prevalence of Underweight

Underweight, defined as weight-for-age, is a composite measure of both stunting and wasting. It identifies the condition of being underweight for a specific age and reflects both chronic and acute-under nutrition. The prevalence of underweight was 26.5% (95% CI: 23.6 - 29.6), while 9.5% (95% CI: 7.7 – 11.7) of the children were severely underweight (Table 2.3), a finding consistent with the Demographic Health Survey results for DRC (2007) results for underweight among under-fives in DRC.²² Though the prevalence found in Katanga (26.6%) is higher than the reported figure in the

²² The 2007 DHS reported a national underweight percentage of 25.1% among children 0 -59 months.

DHS (20.2%) suggesting that FH is working in vulnerable communities in Katauga compared to other parts of the province.

Table 2.3: Prevalence of Underweight among children 0-59months by health zone sex and age

Indicator	Kalemie %(95% CI)	Moba % (95% CI)	Mubumbano %(95% CI)	Combined %(95% CI)
Underweight (WAZ<-2)				
Males	31.7 (23.7-40.6)	38.3 (30.9-46.2)	28.9 (21.6-37.1)	33.3 (29.0-38.0)
Females	18.1 (12.1-25.3)	20.0 (14.4-26.6)	21.4 (14.3-29.9)	19.7 (16.2-23.8)
Total	24.4 (19.4-30.0)	28.8 (24.2-33.9)	25.5 (20.3-31.2)	26.5 (23.6-29.6)
Severely underweight (WAZ<-3)				
	7.4 (4.6-11.2)	11.0 (8.0-14.8)	9.7 (6.3-13.9)	9.5 (7.7-11.7)
Underweight by age				
0 - 5 months	13.3 (3.8,30.7)	8.2 (2.3,19.6)	9.6 (3.2,21.0)	9.9 (4.4,15.4)
6 - 11 months	29.0 (14.2,48.0)	32.4 (17.4,50.5)	13.6 (2.9,34.9)	26.4 (16.6,36.3)
12 - 23 months	28.2 (15.0,44.9)	34.6 (25.7,48.1)	25.5 (12.7,41.2)	31.4 (23.8,39.0)
24 - 35 months	27.9 (17.1,40.8)	32.4 (21.8,44.5)	24.1 (13.9,37.2)	28.4 (21.7,35.1)
36 - 47 months	22.6 (12.9,35.0)	27.5 (17.5,39.6)	34.0 (20.9,49.3)	27.5 (20.7,34.4)
48 - 60 months	23.4 (12.3,38.0)	31.9 (19.1,47.1)	45.0 (29.3,61.5)	32.8 (24.5,41.2)
Mean WFH Z- score (Mean±SD)	-1.11±1.27	-1.29±1.25	-1.08±1.44	-1.17±1.32

The global underweight (WAZ<-2) percentage for boys is very high according to the WHO classification indicating a serious problem of malnutrition among boys. A measure of underweight $\geq 30\%$ in a population indicates a very high prevalence of malnutrition. The overall underweight percentage approaches the WHO threshold closely, meaning that malnutrition remains a public health problem. On the other hand, the global underweight (WAZ<-2) finding for girls is acceptable according to WHO standards.

2.5 Maternal Nutrition

2.5.1 Underweight (BMI<18.5) status of women of reproductive age (15-49 years)

In order to assess maternal nutrition status, weight and height measurements were collected from 572 non-pregnant mothers and caregivers in reproductive age (15-45 years of age to determine Body Mass Index (BMI)²³. Using a cut-off of less than 18.5, 18.9% (95% CI: 15.5-22.7) of the women of reproductive age were classified as malnourished (Table 2.4).

²³ This indicator measures the percentage of non-pregnant women of reproductive age (15-49 years) who are underweight, as defined by a body mass index (BMI) < 18.5. BMI is equal to weight (in kg) divided by height squared (in meters).

Table 2.4: Nutritional status of caregivers and women of reproductive age (15-49 years) by program site

BMI categories	Kalemie % (95%CI)	Moba % (95%CI)	Mubumbano % (95%CI)	Combined % (95%CI)
Malnourished (<18.5cm)	21.6(15.1-29.4)	20.5(14.3-28.0)	15.8(10.9-21.8)	18.9 (95% CI: 15.5-22.7).
Not Malnourished (≥18.5cm)	78.4(70.6-84.9)	79.5(72.0-85.7)	84.2(78.2-89.1)	81.1 (77.3-84.5)

The results vary by site, with Kalemie and Moba having more women classified as malnourished while Mubumbano had a lower percentage of women classified as malnourished.

2.5.2 Women’s micronutrient Dietary adequacy (Dietary Diversity Score)

Maternal malnutrition is not only a case of inadequacy of macronutrients but also the inadequacy of micronutrients. Recent studies have revealed associations between simple **dietary diversity score (DDS)**²⁴ and the nutritional status of adult **women**²⁵. The proportion of respondents with a DDS equal to or greater than 4 food groups is 58.0% (95% CI: 53.9-62.1) with an average number of food groups consumed (out of the nine food groups enlisted) among all of the women of reproductive age in the sample as 3.8 with the median of 4.

²⁴ This indicator aims to measure the micronutrient adequacy of the diet that women consume and reports the mean number of food groups consumed in the previous day by women of reproductive age (15–49 years).

²⁵ Dietary diversity scores and nutritional status of women change during the seasonal food shortage in rural Burkina Faso (Shevy et al; 2006).

Table 2.5: Dietary Diversity Score Food Groups Consumed (N=572)

# Food Groups Consumed	N (%)	95% Conf. Limits
0	7(1.2)	0.5-2.6
1	17(3.0)	1.8-4.8
2	65(11.4)	8.9-14.3
3	151(26.4)	22.9-30.3
4	164(28.7)	25.0-32.6
5	115(20.1)	16.9-23.7
6	46(8.0)	6.0-10.7
7	7(1.2)	0.5-2.6

DDS ranged from 0-7, with no woman reporting having consumed food from eight or nine groups during the previous day. The most number of food groups consumed during the previous day was seven. Considering that women ate from up to seven different food groups, it is important to understand which food groups were consumed the most, and which ones were less consumed by mothers. According to female respondents, dark green leafy vegetables rich in vitamin A were the most consumed at 82.2% (95% CI: 78.7-85.2). While the least consumed food groups were eggs, organ meat, and dairy products registering each at less than 3% (Figure 2.2).

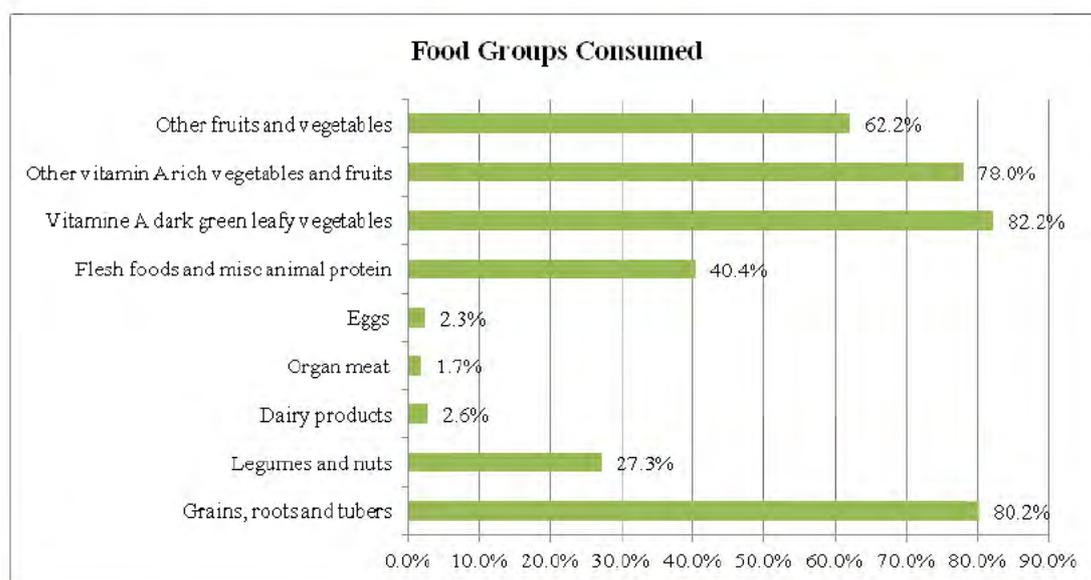


Figure 2.2: Proportion of respondents who reported having consumed each food group during the previous day

These results suggest that overall there is low consumption of variety of foods that would help improve the micronutrient intake of the women in the target areas. In an effort to improve dietary diversity and nutrition, FH proposes to complement the related messages in the Care Group (CG) training curriculum with promotion of Household vegetable gardens, fruit trees, and small livestock animal production for all households with pregnant women or children under two years old. This target will be achieved through a multiplication model where MLs receive inputs at the CG level

and later share seeds, animal offspring, and practical lessons with the Beneficiary Mothers.

2.6 Diarrhoea infection (for children 0-23.9 months)

Less than a third [29.5% (23.8-35.7)] of the children were reported to have had diarrhea during the two weeks preceding the survey. The results in Table 2.6 below demonstrate that only 30.6% of the households reported to have treated their children with homemade fluids made while 69.4% gave their children nothing.

Table 2.6: Children’s diarrhea treatment

Diarrhea and Treatment Status	Number	Percentage
Nothing	50	69.4 (57.5-79.8)
ORS or Homemade ORS	22	30.6 (20.2-42.5)

The levels of diarrhea could be linked to the previous awareness activities of FH in the area during the MYAP implementation period. The 2010 MICs survey recorded diarrhea as one of the top three infections among children under-five years in DRC.

2.7 Infant and young child feeding practices

A significant focus of the Title II USAID programs is the promotion of essential nutrition actions (ENAs) such as appropriate breastfeeding and complementary feeding using the Care Group methodology. Breastfeeding practices such as immediate breastfeeding after birth, exclusive breastfeeding during the first six months, and continued breastfeeding until twenty-four months were assessed among mothers of children (0-59 months) within the project target areas.

2.7.1 Exclusive Breastfeeding²⁶

The data on breast milk feeding practice was based on 86 children (0-6 months or less than 183 days). The survey result reveals that more than half (52.4%) of the mothers exclusively breast-fed their children for the first six months as recommended by the DRC government as well as WHO guidelines. In addition, progressive complementary feeding and continued breastfeeding up to 24 months, and continuing and/or augmenting feeding during and after illness is also part of this recommendation.

²⁶ A child under six months of age was reported as exclusively breastfeeding when he/she received breast milk (including milk provided from a wet nurse) and may have received oral rehydration solution (ORS), vitamins, minerals and/or medicines, but did not receive any other food or liquids the last 24 hours.

Table 2.7 Prevalence of Exclusive breastfeeding

Exclusively breastfeeding (n=84)	Percentage	95% CI
Boys	47.4	31.0- 64.2
Girls	56.5	41.1- 71.1
Overall	52.4	41.2-63.4

In a bid to improve the rates of exclusive breastfeeding, messages will be incorporated in the Care Group module covering ENAs during infancy and young childhood. Dietary diversity and sufficient feeding frequency are also important ENAs for the child engaged in complementary feeding during the program.

A few of the respondents (26.2%) reported to have provided their children with water (Table 2.8). More than a third (34.5%) of the caregivers reported feeding porridge/gruel to the children (0-5.9 months). The commercial foods and fortified infant and younger foods were the least fed.

Table 2.8: Type of foods fed to the child aged 0 to 5.9 months (N=84)

Foods given to children (0-5.9 months)	%	95% CI
Plain Water	26.2	17.2-36.9
Commercially produced infant formula	19.0	11.3-29.1
Thin porridge or gruel	34.5	24.5 -45.7

2.7.2 Complementary feeding practices (Children 6-23.9 months)

The complementary feeding practice within the program population was assessed using the determination of Minimum Acceptable Diet (MAD)²⁷ indicator. A total of 572 caregivers participated in the feeding practice survey. Overall, less than a third [27.7% (95% CI: 20.9- 35.5)] of children 6-23.9 months of age received the minimum meal frequency and only 32.7% (95% CI: 25.2 -40.9) met their minimum dietary diversity requirements. The IYCF composite indicator for children under two years old measures the minimum acceptable diet which takes into consideration both the minimum dietary diversity and minimum meal frequency for both breastfed and non-breastfed children. The percentage of children who were receiving the minimum acceptable diet during this was 11.6% (95% CI: 6.9-17.9). More specifically, 8.2% (95% CI: 2.7-18.1) of boys and 14.0% (95% CI: 7.4-23.1) of girls were receiving the minimum acceptable diet at the time of the survey.

²⁷ MAD measures the percentage of breastfed children 6-23 months of age who receive a minimum acceptable diet, apart from breast milk using feeding frequency and Dietary Diversity scores. The minimum acceptable diet indicator measures both the minimum feeding frequency (quantity) and minimum dietary diversity, as appropriate for various age groups. The 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 and three or more feedings of solid, semi-solid or soft food for children 9-23 months. The minimum dietary diversity for non-breastfed children is defined as four or more food groups out of six food groups if a child meets the minimum feeding frequency and minimum dietary diversity for their age group and breastfeeding status, then they are considered to receive a minimum acceptable diet.

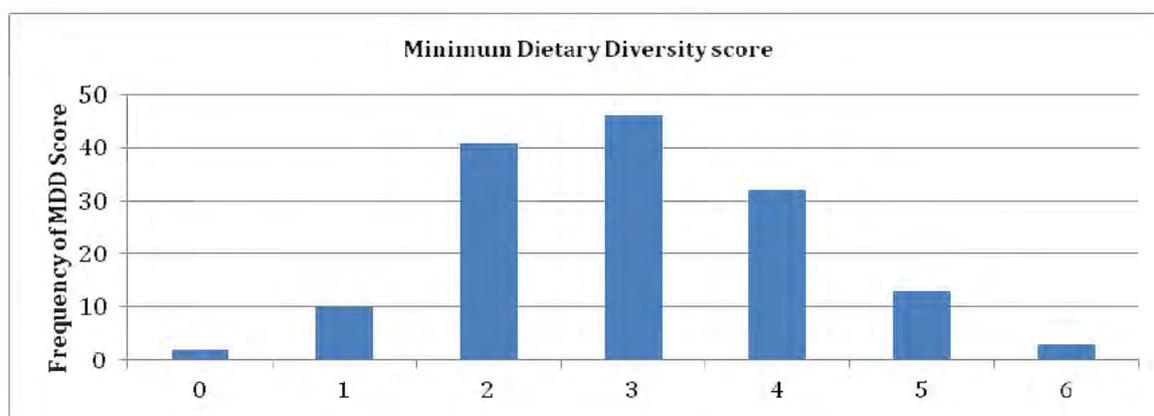


Figure 2.3: Minimum Dietary Diversity Score for children 6-23 months

The most commonly consumed solid complementary food group for children after the first six months was green leafy vegetables (63.9%), followed by red palm oil (56.5%), fruits vegetables (45.6%) and condiments (32.0%), as shown in Table 2.9. Foods of animal origin, particularly organ meats (1.4%), milk products (2.7%) and eggs (2.7%), were the least consumed food groups though more than a third (45.5%) [(95% CI: 41.2- 49.8)] of farming households reported owning goats, chickens, or ducks. The result of this survey predicts the likelihood of insufficient high biological value protein and micronutrient intake among children in the program area and provides a strong case to emphasize adding meat, eggs, legumes, and organ meats into a child's diet during Care Group trainings during the program since this would increase iron and protein which are important nutrients for children less two years of age.

Table 2.9: Complementary solid foods by food groups fed to children aged 6 to 23.9 months in the last 24 hours

Types of Foods	Percent	95% Conf. Limits
Green leaf	63.9	55.6-71.7
Vit. A fruit	11.6	6.9-17.9
Other fruit and veg	45.6	37.4-54.0
Organ meat	1.4	0.2-4.8
Meat	5.4	2.4-10.4
Eggs	2.7	0.7-6.8
Seafood	15.6	10.2-22.5
Beans	20.0	13.8-27.4
Dairy	2.7	0.7-6.8
Oils	25.9	19.0-33.7
Condiments	32.0	24.5-40.2
Bugs	0.7	0.0-3.7

Generally, the results of the survey indicate a fair level of awareness of complementary feeding. This however, needs to be scaled up so as to ensure all the children in this age group benefit from appropriate feeding practices.

2.8 Adding Oil to Children Complementary Food

As a crucial part of the diet, oil and fats provide vital energy to children as they grow. This indicator was included into the program to assess the percentage of mothers who add oil to foods given to their children 6-23 months of age. About a quarter of mothers reported giving oil to their children in the last 24 hours [25.8% (95% CI: 19.1-33.4)] and majority of this oil is red palm (Table 2.9) that is not readily available within the program areas. This shows that the program should work to increase the availability of oil in the intervention areas and teach mothers the importance of mixing oil into complementary foods as a means on improving energy and micronutrient intake.

2.10 Vitamin A supplements

DRC national health policy recommends Vitamin A for children 6-59 months. Vitamin A is widely provided two times a year through campaigns organized by the MOH and partners as a part of the ongoing vitamin A supplementation program. The baseline results show that 68.8% (95% CI: 60.9-76.0) of children 6-23.9 months of age received vitamin A supplements in the past 6 months. As part of the program design, each year, FH DRC takes part in the distribution of vitamin A supplements to children under five by providing financial or logistic support to the MoH teams conducting Vitamin A supplementation in program intervention areas.

2.11 Improved Households and Community management of conditions and Diseases that exacerbate Malnutrition

Child morbidity and mortality rates can be greatly reduced by enabling caregivers to identify physical danger signs and know how to appropriately respond to each of these.

2.11.1 Adoption of Health Treatment Behaviors

Four health treatment behaviors²⁸ that will be promoted through the Care Group messages during the program were assessed in this survey. The treatment behavior that was most practiced by mothers/caregivers when the child was sick is that of not stopping breastfeeding (87.6%) because of the sign if sickness while less than 10% of the caregivers interviewed administered either a packet of Oral Rehydration Solution (ORS) or homemade ORS during the child's last diarrhea episode (Table 2.10).

Table 2.10: Proportion of mothers who responded positively to health treatment behaviors

Health treatment behaviors practiced	Percentage	95% CI
Offered same or more amount of food	20.7	15.8-26.4
During a recent diarrhea episode, administered ORS	9.1	5.8-13.5
Did not stop breastfeeding because of signs of illness	87.6	82.7-91.4
Administration of deworming medicine in past 6 months	30.3	24.6-36.5

The percentage of caregivers of children aged 0-23 months who adopted three of more health treatment behaviors is 11.2% (95% CI: 7.5-15.9)

²⁸ The four health treatment behaviors include 1) offered same or more amount of food, 2) administering ORS during a recent diarrhea episode, 3) did not stop breastfeeding because of signs of illness, and 4) administration of deworming medicine in the last 6 months.

These results indicate that during the implementation of the FHDRC program emphasis will need to be placed on promoting the use of ORS. In our health messages, mothers will be encouraged to purchase ORS packets to give to their children during episodes of diarrhea. In the case where caregivers cannot afford to purchase these packets, they will be encouraged to make homemade ORS and the formula will be shared with all mothers in our intervention communities. Caregivers of children under two years of age will also be taught these health treatment behaviors through the life of the program in order to reduce the rates of infant and child mortality and morbidity in our intervention communities.

2.11.2 Knowledge of signs of childhood illness requiring treatment

In order to increase adoption of health seeking behaviors for their children, it is essential that mothers are able to identify signs of illness in their child. Mothers' knowledge of different signs²⁹ of childhood illness was assessed in this survey. The results of the survey indicate that more than half [56.0% (95% CI :49.5-62.4)] of caregivers of children age 0–23 months who know at least three signs of childhood illness that indicate the need for treatment. Majority (85.9%) indicated fever as a quick sign of illness that needs treatment (Figure 2.3).

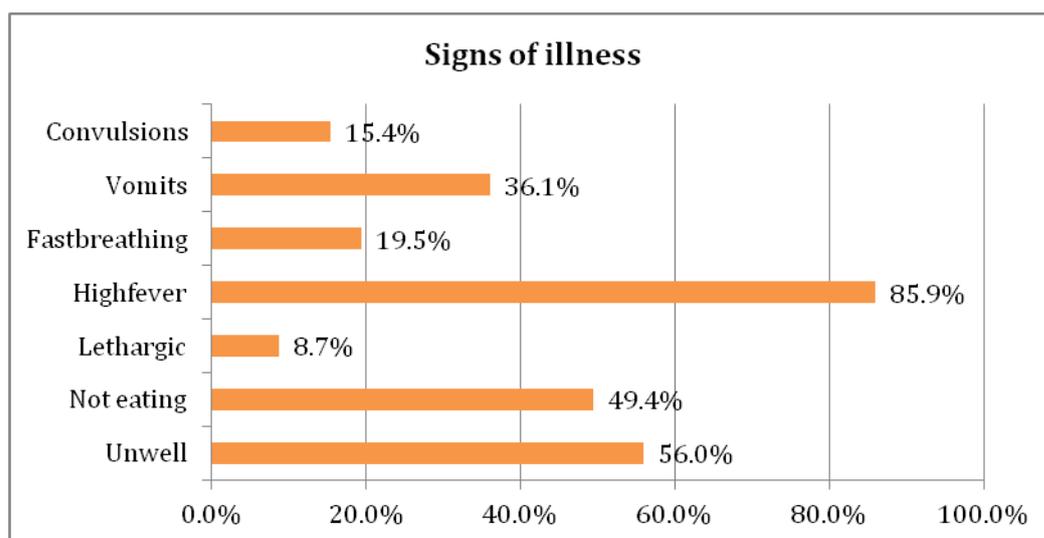


Figure 2.4: Knowledge of signs that indicate that a child would need treatment

In a bid to improve the health seeking behavior, FH therefore will continue using MOH-approved Community Integrated Management of Childhood Illnesses (C-IMCI) lessons which will focus on the most dangerous diseases and their symptoms: malaria (fever), anemia (pale complexion), respiratory infection (breathing difficulty), and diarrhea (watery stools) in the Care groups trainings. Caregivers will be trained in using a national IMCI algorithm card to assess the condition, classify the severity, identify treatment, and make referrals to the health clinic when needed.

²⁹ . These signs of illness assessed included: 1) Looks unwell or not playing normally, 2) Not eating or drinking, 3) Lethargic or difficult to wake, 4) High fever, 5) Fast or Difficult breathing, 6) Vomits everything, and 7) Convulsions.

2.11.3 Use of mosquito nets

Malaria remains one of the major diseases in DRC despite all the actions that are carried out to fight it. It is the first cause of morbidity and ranks as the third leading causes of death among children under five. Artemisinin-based combination therapy (ACT) and using insecticide-treated mosquito nets (ITNs) are recommended to reduce the rates of morbidity and mortality related to malaria. According to the baseline results, less than quarter 20.8% (95% CI: 15.9-26.5) of the children 0-23.9 months³⁰ slept under a mosquito net the previous night though more than a quarter [28.6% (95% CI: 22.9- 34.8)] of households in the program area reported owning mosquito nets of any type. The low level of usage is most likely linked to the low availability of mosquito nets in the area.

Unfortunately there is a problem of Insecticide Treated Net (ITN) availability in the country as well as to FH to distribute and improve the net coverage and therefore usage in the target areas. The non-availability of ITNs and the difficulty of confirming that mosquito nets were treated with insecticide are some of the main reasons why this program will focus on the promoting the use of any mosquito nets in the household. In order to increase the availability of mosquito nets in the area, FH will consider looking for partnerships for improving the coverage of bed nets during the program in all intervention areas³¹.

2.12 Prenatal Care Services (for mothers who children 0-23.9 months)

The DRC National Health Policy in line with the WHO recommendations suggests that women should visit with a skilled provider at least four times during a pregnancy. Less than half [35.4% (95% CI: 29.2-42.1)] of the respondents reported to have seen someone for prenatal care services. Of these mothers accessing prenatal care services more than three quarters (80%) were recorded to have been seen by a skilled health professional. Skilled health professionals in this circumstance include Doctors, Nurse/Midwife, and auxiliary Midwife (Figure 2.4).

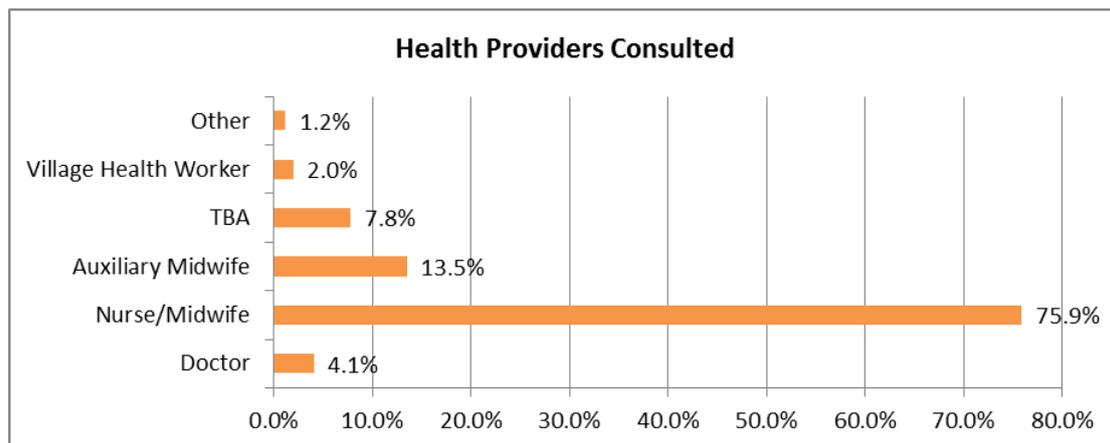


Figure 2.5: Proportion of mothers who reported visiting skilled providers

Slightly more than a 10% of the respondents were using unskilled health workers during their previous pregnancy. Unskilled health workers can be categorized as

³⁰ For this indicator, a child was considered to have slept under a mosquito net only after the enumerator confirmed that a net was hanging over the child's bed.

³¹ FH will try to speak to UNICEF and PSI but give no guarantee that this will yield positive results

traditional health attendants and community health workers or other services such as witchcraft. Almost one third (31.8%) of mothers reported that they made three antenatal visits for their last pregnancy, while 26.9% of mothers reported making four visits.

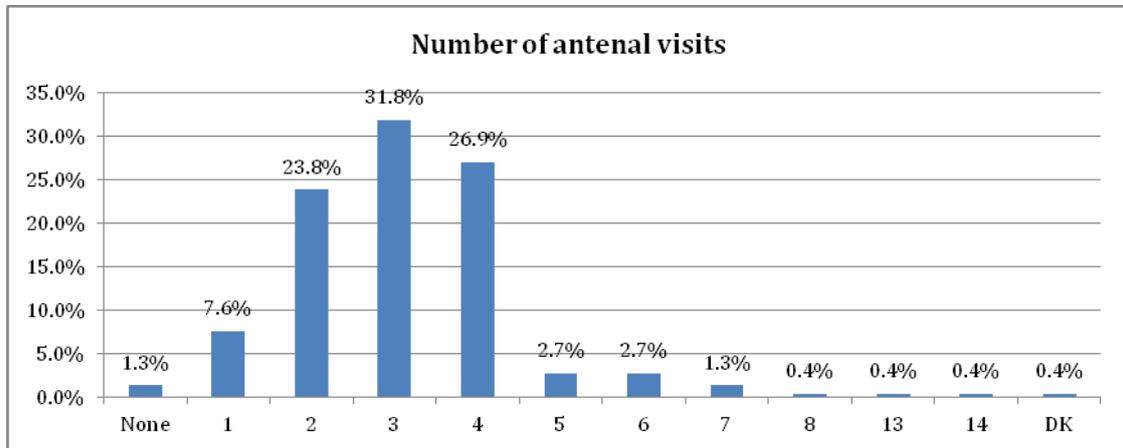


Figure 2.6: Frequency of the number of antenatal visits

WHO recommends expectant mothers make at least four ante-natal care visits to skilled health practitioners. On average, the mothers in our program area made 3.9 ante-natal care visits to skilled health practitioners. In line with the National Health plan, the FH program will be promoting antenatal visits by pregnant mothers through Care Group teachings.

2.12.1 Danger signs during pregnancy and delivery

Overall, the proportion of mothers of children under two who know **three** or more danger signs during pregnancy and delivery was 11.0% (95% CI: 7.4 - 15.6). Knowledge of the danger signs during pregnancy and delivery is key to the prevention of poor birth outcomes or complications as well as mortality. Overall the caregivers were able to identify on average 2.4 danger signs, with a median of 2. Among all caregivers interviewed, 42.4% (95% CI: 36.2-48.9) were able to identify three or more danger signs during pregnancy. The danger sign most mentioned was severe stomach aches at 60.8% (95% CI: 54.4-67.0), while the least recognized danger sign during pregnancy was convulsions reported at 4.1% (95% CI: 2.0-7.4) as in Figure 2.6 below.

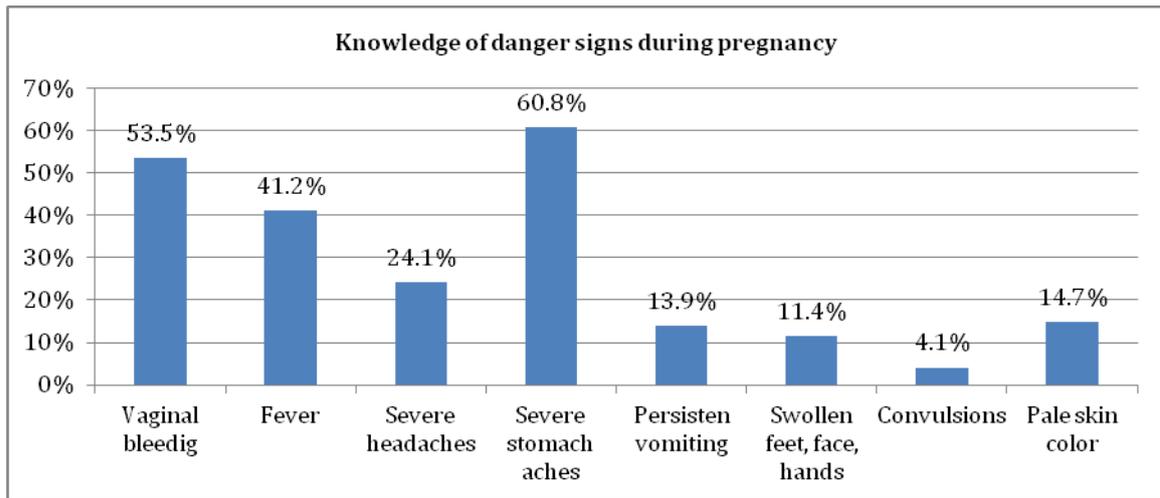


Figure 2.7: Knowledge of danger signs during pregnancy

Caregiver respondents knew an average of 1.53 danger signs with a median of 2. Only 7.3% of caregivers reported that they did not know any danger signs during delivery (Figure 2.7). This will be important to keep into account as FH incorporates teaching material on danger signs during delivery through Care Groups. Among all caregivers interviewed, 13.5% (95% CI: 9.5-18.4) identified the three danger signs during delivery.

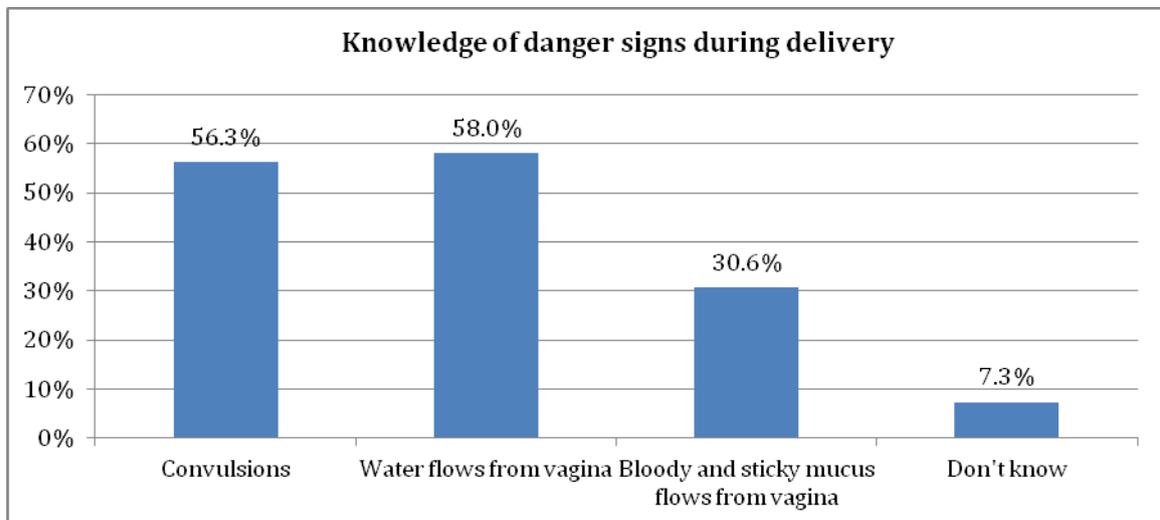


Figure 2.8: Knowledge of danger signs during delivery

3. IMPROVED USE OF CLEAN WATER, SANITATION FACILITIES AND HYGIENE BEHAVIOR

Under the sustainable safe water, improved sanitation and hygiene practices objective, Food for the Hungry aims to ensure communities have year round access to safe water, improved sanitation and adoption of healthy hygiene practices. Activities set to achieve this objective include rehabilitation and/or construction of water sources such as shallow wells and springs, promotion of water treatment and storage practices,

rehabilitation and construction of communal sanitation facilities at institutional and village levels and promotion of personal/environmental hygiene through mobilization and education of beneficiaries.

3.1 Access to improved drinking water source

About three quarter [75.1% (95% CI: 72.0-78.0)] of the respondents reported normally having access to water from the main source³², while 24.7% (95% CI: 21.8-27.8) of the households responded that in the last two weeks, water was unavailable from this source for a day or longer. Of these only 37.6% (95% CI: 34.3-41.0) households had access to an improved drinking water source³³. It was observed that most respondents drew water from the protected shallow wells and springs though these had reduced yield in the dry seasons and were over crowded in most instances.

3.2 Water Treatment at Home

The baseline results show that majority [86.9% (95% CI: 84.4-89.1)] of the households do not do anything to the water they collect to make it safer for drinking. Only 8.4% say that they add bleach/chlorine, 3.7% boiled water, and 0.6% say they add PUR or a similar product.

Table 3.1: Methods of treating water for drinking at home

Treatment	%
Boil	3.7
Add Bleach/Chlorine	8.4
Water Filter (ceramic Sand, Composite)	0.5
Add PUR/similar Product	0.6
Other	0.7
Do not do anything	86.9

For those who reported that they treated the water to make safer for drinking, 19.0% (95% CI: 12.0-27.9) mentioned that the last time they treated it was the day of the survey; 38.1% (95% CI: 28.8-48.1) mentioned that they did it the day before, and 29.5% (95% CI: 21.0-39.2) treated their water over one day but less than one week ago.

Overall there is still low practice of water treatment within the target population. Treating water makes it safe for human consumption and also helps to reduce the occurrence of water borne diseases within the population. FH DRC will therefore advocate and promote various types of water treatment ingredients appropriate to the

³² For this baseline, the “main source” of drinking water for a household is the water source where the household primarily gets their drinking water from.

³³ An improved drinking water source is an infrastructure improvement to a water source, a distribution system, or a delivery point, which by the nature of its design and construction is likely to protect the water source from external contamination, in particular from fecal matter. Such as; piped water into dwelling, plot, or yard, public tap/standpipe, tube well/borehole, protected dug well, protected spring and rainwater collection.

various program implementation sites for the program especially Point-of-use (POU) water purification approaches.

3.3 Access to improved sanitation facilities

As a means of ascertaining hygiene practices, improved latrine ownership and use were assessed. The study revealed that the majority (81.4%) of the households did not have latrines. Of the 18.6% (95% CI: 15.9-21.6) households with improved sanitation³⁴ facilities, 58.8% (95% CI: 55.2-62.4) of the household use either improved or unimproved sanitation facilities and do not share with other households. In this program, FH will construct improved sanitation facilities in order to address this low percentage of beneficiaries with access to sanitation facilities.

3.4 Adoption of Healthy Hygiene Practices

Hand washing with soap is an important practice for safe hygiene which can be easily observed at the individual level. Hand washing is also a critical means to achieving healthy hygiene practices as an intermediate result under the project. During the survey, the proportion of caregivers of children 0-23.9 months who reported having soap and water at a hand washing station was 1.7% (95% CI: 0.5 - 4.2). It is however important to recognize that soap was used for other purposes besides hand washing or personal hygiene.

A large majority of the households [92.9% (95% CI: 88.9-95.8)] do not have any specific place for hand washing. Only 7.1% (95% CI: 4.2-11.1) of households reported having a hand washing station of any kind (Figure 3.1).

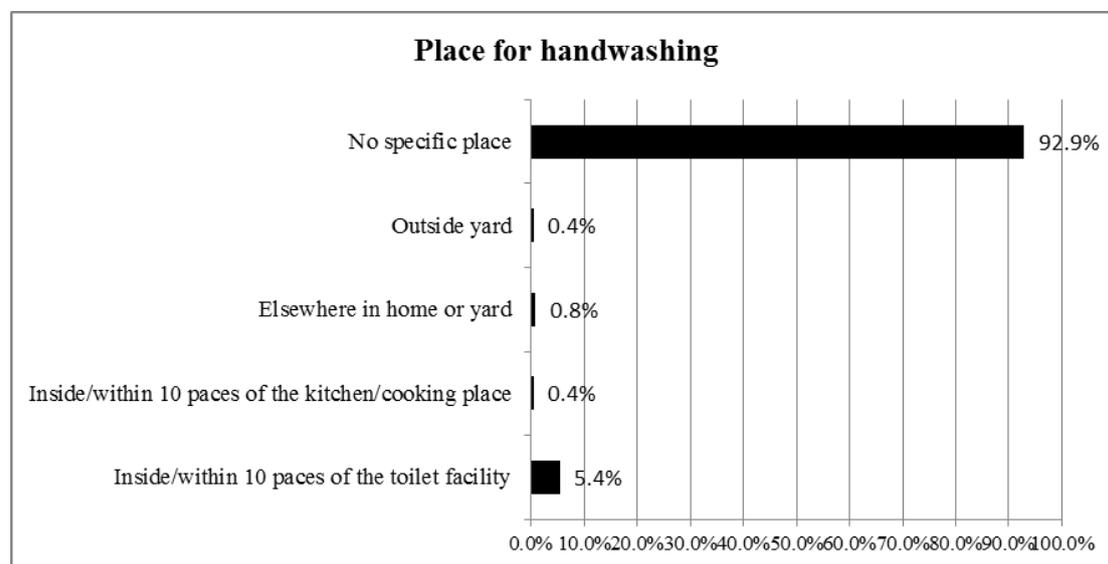


Figure 3.1: Specific places for hand washing in Households

Almost half of the respondent households that had specific hand washing stations had water present at the station [43.8% (95% CI: 19.8-70.1)]. Among all of the

³⁴ Improved sanitation is defined as the following: flush or pour/flush facilities connected to a piped sewer system, a septic system or a pit latrine. Pit latrines with a slab, composting toilets, and ventilated improved pit latrines are also considered improved sanitation facilities.

households, only 0.8% (95% CI: 0.1-3.0) had bar soap present at the specific hand washing place, 0.8% (95% CI: 0.1-3.0) had ash available, while 5.8% (95% CI: 3.2-9.6) had no hand washing agent available at the station. Among all households that were interviewed, 1.7% of caregivers of children 0-23months live in a HH with soap and water at a hand washing station. None of the households interviewed had detergent (powder, liquid or paste) or liquid soap available (including shampoo) within the house. In order to ascertain whether people practiced appropriate sanitary behavior, respondents were requested by the interviewers to check their latrines and hand washing containers both for water and soap.

4. CROSS CUTTING ISSUES

4.1 Improved gender equity in decision making and labor sharing

DRC is characterized not only by strong geographic and social inequalities, but also by deep-seated gender inequalities. On the national scale, the lack of women included in the DRC government continues to impede women from playing a full role in the processes of the reconstruction and the development of their country.

In South Kivu and Katanga women, in general, are responsible for the vast majority of household activities related to child care, food preparation, housekeeping, and other domestic activities, and still make significant contributions to agricultural activities. While men often prepare fields to be used for agriculture activities (cutting down trees, clearing land), it is often the women who provide most of the daily labor in the fields by planting, cultivating, and harvesting. Despite women's great contribution and responsibility in the family, decision making at the household and community levels remains dominated by men. Only 18.2% of women in South Kivu and 9.8% in Katanga are consulted in five basic aspects of household decisions (deciding personal health issues, major household purchases, routine household purchases, visiting her own family, and deciding what food to prepare). About 62.5% and 53.2% of women report having been physically abused in Katanga and South Kivu respectively. More than 40% in both provinces reported physical violence in the past year.³⁵

This under-appreciation based on cultural and historical perceptions of women contributes to gender inequalities which affect nutrition, labor dynamics, level of education, and fundamental rights, all of which have detrimental effects on family food security. Both men and women, working together in partnership, are needed to increase agricultural production and reduce food insecurity.

FH proposes through this Title II program to address inequalities between men and women by addressing their access to and utilization of resources through advocacy and community sensitization. In each of the programmatic aspects, FH will incorporate both men and women into activity frameworks, promoting dialogue and exchanges that are expected to result in greater sharing of tasks as well as increasing shared decision making in the household. Improvements in gender perception in the household will help increase social support for gender mainstreaming and reduce marginalization of women across society.

The results of the baseline survey will help FH to search for an appropriate way in the context of the implementation of this new project to begin a constructive, participative and culturally appropriate dialogue around the issues of gender inequity in its beneficiary communities.

³⁵Ministère du Plan et Macro International. 2008. Enquête Démographique et de Santé, République Démocratique du Congo 2007. Calverton, Maryland, U.S.A. : Ministère du Plan et Macro International.

4.1.1 Average gender attitude index score for women and men

In collaboration with Search for Common Ground, FH decided to include a detailed quantitative gender index³⁶ in to this survey. The results from this quantitative analysis would complement the qualitative gender barrier analysis conducted by SFCG in Mubumbano, Kalemie and Moba before the start of the program. As a cross cutting theme, the promotion of gender equality has an important place in the program as it permeates every aspect of programming. The average gender index score for females (35.9 with a median of 36.4) and males (38.1 with the median of 40.9) were assessed as a part of the IPTT. Since 100 is the optimal gender index score which reflects attitudes of gender equality, a score of less than 40 falls short of the desired score. FH and SFCG will collaborate to organize discussion groups, theatre presentations, and radio broadcasts in order to promote a healthy view of gender equality.

4.1.2 Decision Making

During this baseline, three main aspects of decision making: 1) the decision about the number of children, 2) the use of income without consulting the partner, and 3) the participation in a community decision making body were assessed among married women of reproductive age (15-49) and married male farmers.

Concerning decision making about the number children they should have in their households, a high percentage of men made the decision by themselves compared to women. Almost half of the women reported that their husbands made the decision of whether they would have children [43.9% (95% CI: 38.8-49.1)], while 9.1% (95% CI: 6.3-12.7) of males responded that it was their spouses who decide. The results show also that external people play a significant role in decision making regarding the number of children a couple will have. Both male and female respondents reported that others made the decision.

In terms of decision-making regarding spending money, 89.6% (95% CI: 86.1-92.5) of female respondents and 80.4% (95% CI: 75.8-84.5) of male respondents reported that they do not consult their partner before spending money. This is a statistically significant difference showing that females tend to be more autonomous in spending money than males. Often money given to women in these communities is spent on healthcare, school fees, and food for the household. Thus women may feel freer to spend money without consulting their spouses than males since their spending patterns may be less erratic.

Participation in community decision making bodies is another important parameter that was assessed during the baseline surveys. Both married women of reproductive age (15-49 of age) and male farmers were interviewed. The findings show that 86.7% (95% CI 82.8-90.0) of women and 70.9% (95% CI: 65.8-75.7) of men do not participate in any community decision making body. Those who mentioned that they

³⁶ The gender index was composed of 11 questions, with each question having a possibility of scoring a maximum of two points depending on the answer. In the same question, a response may be assigned 1 point, while another response reflecting a practice of gender equality was assigned 2 points. To this effect, a total of 22 points were possible from the gender index whose score was calculated from a percentage. So, if an individual scored 21/22 they would be given a gender score of 95 [(21/22)*100].

are members of other decision making bodies include church committees, Farmers Leaders Groups, etc. Statistically, fewer women take on leadership positions than men in these communities. This shows that a special emphasis must be made on including women in decision making bodies such as CDCs, FLs, and WATSAN committee members since there is a currently less female representation in these local structures.

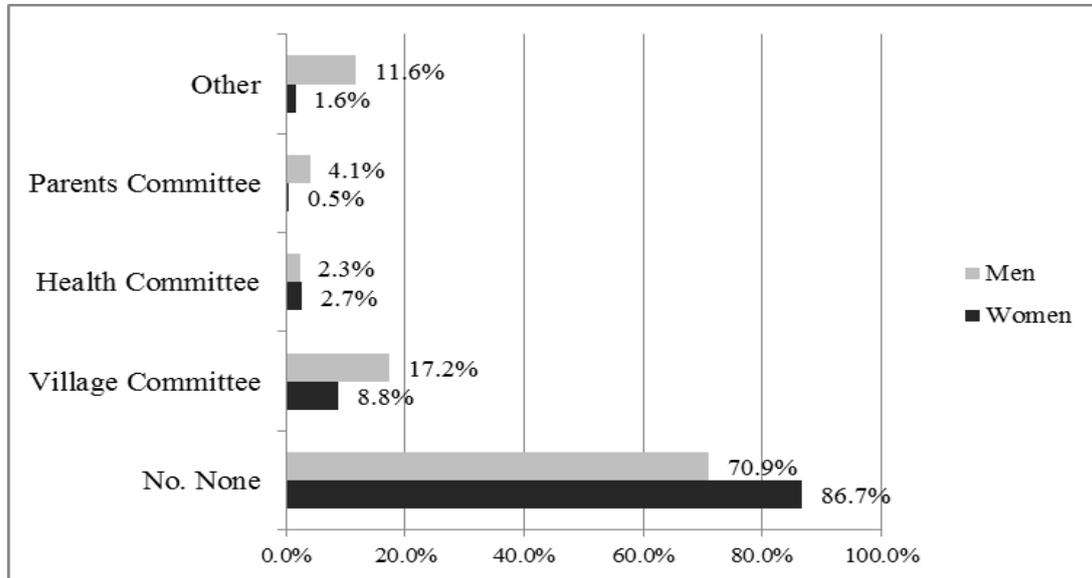


Figure 4.1: Membership in decision making bodies

4.1.3 Domestic violence

Domestic violence is also one of the issues that were measured during this survey. More than one third of women and men reported that they know of a household where a man regularly beats his wife. Among female respondents, 39.9% (95% CI: 35.0-45.1) reported that they know of a household where domestic violence is committed against the woman while 39.7% (95% CI: 34-45.1) of males responded that they knew a household where a husband regularly beat his wife.

Nine out of every ten respondents (male or female) responded that it is okay for a man to hit their wife in one or more situation. The percentage of women who say it is okay for a man to hit a woman in one or more situations was 89.9% (95% CI:86.4-92.7) while 89.5% (95% CI: 85.8-92.6) of men say it is okay for a man to hit a woman in one or more situations. Clearly domestic violence against women remains a key issue to address in this program. Causes of domestic violence were also explored in this survey in order to determine in what situations men were justified to beat their wives.

The most common reasons cited that justified a man hitting a woman were: 1) unfaithfulness, 2) refusing sex, and 3) arguing with your partner. Interestingly, a higher percentage of women than men answered that all of the reasons cited (unfaithfulness, arguing with husband, neglects children, refuses sex, prepares food that does not taste good, goes out without consulting husband, comes home late) justified a man beating his wife. This reflects that the perceptions regarding domestic violence need be changed among both men and women.

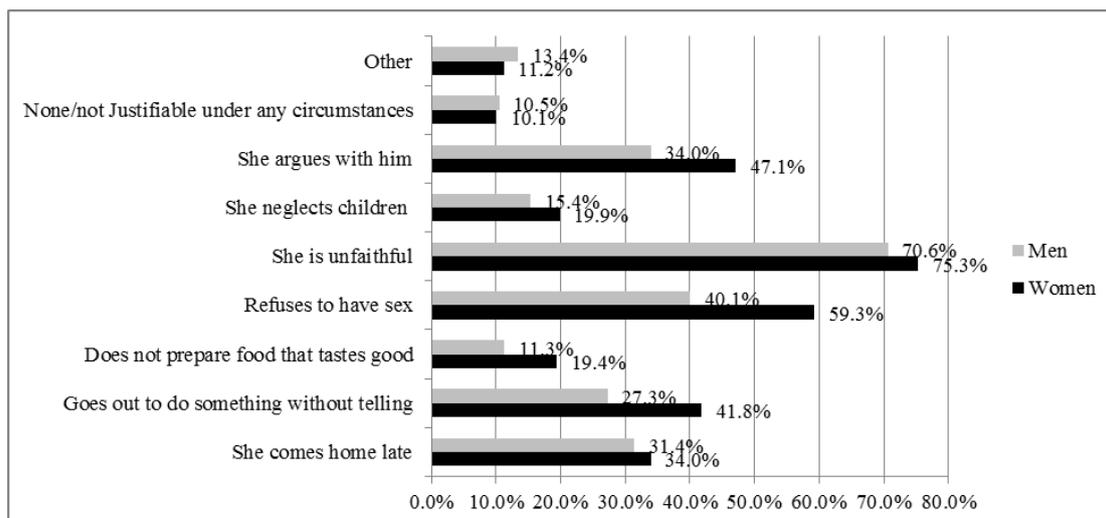


Figure 4.2: Reasons or the justification for beating women

4.1.4 Use of household income

The survey looked at the different uses of household income and how it was kept by both men and women. Almost half of all women and men reported that once they receive money, they put it in the “caisse” or the household shared pot. This practice will be promoted through the gender programming highlighted in FH’s work with SFCG because it shows that households practice shared decision making when it comes to the use of income. According to women, more men share a portion of their income with their wives [10.4% (95% CI 7.6-14.0)] than women share a portion with their husbands [3.2% (95% CI: 1.70-5.70)]. Figure 4.3 reflects what respondents report their spouses do with the money that they receive.

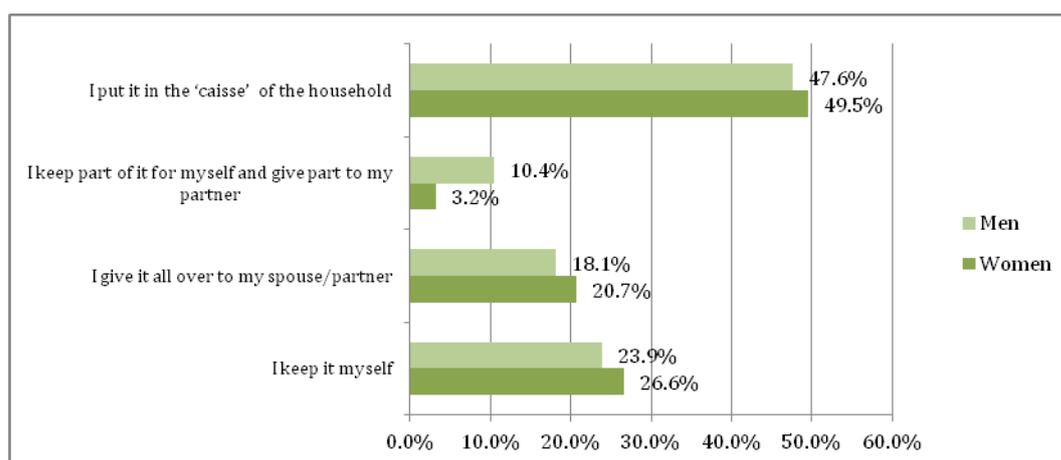


Figure 4.3: Proportion of respondents who reported what their partner does with income he receives by sex

4.1.5 Division of labor between husband and spouse

In DRC, significant gaps remain between men and women regarding the division of labor in the household. This survey sought to identify the number of hours men and women worked in the household and outside of the household. This will help to understand the total number of hours worked each day segregated by sex. The results

show that the average number of hours spent on housework per day was 5.0 for women and 3.4 for men. This confirms that women spend more of their hours during the day doing housework. The opposite is found when it comes to work outside of the home that generates income. The average number of work hours per day outside of the household was 5.2 for men and 4.8 for women. This differences shows that men are more involved in productive activities than women³⁷. In total, women work more hours in the day, with an average of 9.8 hours per day compared to an average of 8.6 hours for men. This means that even though women work more in and around the house, they spend more hours during the day doing work.

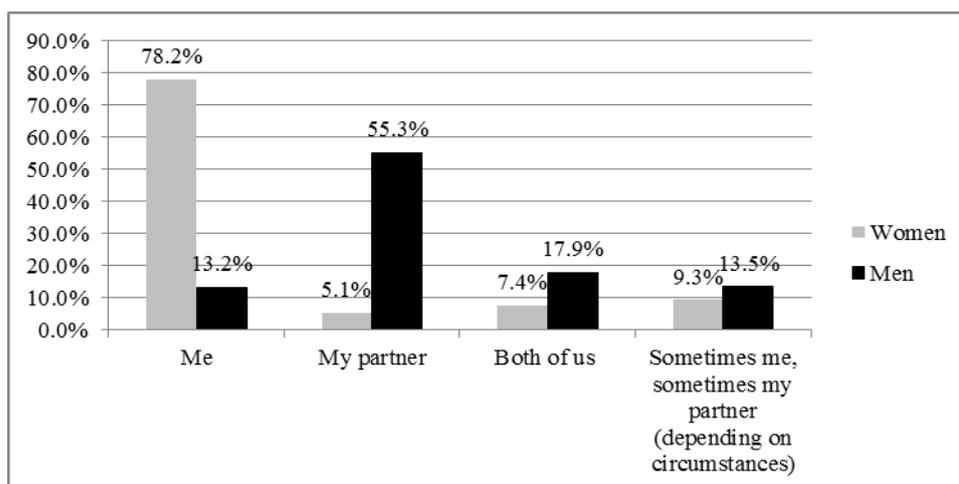


Figure 4.4: Proportion of respondents who carry items they walk together with their partner by sex

Culturally, the labor division has put women in a situation where they perform more tasks. They are overburdened because of the prevailing mindset that women should perform many tasks and even be the primary transporter for heavy loads. It is useful to look at the degree to which men recognize that women have many tasks to do and are willing to help to understand gender patterns in communities. The baseline results show that 78.2% (95% CI: 73.7-82.3) of women reported that when they walk together with their partner somewhere (e.g. market, planting field) they carry items, while 13.2% (95% CI: 9.9-17.4) of men reported that they carry items when they walk with their spouse. Only 5.1% (95% CI: 3.2-7.9) of women recognize that their partner carries items when they walk together contrary to 55.3% (95% CI: 49.8-60.7) of men who reported that it was their partner who carries items.

4.1.6 Traditional Practices

The baseline results showed that early marriage is a common practice in the intervention areas. Among the female respondents, 86.1% (95% CI: 82.20-89.50) reported that a female in their household married when she was less than 15 years of age against 83.5% (95% CI: 79.2-87.3) of male respondents who reported this. Only 0.3% (95% CI: 0.0-1.7) of women and 0.3% (95% CI: 0.0-1.9) of men reported that the girl in their family married after 18 years of age. These practices most likely have

³⁷ A “productive activity” includes any activity related to generation of household income. This may include cultivating the land, preparing the land for cultivation, going to the market to buy seeds or sell produce, caring for livestock, working for wages

implications on the girls' status in their communities and may truncate the possibilities of seeking a higher level of education.

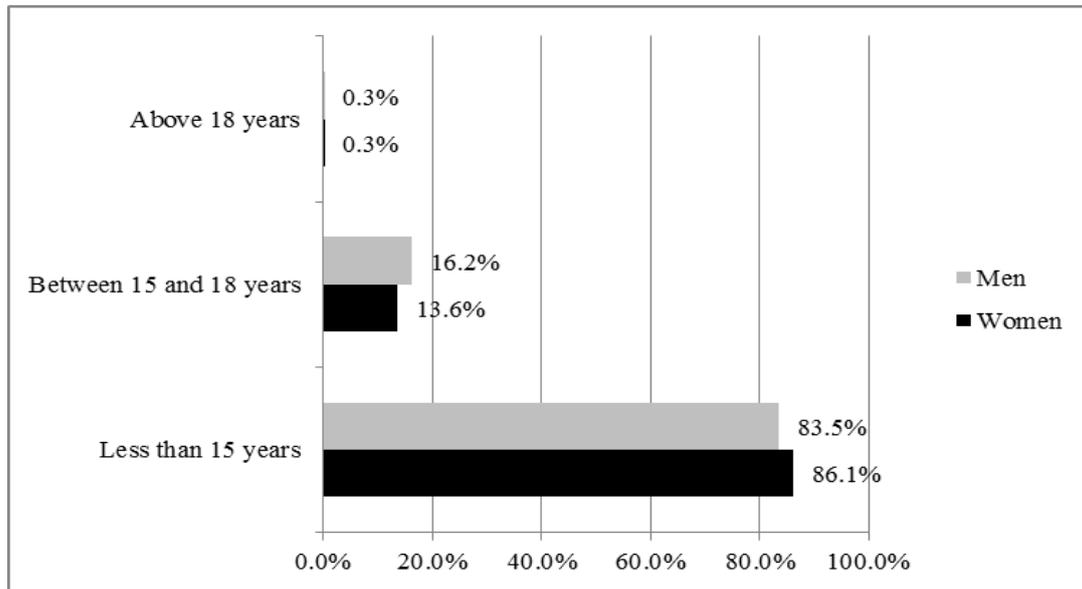


Figure 4.5: Frequency of early marriage as reported by men and women

The minimal age at which a girl should marry from the perspective of both men and women is the same. The average age they think a girl should marry was 18.6 years of age. This shows that a discrepancy exists between the minimum age that girls actually marry and what adults think should be the age when girls marry.

Female and male adults were asked about whether they had a preference for a child to be a certain gender. Women and men have different views according to the baseline results and their preferences are very segregated. Statistically, women prefer to have girls, while men prefer to have boys. On one hand, 24.9% (95% CI: 20.6- 29.6) of women prefer to have a girl against 12.4% (95% CI: 9.1-16.4) of male respondents. On the other hand, 44.4% (95% CI: 39.1- 49.9) of male respondents reported that they prefer having a boy against 27.8% (95% CI: 23.4-32.7) of women. Interestingly, those who do not have any preference remain very high; among women, 47.3% (95% CI: 42.2-52.5) and 43.2% (95% CI: 37.9-48.7) of men reported that they have no preference.

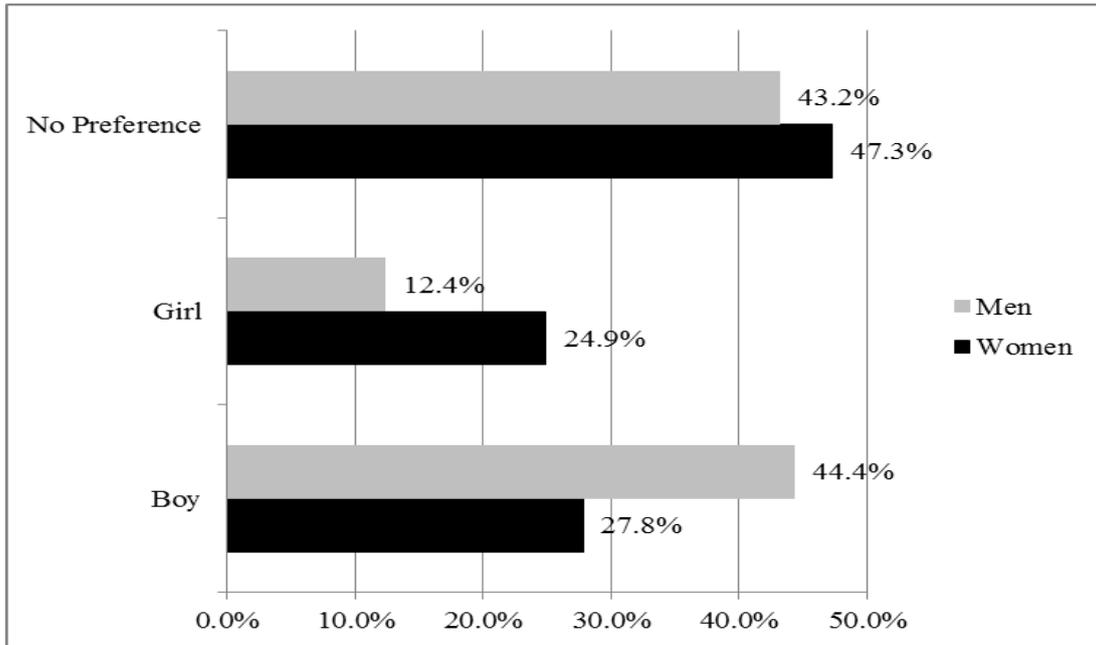


Figure 4.6: Frequency of child sex preference as reported by men and women

To the question whether it is more important for a girl to find a husband than to finish secondary education; among both males and females a large majority of the respondents reported that they do not think that it is more important for a girl to get married than to study (Males: 76.8% [95% CI: 71.9-81.2] and females 74.4% [95% CI 69.70-78.70]).

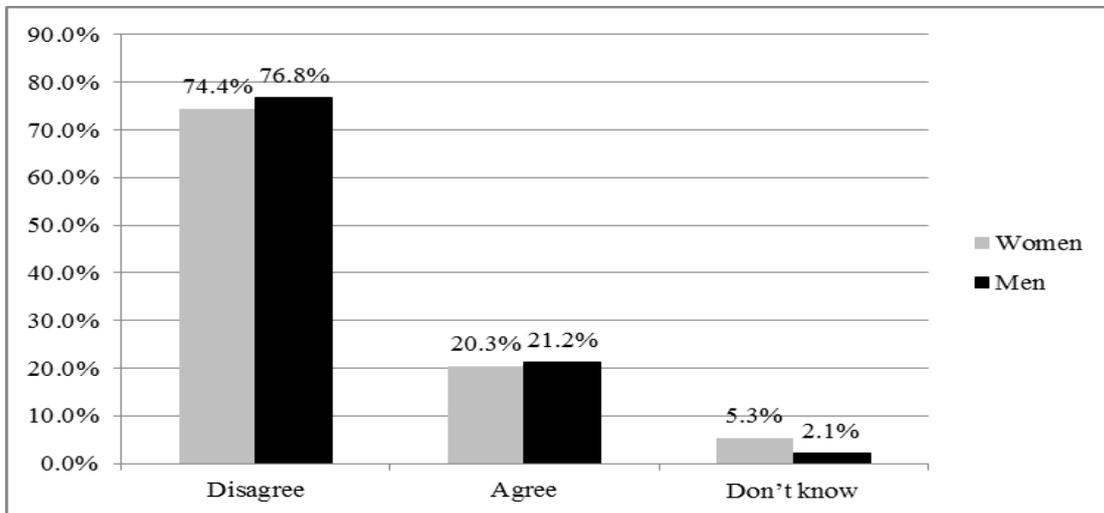


Figure 4.7: Importance girl's marriage vs. education

4.1.7 Gender Equity

This program seeks to promote gender equity in decision making at the household level. Gender equity was measured using three indicators for currently married women age 15-49 years:

- seeking health services for the respondent's health
- seeking health services for children's health
- how to spend money she herself has earned.

The desired outcome is that women would be able to make the decisions on their own, or jointly with their partner/spouse. The percentage of women who reported making the decision by themselves or jointly with their partners/husbands to seek health services for their own health was 20.6% (95% CI: 17.4-24.2). Concerning seeking health services for her children's health, 28.3% (95% CI: 24.7-32.2) of women reported making the decision by themselves or jointly with their partners/husbands. Moreover, the percentage of women who report making the decision by themselves or jointly with their partners/husbands on how to spend money she herself has earned was 9.1% (95% CI: 6.9-11.8). This shows that in more than 9/10 cases, women were not allowed to decide themselves or were consulted on what they would do with the income that she earns. This poses a dilemma showing that about 90% of husbands hold control over the money that the woman earns herself.

Married women were asked about their husband's occupation. Four out of every five households are farming households with less than 5% of men reported as having no work.

Table 4.1: Occupation of husbands in the study area

Husband's occupation	Percentage	95% CI
Farming	81.3	77.0-85.1
Non-farming	14.2	10.9-18.2
No work	4.5	2.8-7.3

Interestingly, 63.6% (95% CI: 58.5-68.5) of households stated that in addition to their non-paid household work, they have had some income-generating activity in the past 12 months.

5. SUMMARY OF MONITORING & EVALUATION AND BASELINE INDICATOR

The monitoring and evaluation system of the program proposes the use of a variety of methods to measure the indicator values of the indicators selected for this program. One of the main objectives of this study was to measure the baseline values for the impact and monitoring indicators that needed to be measured during the life of the project, as well as to test the feasibility of measuring the proposed indicators and achieving the respective targets over the life of the program.

The next section briefly summarizes indicators to be tracked throughout the project phases. Changes are reflected and comments placed against the indicator as appropriate, based on the experience and recommendations stemming from the baseline study implementation. All other suggested changes and comments are also included in the table. This is followed by a section that suggests a timeline that can be used for the M&E Implementation System. Lastly, there are tables that summarize all the indicators, give indicator values for those that were measured with the questionnaire surveys and suggest changes or alternative indicators where necessary.

5.1 IPTT Indicators' Baseline estimate and 95% CI table (Revised Indicators)

FH DRC IPTT					
Indicator Type	FFP	Indicator Performance Tracking Table	Change (+) or (-)	Baseline estimates (%)	Confidence Interval (95%)
PROGRAM GOAL: Reduce food insecurity of vulnerable households in South Kivu and Katanga Provinces					
SO 1: Improved livelihoods of vulnerable households					
Impact	FFP	Average household dietary diversity score	(+)	3.8	
Impact	FFP	Percentage of households with moderate or severe hunger	(-)	51.8	(43.0- 52.0)
IR 1.1: Increased agricultural production					
Outcome	FFP	Percentage of farmers who used a minimum of four (4) sustainable agricultural practices or technologies in the most recent growing season	(+)		
			(+)	10.8	(9.6- 12.2)
		Men	(+)	8.7	(10.6- 14.2)
		Women	(+)	12.3	(10.6- 14.2)
		Green manure and cover crops		7.8	(6.7- 9.0)
		Compost (for small plots)		27.6	(25.7- 29.5)
		Crop rotation and intercropping		55.5	(53.4- 57.6)
		Proper plant density		6.6	(5.6- 7.7)
		Integrated pest management		2.70	(2.1- 3.5)
		Incorporation of organic matter		39.1	(37.1-41.2)
		Mulching		11.2	(10.0-12.6)
		Improved post-harvest processing technologies		6.2	(5.2, 7.3)
		Improved grain storage technologies		5.3	(4.5- 6.4)
Outcome	FFP	Percentage of farmers who used at least two improved storage techniques in the last postharvest period (for maize, cassava, beans, groundnuts)	(+)		
			(+)	5.6	(4.2- 7.4)
		Men	(+)	6.9	(4.6-10.3)
		Women	(+)	4.7	(3.1-7.0)

Outcome		Percentage of farmer households reporting a perceived increase in production compared to the last harvest period	(+)		
Outcome		Maize	(+)	19.4	(14.8, 24.7)
Outcome		Beans	(+)	24.0	(18.8-29.8)
Outcome		Groundnuts	(+)	13.0	(6.9-21.7).
Outcome		Cassava	(+)	18.2	(14.5- 22.5)
Outcome		Sweet Potatoes	(+)	29.7	(23.1-36.9)
Outcome		Banana	(+)	21.1	(13.4- 33.0)
Outcome		Percentage of farmers using improved crop varieties (including disease resistant crops)	(+)	6.5	(5.5- 7.6)
			(+)		
Outcome		Maize	(+)	2.4	(1.2- 4.5)
Outcome		Cassava	(+)	6.4	(4.7- 8.6)
Outcome		Beans	(+)	9.6	(7.0- 13.1)
Outcome		Sweet potatoes	(+)	8.4	(5.5- 12.2)
Outcome		Groundnuts	(+)	1.4	(0.2- 4.8)
Outcome		Percentage of households owning at least 1 TLU	(+)	0.8	(0.2- 2.1)
IR 1.2: Improved use, conservation and management of natural resources					
Outcome		Area of land recovered under natural resource conservation methods (ha)	(+)		
Outcome		Percentage of farmers with long-term access rights to at least 1/2 ha	(+)	39.2	(34.9-43.6)
		Men	(+)	50.0	(44.8-56.6)
		Women	(+)	23.0	(17.4-29.3).
IR 1.3: Increased access to credit					
Outcome	FFP	Percentage of farmers who used financial services (credit, savings, insurance) in the most recent growing season	(+)	18.0	(15.5-20.9)
		Men	(+)	18.3	(14.4- 22.9)
		Women	(+)	17.8	(14.5- 21.7)
Outcome		% of VSLA participants reporting access to credit in the last year	(+)		

Outcome		% of VSLA participants reporting use of credit in the last year	(+)		
IR 1.4: Improved marketing of agriculture products					
Outcome	FFP	Percentage of farmers who participated in postharvest value chain activities in the most recent growing season	(+)	10.7	(8.7-13.1)
		Men	(+)	11.5	(8.4- 15.5)
		Women	(+)	10.1	(7.6- 13.3)
SO 2: Improved health and nutrition of individuals within vulnerable households					
Impact	FFP	Percentage of underweight (WAZ<-2) children aged 0-59m	(-)	26.5	(23.6- 29.6)
		Males	(-)	33.3	(29.0- 38.0)
		Females	(-)	19.7	(16.2- 23.8)
Impact	FFP	Percentage of stunted (HAZ<-2) children aged 0-59m	(-)	49.4	(46.0- 52.7)
		Males	(-)	56.4%	(51.6- 61.1)
		Females	(-)	42.5	(37.8- 47.3)
Impact	FFP	Women's dietary diversity score: Mean number of food groups consumed by women of reproductive age	(+)	3.8	
Impact	FFP	Percentage of underweight (BMI<18.5) women of reproductive age (15-49 years)	(-)	18.9	(15.5-22.7)
IR 2.1: Improved use of Essential Nutrition Actious at the household level, especially by preguant women and mothers of children under 5 years					
Outcome	FFP	Prevalence of children 0-5 months of age who are exclusively breastfed	(+)		
			(+)	52.4	(41.2-63.4)
		Males	(+)	47.4	(31.0- 64.2)
		Females	(+)	56.5	(41.1- 71.1)
Outcome		Percentage of caregivers of children 6-23 months reporting that their child received vitamin A supplements in the past 6m	(+)	68.8	(60.9- 76.0)
			(+)		
Outcome		Percentage of children 6-23 months who had oil added to their complementary food in the last 24hours	(+)	25.8	(19.1- 33.4)
IR 2.2: Increased Dietary Diversity and Food Consumption Quality at the HH Level, especially by Children-Under 2 and PLW					
Outcome	FFP	Percentage of children 6-23 months receiving a minimum acceptable diet	(+)		
			(+)	11.6	(6.9- 17.9)
		Males	(+)	8.2	(2.7-18.1)
		Females	(+)	14.0	(7.4- 23.1)
IR 2.3: Improved household and community case-management of maternal and child conditions and diseases that exacerbate malnutrition					
Outcome		Percentage of caregivers of children aged 0-23 months who adopted 3 or more health treatment behaviors (ORT during	(+)	11.2	(7.5- 15.9)
			(+)		

		last diarrheal episode, offered same amount or more food during illness, etc)			
Outcome		Percentage of caregivers of children age 0–23 months who know at least three signs of childhood illness that indicate the need for treatment	(+)	56.0	(49.5- 62.4)
			(+)		
Outcome		Percentage of children 0-23 months who slept under a mosquito net the previous night	(+)	20.8	(15.9-26.5)
			(+)		
Outcome		% of women of age 15-49 who had four or more antenatal visits with a skilled provider for the last pregnancy	(+)	35.4	(29.2- 42.1)
Outcome		Percentage of mothers of children under two who know 3+ danger signs during pregnancy and delivery	(+)	11.0	(7.4 - 15.6)
IR 2.4: Improved Use of Clean Water, Sanitation Facilities, and Hygiene Behaviors					
Outcome	FFP	% of households with access to an improved sanitation facility	(+)	18.6	(15.9-21.6)
Outcome	FFP	% of households using an improved drinking water source	(+)	37.6	(34.3-41.0)
Outcome	FFP	% of households caregivers of children 0-23 months who live in a household with soap and water at a hand washing station	(+)	1.7	(0.5-4.2)
Cross Cutting Indicators					
CCI 1: Improved gender equity in decision making and labor sharing					
Impact		Average gender attitude index score	(+)		
		Men		38.1	
		Women		35.9	
Outcome		Percentage of women who say that it's okay for a man to hit a woman in one or more situations	(-)	89.9	(86.4- 92.7)
Outcome		Percentage of men who say it's okay for a man to hit a woman in one or more situations	(-)	89.5	(85.8- 92.6)
Outcome	FFP	Percentage of currently married women age 15-49 reporting that: she makes decisions either by herself or jointly with her spouse regarding:			
		seeking health services for her own health	(+)	20.6	(17.4-24.2)
		seeking health services for their children's health	(+)	28.3	(24.7-32.2)
		how to spend money she herself has earned	(+)	9.1	(6.9-11.8)

6. APPENDICES

Appendix 1: Sampling Frame

Appendix 2: Survey questionnaires (French and English versions)

Appendix 3: Training Schedule for Supervisors and Interviewers

Due to size, the appendices were not included in this narrative report and sent in separate electronic copies