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Annual Results Report**

**ACDI/VOCA UGANDA**

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**HQ: Suzanne Berkey**

Managing Director

50 F Street N.W, Suite 1000, Washington, DC 20001

Tel: (202) 469-6088; Fax: (202) 626-8726

sberkey@acdivoca.org

**Field: John “Bick” Riley**

Chief of Party

Plot 31 Mpanga Close, Bugolobi, Kampala, Uganda

Tel: +256 757 721 880

jbriley@acdivocaug.biz

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**ATTACHMENTS**

- A. Indicator Performance Tracking Table
- B. Detailed Implementation Plan
- C. Expenditure Report
- D. Tracking Table for Beneficiaries and Resources (to be submitted in FFPMIS)
- E. Standardized Annual Performance Questionnaire (to be submitted in FFPMIS)
- F. Monetization Tables (to be submitted in FFPMIS)
- G. Supplemental Materials
- H. Photographs
- I. Response to USAID questions on FY13 Q2 Report

## List of Acronyms

CAG	Community Action Group
CAHW	Community Animal Health Worker
CSC	Community Score Card
DRR	Disaster Risk Reduction
FaaB	Farming as a Business
FDP	Food Distribution Point
FEW	Field Extension Worker
FMNR	Farmer Managed Natural Regeneration
FTG	Farmer Training Group
FY	Fiscal Year
GMP	Growth Monitoring and Promotion
HC	Health Center
HICAP	Health Institution Capacity Assessment Process
IR	Intermediate Result
KALIP	Karamoja Livelihoods Program
km	kilometer
LM	Lead Mother
MCG	Mother Care Group
MoH	Ministry of Health
MT	Metric Ton
NAADS	National Agriculture Advisory Service
NabuZARDI	Nabuin Zonal Agricultural Research and Development Institute
NRM	Natural Resource Management
PHH	Post-Harvest Handling
PLW	Pregnant and Lactating Women
SO	Strategic Objective
TIPs	Trials of Improved Practices
VHT	Village Health Team
WFP	World Food Program

## **I. Introduction: Annual Food Aid Program Results**

The Resiliency through Wealth, Agriculture, and Nutrition in Karamoja (RWANU) project (Cooperative Agreement #AID-FFP-A-12-00011), a five-year USAID Food for Peace Development Food Assistance Program (DFAP), was awarded to ACIDI/VOCA on August 10, 2012. The overall goal of the program is reduced food insecurity among vulnerable people in Southern Karamoja and the program has two strategic objectives (SO): 1) Improved access to food for men and women; and 2) Reduced malnutrition in pregnant and lactating mothers and children under five. In addition to overall management, ACIDI/VOCA is responsible for overall program management and leads implementation of most activities under SO1, and in particular activities related to crop production, alternative livelihoods, increasing resiliency through the promotion of group savings and improving market linkages. Welthungerhilfe carries out the technical training and input provision related to livestock. Concern Worldwide has primary responsibility for the nutrition, health and hygiene activities covered under SO2, while ACIDI/VOCA manages the distribution of food rations. ACIDI/VOCA and partners work together to ensure integration across activities and promotion of gender equity and women's empowerment.

Initially having to delay work with beneficiaries to enable completion of the baseline field work in February, 2013 RWANU then moved quickly to roll out activities in the 16 sub-counties of Amudat, Moroto, Nakapiripirit and Napak districts with promising first year results. The accomplishment of its objectives will lead to reaching the project's overall goal to reduce food insecurity among vulnerable people in South Karamoja.

At this time the ARR is focused primarily on outputs. Please note that ACIDI/VOCA is moving quickly to complete a limited annual survey following discussions with Food for Peace and will submit findings upon completion.

### **A. Strategic Objective 1: Improved access to food for men and women**

#### **1. IR 1.1 Improved smallholder farm management practices adopted**

Collaboration with Nabuin Zonal Agricultural Research and Development Institute (NabuZARDI) guided program decisions in the selection of drought tolerant and pest resistant seed varieties. Collaboration with district production offices will intensify in the second year.

RWANU conducted a training needs assessment of National Agriculture Advisory Service (NAADS) agents in Nakapiripirit and Amudat in FY13 and trained them in two modules. Further work with NAADS was delayed as during the period NAADS sub-county coordinators had prior commitments with government programs, such as Karamoja Livelihoods Program (KALIP). To reach more farmers in year two and assure quality, RWANU is hiring five more field extension workers, three area extension supervisors and a deputy FEWs coordinator.

RWANU formed 163 Farmer Training Groups (FTGs), comprised of 2,346 female and 1,734 male farmers. Each FTG registered 25 farmers and established a demonstration plot where they were trained in improved farming practices. In total, 163 demonstration plots comprising 33 hectares of land were sown with improved varieties of sorghum (Seso3B), beans (Nabe4, Nabe15), ground nuts (Serenut 2, Serenut 4) and maize (MM3- 'Maize Maturing in 3 months',

Longe 5, Longe 7). Of the targeted 5,854 farmers, RWANU trained 4,080 farmers in new farming practices (row planting, contour alignment, etc.). RWANU also provided in-kind grants of improved variety seeds (starter kits) to these 4,080 farmers to promote adoption of new practices, to compare side by side with land races and to grow seeds for expanding planting with improved varieties in the next year.

Farm production and outputs were affected by adverse weather events in FY13. During planting season (March-April) heavy rainfall resulted in waterlogging and seedling damage in lowland areas. This was followed by an extended dry spell in May and June severely damaging crops in the fields.

Contrary to RWANU's assumption of a single planting season, a bimodal rainy season emerged in parts of southern Karamoja. Yet, farmers are hesitant to risk sowing outside of the traditional planting time in March and April. To overcome this perceived risk, NabuZARDI is selecting crops for late season planting and RWANU will use demonstration plots and training to show farmers the benefits.

Farmers gave feedback to move quickly to support them with animal traction as opposed to hand held tools or use of one off tilling services. The program will organize selected farmer groups to cultivate blocks of land of 5 to 15 acres (about 2 to 6 hectares) as a business and grant them animal traction equipment in 2014.

There is some evidence that IR1 interventions will increase food security. Farmer groups harvested seeds from their demo plots; 105 FTGs harvested some of their crops despite adverse weather events; the successful Etatakaapei FTG in Napak District harvested 90 kg of Maize and 56 kg of Sorghum enough to sow 7.7 hectares in selected varieties in FY14 and they are yet to harvest Nabe 15 beans sown in August. Monitoring of the plots indicated that there were differences between those planted with improved varieties and those that were not. Almost 4,000 farmers also utilized starter kits for their household gardens and applied lessons learned from the demo plots.

## **2. IR 1.2 Improved smallholder livestock management practices adopted**

RWANU distributed 1,200 goats to 519 women through 40 women's livestock groups, each group receiving one male of 50% Toggenburg race for cross-breeding and about 25 female local goats. All 519 women received training in goat management and were linked to one of 15 Community Animal Health Workers (CAHWs) for animal health monitoring and veterinary services. The livestock inputs intervention started three months late as it depended on project census of eligible women and their subsequent enrollment in (child) caregiver groups managed by Samaritan's Purse in Napak. Otherwise the target of 600 beneficiaries for livestock inputs and training was realistic. Distribution of goats is on track to reach FY14 targets.

RWANU assumed that by fostering the support of the community, and especially male elders and male spouses and by conditioning the goats transfer on participation in women's livestock groups and group ownership, women as opposed to men could maintain ownership and management of animals. The project will monitor whether women continue to work in groups or begin to individually manage them.

Communities have emphasized the need for veterinary pharmaceuticals and RWANU is going through the necessary steps to procure them. CAHWs have requested business skills training and linkage to input suppliers to enable them to operate as a business and sustainably provide their services to communities, confirming that RWANU is on the right track.

The program has collaborated with three CAHW associations in Napak, Bokora West, Bokora East and Kanamuget, to improve coordination of its intervention with district and other stakeholders.

The early acceptance of the goat distribution model by communities shows promise for its success and potential increased availability of goat milk for children. In addition to improved consumption of milk at the household level, the provision of goats help to build household assets and income, which in turn will enhance their ability to procure more food. RWANU's planned introduction of Gala goats, well adapted to low rainfall-high heat conditions, as an alternative to crossbred goats should further enhance goat rearing and milk availability. The CAHWs charge fees for their services and add a mark-up profit on the drugs they received from the project. RWANU is working closely with the CAHWs association to establish sustainable drug supply system and cost-recovery mechanisms.

### **3. IR 1.3 Increased linkages to markets**

RWANU conducted a market assessment including crops, livestock and horticulture, which identified market opportunities, risks and barriers to marketing to guide interventions. RWANU trained 2,400 farmers in Farming and as Business (FaaB) and marketing to empower farmer groups to procure farm inputs in bulk and establish direct commercial relationships with private sector buyers. Direct farmer-to-buyer linkage was not achieved because of lack of marketable surplus of yields were too low to achieve surpluses of target crops due largely to failed harvests. Potential buyers were contacted for the next cropping season and farmer group leaders assisted to map out bulking and marketing zones. New directions including planned block farming, animal traction, and an enhanced focus on private sector partnerships will occur in FY14. The program also provided 200 honey producers with honey starter kits (a bee hive and apiary gear). RWANU initiated discussion with buyers Bee Natural and Golden Bees who outlined conditions for extending their supply chain to include Karamoja producers.

RWANU assumed that year one production assistance would result in commercially viable volumes to attract private sector buyers who offer competitive market prices. However, yields were low due to poor rains. RWANU assumed that the private sector would immediately invest in Karamoja honey, noted for its high quality. However, production is very low and producers poorly organized. The expected volumes of honey to be harvested from the 200 hives distributed so far is 2MT. RWANU will need to scale up production significantly and organize both recipients of honey kits as well as non-recipient honey producers to attract major buyers, while increasing production efficiency to reduce prices.

Beneficiaries welcomed the bee keeping kits and technical support. They are enthusiastic about increased yields and incomes. Otherwise RWANU has not had significant feedback on market linkage activities.

Collaboration with local NGOs such as Save the Children and ZOA that have Functional Adult Literacy (FAL) programs in Karamoja helped RWANU to tailor training materials to the low-literate communities in Karamoja. Through contacts with local NGOs, RWANU is exploring existing opportunities for storing of bulked cereals in a few sub counties.

RWANU was unable to come to agreement with its pre-identified private sector honey firm, Malaika Honey, on the content of a partnership. Malaika was not interested in investing in Karamoja without significant subsidy to establish themselves in Karamoja which was not consistent with RWANU's plan for working with the private sector. This pointed to the unsustainability of their role in promoting Karamoja honey production. Other similar companies contacted, stated their terms – such as having organized producers groups, collection points and commercial volumes, as a prerequisite to expanding their supply chain to include Karamoja. RWANU thus opted to provide inputs, training and organization to a large number of honey producers in the perspective of increasing volumes and attracting major buyers.

Effective market linkages depend on the success of the initial production cycles and the existence of surplus production. While local markets still functioned, broad inclusion of vulnerable households in favorable commercial markets was not possible in FY13. Scaling up farmer production to ensure sufficient production for household production as well as surplus is fundamental to reaching these objectives.

#### **4. IR 1.4 Accessed to credit increased**

During the year, RWANU organized 3,750 individuals from within the 213 established production groups (crop, apiary, and livestock) into savings and credit groups. The groups were given starter kits comprised of savings boxes, passbooks and associated materials. Group members were trained in savings mobilization, book keeping and business skills. Saving groups have begun saving and savings and loan deposits will be tracked and reported in FY14. RWANU expects greater results following a good cropping season, and is incorporating messages across SOs on generating savings, utilizing loans, and making individual and group investments in productive assets and inputs such as improved seeds and oxen for plowing.

Farmers are saving money in spite of poor crop yields in 2013. Contrary to project assumptions, the main source of income contributing to savings is off-farm income such as sale of firewood, sale of animals and local beer making. While RWANU does not promote firewood collection or beer making, these are common alternative livelihood activities. By increasing the profitability of RWANU supported livelihood strategies and proactively addressing the negative implications of these types of activities, RWANU expects to decrease the need for potentially harmful alternative income activities.

Feedback from groups indicated that they need additional training and technical support in group governance, investment of accumulated savings, and entrepreneurship skills. Accordingly,

RWANU has enhanced its trainings on these topics. Also, RWANU did not envisage purchasing savings starter kits for farmer groups. Feedback from beneficiaries led RWANU to conclude to provide start-up kits to facilitate group savings and credit activities. These changes will allow RWANU to stay on track to meet savings and credit targets in FY14.

Through meetings with the Microfinance Support Centre (MADEFO) and Karamoja private sector actors RWANU learned of best practices for supporting savings and credit groups specifically suitable for South Karamoja.

Early adhesion and enthusiasm in savings and credit groups point to their potential to contribute to household resiliency and acquisition of productive assets. It also points to the fact that even in very vulnerable areas, households may be able to set aside small savings. Subsidies of starter kits for honey production, improved seed varieties and training in improved farming practices seem likely to increase household incomes in coming years and allow greater savings and credit provision.

## **B. Strategic Objective 2: Reduced malnutrition in pregnant and lactating mothers and children under 5**

### **1. IR 2.1 Improved health and nutrition practices at the household level**

#### **Establish Mother Care Groups (MCGs) in targeted communities:**

RWANU spent considerable time and effort to establish MCGs in FY13. First RWANU undertook a Barrier Analysis and Trials of Improved Practices (TIPs) to inform the content of the care group modules. Module 1, infant and young child feeding, including the care group orientation and conditionality messages has been finalized and is currently being printed. Once the module is printed RWANU will train the approximately 1,900 lead mothers (LMs) who will then deliver the messages to their neighbor mothers.

RWANU has also spent considerable time coordinating project activities with Samaritan's Purse. The organization has a DFID funded program in Napak, ending March 2015, that has a large MCG component. Therefore RWANU prioritized its roll out of MCG activities in Nakapiripirit. The two programs will continue to coordinate closely to avoid duplication of project activities in Napak and ensure efficient use of program resources.

The program made substantial progress establishing MCG activities during FY13. However RWANU did not meet all internal timelines for developing modules and training LMs. The formative research and census activities took longer and were more human resource intensive than originally planned which has caused a delay in the rollout of MCG activities. It is not envisioned that these minor delays will have result in lowering program impact.

#### **Promote consumption of diverse, nutritious food; ration distribution approaches**

599 beneficiaries (pregnant/lactating women and children) received food aid during FY13, 27% of the expected 2,243 beneficiaries. Distribution activities began on the 13<sup>th</sup> month of the program, as originally expected. However, lower than expected populations in the area of

implementation and the time consuming process of undertaking a census, data entry and data cleaning caused delays in rolling out distribution activities to more sub-counties. Moving forward RWANU will incorporate the commodity tracking system and beneficiary database to expedite the selection of eligible beneficiaries and reporting of commodities distributed. RWANU expects to reach all targeted sub-counties with distribution activities in FY14.

During the rollout of distribution activities RWANU learned that beneficiaries were confused about the outermost age at which a child could enter the program. The RWANU program is designed to provide rations for children up to two years of age. However, the cut-off age for beginning food distribution was set at 11 months. Feedback from beneficiaries and the lower than anticipated number of beneficiaries has moved RWANU to change the oldest age of enrolment in the program to 17 months allowing for a minimum of six months of support from the program.

RWANU has coordinated its distribution activities with WFP to ensure there is no overlap between the respective distribution activities. To this end RWANU distributes rations to beneficiaries living outside a 5km radius from health facilities served by WFP. At the community level RWANU is working closely with community leaders and Village Health Teams (VHTs) to identify beneficiaries at Food Distribution Points.

**Promote consumption of diverse, nutritious food; locally available foods:**

During FY13 RWANU estimated the Cost of a Healthy Diet to gain a more detailed understanding of the cost and availability of foods that are required for the provision of an adequately nutritious diet in the various livelihood zones of Karamoja. The assessment identified nutritious foods, such as simsim, okra, sunflower seeds, soybeans, pumpkin, amaranth, and wild capers that are available but underutilized in Karamoja and will be promoted in the project. The data has further affirmed the importance of homestead food production and food preservation to help ensure families have access and availability of nutritious foods. The study demonstrated that while it is possible to consume a nutritious diet with locally-available foods, the diet is almost six times more expensive than a diet that only meets energy requirements. The TIPs assessment also identified nutritious recipes for fortified porridge. The results of the two assessments will be used to develop and promote nutritious recipes using locally available foods, food rations, and their locally available substitutes.

**Promote safe water, improved sanitation practices and hygiene behaviors:**

The various formative research activities conducted by RWANU helped to further develop and finalize the RWANU Social Behavior Change - Strategic Action Plan which includes activities and messages to improve WASH behaviors. The Barrier Analysis looked at various behaviors including hand washing with ash or soap. The research examined the determinants of behavior, the reasons why someone may or may not practice a behavior and the significant determinants for each behavior. In hand washing it was discovered that people do not know that ash is an alternative to soap. Therefore future activities will focus on educating beneficiaries on the usefulness of ash.

Using TIPs RWANU tested the feasibility and acceptability of practices at the household level that the program plans to promote. The outcomes of the TIPs research demonstrated that

RWANU should promote hand washing with tippy taps. The Doer-Non Doer analysis showed that the dig and bury methodology, as opposed to designated defecation areas, would be the best approach to improve sanitation.

## **2. IR 2.2 Improved service delivery for prevention and treatment of maternal and child illnesses and nutrition**

### **Provide support to Ministry of Health (MoH) maternal and child health centers:**

During FY13 RWANU conducted a health center and outreach service assessment in 31 health facilities. The assessment revealed that many facilities are capable of providing more maternal and child health and nutrition services but lack the necessary equipment and supplies. Around 70% of the health facilities assessed do not conduct routine growth monitoring during immunization and do not adhere to protocols of measurement and plotting of growth chart due to a shortage or non-functionality of scales, height boards, weighing trousseaux and an irregular supply of growth monitoring and promotion (GMP) tools. Therefore RWANU will increase the number of health facilities that it will support with outreach services and provision of MCHN equipment and supplies. This increased support will improve access to health services for many in the RWANU target areas.

Provision of non-recurring medical equipment and supplies to the 25 health facilities is ongoing. RWANU installed a solar system power supply to the Nadunget Health Center III to provide light to midwives to support deliveries and encourage more women to deliver at the health facility. Additional equipment will be made available to the outreach services and to the maternity units to improve delivery and antenatal and post natal care services.

After conversations with local implementers RWANU re-evaluated its approach to using the Health Institution Capacity Assessment Process (HICPA) and the Community Score Card (CSC), both activities were originally set to take place in FY13. Based on the experience of and consultation with the Uganda National Health Users/Consumers Organization, a national NGO, RWANU will implement the CSC first. The CSC will focus on identifying quality of care issues perceived by the community which will be shared with the health facility staff. The CSC will be followed by the HICAP, a process which enables clinical staff to self-assess, evaluate performance and identify areas for improvement. By conducting the activities in this order the clinic staff will have an idea of perceived weaknesses from the community and therefore be able to incorporate these areas of weakness in their plans for improvement.

### **Provide support to MoH outreach services:**

The previously mentioned health facility assessment also included outreach services. Findings showed that more than 90% of the health facilities provide MCHN outreach services but restricted this outreach to posts within a 5 km radius from the health facility. Outreach posts more than the 5 km radius from the health facilities were not conducted due to the lack of funding, especially for transport and staff travel allowances.

Since May of 2013 the project has supported an average of 43 outreach activities per month in 3 districts, providing fuel for the outreach vehicle and travel allowances for health center staff. RWANU has also trained 331 Village Health Team (VHT) members in Amudat and

Nakapiripirit on maternal nutrition. The VHTs play a key role in supporting outreach activities, including increasing community turnout.

RWANU conducted qualitative research to further understand the obstacles faced by women and young children in accessing health care services in Karamoja. The study results indicated: single interventions are less effective than a combination of interventions; contextualizing is crucial; interventions need to address both demand-side and supply-side barriers concurrently; and health services must be of adequate quality. RWANU's activities are adequately designed to address the above results to ensure women and children's access to quality health services increases.

### **Support community based screening/referral of acutely malnourished children and pilot growth monitoring:**

During the health facility assessment three health centers in Napak were visited to assess the usage and functionality of the MoH's GMP protocol during routine child health visits. The encouraging findings showed that the assessed health facilities were conducting growth monitoring as part of routine health care activities and that health workers were aware of its importance. However, child growth was not being plotted consistently on the Child Health Card. Based on the results of the assessment RWANU, in coordination with WFP, will pilot the strengthening of GMP in 7 health centers. RWANU will arrange for joint training and supervision of the staff conducting weighing, including the outreach team, to ensure that every child is growth monitored and counseled on a regular basis between birth and 2 years of age.

## **C. Cross-cutting**

### **1. Gender**

RWANU conducted a comprehensive gender assessment to develop its gender strategy for guiding program implementation. To date, 41 males and 29 female RWANU staff were trained on the gender approach. Gender awareness training benefitted 172 female and 268 male beneficiary group leaders. The staff training also focused on ACDI/VOCA and USAID gender policies. A project staff gender integration committee was created to advice, support and foster gender integration and collaboration throughout the program. The committee agreed to meet on a quarterly basis and held one meeting in 2013.

The program strategy assumed that men and women would accept gender awareness raising activities aimed at improved intra-household relationships and decision making. So far, men have allowed women household members to participate in program activities. Women participation in the overall RWANU project activities stands at 61%. Specifically women represent 58% of the FTG beneficiaries, 37% of the honey production group and 100% in livestock production.

Government partners have contributed to RWANU gender awareness training. Time was allocated to the district gender officers to present and discuss on the Uganda National Gender Policy and they asked that local councils (LC1) be trained.

Beneficiaries who participated in gender awareness training have asked that their spouses be trained to allow equal information. Men expressed support for their wives participation in program activities.

Women benefiting from equitable participation in project activities are making significant contribution to production groups, with the acceptance of both men and women.

## **2. Conflict Mitigation**

During FY13, RWANU conducted a conflict mitigation assessment that led to the development of a conflict mitigation strategy and act as guide for program implementation. Nine pilot Community Action Groups (CAGs) were formed to help mitigate community conflicts that may result of RWANU program activities.

RWANU worked with Farmer Training Group leaders (FTGs), farmer and savings group leaders and apiary groups to identify threats which may trigger conflicts during collective marketing and savings activities and proposed solutions. The groups have agreed upon processes for participatory problem solving when they arise, including that they set will establish by-laws on how to deal with conflict, they will conduct monthly meetings, and they will ensure open accountability and clear record keeping.

Conflicts have shifted from cattle raiding and tensions between ethnic groups to petty theft of animals and issues of access and use of land resources.

RWANU is involved in the district/regional peace/protection coordination mechanisms and participated in international peace day activities. The IRC with its sub grantees OCODI (Omaniman Community Development Initiative) and RiamiRiam Civil Society Network (RCN) have committed to work with RWANU to reactivate and strengthening the capacities of the sub county and district security committees.

Communities have already expressed appreciation for the work that the CAGs are doing, and the CAGs have committed to working with both government and local community leadership. The CAGs have requested support to build their capacity to handle concerns/conflicts which is now planned.

CAGs are committed to resolving concerns/issues around access and use of the valuable resources and promote food security and further confirmed by the assessment that showed conflicts have tremendously reduced and communities have embarked on crop production as alternative livelihood options.

## **3. Disaster Risk Reduction and Natural Resource Management**

RWANU staff assessed selected communities' best practices in environmental management and responses to DRR. Twenty five field extension workers were trained on natural resources management, disaster risk reduction (NRM/DRR) and farmer managed natural regeneration (FMNR) practices. Two community action groups were trained and supervised to establish FMNR sites.

RWANU depends on ACTED to provide early warning bulletins to disseminate to farmers. This information has been released late affecting its usefulness to farmers. RWANU will develop alternate sources such as the Uganda National Meteorological Center and FEWSNET to allow timely information and planning by farmers.

Some beneficiaries have shared that they practiced FMNR in the past but recent years of poverty forced them to cut down trees to generate income. RWANU trained FEWs and CAGs on topics such as the importance of trees, ways of scaling up successful FMNR, tools used in FMNR, who should get involved in FMNR, and integration of FMNR in crop production and livestock production system. Nine conservation farming demonstration plots were established, six in Napak and three in Nakapiripirit. Beneficiaries intend now to replant and protect existing trees.

Communities have shown an interest in natural resource management which will preserve productive assets; CAG formation was embraced by several communities and disaster risk reduction planning will begin in FY14, contributing to food security.

## **II. Success Stories**

### **Health and Nutrition Behavior Change through Research in Karamoja, Uganda**

For decades, the Karamoja Region of Uganda has been characterized by violent conflict, high levels of poverty and food insecurity. In Karamoja, 45% of children are stunted and 7.1% are acutely malnourished<sup>1</sup>.

The Resiliency through Wealth, Agriculture, and Nutrition in Karamoja (RWANU) Program is a 5-year integrated food security, health, and nutrition project managed by ACIDI/VOCA in collaboration with Concern Worldwide and WHH. RWANU aims to increase food security in vulnerable populations in sixteen subcounties of Amudat, Moroto, Napak and Nakapiripirit districts of Karamoja through improved availability and access to food and reduced malnutrition in pregnant and lactating mothers and children under five. The Program combines improving productivity of livelihood activities through teaching farmers how to transform their subsistence farming to small farm businesses and to support them to organize themselves and gain marketing savvy to benefit more from their farming activities. The program is promoting better mother and caregiver child feeding practices to prevent child malnutrition and enable children to grow to their full potential. This approach is needed to break a cycle of dependency on outside relief and instill the ability for families to transform their lives.

### **TIPs Research**

Trials for Improved Practices (TIPs) is a formative research method undertaken by RWANU to test the feasibility and acceptability of nutrition and hygiene practices in households. The research is unique in that enumerators act as counselors, presenting households with small doable actions that are tried by mothers for a short time. Enumerators later return to the household to see

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<sup>1</sup> Government of Uganda Demographic and Health Study, 2011.

if the practices were repeated. Modifications of the practices are encouraged. Several TIPs studies were undertaken.

One woman in Karita constructed a tippy tap in her compound after her neighbor received information on the practice from a RWANU enumerator. A tippy tap is a simple device for hand washing with running water. A container of 5 liters with a small hole near the cap is filled with water and tipped with a stick and rope tied through a hole in the cap. As only the soap is touched with the hands, the device is very hygienic.

The woman shared her thoughts, “I now know the importance of hand washing and digging and burying feces. I know that these practices will protect my children from disease. I plan to share this knowledge with my neighbors.”

Different recipes to increase diversity in diets for children were tested. Many recipes involved adding dark green leafy vegetables to children’s porridge. Dark green leafy vegetables are rich in vitamin A and which prevents illness and protects against infection. Through the research, many families were able to create a recipe that worked for them, using locally available ingredients.

One woman said, “I did not think it was good to give greens to children. Now I know that it is important to keep my baby healthy. He really likes the porridge this way!”

#### Life is what you make it – Alice Moru, farmer in Napak

Alice Moru, in her early sixties in Nakicumet parish, Matany subcounty in Napak, is a farmer with a family of twelve members under her care. She regularly faces poor crop yields and difficulty in getting enough food and money to sustain her family.

Alice joined a RWANU farmer training group (FTG) in February-, 2013. She was selected by her group to serve as the chairperson and trained in group dynamics. Through the FTG, she and her peers receive training in improved farming practices such as use of improved seed varieties, proper site selection, crop spacing, timely weeding and harvesting, crop pest control and disease management. The FTG members also have a savings and loan scheme in the group where they were taught basic business skills in accumulating savings and planning for future costs, recordkeeping, and issuing loans.

After gaining knowledge and skills on improved farming practices from the FTG demonstration plot, Alice applied the same methods to her own farm of about ½ acre for groundnuts (serenut 4), ¾ acre of beans (Nabe 4) and ¾ acre of maize (longe 5). She used improved seeds provided by RWANU and applied all the improved agronomic practices she learned on the demonstration plot, and attained high yields as follows:

<b>Seed</b>	<b>Quantity planted</b>	<b>Yield</b>
Groundnuts - shelled	12kg	225kg unshelled
Beans	7kg	40kg
Maize	3.5kg	90kg threshed

Of her high yield, she said, “I planted my groundnuts, maize and sorghum in rows with the correct spacing and managed to harvest more than my neighbors who did broadcast.” From this high yield, Alice is able to meet most of the family’s basic needs including providing an adequate and healthy diet, clothing, pay school fees and to save in the VSLA group.

To this, Alice encourages her peers to “come and learn from me and let go your old methods of grandfathers and local traditions, it’s time for RWANU agriculture.”

### **III. Lessons Learned (of interest to future implementation, USAID, other implementers, HQ)**

**Crop Production:** Karamoja experienced adverse weather events, including a prolonged dry spell in the production calendar. Anecdotal evidence indicated comparative better yields of select side by side with local varieties. Crops planted as late as August and September thrived. Farmers need to employ strategies to exploit irregular rainfall with multiple sowing periods and crops of varying maturity, instead of sowing a single time. Conservation farming should also increase yields over time under erratic rainfall conditions, and thus should be rolled out in significant scale in year two.

**CAGS:** The Community Action Group methodology received early support and appears to work well within other community structures; it is appreciated by local leadership because the communities participated during the whole process of the selection of CAG members. Comparison with useful traditions of social cohesion and NRM has emerged within these committees and should be further explored in year two.

**Procurements:** Procurements need to start sooner, especially given the realities of seed availability in the area.

**Control of Messages:** Care needs to be taken that messages by people are controlled. RWANU found that there may have been promises made by enumerators conducting the census to potential beneficiaries which RWANU could not uphold.

The household census was not originally in the DIP. Despite the fact that a considerable number of RWANU staff have worked on it and it has been more costly than anticipated, the data was very useful in getting the information necessary to form household caregiver groups and mother care groups. The census population down to the village level data is being used by SO1 food commodity team to map out eligible beneficiaries of the food ration and the forming of goat groups.

The Karamoja area is a difficult working environment. There are challenges with travel as well as limitations in office space. These conditions need to be taken into account at the outset of the program.

After the development and approval of the program RWANU decided to expand the eligibility criteria for MCGs to include caregivers with children aged 2-5 years. This will allow the neighbor

groups to remain relatively stable over the lifetime of the project with the exception of enrolling women who become pregnant and were not originally in the neighbor groups. These new enrollees would be limited to mainly young women who are pregnant for the first time because most women do not have a 5 year gap between pregnancies.

**Resiliency through Wealth, Agriculture, and Nutrition (RWANU) Program**  
**Detailed Implementation Plan**  
**Implementation Year 1: August 10, 2012-August 9, 2013 (presented as August - July)**

Project Goal: Reduced Food Insecurity Among Vulnerable People in South Karamoja													
Task	Lead	Support	Q1			Q2			Q3			Q4	
			M1 (Aug)	M2 (Sept)	M3 (Oct)	M4 (Nov)	M5 (Dec)	M6 (Jan)	M7 (Feb)	M8 (Mar)	M9 (Apr)	M10 (May)	M11 (June)
<b>General start up activities</b>													
<b>Administrative</b>													
<b>Office Location and set-up</b>	ACDI/VOCA	Partners											
Identify and equip office spaces in Napak, Moroto and Nakapiripirit	ACDI/VOCA	Partners											
Mobilize senior staff including COP and DCOP; develop job descriptions, and recruit staff	ACDI/VOCA	Partners											
Initiate start-up activities including development of manuals, procurement plan, etc.	ACDI/VOCA	Partners											
<b>Targeting and Development of Local Relationships</b>													
Post award meeting with Vulnerable Populations Team at USAID/Uganda	ACDI/VOCA												
Meet district officials of Amudat, Moroto, Nakapiripirit and Napak	ACDI/VOCA	Partners											
Select beneficiary villages and notify FFP. Work with FFP to notify targeted districts and sub-counties of the baseline survey.	Districts	ACDI/VOCA & Partners											
Conduct sensitization through meetings with sub-county councils and opinion leaders, with community members at the parish level, and village elders and local leaders. Adapt programmatic approaches as necessary according to feedback.	ACDI/VOCA	Partners											
<b>Partner/Subrecipient Management</b>													
Develop necessary agreements such as recipient agency agreements, MOUs and provide training in systems	ACDI/VOCA	Partners											
Kick-off meeting and quarterly meetings for ACDI/VOCA and its partners	ACDI/VOCA	Partners											
Develop grants manual/templates for small grants	ACDI/VOCA	Partners											
<b>SO 1: Improved access to food for men and women</b>													
<b>IR. 1.1: Improved smallholder farm management practices adopted by men and women</b>													
<b>Group Formation</b>													
Develop guidelines for formation of farmer groups	ACDI/VOCA	Partners											
Use established criteria to select and group farmers and identify group leaders, in consideration of gender and sensitivity to potential conflict.	ACDI/VOCA	Partners											
Assign FEWs to subcounties, villages, groups	ACDI/VOCA	Partners											
Develop guiding principles for management of groups with group members	ACDI/VOCA	Partners											
<b>Demonstration (demo) plots and Training</b>													
Discuss demo plot plan with group leaders, farmers, local leaders, and village elders. Develop training guide.	ACDI/VOCA	NabuZARDI											
Select four profitable crop enterprises for each agro ecological zone to be planted in each demo plot. (Crops may include ground nuts, upland rice, maize, beans and sunflower.)	ACDI/VOCA	NabuZARDI, DPT											
Procure and distribute demo inputs (tools, fertilizers, seeds/planting materials, planting strings)	ACDI/VOCA	NabuZARDI											
Develop training materials (taking into consideration gender analysis, training needs assessment, etc.); pre-test and conduct training of trainers (TOT)	ACDI/VOCA												
Work with beneficiaries to open land and establish demo plots	ACDI/VOCA	NabuZARDI											
Train farmers in: 1. Group management (Group constitution, leadership skills, roles of various leadership positions); 2. Agronomy (demo plot establishment, seedbed preparation, profitable crop varieties, soil/water conservation, planting techniques, pests management, harvest); 3. Simple Records 4. Diet Diversity through intercropping	ACDI/VOCA	NabuZARDI, DPT											
Monitor crop performance on demonstration plots and farmers' fields; assess farmers' adoption of practices	ACDI/VOCA												
Train farmers on seedbed preparation (contour ploughing, minimum tillage, soil cover), planting (lessons on crop rotation, spacing, contour lines, fertilizers, soil cover), and integrated pest management.	ACDI/VOCA	NabuZARDI, DPT											
<b>Post Harvest Handling</b>													
Procure and distribute PHH equipment using established criteria	ACDI/VOCA	Partners											
Supervise harvest & post-harvest handling activities including timely harvesting, transport to farm, proper on-farm drying, shelling/threshing, sorting/cleaning and storage	ACDI/VOCA	NabuZARDI, DPT											
<b>On-farm trials with NabuZARDI</b>													
Develop MOU with NabuZARDI	ACDI/VOCA												
Develop on-farm trial plan and field guide. Select trial farmers and locations.	NabuZARDI	ACDI/VOCA, DPT											
Train FEWs and farmers and establish on-farm trials	NabuZARDI	ACDI/VOCA, DPT											
Monitor trial plots and farmers' performance. Compare to performance on demo plots.	NabuZARDI	ACDI-VOCA, DPT											
<b>IR 1.2: Improved smallholder livestock management practices adopted by men and women</b>													
<b>Livestock Re-stocking Activity</b>													

















# A Cost of the Diet analysis in Karamoja, Uganda

**Location: Agropastoral livelihood zone  
(Livestock Sorghum Bulrush Millet zone)**

**CoD data collection: May 2013**

**CoD Report: July 2013**

**HEA data collection: May 2010**



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## **Executive Summary**

### ***Background***

A Cost of the Diet (CoD) analysis was conducted by Concern Worldwide as formative research for the *Resiliency through Wealth, Agriculture, and Nutrition (RWANU)* programme in Karamoja, Uganda. Karamoja is one of the poorest regions in the country with 82% of the population living below the poverty line and with malnutrition rates of 54% stunting, 14% underweight and 4% wasting (FANTA, 2010). The RWANU programme aims to reduce food insecurity among vulnerable people in southern Karamoja through improving household food access and reducing malnutrition in pregnant and lactating mothers and children under five.

This analysis aimed to estimate the cost of a nutritionally adequate diet for a typical household in the Karamoja Livestock, Bulrush Millet and Sorghum Zone (agropastoral zone) and sought to estimate how affordable this diet would be for different wealth groups. Further, it aimed to determine which foods have the greatest influence on the overall cost and to identify if there were any neglected or under-utilized foods that could decrease the cost. Finally, the impacts of different project activities on the cost and composition of a nutritious diet were also examined.

### ***Methods***

24 market surveys, 48 dietary surveys and 6 focus group discussions were completed in a total of six markets and six villages in order to collect information on the market price, seasonal availability and dietary preferences of local food items. The price and weight of all food items found during the market surveys was recorded in order to calculate the average price per 100g. Dietary surveys were conducted with individual women food preparers from different wealth groups to determine the sources of foods, the frequency of consumption, and the seasonality of food availability. Focus group discussions were conducted with the same women that were interviewed to identify food preferences and cultural food taboos. With this information, an energy only diet and a locally-appropriate nutritious (LACON) diet were created using the Cost of the Diet software developed by Save the Children UK. Results from the software were then analysed and compared with income data from the Household Economy Approach (HEA) for this livelihood zone to estimate the affordability of a nutritious diet by wealth group.

Four model diets were completed to look at the impact on potential interventions on the overall cost and composition of the local diet. A local diet comprised solely of purchased food, a local diet comprised of foods mostly from home production, a local diet with a food ration, and a local diet with a micronutrient supplement.

### ***Results***

83 food items were found in local markets. This included 8 cereals, 5 roots and tubers, 11 pulses, 14 vegetables, 5 fruits, 5 wild foods, 15 meat products, 3 dairy products, 6 fats/oils, 10 snacks, and iodised salt. An additional 86 food items were

found available in the zone through home production, wild foraging, and food aid. This included 1 pulse, 8 vegetables, 7 fruits, 53 wild foods, 10 meat products, 5 fats/oils, and 2 manufactured snacks.

The software demonstrated that while it is possible to consume a nutritious diet with locally-available foods, the diet is almost six times more expensive than a diet that only meets energy requirements. The minimum cost of an energy only diet for a household of 7 was estimated at 1,789 USh (0.69 USD) per day or 652,944 USh (251.81 USD) per year, while the minimum cost of a LACON diet for a household of 7 was estimated at 10,711 USh (4.15 USD) per day or 3,915,629 USh (1514.75 USD) per year.

The results from the estimates of affordability found that a nutritious diet accounted for 891%, 708%, 598% and 565% of the income of the very poor, poor, middle and better off households' respectively. In terms of cash, very poor and poor households potentially require an additional 9,509 USh (3.68 USD) per day or 3,470,857 USh (1,343 USD) per year and 9198 USh (3.56 USD) per day or 3,357,192 USh (1,299 USD) per year respectively to access a fully nutritious diet. Even with the food ration, none of the wealth groups could afford a nutritious diet.

The software demonstrated that a standard portion size of 532 grams of breastmilk per day met over half a 12-23 month old child's need for vitamin A, and contributed substantially to energy, fat, vitamin C, vitamin B2, folic acid, and calcium requirements.

The software demonstrated that a diet that only meets energy and fat requirements is lacking in several key micronutrients including calcium, iron, and vitamin B12.

### ***Recommendations***

#### ***Conduct a CoD analysis in the dry season:***

To better understand the seasonal cost and availability of foods in the Karamoja Livestock, Bulrush Millet and Sorghum Zone (an agropastoral zone) livelihood zone, a second round of data collection should be completed during the dry season. The seasonal fluctuations in the daily cost of a nutritious diet have not been effectively captured in this study because retrospective data collection methods were deemed unreliable.

#### ***Conduct a CoD analysis in the green belt livelihood zone:***

To better understand the differences between livelihood zones in terms of food prices, sources, consumption and production, a CoD analysis should be completed in the adjacent Eastern Lowland Maize, Beans and Rice Zone (green belt zone) and compared to the agropastoral zone to ensure that RWANU programme activities are as targeted as possible in each area.

***Explore ways to improve the affordability of a nutritious diet:***

The software found that none of the wealth groups could afford a nutritious LACON diet. While the proposed food ration does lower the overall cost of the diet, it is not enough of a reduction to close the income gap. Additional ways to increase household income and/or supplement household food purchases are needed to ensure that a nutritious diet is affordable.

***Through behaviour change activities, involve men in discussions about household diets:***

As men control income expenditure, talking with men about the importance of a nutritious diet will help to ensure household income is used to purchase nutritious food items.

***Increase support for livestock rearing:***

Increasing household production of milk, eggs and meat could help to significantly reduce the overall cost of the diet. The CoD analysis found that most households own few animals and do not have sufficient access to animal-source foods. RWANU should conduct an analysis to see if increasing livestock ownership would effectively translate to increased meat and milk consumption, particularly among young children.

***Promote consumption of iron-rich foods:***

RWANU should encourage increased consumption of iron-rich foods such as meat, white ants, offals, and dark green leafy vegetables. Other sources of low-cost iron-rich foods include sesame seeds, soybeans, pumpkin seeds, cassava leaves, cowpea leaves, and wild greens, although the iron is less bio-available in these foods and so they would need to be combined with consumption of foods rich in Vitamin C.

***Promote increased consumption of wild foods:***

RWANU should promote increased wild fruit and vegetable consumption, as these foods could make a positive impact on the overall cost and quality of the local diet.

***Increase support for homestead food production:***

Increasing homestead food production through kitchen gardens could significantly reduce the cost of a nutritious diet. RWANU should explore potential costs associated with increased home production, as these were not included in the model.

***Promote increased consumption of wild foods:***

The CoD analysis found that wild food plants contribute greatly to local household food security. They are important because they are free and are easy to access by the local communities, and help during periods of acute food shortages. Wild food plants also provide nutritional security by adding essential nutrients as well as variety to diets, making staples more appealing to the taste. 58 wild foods were identified during the assessment. RWANU should explore the potential for these foods to be included in nutrition sensitive value chains. More research should also be conducted to assess availability and potential harvest levels to determine nutritional

value, use and consumption patterns and what is the feasibility of integrating wild foods in the diets in terms of amounts consumed, cultural acceptability, availability, affordability and safety.

***Consider introducing a micronutrient supplement:***

RWANU should consider supplementing food-based solutions such as the food ration with short-term home fortification with sprinkles or another multi-micronutrient supplement to ensure that dietary requirements (particularly for zinc and iron) are met.

***Address the widespread consumption of ekwete and adakai:***

RWANU needs to recognize the importance of beer products currently as a key food source for households and a primary source of income to purchase other foodstuffs. Any nutrition intervention needs to take into account the influence of beer production and sale.

## **1. Introduction**

### **1.1 Uganda**

Uganda has a population of 34.8 million, with 25% living below the poverty line (WFP, 2013). The country faces a wide range of development challenges including regional and seasonal food insecurity and high rates of malnutrition. In 2012, Uganda ranked 42nd out of 79 countries in the Global Hunger Index (GHI) and had an overall GHI score of 16.1, categorizing the national hunger situation as 'serious' (von Grebmer, K., 2012). A Comprehensive Food Security & Vulnerability Analysis (CFSVA) from April 2013 found that 48% of Ugandans are food energy deficient and that 40% of deaths among children under the age of five are caused by undernutrition (WFP, 2013). 33% of children under 5 suffer from stunting, 15% from underweight and 5% from wasting.

Meanwhile, the Ugandan government has introduced various public health and nutrition interventions and policies to address these challenges. Interventions include vitamin A supplementation for children 6-59 months of age and post-partum women, iron and folic acid supplementation for pregnant women, food fortification, biofortification, food diversification, nutrition education, and behaviour change communication. Policies include the Uganda National Food and Nutrition Policy (UNFNP), the Uganda Food and Nutrition Strategy and Investment Plan (UFNSIP), and the Uganda Nutrition Action Plan (UNAP).

### **1.2 RWANU programme**

Concern Worldwide (Concern), ACDI/VOCA and WeltHungerHilfe (WHH) are implementing the *Resiliency through Wealth, Agriculture and Nutrition (RWANU)* programme in the agropastoral and green belt livelihood zones of Karamoja, which over a five-year period will reach an estimated 200,399 beneficiaries in selected sub-counties of Napak, Moroto, Amudat and Nakapiripirit Districts (ACDI/VOCA, 2012). The programme is helping to reduce food insecurity among vulnerable people in southern Karamoja through improving household food access and reducing malnutrition in pregnant and lactating mothers and children under five. RWANU livelihood activities will focus on identifying and promoting low-risk, higher-return commodities and increase livestock ownership. This will be done by drawing households into market systems and performing nutrition activities that focus on promoting proper infant and young child feeding practices and equitable intra-household food distribution.

### **1.3 Cost of the Diet methodology**

The Cost of the Diet (CoD) is a method and software developed by Save the Children UK to estimate the amount and combination of local foods needed to provide a typical family with a diet that meets their average needs for energy and their recommended intakes of protein, fat and micronutrients at the lowest cost.

The software aims to meet average requirements for energy and reference nutrient intakes for protein, fat, calcium, magnesium, thiamine, riboflavin, niacin, vitamin B6, pantothenic acid, folic acid, vitamin B12, iron, vitamin A, zinc, and vitamin C. The software bases its calculations upon factors including age, sex, weight, activity level, and whether a woman is pregnant or lactating.

CoD analyses are useful for food security and nutrition programmes as they can provide information about the percentage of requirement met for each vitamin and mineral; the amount and cost of each food included in the diet per week; seasonal variation in prices; nutrients that cannot easily be met by the diet; foods that can help meet nutrient gaps; and effects that new foods or supplements can have on the cost and overall composition of the diet.

#### ***1.4 Objectives of analysis***

The analysis aimed to estimate the cost of a nutritionally adequate diet for a typical household in the agropastoral livelihood zone and sought to estimate how affordable this diet would be for different wealth groups. Further, it sought to determine which foods have the greatest influence on the overall cost and to identify if there are any neglected or underutilised foods that could decrease the cost. The analysis also aimed to model the impacts of different project activities on the cost and composition of a local diet.

The analysis will assist in strengthening the design of RWANU livelihood and nutrition interventions through identifying possible nutritional deficiencies within the current diet while also highlighting the lowest-cost, locally available foods that could meet household nutrient requirements. RWANU will develop and promote nutritious recipes using food rations and locally available and affordable foods.



A livelihood zone is an area within which people share broadly the same patterns of access to food (FEG, 2010). CoD assessments are geographically confined to a livelihood zone in order to align with Household Economy Approach (HEA) assessments and because local foods available and consumed within zones tend to be homogenous. Karamoja is divided into six livelihood zones: Karamoja Livestock, Bulrush Millet and Sorghum Zone (the agropastoral livelihood zone); Central and Southern Karamoja Pastoral Zone; NE Karamoja Pastoral Zone; NE Sorghum, Simsim, Maize and Livestock Zone; South Kitgum-Pader West Karamoja Simsim, Groundnut, Sorghum and Livestock Zone; and Eastern Lowland Maize, Beans and Rice Zone (the green belt livelihood zone).

The Cost of Diet analysis was conducted in the agropastoral livelihood zone, which is highlighted in Figure 2. While this zone includes parts of Nakapiriprit, Moroto, Kotido and Kaabong districts, this analysis was limited to the areas in the zone where the RWANU project is operating and thus only covers Nakapiriprit and Moroto districts.

**Figure 2: Agropastoral livelihood zone**

**2.2 Seasonal calendar**

The agropastoral zone has two seasons (one wet and one dry) and gets an annual average rainfall of 500-800mm (FEG, 2010). The rainy season extends from March to September, with a short dry period in June or July and the dry season extends from October to February. Harvesting occurs from July or August to September or October and the hunger season usually runs from March to July. Livestock sales among poor households peak during the hunger season and there is an increased migration for agricultural labour. Wild foods consumption occurs mostly from October through February, although some wild foods are also consumed from March to July. Some green consumption (consuming of crops before ready for harvest) occurs in June or July, but the main consumption year runs from August to July.

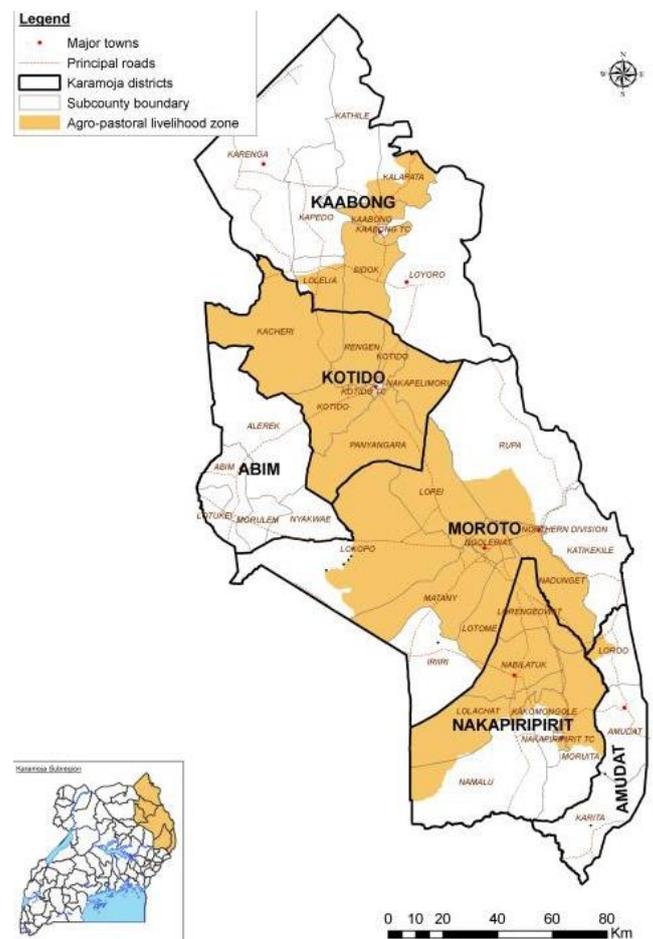
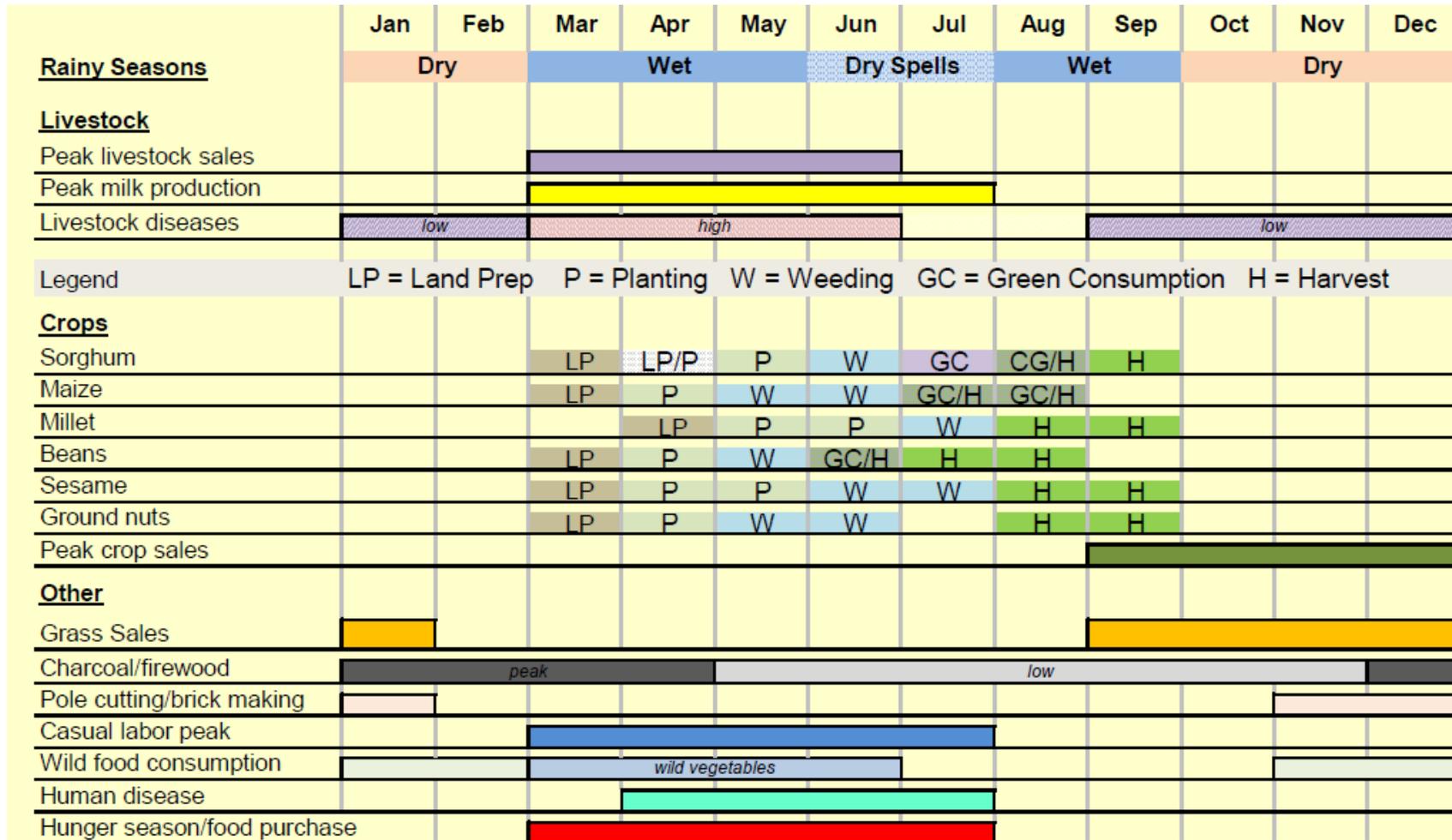


Figure 3: Seasonal calendar for agropastoral livelihood zone (FEG, 2010)



### 2.3 Household profiles

The Household Economy Approach (HEA) assessment for this livelihood zone was conducted by the Food Economy Group in 2010. The assessment found that 25% of households in this zone were very poor, 33% were poor, 28% were in the middle and 14% were better-off. Table 1 shows the main household characteristics of wealth groups in this livelihood zone, as determined by the HEA.

**Table 1: Household characteristics of wealth groups**

Wealth group	Percentage of the population (%)	Typical household Size	Land area cultivated	Livestock holding	Oxen
Very poor	25	5-7	0.25-1 acres	cattle: 2-5 goats: 3-8 sheep: 2-5	0
Poor	33	5-8	1-2 acres	cattle: 5-10 goats: 8-15 sheep: 5-17	0-1
Middle	28	7-8	2-3 acres	cattle: 15-40 goats: 10- 35 sheep: 15-35	1-2
Better Off	14	7-9	3-5 acres	cattle: 25-55 goats: 20- 60 sheep: 20-55	1-2

The number of livestock a household owns has traditionally been a major factor that determines wealth in this zone. Cattle, sheep and goats are the main livestock sold, with sales peaking from March to June when household food reserves are at their lowest. Milk and meat contribute substantially to household income and food needs. Better off households own more livestock and are able to meet about half of annual household food needs through milk and meat production alone.

The degree to which households rely on crop production is based on their wealth. Better-off households are able to produce more food for consumption and sale because they have access to plow oxen and can afford to hire agricultural labour to help clear and cultivate more land. Poor households consume most of what they produce and only sell small amounts to meet immediate cash needs.

Inadequate and erratic rainfall has severely affected pastures, livestock watering points, and crop production in this zone. In years when the rains are poor, better-off households can fill food gaps by selling additional small livestock and purchasing food from the market. The poor however are not able to fill food gaps through the normal coping mechanism of increasing market food purchase because they lose

their regular income-earning opportunities that come from working on the land of the better-off (FEWSNET, 2010b).

#### **2.4 Food sources**

Households in the agropastoral zone depend mainly on food purchases from the market, although this is supplemented to a certain extent with home crop production, wild foods, and milk, meat and blood from their livestock. Relief food, including both school feeding and general food distribution, is also an important food source for all households (FEWS NET, 2010a). Purchasing is significantly higher (66%) in the agropastoral livelihood zone than the average in Karamoja (49%), and cultivation is significantly lower (11%) than elsewhere in the region (41.5%). Poor households purchase more of their staples than better off households who can rely more on their own production. Overall household income is low and households rely increasingly on the sale of firewood/charcoal and home-brewed sorghum beer for immediate income to buy food. In years when there is consistent rainfall though, the proportion of food coming from homestead production is greater for all wealth groups. The most commonly grown crops include sorghum, maize, groundnuts, sunflowers, cowpeas, and beans.

Wild foods, including wild fruits, greens, mushrooms, tubers, white ants, and game meat are consumed by all wealth groups but the poor and the very poor consume them more often and in greater quantities than other wealth groups (FEG, 2010). Hunting increases during the dry season and is less frequent during the wet season. Wild foods are a regular part of the agropastoral diet in both good and bad years and wild food consumption is not an indicator of stress.

The main markets in this zone operate weekly and are located in sub-county headquarters. These are supplemented with smaller trading centres and shops. Poorly maintained roads and long distances limit access to markets, especially during the wet season. Despite these challenges, households have reported traveling to as many as nine different markets regularly to buy food and household items and to sell their produce, fuel wood, brewed beer and livestock (Harvey, 2011).

Armed raiding has led to high cattle losses and increased sedentarization of women and children. Over the last 10 to 15 years, there has been a shift from largely traditional subsistence patterns and households have become very dependent on women's livelihood activities, especially the money earned from the sale of fuel wood and beer brewing. The widespread consumption of local sorghum brew (*ekwete*) by both women and children is a growing problem in Karamoja. A study published in 2010 showed that *ekwete* supplied on average 3 to 6% of household energy intake and *adakai* (dregs from local brew) supplied on average 3 to 12% (Dancause). The study found that *adakai* consumption averaged 35 and 101 mL/day, 71% of which was consumed by children under the age of 14 as it was regarded as a cheap and accessible food source that was relatively high in energy. The study also found that households who brewed and sold their own beer had greater energy, protein, fat, calcium, and Vitamin A intake than those who worked

for brewers or did not participate in brewing at all. The study found that daily subsistence is deeply tied to the sale of *ekwete* for most families, with evening meals consisting primarily of foods purchased with profits from the day's beer sales, or of beer and dregs paid to women who assisted brewers. While *adakai* can be a good source of protein, it contains little calcium, iron, niacin, riboflavin, and lysine content. It also contains 2% alcohol content by weight which makes it unsuitable for consumption by children (FAO). Estimates suggest that 1 kg of *adakai* only contains 4.2 mg calcium and 1.2 mg iron. Also, the high fiber content (54%) contributes to reduced intake of other foods, reduced protein digestibility, and less mineral availability.

### **2.5 Prevalence of undernutrition**

Karamoja faces some of the highest malnutrition levels in the country with prevalence rates of 32.4% stunting, 25.5% underweight, 3.1% Severe Acute Malnutrition (SAM) and 11.7 % Global Acute Malnutrition (GAM) (ACF, 2012). In the agropastoral livelihood zone, stunting is 33.4%, underweight is 25.7%, GAM is 9.6%, and SAM is 2.3%, although certain areas in the agropastoral zone it is much higher with SAM at 4.0% in Moroto (twice the WHO emergency threshold) and GAM at 13.1% in Nakapiripirit.

The region has very poor infant and young child feeding practices. Only 18% of children 6-23 months in Karamoja have a minimally acceptable diet; with only 6% in Moroto (ACF, 2012). The mean number of food groups consumed by children in Karamoja is 2.8, highlighting the region's high dependence on staple foods that are energy-dense, rather than on foods that are micronutrient-rich. The main source of protein is beans (45.3%). Children get minimal protein intake from animal sources, with only 29.1% of children 6-23 months consuming milk, and fewer children consuming meat and eggs (12.7% and 4.9%, respectively).

In the agropastoral livelihood zone, only 40% of children consume at least 3 meals per day. Coping strategies during the hunger season include eating seedstock, harvesting immature crops and skipping or reducing meals in order to offset food scarcity and extend food reserves. Their declining access to livestock products (ie. milk and blood from cattle) has resulted in a decline of their overall nutritional status.

Local sorghum brew is a part of daily life and can use up household resources at the expense of an adequate meal particularly for vulnerable children and pregnant and lactating women.

### 3. Methods

#### 3.1 Desk review

Key background documents were reviewed to gain an understanding of the RWANU programme and the main characteristics of the livelihood zone, including crop and livestock commodities available, the seasonal calendar, household characteristics of wealth groups, sources of food and cash income, expenditure patterns, hazards, and coping strategies.

#### 3.2 Data collection

Data collection was carried out in the month of May during the wet season. This was also during the hunger season and was a busy time as households were occupied with planting staple crops such as sorghum. The data collection team consisted of 9 people: a CoD facilitator from Concern Worldwide, a RWANU SBC specialist, a RWANU nutritionist, a RWANU field coordinator and 5 additional data collectors who were fluent in Ngakarimajong.

##### 3.2.1 Market surveys

Market surveys were conducted in the markets listed in Table 2. Prior to conducting the market surveys, a comprehensive list of all food items available in the agropastoral livelihood zone was developed in collaboration with RWANU staff and local enumerators. This was followed by a field trial in Katanga market where the assessment team practiced the market survey whilst adding items to the food list. The resulting food list was then used to collect data on price and weight in six markets.

**Table 2: Markets visited**

<b>Market</b>	<b>Sub-county</b>
Katanga	Nanduget
Lopei	Lopei
Kangole	Ngoloriet
Nakapiripirit	Moruita
Lolachat	Lolachat
Nabilatuk	Nabilatuk
Lorengedwat	Lorengedwat

To collect the information needed to estimate the cost of the diet, market traders were asked the price of the smallest unit of each food item that they sold, assuming that the poor were likely to be able to afford this amount. The poor typically buy foods in small amounts, as they cannot afford bulk purchases.

Three samples of each food were weighed using electronic scales that had a precision of a hundredth of a gram. Where possible in each market, weight and price data were collected from four traders giving a possible total of four prices and 12 weights for each food item found in every market. A summary of the market surveys and village interviews conducted can be found in Appendix 2. This data was then entered into an Excel spread sheet which averaged the price and weight of each food across every market. The final averaged weight and price for each food was then divided to calculate the cost per 100g of each food item. However, given that most

food items are partially purchased and partially produced at home, a weighted price was calculated with information on the different sources of each food item.

Each food item was then selected from the food composition database in the CoD software, choosing the variety consumed in the region nearest to Uganda if there was more than one type available. Food items which were not already in the software database were added along with their nutrient values. Wild foods were botanically identified whenever possible and added to the software as well. Nutrient values were found the FAO Food Composition Table for Use in Africa and other sources which are all listed in References section.

### **3.2.2 Individual interviews and focus group discussions**

Data collection was also conducted in the villages listed in Table 3.

These villages were purposively selected based

upon the timing and location of the markets visited and whenever possible were selected based on the villages visited during the HEA and to ensure a good mix of villages that included more remote villages and villages closer to markets.

To estimate a diet that is nutritious but takes into account typical food habits of households in the livelihood zone, the software needs to be told how many times a week it can or cannot include a food. This is called the minimum and maximum constraints, which need to be determined for each food found in the livelihood zone. For example, if the minimum constraint for Irish potato is set at 5 and the maximum is set at 14, this means that the software must include potato in the diet no less than 5 times a week but no more than 14 times a week (i.e. twice a day).

To create the minimum and maximum constraints for each food found in the livelihood zone, individual interviews and focus group discussion were carried out. In each village, 8 women were interviewed individually and then participated in a joint focus group discussion. At the beginning of each interview, the women were screened to determine which wealth group they fell into. Screening questions asked about family size, land holding and livestock. The average household size of the respondents was 7. The average land holding was 1 acre and the average number of livestock per wife was 1 cow, 2 goats, and 1 sheep. Two thirds of households interviewed did not own any ploughing oxen while those that did averaged 1-2.

Interview questions were based upon the food list generated by the market survey and aimed to determine how often the foods were consumed. The questions asked during the focus group discussion were based on responses given in the individual interviews. Focus group discussions highlighted foods that came from household

**Table 3: Villages visited**

<b>Village</b>	<b>Sub-county</b>
Loptuk	Nanduget
Kailikong	Lopei
Nasike	Ngoloriet
Moruita	Moruita
Lokibui	Lolachat
Losimit	Nabilatuk
Kamaturu	Lorengedwat

crop production, livestock rearing, wild foraging, barter, and food aid. Discussions also highlighted cultural food taboos for pregnant and lactating women and young children, differences in food consumption by wealth groups, and seasonal consumption patterns.

During the interview the women were asked to state the frequency with which they ate each item of food on the list. The frequency options given were never, sometimes (1-4 times a week) or often (more than five times a week). The responses were given a numerical score: 'never' was awarded 0 points, 'sometimes' 1 point and 'often' 2 points, then the total for each food item from all 8 respondents was calculated. This meant that each item could receive a minimum total score of 0 and maximum of 16. A total score of 0-1 points was translated into a maximum constraint of 0, 1-8 points was translated into a maximum constraint of 7 (a food eaten once a day) and a total score of 9-16 points was translated into a maximum constraint of 14 (a food eaten twice a day).

During the focus group discussions the women stated that sorghum was the staple food of people in the agropastoral livelihood zone. This food was entered into the diet a minimum of 7 times per week and a maximum of 14 times per week. The women also stated that beans were a staple source of protein, tamarind was a staple replacement for milk, and vegetable oil and salt were must-have foods. To reflect this, these foods were given a minimum constraint of 7 and a maximum constraint of 14, forcing the software to include these foods at least once per day but allowing them to be included up to twice a day.

It is important to note that the constraints applied are intended to reflect typical dietary patterns rather than economic constraints, because the Cost of the Diet is a tool to illustrate a diet that could be achieved if economic limits were removed.

### ***3.3 Cost of the Diet software***

The Cost of the Diet is a method and menu-driven software developed by Save the Children UK to calculate the minimum amount of money a typical household would need to purchase foods that meet their energy, protein, fat and micronutrient requirements, using locally available foods. The software applies linear programming routines in Microsoft Excel 2010 and generates a hypothetical diet using a combination of foods that could enable a family to meet their energy and nutrient requirements as recommended by the World Health Organisation and the Food and Agriculture Organisation at the lowest possible cost. As the software can identify a diet that is not realistic in terms of the frequency with which foods are eaten, for example by specifying that a particular food is eaten three times a day every day, the frequency with which each food is consumed can be adjusted to reflect typical dietary patterns.

### **3.3.1 Family composition**

A typical household in this livelihood zone was determined during the HEA, and confirmed during the CoD data collection, to contain 7 moderately active individuals: a man, a woman and 5 children. As HEA estimates of household income for a typical family are based on an energy requirement of  $n \times 2,100$  kcal, or  $n$  kcal in total, the cost of diet method identifies a family of the same individuals that require as close to  $n$  kcal as possible. A typical 7-member HEA/CoD family consists of:

- An adult man, aged 30-59y, weighing 50 kg and moderately active (2,750 kcal/d)
- An adult woman, aged 30-59y, 45 kg, moderately active (2,300 kcal/d) and lactating (418 kcal/d)
- A baby (either sex), aged 12-23 months (894 kcal/d)
- Child (either sex) 7-8 years (1,625 kcal/d)
- Child (either sex) 9-10 years (1,913 kcal/d)
- Child (either sex) 11-12 years (2,250 kcal/d)
- Child (either sex) 13-14 years (2,575 kcal/d)

The total energy requirement of this family is 14,662 kcal/d.

Because the cost of the diet is dependent on the numbers, age and degree of physical activity of the individuals selected for this 'typical' family, which is arbitrary, and to illustrate the possible range in the cost of the diet, families were specified in the same way for 5, 6, 7, 8, 9 and 10 members covering a range of low, medium and high energy needs. Low energy families were selected by choosing the youngest, smallest family for each number of individuals between 5 and 10; and high energy families were selected by choosing the oldest, largest family between 5 and 10.

The specification of this range in family composition between 5 and 10 members is shown in Appendix 3. This is the standard family composition for all CoD and HEA analyses.

### **3.3.2 Nutrient requirements**

Energy needs are taken from a database embedded in the software that specifies the estimated average requirement (EAR) recommended by the WHO and FAO (2004) for individuals by age, sex and activity level. As this intake is based on the estimated average requirement, the probability that any given individual's requirements are met is 0.5 or 50%.

Protein needs are taken from a database embedded in the software which specifies the safe individual intake recommended by the WHO and FAO (2007) for individuals by age and sex. This intake is defined as the 97.5<sup>th</sup> percentile of the distribution of individual requirements, so the probability that any given individual's protein requirement is met is 0.975 or 97.5%.

Vitamin and mineral needs are taken from a database embedded in the software which specifies the recommended nutrient intake (RNI) proposed by the WHO and FAO (2004) for individuals by age and sex. This intake is defined as the 97.5<sup>th</sup> percentile of the distribution of individual requirements, so the probability that any

given individual's requirement is met is 0.975 or 97.5%. The recommended intake of vitamin A is specified as the recommended safe intake, as there are no adequate data to derive mean and standard deviations of intake (WHO/FAO, 2004).

The needs of individuals for fat are specified as 30% of total energy intake, as recommended by the WHO's Guiding principle for complementary feeding of breastfed children.

### 3.3.3 Portion sizes

Standard portion sizes recommended by Save the Children UK were entered into the software for each food item for a child 12-23 months (see Table 4). The software then scaled up the portion sizes accordingly for the rest of the family members. Portion sizes in Karamoja may differ from these standard portion sizes but were not collected during the assessment and therefore could not be entered into the software.

**Table 4: Food Portion Sizes**

<b>Food Type</b>	<b>Generic portion size (in grams) for 12-23 month old child</b>
All cereals/grains	36
All flour	23
All meat	15
All offal	8
All pulses and seeds	15
All bread	28
All soft fruit	42
Unripe fruits (banana and papaya)	21
All fats/oils/butter	5
All berries / small/soft fruits	25
All fish	10
All leafy vegetables	15
Large root vegetable	25
Soft vegetables	10
Condiment vegetable	5
Citric fruits	5
Paste / sauce	5
Cow's milk	136
Eggs	20
All cakes	21
All biscuits	11
Salt	0.3

### 3.3.4 Diets

The cost of two types of diet were estimated: a diet that meets the specified needs for energy only (called the ‘energy only’ diet) and a diet that meets the specified needs for all nutrients at lowest cost using a locally nutritious diet (called the locally-appropriate, cost-optimised and nutritious ‘LACON’ diet). Table 5 below summarises the characteristics of each diet.

#### **Energy only diet**

The software calculates a lowest cost diet that meets only the average energy requirements of the family. The analysis is useful to illustrate the potential for micronutrient deficiencies in a diet that only meets average energy needs and the additional cost of meeting all nutrient requirements, including micronutrients, compared with meeting only average energy needs.

#### **LACON diet**

The software calculates the lowest cost combination of foods which meet the average energy requirements and the recommended micronutrient requirements, whilst adhering to a set of minimum and maximum constraints. This diet reflects people’s typical dietary patterns and is useful to illustrate the extra cost of meeting average energy and recommended nutrient intakes when typical dietary habits such as the main staple foods and food taboos are taken into account. The list of all portion sizes, minimum and maximum constraints, and food prices entered into the Cost of Diet Software can be found in Appendix 5.

**Table 5: Diets analysed by CoD software**

Diet name	Definition	Energy needs met	Fat at 30% of energy	Protein needs met	Micro-nutrient needs met	Reflects a typical diet
Energy only diet	A lowest cost diet that only meets the average energy requirements of the members of the household	X				
Locally appropriate cost-optimised nutritious diet (LACON)	A lowest cost diet that meets the average energy and the recommended nutrient requirements of the household and reflects cultural consumption patterns	X	X	X	X	X

### 3.3.5 Models

Four models were completed to look at the impact on potential interventions on the overall cost and composition of the diet:

➤ **Model #1: A LACON diet with only purchased food**

This model assumed a scenario where market purchase of foods was 100%. All food items sold at markets would be purchased rather than produced at home. The food prices entered for this model were the full market price rather than the weighted price.

➤ **Model #2: A LACON diet with food mostly from home production/livestock rearing**

This model assumed a scenario where there was a substantial increase in home production and livestock rearing. All foods that currently are produced at least partially at home were entered into the software as 'free' foods, with a cost of 0 USh.

➤ **Model #3: A LACON diet with a RWANU food ration**

This model assumed a scenario where the LACON diet with weighted prices was combined with a food ration. The planned RWANU food ration is highlighted in Table 6. For the purposes of this model, four foods were included as part of the diet two days per week: corn soy blend (CSB), split peas, oil, and maize meal.

**Table 6: RWANU food ration**

<b>Group</b>	<b>Food Ration</b>	<b>Amount (g)</b>
<b>Pregnant/ lactating women</b>	CSB	133
	Split peas	50
	Oil	15
<b>Children 6-23 months</b>	CSB	75
	Oil	15
<b>Households</b>	Cormeal	12000
	Green peas	4000
	Oil	1 L

➤ **Model #4: A LACON diet with a micronutrient supplement**

This model assumed a scenario where the LACON diet with weighted prices was combined with a micronutrient powder supplement (i.e. Sprinkles). The supplement of 1g for a child 12-23 months was forced into the diet by the software. The nutrient composition of Sprinkles is highlighted in Table 7.

**Table 7: Nutrient content of Sprinkles**

<b>Retinol activity equivalent (µg Retinol)</b>	<b>Vitamin C (mg)</b>	<b>Thiamin (B1) (mg)</b>	<b>Riboflavin (B2) (mg)</b>	<b>Niacin, preformed (mg)</b>	<b>Vitamin B6 (mg)</b>
15000.0	3000	50.00	50.00	60.0	50.00
<b>Folate (µg)</b>	<b>Vitamin B12 (µg)</b>	<b>Iron (mg)</b>	<b>Absorbed iron (mg)</b>	<b>Zinc (mg)</b>	<b>Copper (mg)</b>
16000	90.00	1250.0	106.3	500.0	30.00

## 4. Results

### 4.1 Food availability

In total, the field team collected market price and weight data on 83 different food items found in the markets. This included 8 cereals, 5 roots and tubers, 11 pulses, 14 vegetables, 5 fruits, 5 wild foods, 15 meat products, 3 dairy products, 6 fats/oils, 10 snacks, and iodised salt.

Interviews and focus group discussions identified an additional 86 food items that are available in the zone through home production, wild foraging, and food aid: 1 pulse, 8 vegetables, 7 fruits, 53 wild foods, 10 meat products, 5 fats/oils, and 2 manufactured snacks.

The high number of food items found, however, does not indicate widespread availability of these foods throughout the livelihood zone. In many cases, foods were only found in 1 or 2 markets. Figures 4 to 6 below highlight which food items are most commonly available in local markets.

Figure 4 shows that maize and sorghum were relatively common, while millet and rice were much less common. White maize was more common than yellow maize and red sorghum was more common than white sorghum. Cassava was found in all markets surveyed. Irish potatoes were much more common than sweet potatoes. Most of the beans were found in about half the markets. Groundnuts and sunflower seeds were more common, with pumpkin and sesame seeds being quite infrequent.

**Figure 4: Availability in markets: cereals, roots, tubers, and pulses**

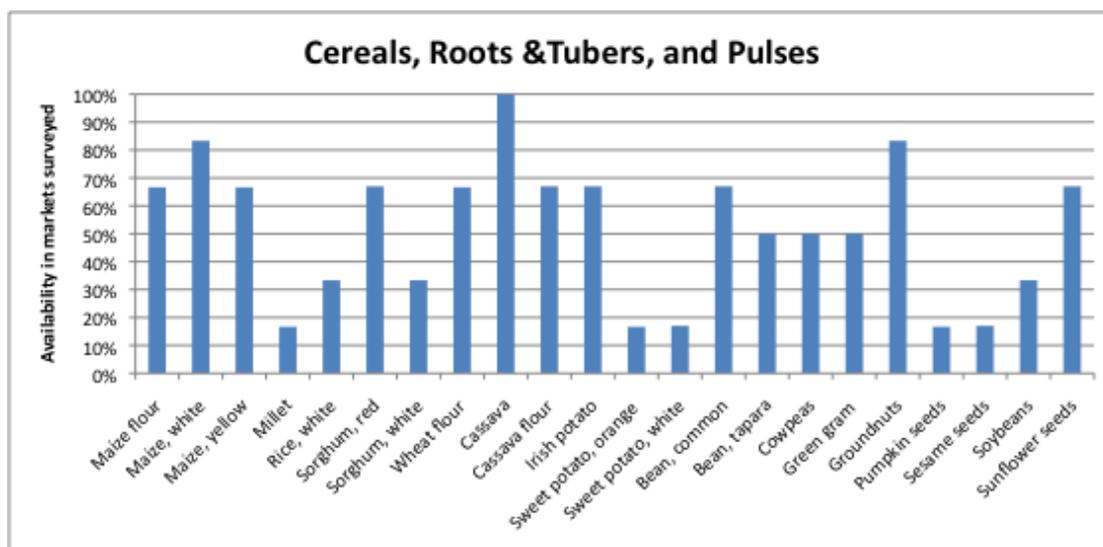


Figure 5 shows that avocado, cabbage, matooke, onions, and tomatoes were found in over half of all markets surveyed, while the rest of the vegetables were only found in about 30% of markets. The most commonly sold fruits were mangos, with bananas and jackfruits sold in about a third of markets surveyed.

**Figure 5: Availability in markets: vegetables, fruits, and wild foods**

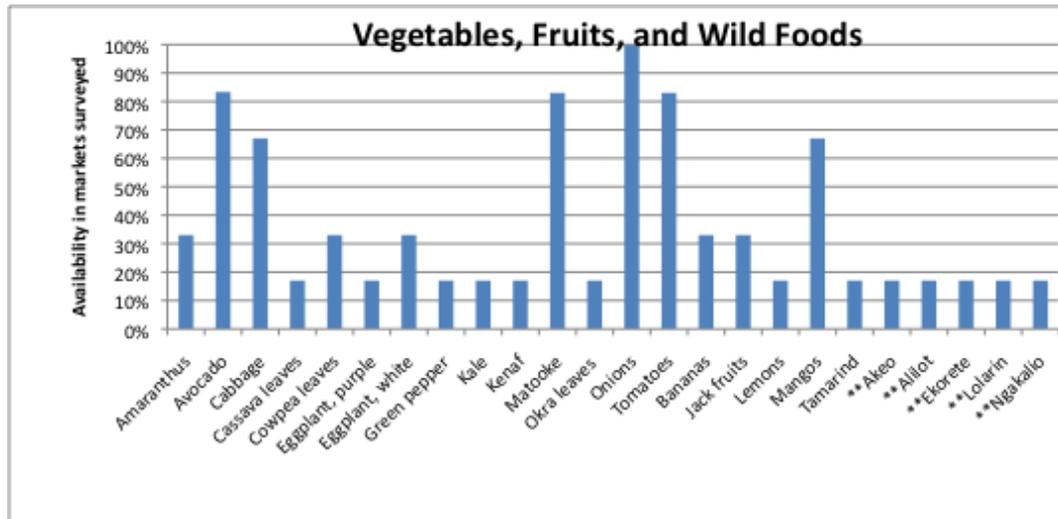
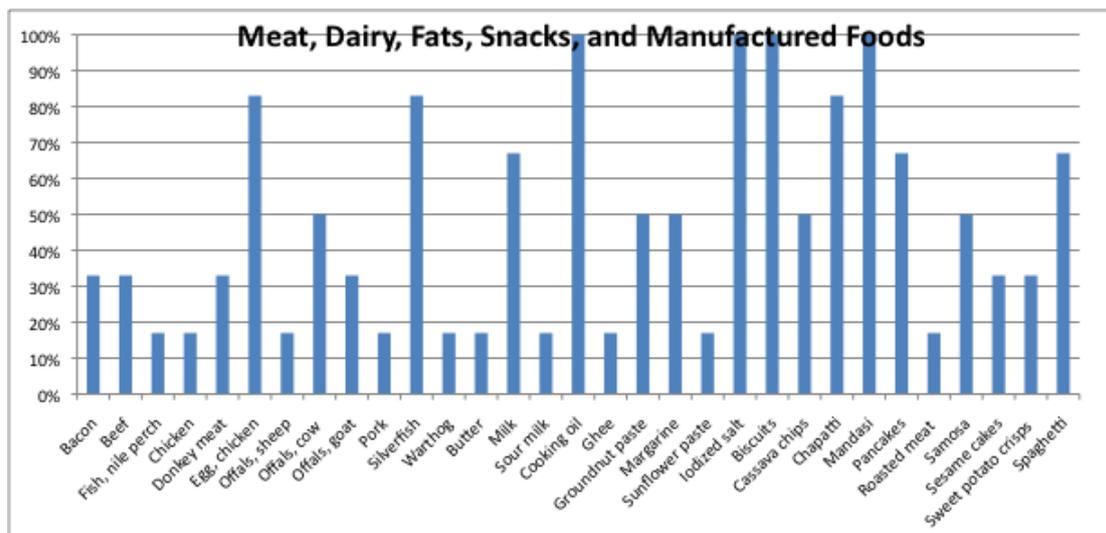


Figure 6 shows that eggs, silverfish, offals, and milk were sold in at least half of the markets visited. Cooking oil, salt, biscuits and mandasi were found to be staples sold in all markets. Other common products were groundnut paste, margarine, cassava chips, chapatti, samosa, and spaghetti.

**Figure 6: Availability in markets: meat, dairy, fats, snacks and manufactured foods**



#### 4.2 Seasonal availability

The seasonal availability of foods was assessed to identify major differences in food availability between the wet and dry seasons. Figures 7 to 11 highlight that most foods are available in greater frequency during the wet season, with the exception of certain wild foods (especially fruits), which are available primarily during the dry season.

Figure 7: Seasonal availability: cereals, roots, tubers, and pulses

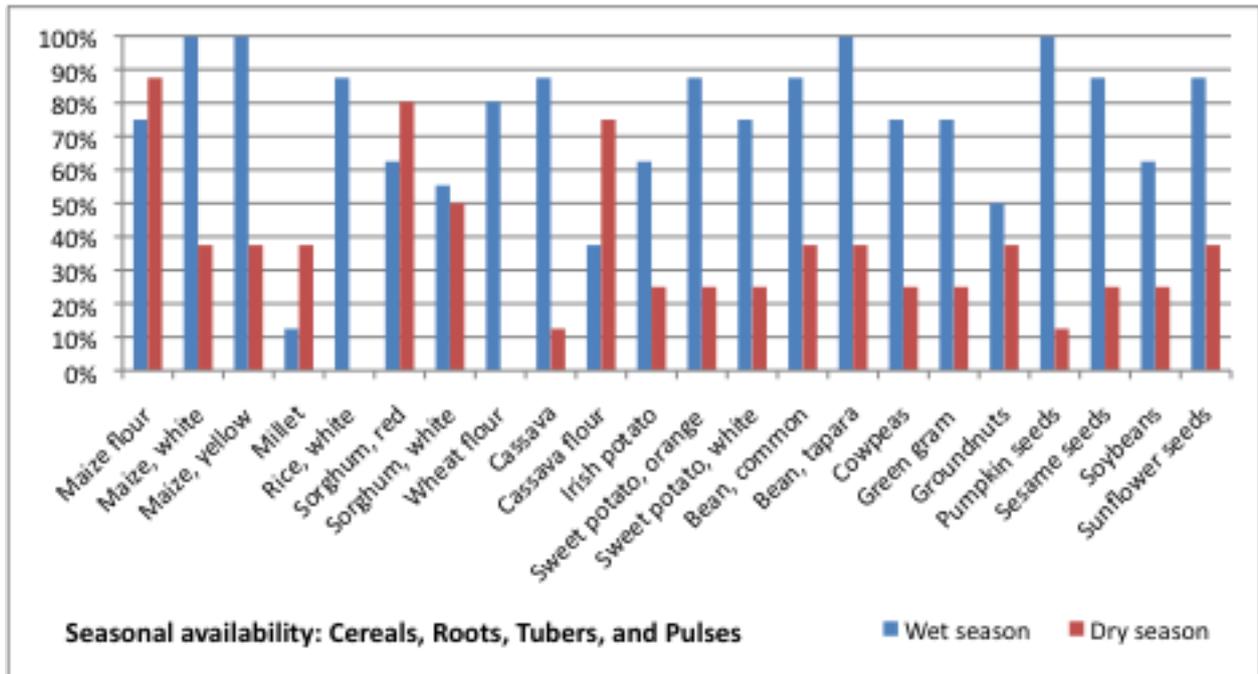
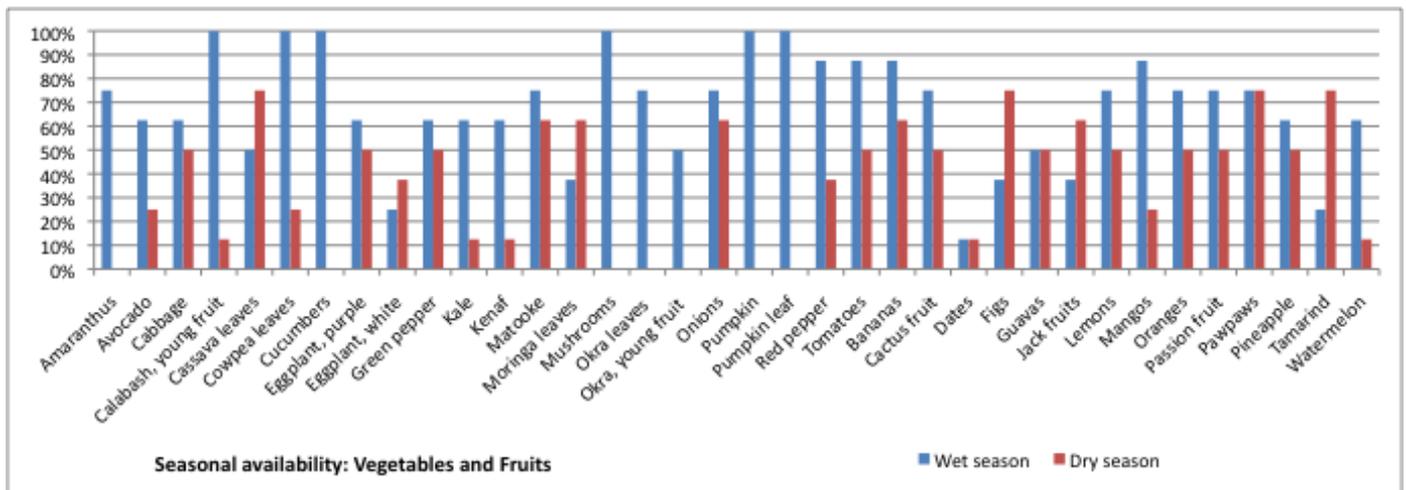
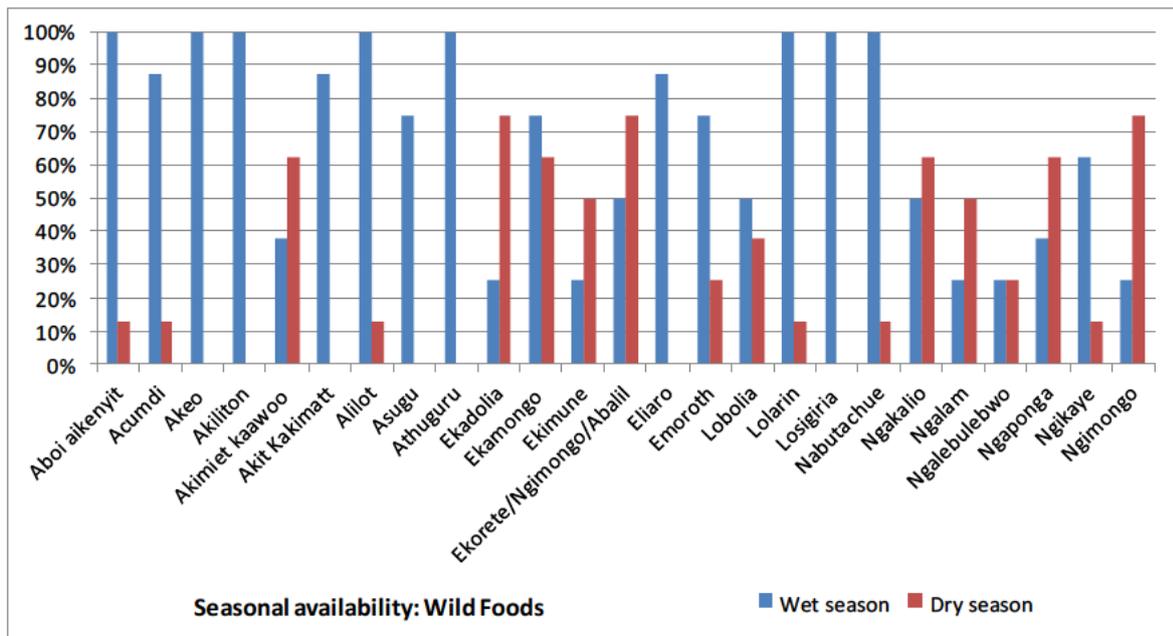


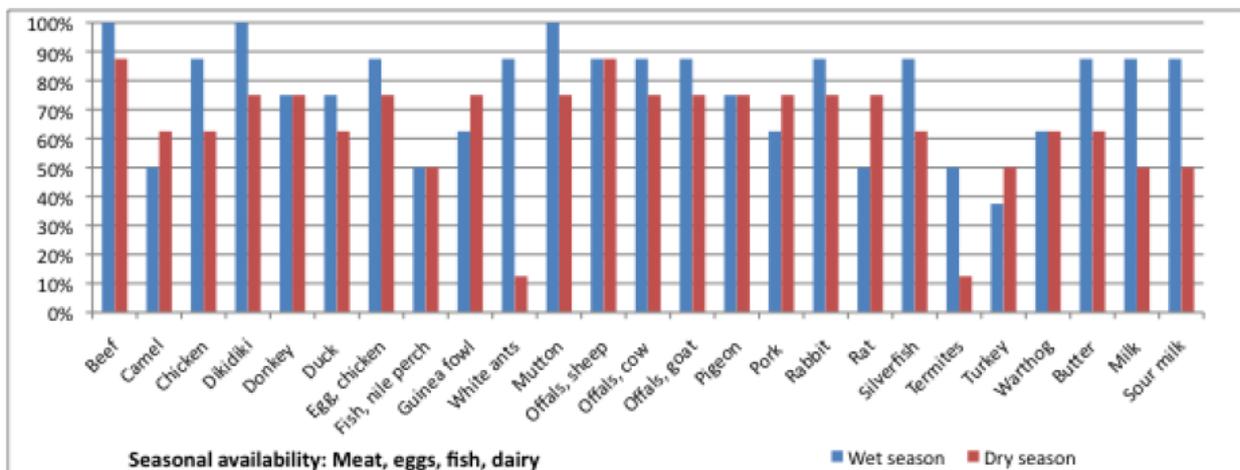
Figure 8: Seasonal availability: vegetables and fruits



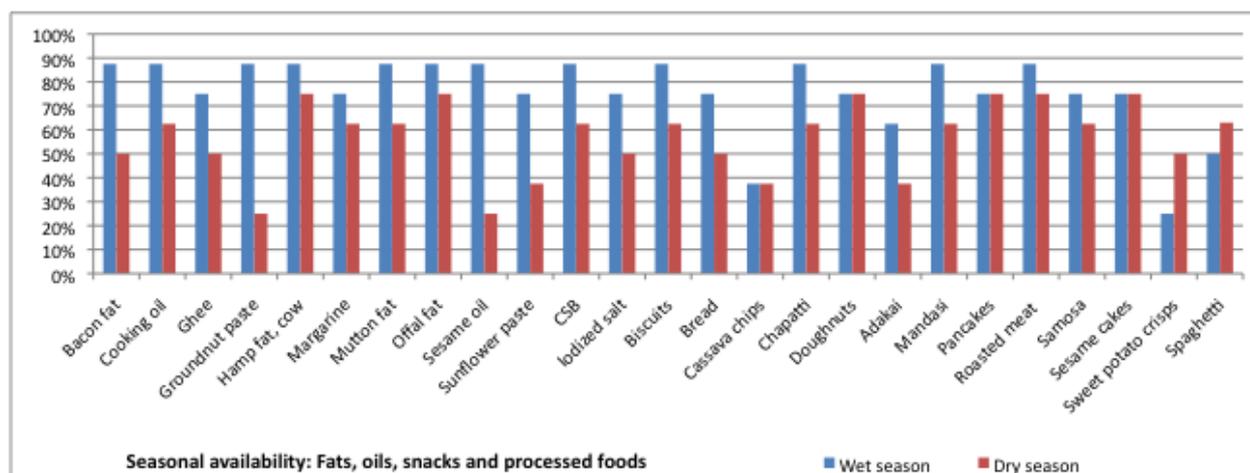
**Figure 9: Seasonal availability: wild foods**



**Figure 10: Seasonal availability: meat, eggs, fish and dairy**



**Figure 11: Seasonal availability: fats, oils, snacks and processed foods**



### 4.3 Food consumption

The frequency of food consumption was assessed for all food items from the survey. The most commonly consumed staple foods were confirmed to be sorghum, maize and beans, with cassava, sweet potatoes, groundnuts, pumpkin seeds, and sunflower seeds also consumed very often. The most frequently consumed vegetables are amaranthus, cabbage, calabash, cowpea leaves, cucumbers, mushrooms, onions, pumpkin leaves, and tomatoes. The most commonly consumed fruits are figs, tamarind, pawpaws, and mangos. A wide array of wild foods, especially wild greens, are eaten regularly but the most common ones were found to be *aboi aikenyit*, *acumdi*, *akeo*, *akiliton*, *alilot*, *athuguru*, *ekadolia*, *ekamongo*, *ekorete*, *eliaro*, *lolarin*, *losigiria*, *nabutachue*, *ngakalio*, *ngalam*, *ngaponga*, and *ngimongo*.

In terms of meat, the most commonly consumed foods are bone marrow, beef, chicken, diki-diki (wild), eggs, white ants, mutton, offals (sheep, cow, goat), hooves (cow), blood (cow and goat), rabbit, rat, and silverfish. In terms of dairy, the most commonly consumed foods are milk, sour milk and butter. In terms of fats and oils, the most commonly consumed are bacon fat, groundnut paste, hamp fat, mutton fat, offal fat, sesame oil, and sunflower paste. Meanwhile, the most commonly purchased snacks and manufactured goods are biscuits, chapatti, mandasi, samosa, and dehydrated sweet potato pieces. *Adakai* (the dregs from sorghum and maize brew) are also consumed very frequently (daily) and in large quantities by both adults and young children.

Focus group participants stated that consumption of milk and milk products has become infrequent because of a severe reduction in cattle ownership in the region due to armed raiding and due to a reduction in milk production among livestock due to seasonal pasture shortages. Tamarind juice has replaced milk as a staple among poor households that don't have regular access to milk, as it helps to 'give taste' to daily foods such as porridge. Vegetable oil has now replaced ghee as a staple fat source. Participants also said that meat is now rarely consumed by poor households as it is too expensive on the market and their animals are considered to be more important as a source of income than a source of food.

In terms of frequency of meals, focus group participants highlighted that the very poor and poor wealth groups on average only eat two meals per day in the wet season and one meal per day during the dry season. In addition to reducing the number of meals, participants said that portion sizes are also reduced to stretch food reserves.

Participants mentioned food taboos for pregnant and lactating women which prohibited consumption of certain animal products and wild greens including cow and goat offals, squirrel, goat, sheep, cow, *akiliton (wild green)*, eggs, goats milk, pigeons, diki-diki, *aderit, ngakaidai*, calabash, pumpkin leaves, brain of goat and cow, ribs/beef, and *ngimug*. Food taboos for children under two prohibit the consumption of liver, rat, and *akiliton*.

The focus groups also highlighted certain food items that were considered to be luxury items that only the better-off households could afford such as rice, wheat flour, irish potatoes, spaghetti, margarine, bread, turkey, and pork. When asked why certain items that are commonly found in the market such as simsim cakes and pancakes were not purchased, participants explained that their purchasing decisions were primarily made based on which foods would give energy and the resulting effect of 'feeling full', which highlights the common bias towards consuming energy-dense foods rather than micronutrient-rich foods.

#### **4.4 Food sources**

Figures 12 to 15 show the results from surveys conducted to assess the food source for each food item. The figures highlight that the market (the blue column) is the predominant source for most food items, while home production (the red column) is the second most common food source. This highlights the vulnerability of households to food price increases and the reliance on cash incomes for food purchases. Keep in mind that the timing of this survey (May) was during the rainy season.

Figure 12 highlights that some of the staple foods that are sourced almost entirely in the market include rice, wheat flour, cassava, cassava flour, irish potatoes, and sweet potatoes. Households tend to produce maize and sorghum at home in addition to purchasing it at the market. Most pulses are produced equally at home as purchased.

**Figure 12: Food source: cereals, roots, tubers and pulses**

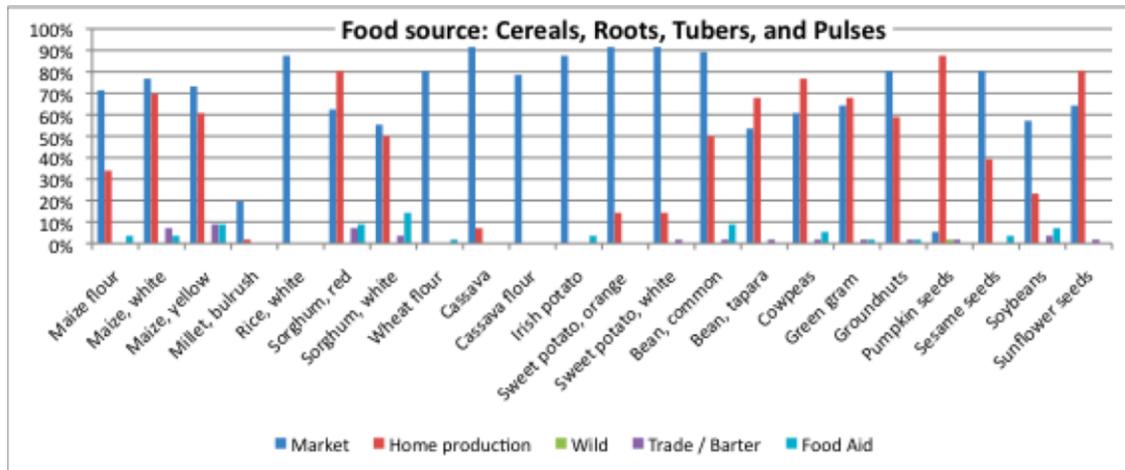


Figure 13 highlights that most vegetables are either produced at home or collected in the wild but almost all fruit is purchased, except for papaya and watermelon. The main vegetables and fruits purchased are avocado, cabbage, eggplant, green pepper, onions, tomatoes, bananas, guavas, jackfruits, lemons, mangos, oranges, passion fruit, papayas, pineapple and watermelon.

**Figure 13: Food source: vegetables and fruits**

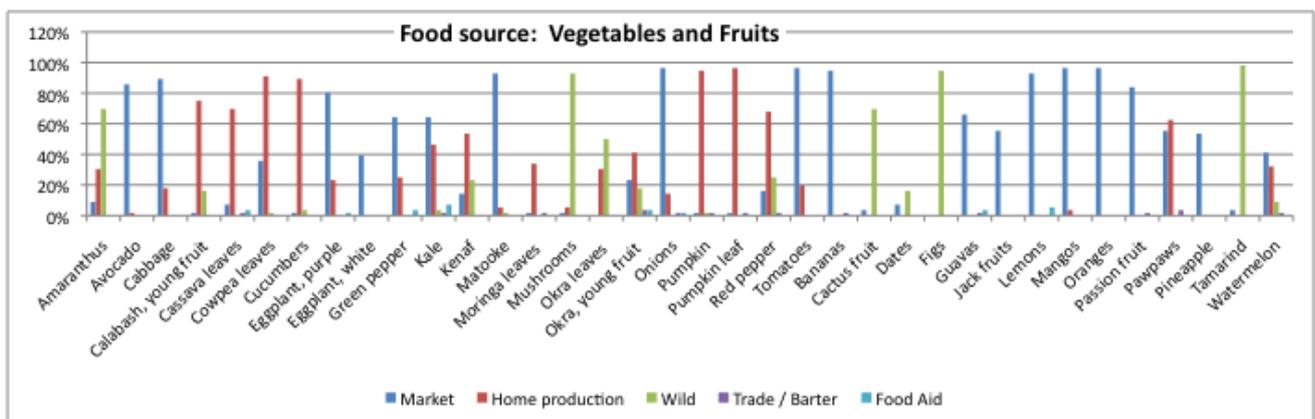


Figure 14 illustrates that households get meat, poultry, eggs and fish from a variety of sources. The most commonly purchased items are beef, fish, donkey, mutton, offals, pork, turkey and silverfish. The most common animal products produced at home are beef, chicken, duck, eggs, offals, and turkey. Animal products from the wild include diki-diki, guinea fowl, white ants, pigeon, rabbit, rat, termites and warthogs.

Figure 14 highlights beef, fish, camel, donkey, mutton, offals, pork and silverfish are all primarily purchased in the market. Meanwhile diki-diki, guinea fowl, white ants, pigeon, rabbit, rat, termite and warthog are all sourced from the wild. Beef, chicken, duck, eggs, mutton, offals, pork and turkey are also produced at home by about half of households.

**Figure 14: Food source: meat, poultry, eggs, fish**

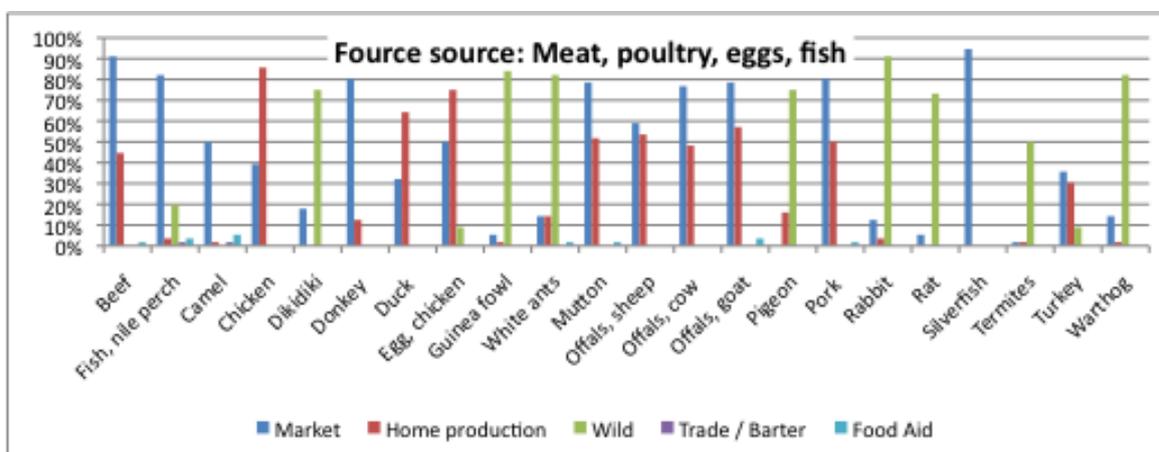
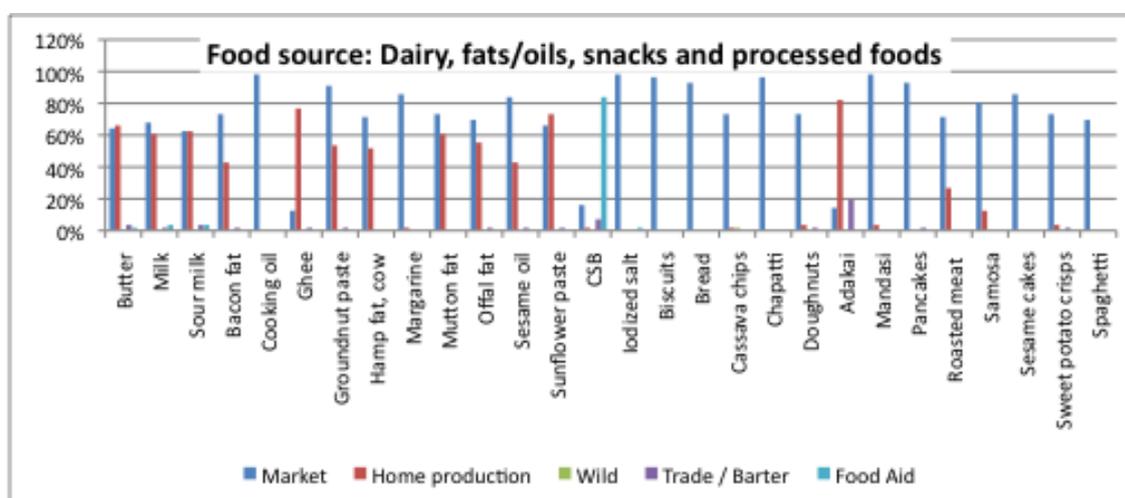


Figure 15 highlights that butter, milk, and sour milk are both purchased at the market and produced at home. In terms of fats and oils, regular cooking oil is solely sourced at the market. Other fats purchased at the market and produced at home include ghee, groundnut and sunflower pastes, margarine, mutton fat, hamp fat, offal fat, and sesame oil. In terms of common snacks, items such as biscuits, chapatti, mandasi, samosa are all purchased at the market. Adakai is produced at home and available for barter at the market but not for sale.

**Figure 15: Food source: dairy, fats/oils, snacks and processed foods**



## 4.5 Composition

### 4.5.1 Energy only diet

22 of the 100 foods included in the software were selected for an energy only diet. Table 8 shows the absolute weight and cost of the foods selected for a family for the whole year for the energy only diet with the percentage contributed by each food in terms of weight, cost, energy, protein and fat, and the percentage contribution of each food for eight vitamins and four minerals.

**Table 8: Energy only diet for a family annually**

<b>Food list</b>	<b>Quantity (grams per year)</b>	<b>% of Quantity</b>	<b>Cost (Ush)</b>	<b>% of Cost</b>	<b>% Energy</b>	<b>% Protein</b>	<b>% Fat</b>
Sorghum	6,452	10	1,419	12	22	14	4
Beans	2,688	4	3,898	32	9	13	1
Pumpkin seeds	71	0	8	0	0	0	1
Watermelon seeds	2,688	4	0	0	7	7	11
Amaranth leaf	5,376	8	161	1	3	6	1
Calabash gourd	1,507	2	0	0	0	0	0
Mushroom	3,584	5	0	0	1	2	0
Pumpkin leaf	4,909	7	0	0	1	1	0
Spiderplant	5,376	8	0	0	2	4	0
Wild amaranth	5,376	8	0	0	1	3	0
Wild capers	5,376	8	0	0	1	2	1
Wild green (Leptadania hastata)	5,376	8	0	0	3	6	0
Spiny pigweed	5,376	8	0	0	2	5	0
Diki-diki	2,688	4	0	0	3	13	0
White ant	2,688	4	0	0	8	11	11
Rabbit	2,688	4	0	0	4	12	3
Vegetable oil	896	1	6,380	53	8	0	17
Beef fat	896	1	0	0	8	0	17
Sheep fat	896	1	0	0	8	0	17
Sesame oil	896	1	0	0	8	0	17
Iodized salt	179	0	186	2	0	0	0

<b>Food list</b>	<b>% Vit A</b>	<b>% Vit C</b>	<b>% Vit B1</b>	<b>% Vit B2</b>	<b>% Niacin</b>	<b>% Vit B6</b>	<b>% Folic Acid</b>	<b>% Vit B12</b>
Sorghum	1	0	19	5	18	10	5	0
Bean	0	1	11	3	9	7	46	0
Pumpkin seed	0	0	0	0	0	0	0	0
Watermelon seed	0	0	3	1	13	3	8	0
Amaranth leaf	57	24	11	21	10	40	6	0
Calabash gourd	1	1	1	0	1	1	2	0
Mushroom	0	2	2	8	11	3	3	0
Pumpkin leaf	41	19	2	3	2	7	29	0

Spiderplant	0	17	4	7	2	10	0	0
Wild amaranth	0	34	2	7	2	8	0	0
Wild capers	0	0	1	6	2	0	0	0
Wild green (Leptadania hastata)	0	0	13	14	6	0	0	0
Spiny pigweed	0	0	4	7	4	0	0	0
Diki-diki	0	0	9	12	0	0	0	0
White ant	0	1	17	5	10	6	0	51
Rabbit	0	0	2	2	9	6	1	49
Vegetable oil	0	0	0	0	0	0	0	0
Beef fat	0	0	0	0	0	0	0	0
Sheep fat	0	0	0	0	0	0	0	0
Sesame oil	0	0	0	0	0	0	0	0
Iodized salt	0	0	0	0	0	0	0	0

<b>Food list</b>	<b>% Calcium</b>	<b>% Iron</b>	<b>% Zinc</b>	<b>% Copper</b>
Sorghum	14	28	14	0
Bean	17	21	10	11
Pumpkin seed	1	0	1	1
Watermelon seed	10	6	6	9
Amaranth leaf	15	13	4	3
Calabash gourd	1	1	1	1
Mushroom	0	6	4	12
Pumpkin leaf	12	4	1	8
Spiderplant	0	0	4	0
Wild amaranth	0	0	7	0
Wild capers	0	0	2	0
Wild green (Leptadania hastata)	0	0	0	0
Spiny pigweed	0	0	0	0
Diki-diki	0	0	5	0
White ant	28	13	31	54
Rabbit	1	7	12	1
Vegetable oil	0	0	0	0
Beef fat	0	0	0	0
Sheep fat	0	0	0	0
Sesame oil	0	0	0	0
Iodized salt	1	0	0	0

Although the energy only diet meets the recommended intakes for energy and fat by design, it lacks several essential micronutrients. Figure 16 shows that for a child aged 12 – 23 months the RNIs for vitamin A, calcium, and iron are not met. Figure 17 shows that for the rest of the family, a diet that only meets the need for energy, leads to a shortfall in requirements for vitamin B12, calcium and iron.

Figure 16: Micronutrients met by an energy only diet for child 12-23 months

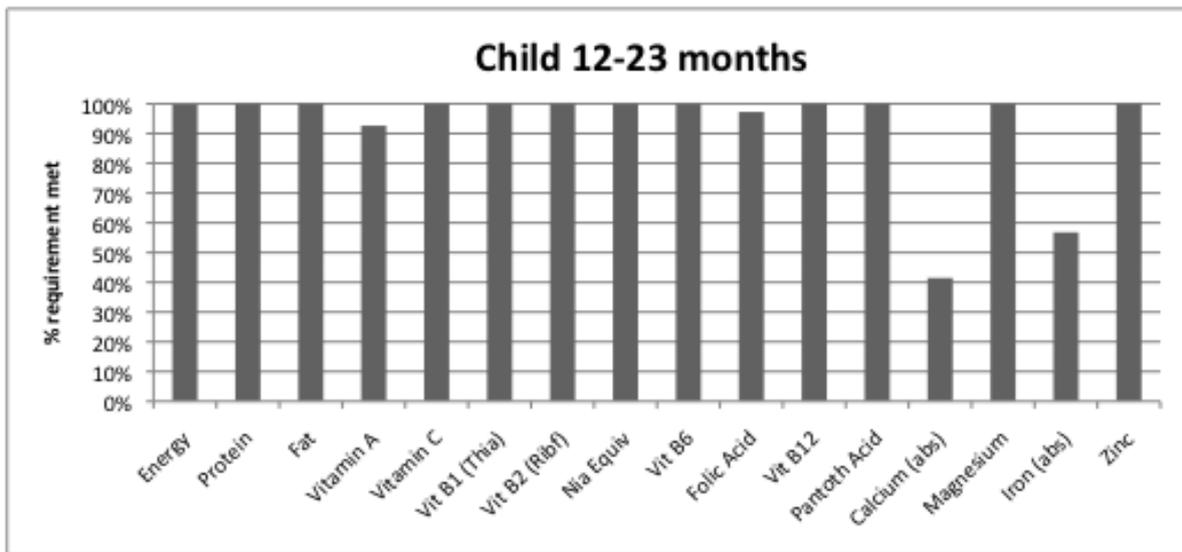


Figure 17: Micronutrients met by an energy only diet for rest of family

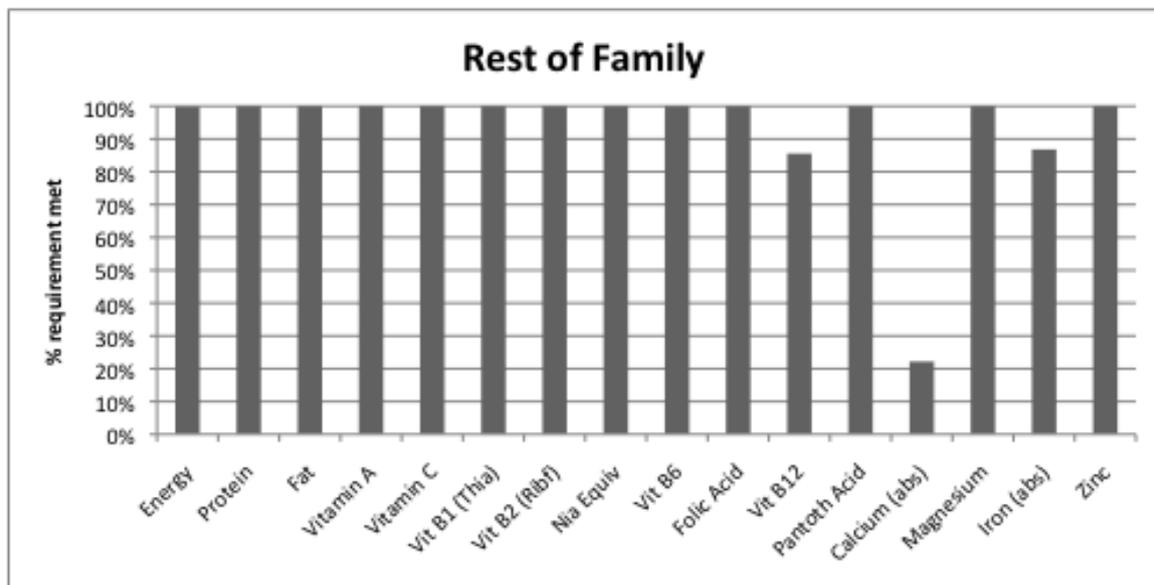


Table 9 highlights the staple foods selected by the software as the most energy-dense and least costly.

**Table 9: Energy density and cost of staple foods**

Staple food	Energy in kcal per 100 g	Cost (USh)	
		Per 100 kcal raw	Per 10 g protein
Sorghum	332	20	66
Sunflower	588	32	72
Maize	362	38	168
Cassava	131	54	645
Beans	326	69	100
Tamarind	270	85	793
Groundnut	340	139	305

**4.5.2 LACON diet**

21 of the 100 foods included in the software were selected for a LACON diet. Table 10 shows the absolute weight and cost of the foods selected for the family for the whole year for the LACON diet with the percentage contributed by each food in terms of weight, cost, energy, protein and fat, the percentage contribution of each food for eight vitamins and four minerals and the percentage of the total requirements met for each nutrient. It shows a diet that meets average energy requirements and meets or exceeds the RNIs for micronutrients at the lowest possible cost.

**Table 10: LACON diet for a family annually**

Food list	Quantity (grams per year)	% of Quantity	Cost (USh)	% of cost	% Energy	% Protein	% Fat
Breastmilk	3724	62%	0	0%	39%	14%	45%
Sorghum	6452	8	1,419	2	22	10	5
Bean	2688	3	3,898	6	9	9	1
Sesame seed	928	1	2,069	3	5	3	11
Soybean	2688	3	5,430	8	10	13	11
Amaranth leaf	5376	7	161	0	3	4	1
Calabash gourd	3584	5	0	0	1	0	0
Cassava leaf	2688	3	376	1	1	2	0
Cowpea leaf	5376	7	1,237	2	2	3	0
Mushroom	3584	5	0	0	1	1	0
Pumpkin leaf	5376	7	0	0	1	1	0
Spiderplant	5376	7	0	0	2	3	1
Wild amaranth	5376	7	0	0	1	2	0
Wild capers	4480	6	0	0	1	1	1
Diki-diki	2688	3	0	0	3	9	0
White ant	2688	3	0	0	7	7	14
Mutton	1397	2	2,668	4	4	5	6

Rabbit	2688	3	0	0	4	8	4
Silverfish	1792	2	19,391	28	7	11	9
Vegetable oil	896	1	6,380	9	8	0	22
Iodized salt	179	0	186	0	0	0	0
Cow's milk	12014	15	26,671	38	8	6	12

<b>Food list</b>	<b>% Vit A</b>	<b>% Vit C</b>	<b>% Vit B1</b>	<b>% Vit B2</b>	<b>% Niacin</b>	<b>% Vit B6</b>	<b>% Folic Acid</b>	<b>% Vit B12</b>
Breastmilk	57%	41%	16%	24%	18%	7%	22%	10%
Sorghum	0	0	15	4	14	6	2	0
Bean	0	1	9	2	7	4	24	0
Sesame seed	0	0	6	1	5	4	2	0
Soybean	1	11	14	7	12	2	21	0
Amaranth leaf	30	15	9	17	8	25	3	0
Calabash gourd	1	2	1	1	1	1	2	0
Cassava leaf	11	8	2	3	2	7	8	0
Cowpea leaf	22	16	4	6	3	14	15	0
Mushroom	0	1	2	7	9	2	2	0
Pumpkin leaf	23	13	2	2	2	5	17	0
Spiderplant	0	11	3	6	2	6	0	0
Wild amaranth	0	21	1	5	2	5	0	0
Wild capers	0	0	1	4	1	0	0	0
Diki-diki	0	0	7	9	0	0	0	0
White ant	0	0	14	4	8	4	0	6
Mutton	0	0	1	1	5	2	0	4
Rabbit	0	0	1	2	8	3	0	5
Silverfish	1	0	3	6	6	6	0	79
Vegetable oil	0	0	0	0	0	0	0	0
Iodized salt	0	0	0	0	0	0	0	0
Cow's milk	10	1	4	13	5	4	2	7

<b>Food list</b>	<b>% Calcium</b>	<b>% Iron</b>	<b>% Zinc</b>	<b>% Copper</b>
Breastmilk	32	9	11	0
Sorghum	3	17	10	0
Bean	4	13	7	8
Sesame seed	18	9	7	19
Soybean	20	11	6	4
Amaranth leaf	3	8	3	2
Calabash gourd	0	1	1	2
Cassava leaf	2	5	1	3
Cowpea leaf	5	11	2	5
Mushroom	0	4	3	9
Pumpkin leaf	3	3	1	7
Spiderplant	0	0	3	0
Wild amaranth	0	0	5	0

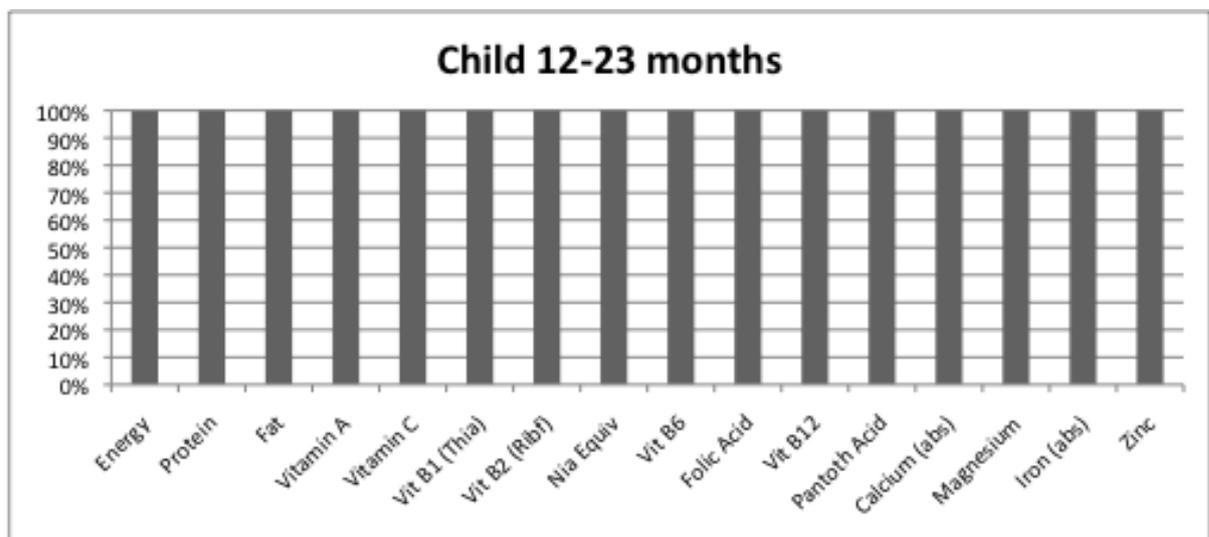
Wild capers	0	0	1	0
Diki-diki	0	0	3	0
White ant	6	8	22	40
Mutton	0	3	6	1
Rabbit	0	4	9	1
Silverfish	0	0	4	0
Vegetable oil	0	0	0	0
Iodized salt	0	0	0	0
Cow's milk	35	1	5	0

For a 12-23 month old child in the LACON diet, breastmilk met over half the child's need for vitamin A, and contributed substantially to energy, fat, vitamin C, vitamin B2, folic acid, and calcium requirements. Although breastfeeding should be partial at this age, it still makes the greatest contribution to a child's intake of energy (39%), fat (45%), vitamin A (57%), vitamin C (41%), vitamin B2 (24%), folic acid (22%) and calcium (32%). Breastmilk contains little iron however, so it is important that iron-rich complementary foods are given to the child.

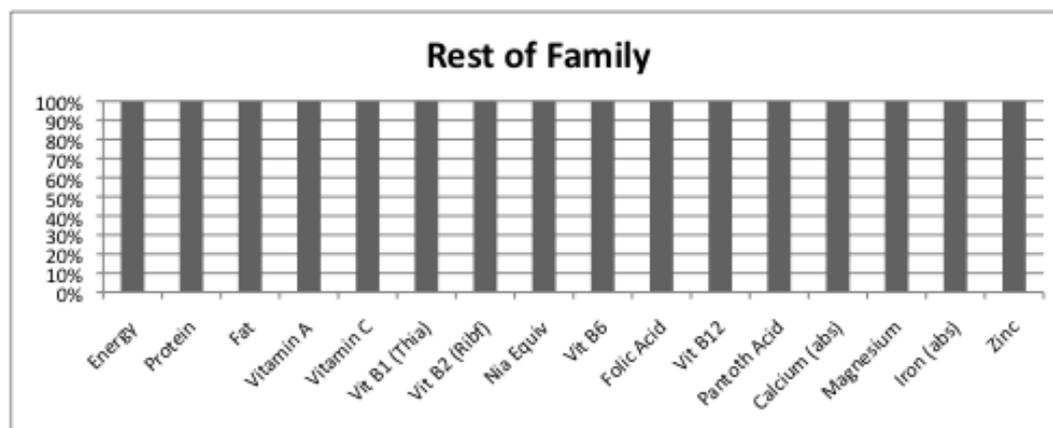
Note that although diki-diki is eaten by the local population and is nutritious, the project will not promote consumption of diki-diki as a food source due to concerns of over-hunting.

Figures 18 and 19 demonstrate that it is possible for all nutrient requirements to be met for a LACON diet with locally available foods.

**Figure 18: Nutrient requirements met by LACON diet for child 12-23 months**



**Figure 19: Nutrient requirements met by LACON diet for rest of family**



To determine the most nutritious foods by food group, the average cost of each food group was calculated and entered into the software (see Table 11). The most nutritious and low-cost foods identified by the software were sesame seeds, soybeans, pumpkin seeds, watermelon seeds, amaranth leaf, avocado, calabash, cassava leaves, cowpea leaves, okra leaves, pumpkin leaves, spiderplant, wild amaranth, wild capers, leptadania hastata, spiny pigweed, mushrooms, okra, pumpkin, red pepper, cactus fruit, lemons, cow blood, diki-diki, guinea fowl, mutton, pigeon, rabbit, white ants, ghee, beef fat, mutton fat, sesame oil, sunflower paste, cow milk, and dehydrated sweet potatoes.

**Table 11: Average food group prices**

Food group	Average cost per 100 g of food groups (USh)
Vegetables	92
Roots and Tubers	104
Fruits	106
Condiment	106
Pulses	132
Cereals	193
Dairy	308
Snacks	426
Meat, poultry, fish, eggs	433
Fats/Oils	532
Manufactured foods	945

## 4.6 Cost

### 4.6.1 Energy only diet

Table 12 shows the minimum annual cost of a diet that meets only a household's energy needs.

**Table 12: Cost of energy only diet**

Age group	Annual cost (USh)	Annual cost (USD)
12-23 month-old	24,474	9.44
Rest of Family	628,471	242.37
<b>Overall</b>	<b>652,944</b>	<b>251.81</b>

It should be noted that the cost of the diet of the child aged 12-23 months only includes the cost of the solid complementary foods the child is given, it does not include the cost of breastmilk which is costed within the average extra energy (568 kcal/d) and nutrients required by the lactating mother each day.

### 4.6.2 LACON diet

Table 13 shows the minimum annual cost of a LACON diet that meets all of a household's nutrient needs.

**Table 13: Cost of LACON diet**

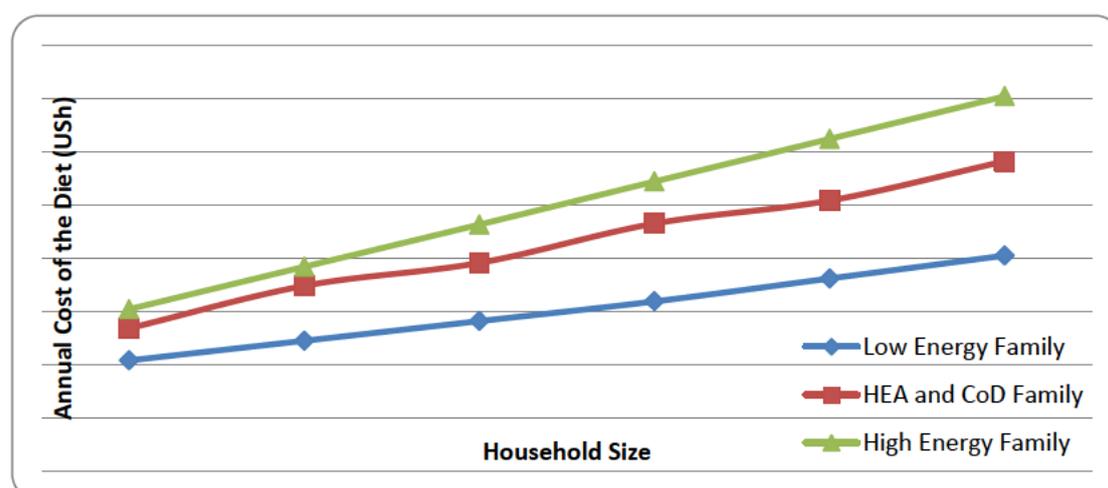
Age group	Annual cost (USh)
12-23 month-old	265,254
Rest of Family	3,644,143
<b>Overall</b>	<b>3,909,397</b>

Table 14 and Figure 20 show how the annual cost of the LACON diet for the HEA/CoD family varies by the number of individuals in the household from five to ten and for families with the minimum and maximum energy requirements. The cost for a family of seven members could range from 2,816,190 USh to 4,628,393 USh depending on their sex, age, body weight and physical activity.

**Table 14: Cost of a LACON diet for 5-10 member families**

Family Type	Family Size					
	5	6	7	8	9	10
	<b>Annual Cost of the Diet (USh)</b>					
<b>Low Energy</b>	2,078,750	2,447,015	2,816,190	3,185,498	3,615,793	4,045,932
<b>Moderate Energy (HEA/CoD family)</b>	2,682,205	3,478,703	3,909,397	4,647,152.97	5,078,354	5,815,786
<b>High Energy</b>	3,040,212	3,836,335	4,628,393	5,435,283	6,235,174	7,034,967

Figure 20: Annual cost of LACON diet for households of 5-10 members



#### 4.7 Affordability of the LACON diet

The cost of a nutritious diet becomes a more meaningful figure when compared with the income and purchasing power of the poorest members of the community. A diet may be cheap in comparison to other contexts, but if it is beyond the means of the poor, then the risk of chronic food insecurity and malnutrition remains.

Estimates of annual income for the four wealth groups were made during the HEA in 2010, as shown in Table 15.

Table 15: Annual income by wealth group

	Very poor	Poor	Middle	Better-off
Annual Income (US\$)	384,250	566,850	809,000	926,500

Households have many needs in addition to food, however, some of which are critical for their survival. The 'livelihoods protection threshold', estimated by the HEA is defined as the annual cost of essential non-food items that are specific to each wealth group. By subtracting the livelihood protection threshold from the total annual income, a more realistic indication of what amount households may have available to spend on food can be estimated. Table 16 shows the total income of each wealth group after subtracting a household's need for essential non-food items.

Table 16: Total income for food

	Very Poor	Poor	Middle	Better-off
Annual income (US\$)	384,250	566,850	809,000	926,500
Livelihood protection threshold (US\$)	94,500	202,000	377,000	469,000
Total annual income after subtracting the livelihood protection threshold (US\$)	289,750	364,850	432,000	457,500

The reference year for the annual income in the HEA was 2009. The total annual income for 2013 by wealth group was calculated with HEA income data and annual inflation rates, as shown in Table 17. Inflation rates are from: <http://www.tradingeconomics.com/uganda/inflation-cpi>.

**Table 17: Annual income available for food adjusted for inflation**

Year	Inflation rate	Very Poor	Poor	Middle	Better-off
2009	--	289,750	364,850	432,000	457,500
2010	0.10	318,725	401,335	475,200	503,250
2011	0.04	331,474	417,388	494,208	523,380
2012	0.26	417,657	525,909	622,702	659,459
2013	0.05	<b>438,540</b>	<b>552,205</b>	<b>653,837</b>	<b>692,432</b>

The difference between the total estimated annual income plus the livelihood protection threshold and the annual cost of a nutritious diet was then calculated to determine the 'affordability' of the diet. Estimating the affordability of the diet is important to determine if poverty is preventing households from obtaining a nutritious diet.

Figure 21 shows the affordability of an energy only diet. It shows that the middle and better off wealth groups are barely able to afford the diet with it costing 100% and 94% respectively of the middle and better-off wealth groups' total income for food. The energy only diet remains unaffordable for the very poor and poor wealth groups, costing 149% and 118% of their incomes respectively.

**Figure 21: Affordability of an energy only diet**

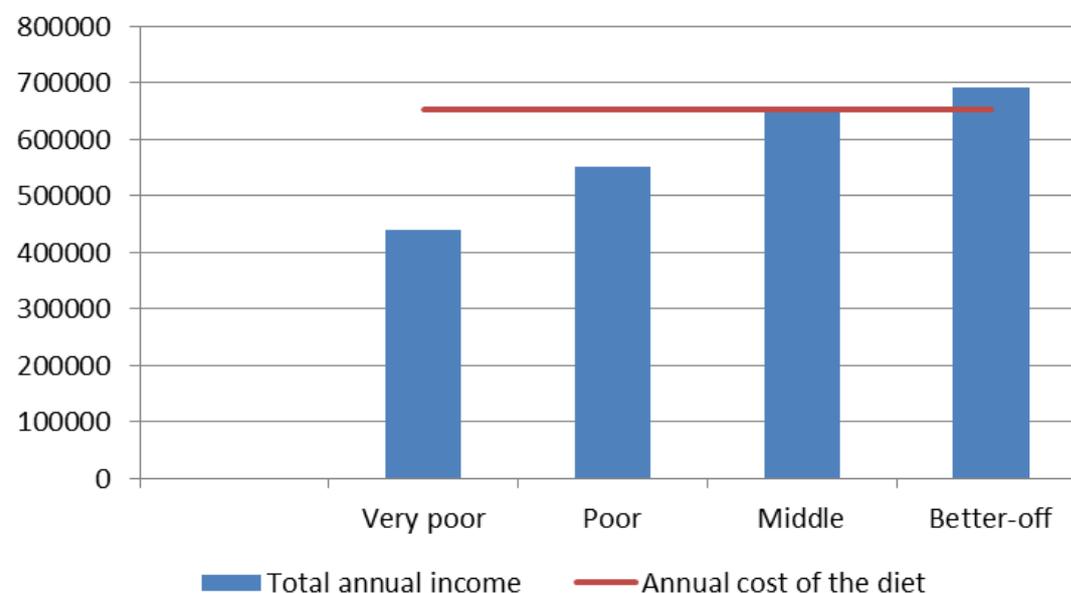
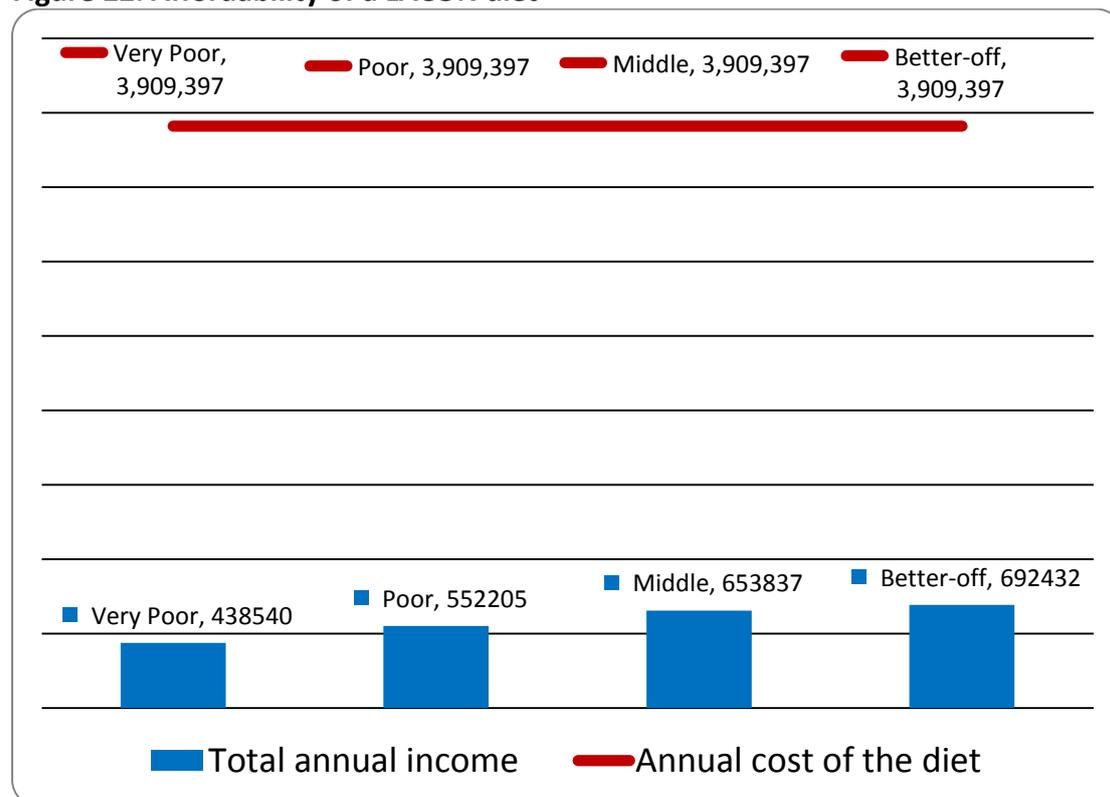


Figure 22 highlights the affordability of a LACON diet. It clearly shows that none of the wealth groups can afford the LACON diet, with it costing 891%, 708%, 598%, and 595% of the very poor, poor, middle and better off groups' total income for food.

**Figure 22: Affordability of a LACON diet**



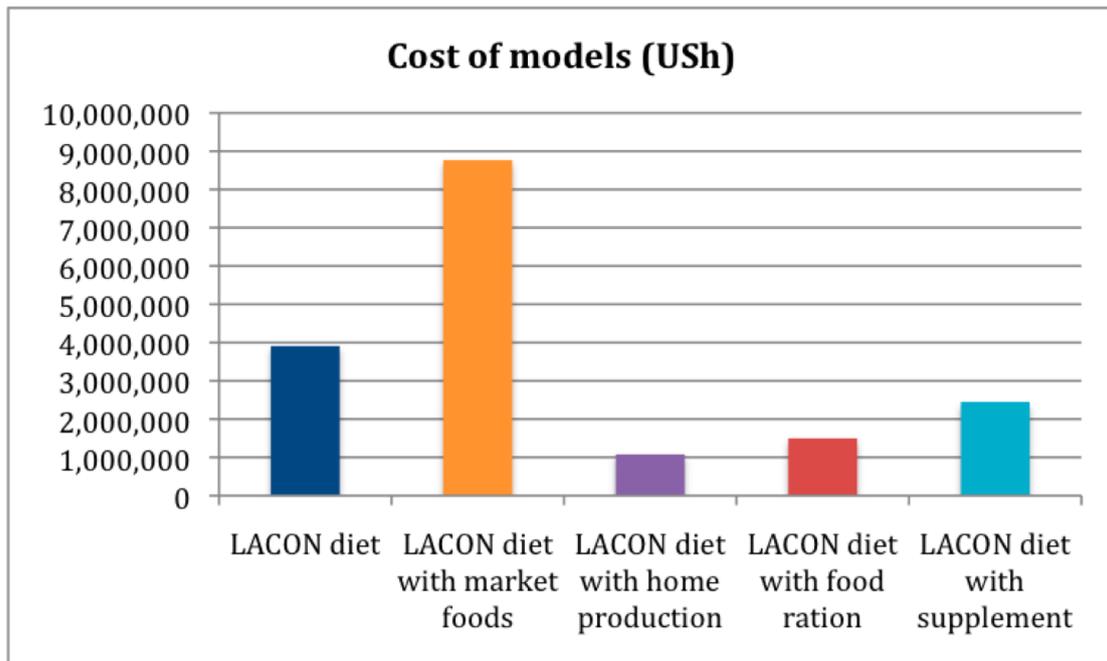
#### 4.8 Models

Four models were completed to assess the impact on the overall cost and composition of the diet: a LACON diet with only purchased food, a LACON diet with food mostly from home production and livestock rearing, a LACON diet with a RWANU project food ration, and a LACON diet with a micronutrient supplement. Table 18 and Figure 23 summarise the annual costs for each of the models, while Figure 24 highlights the impact of the food ration on the overall affordability of the diet.

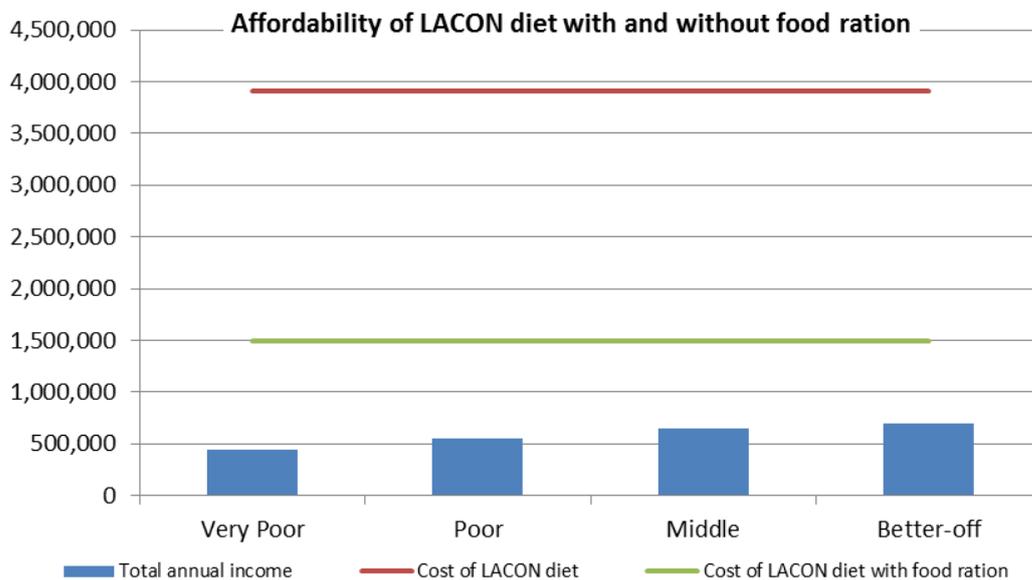
**Table 18: Impact of models on cost of LACON diet**

Age group	Annual cost (USh)			
	LACON diet with only purchased food	LACON diet with food from home production:	LACON diet with food ration:	LACON diet with micronutrient supplement
12-23 month-old	383,255	157,163	111,563	161,608
Rest of Family	8,385,370	920,544	1,386,051	2,285,214
<b>Overall</b>	<b>8,768,625</b>	<b>1,077,707</b>	<b>1,497,614</b>	<b>2,446,822</b>

**Figure 23: Costs of different models**



**Figure 24: Affordability of LACON diet with and without food ration**



When included two days per week as part of the LACON diet, the food ration plays a significant role in providing the following essential nutrients:

**Table 19: Nutritional value of food ration**

<b>Ration</b>	<b>Nutrients</b>
CSB	Energy, Protein, Vitamin A, Vitamin C, Vitamin B1, Vitamin B2, Vitamin B6, Folic acid, Vitamin B12, Zinc
Oil	Fat
Split peas/green peas	Folic acid, Iron, Zinc
Cornmeal	Energy, Vitamin B1, Vitamin B6, Niacin, Iron, Zinc

## 5. Discussion and Recommendations

### ***Conduct a CoD analysis in the dry season:***

To better understand the seasonal cost and availability of foods in the Karamoja Livestock, Bulrush Millet and Sorghum Zone (an agropastoral zone) livelihood zone, a second round of data collection should be completed during the dry season. The seasonal fluctuations in the daily cost of a nutritious diet have not been effectively captured in this study because retrospective data collection methods were deemed unreliable.

### ***Conduct a CoD analysis in the green belt livelihood zone:***

To better understand the differences between livelihood zones in terms of food prices, sources, consumption and production, a CoD analysis should be completed in the green belt zone and compared to the agropastoral zone to ensure that RWANU programme activities are as targeted as possible in each area.

### ***Explore ways to improve the affordability of a nutritious diet:***

The software found that none of the wealth groups could afford a nutritious LACON diet. While the proposed food ration does lower the overall cost of the diet, it is not enough of a reduction to close the income gap. Additional ways to increase household income and/or supplement household food purchases are needed.

### ***Promote continued breastfeeding and iron-rich foods***

Breastmilk provides many essential nutrients for children 6-23 months such as calcium and vitamin A, as shown by the results for the LACON diet for the 12-23 months old child. Breastmilk, however, is not a rich source of iron. RWANU activities should help make iron-rich foods such as meat, white ants and offals more accessible so that increased consumption of these foods can be advocated for. Other sources of low-cost iron-rich foods include sesame seeds, soybeans, pumpkin seeds, cassava leaves, cowpea leaves, and wild greens, although the iron is less bio-available in these foods and so they would need to be combined with consumption of foods rich in Vitamin C.

### ***Increase support for livestock rearing:***

Increasing household production of milk, eggs and meat could help to significantly reduce the overall cost of the diet. The CoD analysis found that most households own few animals and do not have sufficient access to animal-source foods. RWANU should conduct an analysis to see if increasing livestock ownership would effectively translate to increased meat and milk consumption.

### ***Increase support for homestead food production:***

Increasing homestead food production through kitchen gardens could significantly reduce the cost of a nutritious diet, as shown in Model #2 for a LACON diet with food mostly from home production and livestock rearing. RWANU should explore potential costs associated with increased home production, as these were not included in the model.

**Promote food preservation:**

Preserving foods (i.e. by drying) can help to improve access to seasonal foods which may be unavailable or more expensive at certain times of the year, such as wild greens.

**Promote increased consumption of wild foods:**

The CoD analysis found that wild food plants contribute greatly to local household food security. They are important because they are free and are easy to access by the local communities, and help during periods of acute food shortages. Wild food plants also provide nutritional security by adding essential nutrients as well as variety to diets, making staples more appealing to the taste.

Some popular wild foods that are currently being promoted in agroforestry schemes in Karamoja include ekorete (*Balanites aegyptiacus* Delile) ekadolia (*Capparis tomentosa* lam.), epongae (*Grewia villosa* Willd.), edapal (*Opuntia cochenillifera* DC.) epapai (*Piliostigma thonningii* (Schumach.) Milne-Redh.) and guava (*Psidium guajava* L.) by Karamoja Christian Ethnoveterinary Programme (KACHEP) (Grade, J.T. et al, 2009).

There is great potential for wild foods to make a positive impact on the overall cost and quality of the local diet. 58 wild foods were identified during the assessment. RWANU should explore the potential for these foods to be included in nutrition sensitive value chains. More research should also be conducted to assess availability and potential harvest levels to determine nutritional value, use and consumption patterns and what is the practical feasibility of integrating wild foods in the diets in terms of amounts consumed, cultural acceptability, availability, affordability and safety. Problems associated with sourcing food plants from the wild include potential overharvesting and less availability during times of drought. Potential costs associated with increased wild food collection should also be assessed, as these were not included in the model. For many wild species, nutrient information and scientific names are lacking. Further identification of foods is necessary to fully assess the underutilized foods in the region. Identification could be assisted by locating a copy of this reference book: Katende, A et al. (1999) *Wild Food Plants and Mushrooms of Uganda*, RELMA.

The diversity of wild plants harvested for food in Uganda is regulated under the National Forest Authority. There is no policy or legislation in place to support Collaborative Forest Management processes especially where wild species are harvested for food purposes. It would be useful for RWANU to link with societies working in the field of ethnobotany such as UGANEB (the Uganda Group of the African Network of Ethnobotany/ Ethnoecology).

**Consider introducing a micronutrient supplement:**

RWANU should consider supplementing food-based solutions such as the food ration with short-term home fortification with sprinkles or another multi-micronutrient supplement to ensure that dietary requirements (particularly for zinc and iron) are met. For very poor households, ensuring sufficient intake of essential micronutrients can be difficult at a low cost as certain foods need to be consumed in large quantities. Fortifying foods with a micronutrient powder reduces the quantity required of these other foods and makes achieving a low-cost nutritious diet more feasible.

***Address the widespread consumption of ekwete and adakai:***

RWANU needs to recognize the importance of beer products as a key food source and currently as one of the primary sources of income to purchase other foodstuffs. Any nutrition intervention needs to take into account the influence of beer production and sale.

***Expand the list of crops and animal value chains supported by RWANU:***

Strategy 20 from the RWANU market assessment suggests that the programme should work with other development partners to continuously expand the list of crops and animals value chains to be undertaken by the RWANU beneficiaries of South Karamoja. This includes promoting the production of crops that are promising and marketable including cabbage, sweet potatoes, irish potatoes, simsim, cassava, okra, water melon, sunflower, sheep and sheep products, livestock and livestock products etc. Of the items listed, it would be advisable for RWANU to select those food items which have the highest nutrient values (i.e. sweet potatoes, simsim, okra, sunflower, sheep and sheep products, and other livestock products).

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## Appendix 2: COD Schedule

CoD Schedule				
Date	Activity	Sub-County	Market surveys	Village surveys
Saturday, May 18	Training	RWANU office in Moroto town		
Monday, May 20	Training	RWANU office in Moroto town		
Tuesday, May 21	Pilot tools	Nanduget	Katanga	Loptuk
Wednesday, May 22	Day 1: Data collection	Lopei	Lopei	Kailikong
Thursday, May 23	Day 2: Data collection	Ngoloriet	Kangole	Nasike
Friday, May 24	Day 3: Data collection	Moruita	Nakapiripirit	Moruita
Saturday, May 25	Day 4: Data collection	Lolachat	Lolachat	Lokibui
Monday, May 27	Day 5: Data collection	Nabilatuk	Nabilatuk	Losimit
Tuesday, May 28	Day 6: Data collection	Lorengedwat	Lorengedwat	Kamaturu

**Data collection:**

**Market surveys:**

4 traders/food item/market

3 weights/food item/trader

Total of 12 weights/food item/market

6 markets visited

**Total of 72 weights/food item for all 6 markets**

**Village surveys:**

Interviews with 8 women/village

- Food frequency
- Food availability
- Food source

Focus Group Discussions with the 8 women that were interviewed:

- Food preferences
- Food taboos

6 villages visited

**Total of 6 focus group discussions and 48 interviews**

### Appendix 3: Composition of HEA/CoD families and low and high energy families

Family size	Kcal /day	5 individuals			6 individuals			7 individuals			8 individuals			9 individuals			10 individuals		
		Low	HEA /CoD	High	Low	HEA/C OD	High												
Household member																			
Baby (either sex) 12-23 months	894	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Child (either sex) 2-3 years	1,088	X			X			X			X			X			X	X	X
Child (either sex) 3-4 years	1,200	X			X			X			X			X			X		
Child (either sex) 4-5 years	1,300				X			X			X			X			X		
Child (either sex) 5-6 years	1,400							X			X			X	X		X	X	
Child (either sex) 6-7 years	1,500										X	X		X			X		
Child (either sex) 7-8 years	1,625									X				X	X		X	X	
Child (either sex) 8-9 years	1,763					X							X				X		
Child (either sex) 9-10 years	1,913		X												X			X	
Child (either sex) 10-11 years	2,075					X													
Child (either sex) 11-12 years	2,250		X												X			X	X
Child (either sex) 12-13 years	2,413					X										X			X
Child (either sex) 13-14 years	2,575								X					X	X		X	X	X
Child (either sex) 14-15 years	2,725									X			X	X			X		X
Child (either sex) 15-16 years	2,838							X					X	X		X	X	X	X
Child (either sex) 16-17 years	2,913			X				X					X	X			X		X
Child (either sex) 17-18 years	2,950			X				X					X	X			X		
Man, 18-29y, 50 kg, light activity	2,300	X			X			X				X			X		X		
Man, 30-59y, 50 kg, mod activity	2,750		X			X						X			X			X	
Man, 30-59y, 60 kg, vig activity	3,450			X				X				X			X		X		X
Woman, 18-29y, 45 kg, light	1,850	X			X			X				X			X		X		
Woman, 30-59y, 45 kg, mod	2,300		X			X						X			X			X	
Woman, 30-59y, 55 kg, vig	2,850			X				X				X			X		X		X
Woman is lactating	418	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Total average energy		7,749	10,524	13,474	9,049	12,612	16,312	10,449	14,724	19,037	11,949	16,837	21,612	13,574	18,962	24,024	15,337	21,037	26,274

**Appendix 4: English, N’Karamojong, and botanical names of all foods found in the agropastoral livelihood zone and their corresponding CoD software names.**

English Name	N’Karamojong Name	Botanical Name	CoD Software Name
<b>Cereals</b>			
Maize flour	Ngakiria alokwangai	Zea mays	MAIZE, FLOUR, DRY (KENYA)
Maize, white	Kathan	Zea mays	MAIZE, WHITE, DRIED (EGYPT)
Maize, yellow	Morunyang	Zea mays	MAIZE, YELLOW, DRIED (EGYPT)
Rice, white	Emucele	Oryza sativa	RICE, RAW (KENYA)
Sorghum, red	Serina	Sorghum bicolor	SORGHUM, WHOLE GRAIN, RED (SENEGAL)
Sorghum, white	Ekabir	Sorghum bicolor	SORGHUM, WHOLE GRAIN (SENEGAL)
Wheat flour	Ngakiria angano	Triticum aestivum	WHEAT, FLOUR, ALL-PURPOSE, 72% EXTRACT. (KENYA)
<b>Roots and Tubers</b>			
Cassava	Emoogo	Manihot esculenta	CASSAVA, RAW (KENYA)
Cassava flour	Ngakiria ke moogo	Manihot esculenta	CASSAVA, DRIED, FLOUR (INDONESIA)
Irish potato	Ngabiethia	Solanum tuberosum	POTATO, ENGLISH, RAW (KENYA)
Sweet potato, orange	Ngarungeto	Ipomoea batatas	SWEET POTATO, RED-ORANGE (INDONESIA)
Sweet potato, white	Ngarungeto	Ipomoea batatas	SWEET POTATO, WHITE (INDONESIA)
<b>Pulses</b>			
Bean, common	Emoroge/ Kakodareng	Phaseolus vulgaris L	BEAN, KIDNEY, DRIED, RAW (KENYA)
Bean, tapara	Lobothochim	No botanical identification	No nutrient data
Cowpeas	Lodwee	Vigna unguiculata	COWPEA, UNCOOKED (KENYA)
Green gram	Lolibimare	Vigna radiata	BEAN, MUNG, RAW (KENYA)
Groundnuts	Emaide	Arachis hypogaea	PEANUT (EGYPT)
Pumpkin seeds	Ngakager	Cucurbita maxima	PUMPKIN SEED, IMPORTED (WHITE PEP) (EGYPT)
Sesame seeds	Ekanyum	Sesamum indicum	SESAME SEED (EGYPT)
Soybeans	Etaparadil	Glycine max	SOYBEAN, RAW (KENYA)
Sunflower seeds	Lokide	Helianthus annuus	SUNFLOWER SEEDS (INDIA)
Wild watermelon seeds	Ngadekela	Citrullus citroides	WATERMELON SEED (EGYPT)
<b>Vegetables</b>			
Amaranthus	Dodo	Amaranthus dubius	LEAF, AMARANTH, FRESH-EP (SENEGAL)
Avocado	Obakedo	Persea americana	PEAR, AVOCADO (INDONESIA)
Cabbage	Ekabich	Brassica oleracea var. capitata	CABBAGE, GREEN, RAW (KENYA)
Calabash, young fruit	Ngimug	Lagenovia siceraria	GOURD, CALABASH, RAW (INDONESIA)
Cassava leaves	Ngamogoi	Manihot esculenta	LEAF, CASSAVA (KENYA)
Cowpea leaves	Eboo	Vigna unguiculata	LEAF, COWPEA, FRESH-EP (SENEGAL)

Cucumbers	Ngakolil	Cucumis sativus	CUCUMBER (EGYPT)
Eggplant, purple	Ebirinyanya	Solanum melongena	EGGPLANT, PURPLE (INDONESIA)
Eggplant, white	Entula	Solanum gilo	ENTULA (UGANDA)
Green pepper	Epilipil lo-aliban	Capsicum annuum	PEPPER, GREEN, SWEET (EGYPT)
Kale	Sukuma Wiki	Brassica oleracea var. acephala	KALE, RAW (KENYA)
Kenaf	Ekamalakang	Hibiscus sabdariffa	KENAF (UGANDA)
Matooke	Emototo	Musa sapientum	PLAINTAIN (INDONESIA)
Moringa leaves	Ngakwii ke emoninga	Moringa oleifera	MORINGA (UGANDA)
Mushrooms	Ngibale/ngimaruk	Agaricus bisporus	MUSHROOM, WHITE, RAW (INDONESIA)
Okra leaves	Alotot	Abelmoschus esculentus	OKRA LEAVES (UGANDA)
Okra, young fruit	Ebomiya	Abelmoschus esculentus	OKRA, FRESH (SENEGAL)
Onions	Ekituguru	Allium cepa	ONION (EGYPT)
Pumpkin	Ngkaidei	Cucurbita maxima	PUMPKIN, RAW (INDONESIA)
Pumpkin leaf	Ngalaith	Cucurbita maxima	LEAF, PUMPKIN (KENYA)
Red pepper	Epilipil	Capsicum annuum L.	PEPPER, RED (INDONESIA)
Tomatoes	Enyaonya	Lycopersicon esculentum	TOMATO, RIPE, FRESH (SENEGAL)
<b>Fruits</b>			
Bananas	Emototo	Musa paradisiaca	BANANA, LARGE, RIPE (KENYA)
Cactus fruit	Edapal	Cactacea opuntia	PRICKLY PEAR (EGYPT)
Figs	Ngaboborio	Ficus carica	FIG (EGYPT)
Guavas	Ngamaperai	Psidium guajava	GUAVA (EGYPT)
Jack fruits	Efene	Artocarpus heterophyllus	JACKFRUIT (KENYA)
Lemons	Ngalemonia	Citrus limon	LEMON (KENYA)
Mangos	Ngimuyembei	Mangifera indica	MANGO (EGYPT)
Oranges	Ngimychungac	Citrus sinensis	ORANGE (EGYPT)
Passion fruit	Ngamatundai	Passiflora edulis	PASSION FRUIT (KENYA)
Pawpaws	Epayipayi	Carica papaya	PAPAYA, RIPE (KENYA)
Pineapple	Enanas	Ananas comosus	PINEAPPLE (EGYPT)
Tamarind	Ngapedur	Tamarindus indica	TAMARIND, FRUIT, FRESH (SENEGAL)
Watermelon	Ngadekela	Citrullus vulgaris	WATERMELON (EGYPT)
<b>Wild Foods</b>			
Wild green	Aboi aikenyt	No botanical identification	No nutrient data
Wild green	Acumdi	No botanical identification	No nutrient data
Spiderplant	Akeo	Gynandropsis gynandra (L.) Briq	SPIDERPLANT (UGANDA)
Wild amaranth	Akiliton	Amaranthus dubius	WILD AMARANTH (UGANDA)
Honey	Akimiet kaawoo	No botanical identification	HONEY (EGYPT)
Wild green	Akit Kakimatt	No botanical identification	No nutrient data
Wild green	Alilot	No botanical identification	No nutrient data
Wild green	Asugu	Tribulus longipetalus	No nutrient data
Puncturevine	Athuguru	Tribulus cystoides	PUNCTURE VINE (UGANDA)
Caper bush	Ekadolia	Capparis sepiaria	WILD CAPERS (UGANDA)
Wild green	Ekamongo	Leptadenia hastata	LEPTADANIA HASTATA (UGANDA)
Wild fruit	Ekimune	Saba florida	No nutrient data

Desert date	Ekorete/Ngimongo	Balanites aegyptiaca (L.) Del	No nutrient data
Wild green	Eliaro	Ipomoea hildebrandtii	No nutrient data
Wild green	Emoroth	Cyphostemma adenocaula	No nutrient data
Wild green	Lobolia	No botanical identification	No nutrient data
Wild tomato	Lolarin	No botanical identification	No nutrient data
Spiny pigweed	Losigiria	Amaranthus spinosus	SPINY PIGWEED (UGANDA)
Wild green	Nabutachue	No botanical identification	No nutrient data
Wild berries	Ngakalio	No botanical identification	No nutrient data
Wild fruit	Ngalam	No botanical identification	No nutrient data
Wild fruit	Ngalebulebwo	No botanical identification	No nutrient data
Wild fruit	Ngaponga	No botanical identification	No nutrient data
Seeds of wild fruit	Ngikaye	No botanical identification	No nutrient data
Wild fruit	Ngimongo	No botanical identification	No nutrient data
<b>Meat, Poultry, Fish, Eggs</b>			
Animal blood, cow	Ngakot ka aitee		BEEF, BLOOD, COAGULATED (INDONESIA)
Animal blood, goat	Ngakot ka akina		GOAT, BLOOD, COAGULATED (INDONESIA)
Bacon	Akiring ka-akine		PORK, HIGH FAT, COOKED (KENYA)
Beef	Akiring ka-aate		BEEF, MEDIUM FAT, RAW (KENYA)
Big fish, Nile perch/mud fish/tilapia	Ngikolya		FISH, NILE PERCH, RAW-AP (SENEGAL)
Bone marrow	Athumet		BEEF, BONE MARROW (MEXICO)
Chicken	Akiring a ikokor		CHICKEN, RAW (KENYA)
Dikidiki	Ethiro		DIK-DIK (UGANDA)
Donkey meat	Akiring ke-ekoodo		DONKEY MEAT (UGANDA)
Duck meat	Akiring ka-abatat		DUCK (EGYPT)
Egg, chicken	Ngabeyei		EGG, CHICKEN (INDONESIA)
Guinea fowl	Atapem		GUINEA FOWL, FRESH MEAT (SENEGAL)
Hooves, cow	Molokonyi		BEEF, FEET (MEXICO)
Insects, white ants	Ngikong		ANT, FLYING WHITE (INDONESIA)
Mutton	Akiring ka-amesek		MUTTON, MEDIUM, COOKED (KENYA)
Offals, sheep	Ngamolteny ka amese		GOAT INTESTINES & STOMACH, RAW (KENYA)
Offals, cow	Ngamolteny		BEEF, INTESTINES (INDONESIA)
Offals, goat	Ngamolteny		GOAT INTESTINES & STOMACH, RAW (KENYA)
Pigeon	Ngakurio		PIGEON, MEAT (INDONESIA)
Pork	Akiring ke-epege		PORK, RAW-EP (SENEGAL)
Rabbit	Akiring ka apoo		RABBIT, RAW (KENYA)
Rat	Ngidooi		RAT (UGANDA)
Silverfish	Omena		SILVERFISH (UGANDA)
Termites	Ngikok		TERMITE (KENYA)
Turkey	Akiring ke-ekulukul		TURKEY (MEXICO)
Warthog/ wild pig	Eputir		WARTHOG (UGANDA)

Wild animal (looks like squirrel)	Aderit		No nutrient data
<b>Dairy</b>			
Butter	Akimetangatuk		BUTTER, COW, UNCOOKED (SENEGAL)
Milk	Ngakile/agiknoo/angakinei/angikala/angakedo		MILK, COW, FRESH (MEXICO)
Mixture of raw milk and blood	Echarakan		No nutrient data
Sour milk	Ngakibuk		MILK, COW, CURDS (SENEGAL)
<b>Fats</b>			
Bacon fat	Athepai		PORK, HIGH FAT, COOKED (KENYA)
Cooking oil	Auto		VEGETABLE OIL (INDONESIA)
Ghee	Akidetet		BUTTER OIL (GHEE) (EGYPT)
Groundnut paste	Odi		GROUNDNUT PASTE (UGANDA)
Hamp fat, cow	Aruk		BEEF FAT (EGYPT)
Margarine	Abuluband		MARGARINE (KENYA)
Mutton fat	Athanyukat		LAMB FAT, TALLOW (EGYPT)
Offal fat	Ngathepwa		No nutrient data
Sesame oil	Ngikanyum		SESAME OIL (INDIA)
Sunflower paste	Lokide		SUNFLOWER PASTE (UGANDA)
<b>Fortified/Supplementary Foods</b>			
CSB	Dikodiko/Ngathoyae		
Iodized salt	Acumudi		SALT, IODIZED (KENYA)
<b>Snacks</b>			
Biscuits	Abithikut		BISCUIT (SENEGAL)
Bread	Ngamugat		BREAD (SENEGAL)
Cassava chips	Emoogongolo kaakimet		CRISP/CHIP, CASSAVA, DRIED (INDONESIA)
Chapatti	Ngachapat		BREAD (SENEGAL)
Dregs of local brew made of maize	Adakai		No nutrient data
Dregs of local brew made of sorghum	Adakai		No nutrient data
Mandasi	Ngamukat		MANDASI (UGANDA)
Pancakes	Kabalagaba		PANCAKES (UGANDA)
Samosa	Athumbthnit		SAMOSAS (UGANDA)
Sesame cakes	Ngakekioangukanya		SIMSIM CAKES (UGANDA)
Sweet potato crisps (dehydrated)	Nyakokoi		SWEET POTATO CRISPS (UGANDA)
<b>Manufactured Foods</b>			
Spaghetti	Emacoron		PASTAS (MEXICO)
<b>New Food Items (not listed in survey)</b>			
Bean, local	Nakalementina	No botanical identification	Not part of survey
Dried cucumbers	Ngakobokob	Cucumis sativus	Not part of survey
Fried sunflower seeds	Ekide ngolo lwowatai	Helianthus annuus	Not part of survey

Goat hooves	Molokonyi		Not part of survey
Goat head	Akou ka akiine		Not part of survey
Goat lung	Ngiukoi ka akiine		Not part of survey
Kenaf seeds	Ekamalakang seeds	Hibiscus sabdariffa	Not part of survey
Palm oil		Elaeis guineensis	Not part of survey
Quills (flightless bird)	Ngalurui		Not part of survey
Red cowpeas		Vigna unguiculata	Not part of survey
Rice ball (rice and oil)	Mandasi ka bolingo		Not part of survey
Sour milk preserved using charcoal	Asoyo		Not part of survey
Wild animal (looks like porcupine)	Echoch		Not part of survey
Wild animal (related to dikidiki)	Amur		Not part of survey
Wild green	Abutachue	No botanical identification	Not part of survey
Wild green	Achuga	No botanical identification	Not part of survey
Wild green	Adupamal	No botanical identification	Not part of survey
Wild green	Ajorlet	No botanical identification	Not part of survey
Wild green	Akayi Ahiki	No botanical identification	Not part of survey
Wild green	Akayi Akenyit	No botanical identification	Not part of survey
Wild green	Akitedo	No botanical identification	Not part of survey
Wild vegetable	Akoukatapem	No botanical identification	Not part of survey
Wild fruit	Angakamura	No botanical identification	Not part of survey
Wild green	Aturot	No botanical identification	Not part of survey
Wild green	Aulaman	Dregea abyssinica	Not part of survey
Wild green	Auru kanyum	No botanical identification	Not part of survey
Wild green	Ebeey	No botanical identification	Not part of survey
Wild green	Eboo	Cyphostemma orondo	Not part of survey
Wild green	Eboomahi	Hibiscus cannabinus	Not part of survey
Wild green	Edome	No botanical identification	Not part of survey
Wild fruit	Edukanit	No botanical identification	Not part of survey
Wild green	Ejapoo	No botanical identification	Not part of survey
Wild fruit	Ekachikit	No botanical identification	Not part of survey
Wild green	Ekayeriyer	No botanical identification	Not part of survey
Wild green	Ekeruu	No botanical identification	Not part of survey
Wild green	Engome	No botanical identification	Not part of survey
Wild beans (and green)	Etirkamu	No botanical identification	Not part of survey
Wild green	Etoke	Hibiscus trionum/ Cucumis dipsaceus	Not part of survey
Wild green	Euru kanyum	No botanical identification	Not part of survey
Wild green	Lokungin	No botanical identification	Not part of survey
Wild green	Lomethekin	No botanical identification	Not part of survey
Wild beans (and green)	Longolegole	No botanical identification	Not part of survey
Wild green	Ngakuii-ka arunget	No botanical identification	Not part of survey
Wild flower	Ngatur	No botanical identification	Not part of survey

**Appendix 5: Portion sizes, minimum and maximum constraints, market and weighted prices for foods entered into CoD software**

Food Item	Portion Size	Minimum Constraint	Maximum Constraint	Market Price (USh)	Weighted Price (USh)
MAIZE, FLOUR, DRY (KENYA)	36	0.0	14.0	189	127
MAIZE, WHITE, DRIED (EGYPT)	36	0.0	14.0	113	54
MAIZE, YELLOW, DRIED (EGYPT)	36	0.0	14.0	136	64
RICE, RAW (KENYA)	36	0.0	7.0	321	321
SORGHUM, WHOLE GRAIN, RED (SENEGAL)	36	7.0	14.0	68	22
SORGHUM, WHOLE GRAIN (SENEGAL)	36	0.0	14.0	59	26
WHEAT, FLOUR, ALL-PURPOSE, 72% EXTRACT. (KENYA)	36	0.0	7.0	252	247
CASSAVA, RAW (KENYA)	25	0.0	7.0	71	67
CASSAVA, DRIED, FLOUR (INDONESIA)	25	0.0	7.0	109	109
POTATO, ENGLISH, RAW (KENYA)	25	0.0	7.0	154	148
SWEET POTATO, RED-ORANGE (INDONESIA)	25	0.0	7.0	141	130
SWEET POTATO, WHITE (INDONESIA)	25	0.0	7.0	74	66
BEAN, KIDNEY, DRIED, RAW (KENYA)	15	7.0	14.0	225	145
COWPEA, UNCOOKED (KENYA)	15	0.0	14.0	207	79
BEAN, MUNG, RAW (KENYA)	15	0.0	14.0	195	91
PEANUT (EGYPT)	15	0.0	14.0	472	278
PUMPKIN SEED, IMPORTED (WHITE PEP) (EGYPT)	15	0.0	14.0	192	11
SESAME SEED (EGYPT)	15	0.0	7.0	325	223
SOYBEAN, RAW (KENYA)	15	0.0	7.0	322	202
SUNFLOWER SEEDS (INDIA)	15	0.0	14.0	190	78
WATERMELON SEED (EGYPT)	15	0.0	7.0	65	0
LEAF, AMARANTH, FRESH-EP (SENEGAL)	15	0.0	14.0	73	3
PEAR, AVOCADO (INDONESIA)	10	0.0	7.0	168	72
CABBAGE, GREEN, RAW (KENYA)	10	0.0	7.0	163	144
GOURD, CALABASH, RAW (INDONESIA)	10	0.0	14.0	105	0
LEAF, CASSAVA (KENYA)	15	0.0	7.0	149	14
LEAF, COWPEA, FRESH-EP (SENEGAL)	15	0.0	14.0	450	23
CUCUMBER (EGYPT)	10	0.0	7.0	78	0
EGGPLANT, PURPLE (INDONESIA)	10	0.0	7.0	214	116
ENTULA (UGANDA)	10	0.0	7.0	101	450
KALE, RAW (KENYA)	15	0.0	7.0	75	41
KENAF (UGANDA)	15	0.0	7.0	469	33

PLAINTAIN (INDONESIA)	10	0.0	7.0	341	94
MUSHROOM, WHITE, RAW (INDONESIA)	10	0.0	14.0	369	0
OKRA LEAVES (UGANDA)	15	0.0	0.0	57	0
OKRA, FRESH (SENEGAL)	10	0.0	0.0	23	0
ONION (EGYPT)	10	0.0	14.0	80	418
PUMPKIN, RAW (INDONESIA)	10	0.0	14.0	230	0
LEAF, PUMPKIN (KENYA)	15	0.0	14.0	66	0
PEPPER, RED (INDONESIA)	10	0.0	7.0	559	0
TOMATO, RIPE, FRESH (SENEGAL)	10	0.0	7.0	504	302
BANANA, LARGE, RIPE (KENYA)	42	0.0	7.0	1241	362
PRICKLY PEAR (EGYPT)	42	0.0	0.0	530	0
JACKFRUIT (KENYA)	42	0.0	0.0	882	57
LEMON (KENYA)	5	0.0	0.0	714	22
MANGO (EGYPT)	42	0.0	7.0	122	77
TAMARIND, FRUIT, FRESH (SENEGAL)	25	0.0	14.0	306	10
SPIDERPLANT (UGANDA)	15	0.0	14.0	555	0
WILD AMARANTH (UGANDA)	15	0.0	14.0	565	0
PUNCTURE VINE (UGANDA)	15	0.0	14.0	506	0
WILD CAPERS (UGANDA)	15	0.0	14.0	1082	0
LEPTADANIA HASTATA (UGANDA)	15	0.0	14.0	667	0
SPINY PIGWEED (UGANDA)	15	0.0	14.0	849	0
BEEF, BLOOD, COAGULATED (INDONESIA)	15	0.0	7.0	725	364
GOAT, BLOOD, COAGULATED (INDONESIA)	15	0.0	7.0	809	364
PORK, HIGH FAT, COOKED (KENYA)	15	0.0	7.0	695	359
BEEF, MEDIUM FAT, RAW (KENYA)	15	0.0	7.0	1425	364
FISH, NILE PERCH, RAW-AP (SENEGAL)	10	0.0	7.0	333	953
BEEF, BONE MARROW (MEXICO)	15	0.0	7.0	106	364
CHICKEN, RAW (KENYA)	15	0.0	7.0	945	142
DONKEY MEAT (UGANDA)	15	0.0	7.0	211	764
DIK-DIK (UGANDA)	15	0.0	7.0	403	0
DUCK (EGYPT)	15	0.0	0.0	375	0
EGG, CHICKEN (INDONESIA)	20	0.0	7.0	192	236
GUINEA FOWL, FRESH MEAT (SENEGAL)	15	0.0	0.0	429	0
BEEF, FEET (MEXICO)	15	0.0	7.0	866	364
ANT, FLYING WHITE (INDONESIA)	15	0.0	7.0	67	0
MUTTON, MEDIUM, COOKED (KENYA)	15	0.0	7.0	534	191
BEEF, INTESTINES (INDONESIA)	8	0.0	7.0	437	357
GOAT INTESTINES & STOMACH, RAW (KENYA)	8	0.0	7.0	550	333

PIGEON, MEAT (INDONESIA)	15	0.0	0.0	189	0
PORK, RAW-EP (SENEGAL)	15	0.0	0.0	113	289
RABBIT, RAW (KENYA)	15	0.0	7.0	136	0
RAT (UGANDA)	15	0.0	7.0	321	0
SILVERFISH (UGANDA)	10	7.0	7.0	68	1082
TERMITE (KENYA)	15	0.0	0.0	59	0
TURKEY (MEXICO)	15	0.0	0.0	252	0
WARTHOG (UGANDA)	15	0.0	0.0	71	95
BUTTER, COW, UNCOOKED (SENEGAL)	5	0.0	7.0	109	394
VEGETABLE OIL (INDONESIA)	5	7.0	14.0	154	712
BUTTER OIL (GHEE) (EGYPT)	5	0.0	7.0	141	101
GROUNDNUT PASTE (UGANDA)	5	0.0	7.0	74	472
BEEF FAT (EGYPT)	5	0.0	7.0	225	0
MARGARINE (KENYA)	5	0.0	7.0	207	1221
LAMB FAT, TALLOW (EGYPT)	5	0.0	7.0	195	0
SESAME OIL (INDIA)	5	0.0	7.0	472	0
SUNFLOWER PASTE (UGANDA)	5	0.0	7.0	192	152
SALT, IODIZED (KENYA)	1	7.0	14.0	325	104
BISCUIT (SENEGAL)	11	0.0	7.0	322	945
CRISP/CHIP, CASSAVA, DRIED (INDONESIA)	11	0.0	7.0	190	211
BREAD (SENEGAL)	28	0.0	0.0	65	0
MANDASI (UGANDA)	15	0.0	7.0	73	365
PANCAKES (UGANDA)	15	0.0	7.0	168	189
SAMOSAS (UGANDA)	15	0.0	7.0	163	372
SIMSIM CAKES (UGANDA)	15	0.0	7.0	105	866
SWEET POTATO CRISPS (UGANDA)	15	0.0	7.0	149	63
PASTAS (MEXICO)	36	0.0	7.0	450	534
MILK, COW, FRESH (MEXICO)	136	0.0	7.0	78	222
PEPPER, GREEN, SWEET (EGYPT)	10	0.0	0.0	214	381

**Appendix 6: Wild foods commonly consumed in agropastoral zone**

**Abutachue**



**Achuga**



**Adupa-mal**



**Akayi-Ahikey**



**Ajor-let**



**Akeoo**



**Akiliton**



**Alilot**



**Athuguru**



**Aturot**



**Aulemam**



**Auru-kanyum**



**Ebeey**



**Eboo**



**Edodo**



**Ejapoo**



**Ekayeriyer**



**Ekeruu**



**Ekorete**



**Etir-kamu**



**Etooke**



**Lochuk**



**Lokungin**



**Lolarin**



**Lomethekin**



**Longolegole**



**Losigiria**



**Nga-kuii ka arunget**





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# **Trials of Improved Practices in Karamoja**

Investigating Behaviours of Nutrition and Hygiene

Final Report

Prepared by Christine Fernandes  
August 2013



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## List of Abbreviations

BCC	Behaviour Change Communication
CLTS	Community Led Total Sanitation
DGLVs	Dark green leafy vegetables
FAO	Food and Agriculture Organization of the United Nations (maybe)
FGD	Focus Group Discussions
GOU	Government of Uganda
IYCF	Infant and Young Child Feeding
RWANU	Resiliency through Wealth, Agriculture and Nutrition in Karamoja
SBC-SAP	Social Behaviour Change Strategic Action Plan
SDA	Small, doable action
TIPs	Trials of Improved Practices
UNICEF	United Nations Children's Fund
VHT	Volunteer Health Team
WHO	World Health Organization

## Definitions

posho	Also called 'ugali', a common staple made of maize or sorghum flour cooked with water to a porridge or dough-like consistency.
manyatta	semi-permanent homesteads that are usually part of a cluster that forms a neighbourhood or village
kraal	an enclosure for cattle or other livestock, located within an African settlement or village surrounded by a palisade, mud wall, or other fencing, roughly circular in form.
tippy-tap	The Tippy Tap is a simple device for hand washing with running water. A container of 5 litres with a small hole near the cap is filled with water and tipped with a stick and rope tied through a hole in the cap. As only the soap is touched with the hands, the device is very hygienic. A gravel bed is used to soak away the water and prevent mosquitoes. <sup>1</sup>



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<sup>1</sup> Definition and image from [http://akvopedia.org/wiki/File:TippyTap\\_icon.png](http://akvopedia.org/wiki/File:TippyTap_icon.png).

## **Executive Summary**

Trials of Improved Practices (TIPs) was commissioned by the Resiliency through Wealth, Agriculture and Nutrition in Karamoja (RWANU) programme. It is a formative research method designed to test the feasibility and acceptability of practices at the household level that a programme plans to promote. The outcomes obtained through TIPs will inform the RWANU programme's behaviour change activities and will be used to update the Social and Behaviour Change Strategic Action Plan (SBC-SAP). The behaviours that were investigated were: dietary diversity of children 6-24 months, hand washing, and designated defecation. Each behaviour was simplified into smaller, doable actions that were suggested to the participants.

The TIPs research took place in the four southern districts of Karamoja: Moroto, Napak, Nakapiririt, and Amudat. There were three phases of the TIPs process:

Phase 1 – Household assessment visits were conducted in each home to identify current practices as well as identify potential motivators and barriers related to the promoted behaviours.

Phase 2 – Counselling visits were conducted in each home to raise a mother's awareness to the new behaviours, record her reactions, build on her current practices and motivations, and negotiate on trying new practices that were easy for the participant to do.

Phase 3 – Follow up visits were carried out to record the results and any modifications of the tried recommended practices.

The TIPs study revealed that caregivers were willing to increase the diversity of a child's diet if the foods were affordable. It was also easy and time saving for the mothers to incorporate additional foods in a child's daily porridge. Hand washing practices were motivated by practical demonstrations, and the practice of latrine usage and digging and burying was more acceptable than designating a space for defecation for the entire family. Participants also requested community support for promoted behaviours related to designated defecation.

The recommendations for the SBC-SAP were examples of key messages and images for IEC materials, community sensitizations and involvement in decision-making for programme activities, mobilising men and village leaders, integrating topics of the three behaviours into current group and individual counselling sessions, integrating the successful recipes in the trials into a recipe booklet, scaling up practical demonstrations, and promoting behaviours through radio, community announcements, and performances.

## Introduction

Trials of improved practices (TIPs) is a formative research technique used in behaviour change programming to pre-test a practice (or practices) that a programme aims to promote. It is designed to explore the feasibility and acceptability of the practices, in order to refine and modify recommended behaviours to make them more acceptable and doable for the target audience. TIPs allows for an in-depth understanding of a household's current practices, preferences, and capabilities; it tests participants' reactions to the new recommendations, determines the relative ease or difficulty of communicating various practices, and helps a programme to learn more about the motivations and constraints of the advocated behaviours. Participants' experiences and opinions are then used to design a programme.

The TIPs process involves a series of household visits (3 visits total in the case of the TIPs research conducted in Karamoja) to selected homes to test new behaviours to improve health practices. The reason it is helpful is to provide individual counselling with caregivers to adopt key optimal behaviours. The basic process is: an initial home visit to interview the caregiver and gather background information on the current practice(s), a second visit with the caregiver to present and counsel on several options for improving the current practice(s), to record her reactions to the options, and to negotiate with her to choose one or more options that she is willing to try during the following week, and a third follow-up visit to see how the caregiver has progressed and address any challenges found.<sup>2</sup>

In the TIPs research process for RWANU, special emphasis was placed on counselling and negotiating during home visits. The goal was to establish a rapport with caregivers, building trust between mothers and field staff in order to obtain honest answers from all participants. Counselling skills such as listening and learning, building confidence, 'reflecting', and 'accepting' mothers' responses were emphasised. Communicating through negotiations was equally as important during the home visits. The TIPs planning guide *Designing by Dialogue* (1998) defines negotiation in TIPs research as 'a process of dialogue between a counsellor and mother during which the mother agrees to try one or more specific practices for a specified period of time. The new, negotiated practice may not achieve optimum or ideal nutrition, but it will be a nutritional improvement (compared with usual or customary practices).'

This report details the process and results of the assessment, counselling, and follow up visits as well as the analysis and final outcomes of the research. The report also addresses how the findings of the research determine and modify the programme recommendations for behaviour change communication (BCC) activities in the field.

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<sup>2</sup> Based on the process for *Designing by Dialogue, A Program Planners' Guide to Consultative Research for Improving Young Child Feeding*, Kate Dickin and Marcia Griffiths, The Manoff Group, Ellen Piwoz, SARA/AED, Washington, D.C., 1998

## Background

Concern Worldwide (Concern), ACDI/VOCA and WeltHungerHilfe (WHH) have designed the Resiliency through Wealth, Agriculture and Nutrition in Karamoja (RWANU) programme to respond to Food for Peace's (FFP) overall strategic objective for the Title II programme in Uganda: *reduce food insecurity among chronically food insecure households*. RWANU proposed to implement in 16 sub-counties in Napak, Moroto, Amudat and Nakapiripirit Districts of South Karamoja, an area selected because of the high levels of malnutrition, the existing social and economic interrelationships, the relative security of the area, and the potential for sustainable results. The programme has a five-year duration, and began in late August/early September 2012, with full implementation beginning in January 2013. In total the RWANU program is expected to reach a total of 200,399 beneficiaries.<sup>3</sup>

The Karamoja region of Uganda suffers from low agricultural productivity, limited availability of production inputs and extension services, declining livestock population and weak linkages to markets. It also struggles with inadequate infant and young child feeding practices, poor hygiene practices and lack of access to health services. Improved security in the region, coupled with commitments by the government of Uganda and donors to invest in economic and social development, is opening a window of opportunity to address the root causes of food insecurity.

For decades, the Karamoja region has been characterized by violent conflict, high levels of poverty and food insecurity. It is vulnerable to severe natural disasters with frequent droughts and resulting loss of crops and livestock and historically, has been isolated. The economic growth experienced in the rest of Uganda has had little impact in Karamoja. An estimated 82 percent of the population in Karamoja lives in poverty. As a result, the area has been dependent on food aid and donor assistance for decades with numerous emergency aid programs. Insecurity and violent conflict related to livestock raiding and the proliferation of small arms in the area have made it difficult to implement long-term development strategies. The situation, however, is changing. Disarmament programs have reduced the incidence of raiding and improved security. The GOU also is committed to investing in the development of infrastructure and human capital in the region. This now makes it possible to address the root causes of poverty and food insecurity while reducing household dependency on donor aid.<sup>4</sup>

The TIPs research was conducted in the four districts of Karamoja in the towns and villages below. Three of the areas were located in the green belt areas of southern Nakapiripirit District and Iriiri subcounty (Napak).

- Moroto
  - Nadunget
  - Natari
  - Arengkenye
- Napak
  - Lotome

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<sup>3</sup> Concern Worldwide Uganda TOR for the TIPs consultancy June 2013.

<sup>4</sup> RWANU Revised Technical Narrative ACIDI/VOCA 2013.

- Namendela (green belt area)
- Alekilek (green belt area)
- Nakapiripirit
  - Kanagakinoi
  - Komojoj (green belt area)
  - Ariamoi
- Amudat
  - Chepuise
  - Namodoi
  - Cheptapoyo



Image 1.1 Map of the Seven Districts of Karamoja.

The communities living in the three districts of Moroto, Napak, and Nakapiripirit are Karamajong-speaking and mostly agro-pastoralists. Their livelihoods are primarily herding livestock and crop cultivation, although poverty is increasing due to droughts and poor harvests in the dry season as well as many other factors. The Pokot in Amudat are Pokot-speaking pastoralists with some cultivation activities. They have less access to food varieties and clean water, travelling further distances to markets and walking between 15-60 minutes to water points.<sup>5</sup>

## Objectives

The objective of the TIPs study was to investigate three different behaviours that the RWANU project will be promoting. These behaviours are dietary diversity of a child 6-24 months, hand washing, and designated defecation. TIPs aimed to determine the feasibility and acceptability of the recommended practices, identify the motivations and

<sup>5</sup> DHO-ACF and UNICEF Nutrition Surveillance Report Karamoja Region, Uganda, Round 8, May 2012.

constraints, as well as record any modifications of the new practices. The specific recommendations explored for each behaviour were:

*Dietary diversity* – Caregivers give foods that are high in vitamin A, iron, and protein.

*Hand washing* – Caregivers wash hands at the 5 critical times:

1. Before preparing food
2. Before eating
3. Before feeding a child
4. After defecating
5. After cleaning a baby's bottom

*Designated defecation* – Caregivers create a designated space (a fenced area at least 50 metres away from water points) for entire family, and identify a place to defecate just outside of the manyatta at night times if insecurity is a concern.

The final outcomes will help to determine programme recommendations for behaviour change communication activities that will be integrated into the design and implementation of the current Social Behaviour Change and Strategy Action Plan (SBC-SAP).

## **Methodology**

### *Data Collection and Tools*

Three data collection tools were drafted for the three phases of TIPs: the household assessment tool (questionnaire), the counselling recording tool, and the follow up visit tool (see Annexes 1, 2, 3). The recording forms were based on the FAO's *Trials of Improved Practices Reference Notes And Tools*, (2011) and tailored for the Karamoja context. Each drafted tool was submitted to the Senior Nutritionist and Regional Nutrition Advisor for comments and suggestions. The revised documents were distributed and discussed at length with all enumerators during the trainings, and additional amendments were made prior to the field visits. Translations of the first assessment tool were prepared in Karamajong as well as Pokot for the district of Amudat. Group work was then assigned to the enumerators to review the translated versions and discuss any problems with language.

### *Training of Field Staff*

Three rounds of training were carried out with the 24 enumerators, facilitated by the consultant. Each training corresponded with each phase of TIPs. The first round of trainings was carried out over a 3-day period, focusing on the background and general process of the TIPs research, complementary feeding and WASH technical information, and guidance on the assessment tool. The second set of trainings took place over 2 days and focused on counselling and negotiating skills and a step-by-step process of how to counsel individual households. The recording tool and counselling guide were also reviewed in detail. The last 1-day training session prepared enumerators for the final interview. The recording tool was reviewed and a guide for follow up questions was

distributed for additional support. Each pair reviewed their households' counselling information and prepared specific follow-up topics to discuss with each caregiver. (For complete details of the trainings and curriculum please refer to the *TIPs Activity Report* submitted to the RWANU team.)

### *Pilot Study*

Following the first series of trainings, the field staff and supervisors pilot tested the questionnaire in Lokilala, Moroto. Each field staff team of 2 (male/female) randomly chose a household with caregivers who had a child 6-24 months. The Amudat team tested the assessment tool with a Pokot speaking woman in Moroto Town. The assessments took over 2 hours per household. At the debriefing session, there was consensus to eliminate more questions that were thought to be irrelevant.

### *Identification and Selection of Participants*

All four districts were informed of the TIPs research conducted in the field through notifications letters. The village VHT and/or the LC1 were contacted prior to the visits in order to mobilise the participating communities. Caregivers were then selected at random by either the VHT or village members with the requirement that the caregiver have a child aged 6-24 months. Each participant was informed of the TIPs research purpose and process. Household visits were explained in detail and all field staff confirmed the willingness of each caregiver to take part in the interviews without remuneration of any kind. A total of 119 households were involved in the assessment visit, 107 in the counselling visit, and 94 in the final follow up visit.

### *Data Analysis*

The field staff were assigned to the four districts of Amudat, Moroto, Nakapiripirit, and Napak. Each team aimed to interview 4 households per day, although due to time constraints some were only able to interview 2-3 per day. During the field visits, nightly debrief meetings were held by the supervisors to check the data collected as well as to provide feedback on the challenges and successes of the interviews. In addition, a 1-day debriefing session was held for each phase of the TIPs fieldwork.

Raw data from the interviews was tallied and arranged into simple tabulation form for simple frequency analysis. Each district was tabulated separately then added together for a full picture of all four districts. As the responses documented for all three interviews were mostly qualitative rather than quantitative, analysis focused on the major trends of participants' answers and reactions. For each TIPs phase the main trends were tallied, summarized in report form, and sent to the Senior Nutritionist and Regional Nutrition Advisor for comments. Analysis was also carried out through a consultative process with the enumerators. Debrief meetings included general identifications of trends of the outcomes, observations, successes, and challenges. These were cross-checked by the supervisor as well as a small team of selected enumerators who assisted in the tallying.

### *Limitations of the Study*

Although the TIPs research technique is an effective way to gauge future adoption of promoted behaviours, it is not without limitations. The TIPs methodology heavily relies

upon counselling and negotiating, but only through a one-time session (the second house visit). As regular counselling visits are assumed to be more effective than one, the lack of tried practices during the 2-week gap between the counselling visit and the follow up visit should not be equated with absolute rejection of the recommendations. Rather, more time is necessary to ensure the successes and failures of certain practices, and even some households requested more time to get used to practicing certain behaviours on a daily basis.

With regards to the dietary diversity assessments, field staff had difficulties identifying nutrition gaps in a child's diet, as the enumerators were not nutritionists and had very little formal training. In order to compensate for this all field supervisors checked every team's nutrition analyses for accuracy.

## **Findings**

### **Assessment Visit**

The TIPs research included assessments of households in order to gain an in-depth understanding of the current practices and circumstances for individual caregivers or families. This was particularly important for the second household visits for the purposes of counselling, negotiating, and offering tailored recommendations based on the families' current practices along with specific motivators and barriers of each caregiver. Although the TIPs research did not utilise all of the information produced in the assessments, the general findings are summarised below for an overall picture of the four districts, as well as key trends of practices related to the three promoted behaviours.

A total of 119 households were interviewed in all four districts. Out of all the families interviewed 54% were male-headed households, with 44% headed by females, and an average family size of 4-8 people. Over half of the respondents reported that they are receiving food aid through OTC, SFP, or MCHN with CSB as the main product of distribution. 82% of respondents reported that their main source of income was earned through casual labour. Almost all caregivers were interested in the growth of their child/children, and reported to help their child grow by mostly giving foods, breastfeeding, and practicing good hygiene such as bathing their children or cleaning their compounds. Most households ate 2 meals a day but prepared meals only once or twice per day. 43% of caregivers reported that their child eats 2 meals a day, and 40% responded that their child eats 3 times a day. However, the majority of caregivers (71%) prepared children's meals only 1-2 times in a day. Through observations, the overall hygienic conditions of the family kitchen areas were dirty with over half of the households keeping both dirty and clean dishes on the floor. Only 22 households were reported to store leftover food in covered containers.

## **Dietary Diversity**

The usual foods consumed by households are sorghum and maize (in the forms of porridge and bread), vegetables (mainly leafy greens and tomatoes), oils/fats, beans or pulses, cow's milk, and dregs made from the local sorghum brew. Other common foods were sunflower seeds, roots/tubers, silver fish, meat (cow, goat, offal) and seasonal fruits. The child's diet reflected mainly sorghum and maize porridge or bread, breast milk, leafy green vegetables, and animal milk. There was some knowledge by caregivers to give their children a variety of foods, however most diets of children were lacking in yellow-coloured vegetables high in vitamin A, all types of fruits, and most forms of protein.

### *Cultural Beliefs, Motivations, and Constraints*

Foods that were considered good for children were mainly plain porridge, beans, animal milk, Irish potatoes, green vegetables and soup broth (not the meat). These foods were believed to be nutritious and help a child to grow healthy, strong, and fat. The two main foods considered bad for children were dregs from alcohol as it was believed to cause diarrhoea, and leafy greens. Although leafy green vegetables were sometimes believed to be good for children, they were also perceived to be difficult for a child to swallow and were thought to cause an upset stomach. Offal was also not given, as it was perceived to cause soft stools in children, making it easier for them to defecate inside the house. Brain is perceived to make the child go insane when eaten. One mother simply explained, "If offal is eaten, it will kill."

Some trends in **motivation** included:

- Availability of food
- The desire to keep a child healthy with foods
- Availability of livestock for animal-source foods

Some **constraints** included:

- Cultural beliefs or perceptions of certain foods
- Access to market too far
- High cost of living/lack of funds

## **Hand Washing**

60% of respondents had knowledge of washing their hands as a way to prevent illness. Many caregivers (46%) reported that they wash their hands more than five times a day or several times a day without remembering the exact number, while 57% of mothers said that they wash their hands with soap or ash. However, there was very little observation of hand washing in general, with 32% of mothers showing field staff the location of soap, and only 31 houses having a designated hand washing space. Over half (53%) of all households interviewed had containers for water specifically for hand washing, although some households were observed using the water for washing other items. Between 34% and 80% of caregivers knew some of the critical times to wash their hands, with the majority reporting that they wash mostly before eating, cooking, and after defecating. Although 66% of caregivers said that availability of water would

make it possible to wash their hands on a daily basis, almost all households reported to have enough water to wash hands every day.

#### *Cultural Beliefs, Motivations, and Constraints*

95% of mothers responded positively to washing hands, and there was a common trend among respondents that hand washing keeps the family clean, rids germs, and prevents diseases or illnesses. Although there were very few observations of hand washing and the use of soap or ash, it was clear that there was knowledge of the benefits to keeping hands clean. There were no responses that indicated family members, neighbours, or community elders did not approve of hand washing. Only two mothers showed a negative attitude toward using soap or ash with one mother stating, “I don’t feel anything about washing my hands because it’s expensive to buy soap and I’m too lazy to collect ash.” There were more motivations than constraints, however, with the common themes being the prevention of illnesses for the family, and just to simply feel cleaner.

Some trends in **motivation** included:

- Availability of water and ash
- Knowledge of some of the critical times of hand washing
- Awareness of prevention of diseases through hand washing
- When is it time to eat, respondents *want* to wash their hands

Some **constraints** included:

- Preference to buy food over soap
- Not motivated to use soap or ash every time hands are washed with water
- Some families share same dirty water in a basin

#### **Designated Defecation**

As expected, the majority of households practiced open defecation, with 94% of family members defecating outside of the compound in the fields or near water sources such as rivers. Some mothers (13) said that family members defecated in the corral, or *kraal*, and that defecating in the fields is a good source of manure for their crops. In the night, 45% of respondents reported defecating inside the compound (especially the children) due to security reasons or matters of convenience (nearby) if they had an upset stomach or diarrhoea. The small doors to the manyattas or compounds are usually blocked at night. This makes it very difficult and inconvenient for family members to go outside until morning. Although 35 caregivers reported to use a latrine and 74% felt positively toward using one, many mothers said they did not use existing latrines because they were either too far away from the household or very dirty. Out of the 28 latrines observed by field staff 20 were reported to be dirty.

#### *Cultural Beliefs, Motivations, and Constraints*

There were no mothers who reported to have a designated space for defecation in either the day or night. General attitudes toward identifying and utilizing a designated space for defecation were indifferent, with 21% of caregivers not able to have anything good to say about it and 35% said that the practice could at least keep faeces in one place. Some mothers responded negatively with 28% concerned about the smell and

25% worried about being embarrassed of other people seeing them defecate within the designated space. 28 respondents said that culturally, family members should not defecate in the same area, and neither should men and women. It was generally perceived by caregivers (68%) that open defecation is much more hygienic than designated defecation and that if all family members defecate within the same area, they will be able to catch diseases and illness very easily.

One mother stated: “I cannot imagine having the same place for designated defecation. Maybe a latrine, but not defecating in the same place. I do not see that happening.”

Another caregiver said, “There is no good thing about defecating in only one particular place.”

Some trends in **motivation** included:

- Some households already practiced digging and burying, whether outside or inside the compound.
- If there is no latrine, a designated space could be seen as an alternative.
- 56% of mothers reported that they keep their compound tidy to keep the family from becoming ill.

Some **constraints** included:

- Family members cannot defecate in same place
- No privacy
- Bad smell
- Perceived to be unhygienic
- General negative attitude

### **Contrasts Between (and within) Districts**

In the town of Lotome, located in the district of Napak, more caregivers reported more accessibility to and usage of latrines compared to the rest of the district. They also washed their hands more often with soap or ash, and it was observed that households in Lotome had slightly better hygiene levels with cleaner kitchen areas, dishes/utensils, and compounds.

Caregivers in Lotome Trading Center Town in Napak, as well as in the whole district of Moroto, reported having latrines within their villages. However, in Moroto, caregivers admitted (when probed) that they do not usually use the existing latrines due to the distance from their house, the flies, and the smell. Through observation, field staff found faeces both inside and outside of the compounds and pathways. Children were also observed defecating near the manyattas, and latrines were found to be very dirty.

In the district of Amudat, the consumption of maize, rather than sorghum, was much higher compared to the other districts. 100% of caregivers said that they eat maize on a daily basis, and 67% of their children ate maize bread the day before. Although families regularly consumed animal milk, only 2 mothers reported to occasionally eat other animal products such as silver fish. A common trend showed that most households in

Amudat did not eat meat unless an animal has died. Apart from animal milk, there was little protein reported in the families' diets.

The practice of hand washing was also slightly different than the other districts. Although the knowledge of the importance of hand washing exists, and 67% of households assessed had soap available, washing hands before milking an animal was more common than washing after defecating. There were also no reported latrines near the households in Amudat District.

## **Counselling Visit**

The second household visit was centred on providing caregivers one or two recommendations to try to improve practices on dietary diversity, hand washing, and/or designated defecation. Prior to the counselling visit the enumerator pairs analysed each household's assessment form and prioritised 1 or 2 behaviours to suggest to the mothers, as well as which demonstrations to conduct during the visit.

Caregivers were counselled on the benefits of the new behaviours using motivations identified in the first assessment (i.e. a mother would like to keep her child healthy), and given praise for any current optimal behaviours that were already being practiced. The visits also recorded the participants' reactions to the proposed behaviour changes as well as the motivations that had the most influence on agreeing to the new practice. The field staff negotiated with mothers who resisted certain recommendations by suggesting smaller steps or modifications toward the desired optimal behaviour. These are sometimes referred to as small doable actions (SDA). A total of 107 participants were counselled.

## **Dietary Diversity**

### *Recommended Practices*

A total of 90 recommendations were suggested to 63 caregivers on dietary diversity. Based on the assessment findings, specific recommended practices were:

- Offer the child more vitamin A rich foods such as dark leafy greens and yellow-coloured fruits and vegetables.
- Offer the child more protein or animal-source foods.
- Enrich or fortify the child's porridge with additional foods such as greens, yellow fruits, oils/fats, milk, eggs, sugar, or silver fish.

10 demonstrations were carried out in 10 different households, which included making a new porridge recipe together with the mother, or cutting a yellow fruit/vegetable (also with a hand washing demonstration) and feeding it to the child. Demonstrations on dietary diversity were conducted with the caregiver on a one-to-one basis, with many spectators such as the neighbours or other family members watching nearby. There were fewer demonstrations conducted on dietary diversity than the other two behaviours because many families did not have any foods (yellow fruits for example) available. Home visits were also conducted after families had already eaten their morning meals,

and field staff felt it was not appropriate to ask mothers to cook another meal as a trial when food in the home was already limited.

Enriching the child’s porridge was a recommendation that most mothers were willing to try. Fortifying porridge was positively received by many (38) mothers because it was easier for the mothers to incorporate a variety of foods in one meal rather than preparing various meals or snacks several times a day – even cutting a piece of fruit. Giving leafy greens and yellow fruits or vegetables was also a recommendation readily received as many of proposed foods are grown wild, available, accessible or easily affordable.



Image 1.2 Demonstration of fortified porridge (uncooked)

Although 18 participants agreed to try giving their children animal-source foods, and the recommendation was acceptable, some mothers said that these foods were expensive (as well as fruits not in season) and would not be as feasible to give their children on a daily basis. Field staff and caregivers arrived at a mutual agreement for mothers to buy and give their children animal-source foods a few times a week. One mother disagreed to give her child more animal-source foods, saying that they were simply too expensive. However, she was willing to give other recommended foods such as greens and any yellow fruits or vegetables that were in season (i.e., less expensive).

<b>Give foods rich in Vit A</b>		<b>Give more protein or animal-source foods</b>		<b>Enrich/fortify child’s porridge</b>	
33 recommendations offered		19 recommendations offered		38 recommendations offered	
<b>Agree</b>	<b>Disagree</b>	<b>Agree</b>	<b>Disagree</b>	<b>Agree</b>	<b>Disagree</b>
33	0	18	1	38	0

### *Reactions*

Most of the participants reacted positively toward the proposed behaviours of dietary diversity so long as the foods recommended were available and accessible. Giving a child a variety of foods was seen as something ‘good’ to do. Even when some mothers did not immediately agree to give their child foods that they thought were expensive

such as animal-source foods, most were willing to at least try after receiving counselling from field staff. Many mothers were not aware of the nutritional values of certain foods and were very surprised to learn the health benefits. Prior to the counselling, during the first household assessment, some caregivers viewed greens as a food that was harmful to the child, especially if it was mixed with other foods or the pieces were not cut small enough. It was believed to cause stomach upset. However, after the counselling session, participants were excited and appreciative of the newfound knowledge of greens, yellow fruits and vegetables, and animal-source foods. Generally speaking, in the behaviour change process, most mothers were in the stage of becoming aware of the benefits of providing a diverse diet for their child, as many caregivers had a lack of knowledge, cultural beliefs, or personal perceptions that did not support dietary diversity.

Mothers were also interested in giving their children something new to try. For example, in the district of Amudat, there was positive reception to feeding a child with fortified porridge in place of tea and maize. In other districts, the suggestion of adding silver fish to a child's porridge was not the most popular as some mothers said that they could not imagine mixing fish with sugar in porridge. Field staff then modified this recommendation to either replace the sugar with a bit of salt, or give the child silver fish as a separate meal. Overall, caregivers thought that adding additional foods to porridge such as greens was strange and amusing, but they still agreed and were willing to try the new recipes during the trial period.

#### *Motivation*

Health benefits such as keeping a child nourished and helping a child to grow strong and healthy was the main motivation for caregivers' willingness to improve the diversity of a child's diet. This was followed by food availability and accessibility. Despite the negative perception of green vegetables (believed to give the child an upset stomach), when field staff recommended foods that households were already consuming and explained the health benefits of these foods, mothers agreed that they were able to feed a child yellow fruits and dark green leafy vegetables, and even add them to porridge. Mothers also accepted to give yellow fruits, especially wild fruits if they are in season.

One mother responded: *"Ok, I think I will be giving my child pumpkins, gourds, and mangos because these are produced by our households unlike yellow sweet potatoes."*

The few cooking demonstrations that took place helped to motivate the mother as well as put her at ease once the child tasted the porridge and was able to eat it. For the mothers that said they could not afford certain foods, field staff negotiated to buy less of one food item, such as sugar, in order to buy an expensive fruit or vegetable for a child. This was readily accepted, as well as saving a few eggs for a child rather than selling all of the household eggs at the market.

## Hand Washing

### *Recommended Practices*

A total of 151 recommendations were suggested to 74 caregivers regarding hand washing. Based on the assessment findings, specific recommended practices were:

- Wash hands at some or all of the 5 critical times
- Create a designated area for hand washing
- Use soap or ash
- Create and utilise a tippy-tap

For those mothers who already reported to wash their hands at the 5 critical times (and could list all of them) during the first assessment visit, TIPs field staff made the decision to counsel on other practices such as identifying a designated hand washing space inside the compound, or to build a tippy-tap.

62 hand washing demonstrations were carried out which included how to wash hands with soap or ash, building a tippy-tap, and identifying and creating a hand washing space inside the compound. 'How to' hand washing demonstrations as well as identifying a space for washing hands were mostly done together on a one-to-one basis with the caregiver, with some husbands and family members as spectators. Some of the onlookers even participated. Tippy-tap demonstrations were at times conducted with only the caregiver and her family, or in some villages, demonstrations were conducted with women and neighbours from several manyattas. Every time there was tippy-tap demonstration or a caregiver was supported to find a hand washing area, a demonstration of how to wash hands was also carried out. Sometimes field staff did not conduct demonstrations when they observed that the participant was growing impatient or bored.



Image 1.3 A caregiver tries using a tippy-tap during a hand washing demonstration.

Participants easily accepted all of the four suggestions, deeming all practices feasible. There was only some concern over the cost of soap. However, mothers were made aware during the assessment visit that ash can be used as an inexpensive alternative.

As ash is readily available and free, participants readily agreed to try the hand washing practices. Two caregivers did not agree to create a space for hand washing within the compound. One mother disagreed because she found it much more convenient to take a basin wherever she goes and use it to wash her and her family's hands.

<b>Wash hands at some or all of 5 critical times</b>		<b>Create a designated area for HW</b>		<b>Use soap or ash</b>		<b>Create your own Tippy-Tap</b>	
57 recommendations offered		30 recommendations offered		40 recommendations offered		27 recommendations offered	
<b>Agree</b>	<b>Disagree</b>	<b>Agree</b>	<b>Disagree</b>	<b>Agree</b>	<b>Disagree</b>	<b>Agree</b>	<b>Disagree</b>
57	0	28	2	40	0	27	0

### *Reactions*

Participants were positive and appreciative of the new hand washing practices suggested by the field staff. Many mothers were happy and surprised that ash could be used instead of soap. They were also grateful for the knowledge of washing hands at the 5 critical times. The demonstrations of hand washing, creating a tippy-tap and the practical help of identifying a designated space for the household attracted great interest not only from the mothers being counselled, but also from neighbours, friends, and husbands. These demonstrations brought excitement to the villages and the mothers commented that they were thankful to learn and acquire new skills.

### *Motivation*

Most mothers interviewed in the first assessment were already aware of the benefits of hand washing. Using participants' own responses of "washing hands eliminates germs and prevents illnesses" and "washing hands helps to keep you clean", field staff encouraged caregivers to try out the new hand washing practices and praised them for any current ones. As a result, mothers accepted the advice and were easily motivated to try out new hand washing practices in order to keep their family healthy.

In addition, caregivers felt that the recommendations were easy and feasible, and that using soap or ash would not be very difficult, as ash is inexpensive and always available. Mothers commented that identifying a hand washing space within the manyatta or homestead would actually act as a good reminder to wash their hands at the critical times, and building a tippy-tap was not only exciting to have in their home, but easy to build using locally available materials. Tippy-taps were also seen to be very convenient for busy mothers who do not have a lot of time. Mothers' enthusiasm and motivation was evident in these statements:

*"I will make sure all family members follow the 5 critical times of washing hands because its really very important in avoiding diseases."*

Response to washing at the 5 critical times: *"I would love to see my child healthy and free from diseases or diarrhoea."*

*“By the time you come for the next visit, you will see a specific place for hand washing and you will see a tippy-tap.”*

## **Designated Defecation**

### *Recommended Practices*

As there was strong resistance to and little motivation for creating and using a designated space for defecation, field staff focussed their counselling and negotiating skills on achieving small behaviours at a time such as digging and burying in the day time (as well as children’s faeces) and trying to defecate in another area at night that is just outside of the compound, yet still secure. If there was a latrine and no one wanted to use it due to bad smells or flies, family members were asked to take faeces to the latrine with a shovel, rather than digging and burying. The counselling also stressed the motivation identified in the assessment visit to keep the compound clean in order to avoid diseases. A total of 90 recommendations were suggested to 69 caregivers regarding designated defecation. Based on the assessment findings, specific recommended practices were:

- Create a fenced, designated area for defecation for the family or compound
- Dig and bury outside the manyatta or compound, even at night
- Use the existing latrine or take children’s faeces to the latrine with a shovel

About 34 demonstrations were carried out which included helping a mother to identify a designated space for the family, going outside of the manyatta with the mother to identify a space to dig and bury (sometimes burying children’s faeces if found), or using a shovel to take faeces found near or in the manyatta to the latrine.

The suggestion of digging and burying outside of the manyatta or homestead was mostly received positively. Other times it was met with resistance, especially at night due to insecurity, or the worry that it would look strange to others if they were in the field defecating and digging at night. Some mothers said that others could associate this act with witchcraft. Field staff negotiated with the mothers and asked them if they could identify any other place *just outside* of the homestead to defecate at night, or to *at least* dig and bury in the day. After counselling and negotiating, 44 out of 48 caregivers were willing to try digging and burying during the day, night, or both. Those who disagreed thought that carrying a hoe or shovel would be too heavy and troublesome. One caregiver thought she would try to use a stick instead but still did not completely agree to dig and bury her faeces.

Participants also agreed to use a nearby latrine and to throw children’s faeces down the pit. However, only 18 caregivers said they were willing to try to create a designated space for defecation for their families. One caregiver disagreed outright with the designated area recommendation. In fact, some participants who at first said that they did not want to use the existing latrines because they were either too far or too dirty changed their minds, and were more willing to walk the far distance to use and take children’s faeces to the latrine rather than to defecate in a designated area just outside their compound.

<b>Create a fenced area for family or children</b>		<b>Dig and Burry Outside Compound</b>		<b>Use existing latrine or take faeces to latrine</b>	
19 recommendations offered		48 recommendations offered		4 recommendations offered	
<b>Agree</b>	<b>Disagree</b>	<b>Agree</b>	<b>Disagree</b>	<b>Agree</b>	<b>Disagree</b>
18	1	44	4	4	0

### *Reactions*

Creating a designated space for defecation was mostly met with laughter. Most caregivers found creating a designated space for defecation unacceptable for a number of reasons. First and foremost it was seen as strange, embarrassing, and unhygienic. Many mothers were worried about the potential smells, flies and were worried that children may play near or on top of the area. Most caregivers had concerns over cultural beliefs saying that it would be inappropriate and unacceptable to mix faeces and defecate in the same area as their in-laws. Other mothers felt uncomfortable to create a designated space for other family members, saying that it was not in their power to make decisions for others. Furthermore, husbands or community elders were believed to make these types of decisions and determine reasons for land use. Participants also said that if they had enough land to use as a designated area they would prefer to use it for vegetable gardens instead.

On the other hand, caregivers had much more positive reactions to digging and burying, although there was still preference for open defecation. Some mothers who disagreed to dig and burry questioned the necessity of the act so long as they defecated far away. They believed burying would be meaningless. Others thought that the children's faeces were not as harmful as adult's and it was not a problem to let them defecate out in the open. There were other caregivers however who were very happy to dig and burry all faeces for hygiene purposes.

### *Motivation*

After counselling and negotiating with field staff, many mothers were motivated to dig and burry faeces outside of the homestead. Participants cited health and hygiene reasons as the main motivation behind the willingness to try the new practice: to avoid bad smells, avoid flies that may carry diseases, avoid illnesses through contact with faeces, and to have a clean compound.

After the field staff supported the proposed behaviour change with demonstrations many caregivers, and even husbands and other family members, were more motivated to try the new practices. A couple of husbands helped to dig trenches, and mothers said it would be easy to carry a hoe into the field when they defecate. Others felt very encouraged by the field staff when praised for burying their children's faeces or taking it to the latrine. After the demonstrations caregivers commented:

*"It is better to practice digging and burying since constructing a latrine is expensive. Instead of carrying the hoe daily, I will get a specific place in the bush where me and my husband will hide the hoe to be used for burying."*

*“I will always dig and burry the poo poo after defecation and I will educate my family members about digging and burying.”*

*“I will make sure I collect all the children’s poo-poo littered around the home and throw it into the pit latrine.”*

### **Contrasts Between Districts**

There were recipe differences worth noting between the districts. In the district of Amudat, the recipe for fortified porridge was slightly different to the other districts. As the Pokot tribe rarely eat silver fish or meat, this was excluded from the suggested recipe. As it is common for the child to be given milky, sugary tea and maize bread, field staff tried to dissuade the giving of tea and incorporate the other ingredients for a new porridge: maize, milk, oil, sugar, and chopped greens (sometimes eggs).

In the other districts, a common porridge recipe suggestion was: sorghum or maize, oil/fats, sugar, eggs, greens, and/or silver fish. This combination was not a prescribed recipe for field staff. However, enumerators suggested these food items because they were earlier identified in the household assessments as available, accessible, and commonly eaten in the home. Mothers in the district of Moroto were especially willing to give children silver fish. Only in the district of Nakapiriprit did mothers say that silver fish might not be feasible as it was expensive in the markets.

### **Follow Up Visit**

Two weeks after the counselling visit, field staff returned to the households to investigate the outcomes of the agreed recommendations. The caregivers were asked to report on whether or not they tried the new practices, if it was easy or difficult, their thoughts about the new practices, and if they were willing to continue the practices on their own. A total of 119 mothers were originally assessed on the three key behaviours, 107 households were counselled, and 94 caregivers were interviewed on the outcomes. The number of participants decreased due the absence of the caregivers in their homes. Although the field staff did their best to find the mothers (interviewing in health clinics, driving to the gardens, waiting as long as possible for a mother to return), some caregivers were either out of town, experienced a recent death in the family, fell ill in the hospital, had a child in the hospital, experienced marriage problems, etc. *Therefore, the analysis of the outcomes only includes the final number (94) of mothers interviewed for all three phases of TIPs.*

Field staff verified the mothers’ reports of successful practices. This was confirmed by inspecting where the caregiver said to dig and burry, checking for evidence of regular use of the hand washing spaces or tippy-taps. Staff also asked mothers if they could see what yellow fruits and vegetables they had been feeding the child, or asked what the child ate in the morning. Verifying the practice of adding new foods to the child’s diet or fortifying porridge was the most difficult to confirm as interviews usually took place after the morning meal.

Some communities were mobilised by government workers before arrival of the field staff. This was positive in that this ensured caregivers to be home the morning of visitation. However, at times the mobilisation meant that participants deliberately set up tippy-taps that same day, or swept and cleared faeces from the compounds, not reflecting true practices. In the areas that were not mobilised beforehand and where households did not expect the field staff that day, some homes had unused or broken tippy-taps, open faeces within and near the compounds, etc. This made it easier for the enumerators to observe what was actually practiced rather than relying solely on the caregiver's report.

In some areas, neighbours had copied new practices that were recommended to the participants. They had built their own tippy-taps and started to dig and burry their own (or children's faeces). This gave the caregivers confidence and motivation to continue the new practices.

## **Dietary Diversity**

### *Results*

For the behaviour of dietary diversity a total number of 52 households were interviewed on the outcomes of the tried practices. Some households agreed to try more than one nutrition recommendation and therefore a total number of 76 recommended trials were investigated. Out of 52 households, 30 caregivers tried giving their children foods rich in vitamin A such as dark green leafy vegetables (DGLVs) and yellow fruits and vegetables, 17 participants tried to add more animal source foods to the child's diet, and 26 caregivers tried to fortify or enrich the child's porridge with either vitamin A-rich foods, animal-source foods, (or both) as well as oils/fats or sugar.

<b>Dietary Diversity – 52 HH interviewed</b>								
<b>Give foods rich in Vit A</b>			<b>Give more protein or animal-source foods</b>			<b>Enrich/fortify child's porridge</b>		
31 recommendations followed up			17 recommendations followed up			28 recommendations followed up		
<b>Tried</b>	<b>Not Tried</b>	<b>Willing to Continue</b>	<b>Tried</b>	<b>Not Tried</b>	<b>Willing to Continue</b>	<b>Tried</b>	<b>Not Tried</b>	<b>Willing to Continue</b>
30	1	28	17	0	16	26	2	28

With regards to enriching a child's porridge the TIPS research revealed that there were some variations in the types of foods offered and prepared for children throughout the four districts. Some combinations were:

- Posho made from both maize and sorghum with a side mixture of greens, ground peanuts, oil, and milk. – Moroto District
- Thick maize porridge, milk, eggs, sugar, oil/fats, (and sometimes greens). One mother said her child enjoyed it very much. – Amudat District
- Sorghum porridge with DGLVs and cooking oil. – Nakapiripirit District

- Thick sorghum porridge with sugar, greens, and sunflower seed paste. – Napak District
- One mother modified the practice by adding honey to her child’s porridge and making it thicker. – Napak District



Image 1.4 Family recipe in Moroto: Greens, ground peanuts, oil, and milk with maize and sorghum posho.

One caregiver in Napak explained how she modified the porridge on her own in order to suit her schedule, budget, and still satisfy her child:

*“Sometimes I mix simsim, groundnuts, sunflower, green beans and millet together then take it to the machine for grinding and use it to make porridge for my baby. This is because the foods are available and grown around the home. This is also easy and cheap because it’s ground at once. The baby really enjoys it.”*

It is also worth mentioning that caregivers in Amudat, who usually gave maize bread and sugary, milky tea to their children every day changed their feeding behaviours and happily made fortified porridge for their children.

### *Constraints*

Even though the majority of mothers tried out the dietary practices, some could only afford to give the recommended foods a few times a week rather than every day due to high costs of yellow fruits and animal source foods, especially in Moroto and Amudat. In Nakapiripirit caregivers said that wild fruits and berries were more feasible because they were less expensive. The 3 caregivers who did not try the recommendations did not carry out the practices because they could not afford to buy the foods. However, mothers said that when they get more access to funds they would try to buy these foods for their children. Those who were not willing to continue the practice refused due to lack of money.

There was an exception in the Napak District (along the green belt areas), where caregivers found it easy to feed their children DGLVs and mangoes, oranges, papaya,

pumpkin, and passion fruits. Although animal-source foods were also reported to be expensive in Napak, many mothers said that they were still able to afford silver fish and eggs. However, seasons greatly affect how caregivers in Napak feed their children. Mothers said that when foods are plentiful during the rainy season (at the time of this TIPs research), children might get too used to the lifestyle and good eating habits, and will therefore be greatly affected during the dry season when there are fewer foods available. As a result, mothers said it was not good to give too many foods to their children in the rainy season in order to ‘prepare’ them for the lean, dry season.

In Amudat, the distance to the market is too far for mothers to travel in order to feed their children the recommended foods every day. In addition, some mothers said that their husbands control the finances and have ownership of foods, meaning that they will not always allow certain foods to be given to children such as meat, or anything else that is expensive.

### *Observations and Changes Noted*

Despite the constraints of the behaviour of dietary diversity, many mothers were able to offer a small variety of foods to their children, and found it convenient to add them in porridge. Caregivers reported a difference in their child’s health, energy and strength and noted that their children cry less because they are satisfied after consuming the new, thick porridge. One mother happily reported: *“My baby liked the porridge and has gained weight.”* In addition, it is interesting to note that participants have changed their mindsets about giving greens to children. Rather than viewing greens as harmful or causing stomach aches, most say greens are *now good* for their children, especially after becoming aware of the benefits during the counselling visits.

## **Hand Washing**

### *Results*

For the behaviour of hand washing a total number of 65 caregivers were interviewed on the tried practices and a total number of 107 recommendations were followed up. Out of 65 households, 41 caregivers tried washing their hands at some or all of the 5 critical times, 12 tried to designate a hand washing space in their compound, 25 participants tried to construct tippy-taps, and 23 caregivers tried to use soap or ash.

<b>Hand Washing – 65 HH interviewed</b>											
<b>Wash Hands at 5 Critical Times</b>			<b>Create a Hand Washing Space</b>			<b>Build a Tippy-Tap</b>			<b>Use Soap or Ash</b>		
43 recommendations followed up			15 recommendations followed up			26 recommendations followed up			23 recommendations followed up		
<b>Tried</b>	<b>Not Tried</b>	<b>Willing to Continue</b>	<b>Tried</b>	<b>Not Tried</b>	<b>Willing to Continue</b>	<b>Tried</b>	<b>Not Tried</b>	<b>Willing to Continue</b>	<b>Tried</b>	<b>Not Tried</b>	<b>Willing to Continue</b>
41	2	41	12	3	14	25	1	24	23	0	22

The outcomes of the hand washing trials and feedback from the mothers reveal that many participants were able to sustain the practices for two weeks. 41 out of 43

mothers reported to wash their hands at 5 the critical times, although some mothers admitted to forgetting a few times, simply because it is new behaviour. All mothers used ash instead of soap and some were happy to promote ash to their neighbours and family. Caregivers found hand washing at the 5 critical times to be easy because it made them feel clean and believed it promoted hygiene within their family, reducing illnesses and diseases:

*“I wash my hands with my family members: after defecating, after cleaning a baby’s bottom, before cooking, before feeding the baby and before eating ... and I feel okay about it.”*

*“I will always keep on washing my hands based on the five critical times and it has helped reduce the spread of diseases.”*

12 out of 15 caregivers identified hand washing spaces within their compounds. However, some areas were not regularly used, and the tippy-taps that were constructed with the field staff during the counselling visits were sometimes damaged and dirty, with dirty water inside the jerry can or no water at all. Many caregivers attempted to build their own tippy-taps during the two weeks. While some were successful, others did not construct them correctly. Thus field staff supported each household to rebuild their tippy-taps and encouraged whole families to use them on a regular basis.

### *Constraints*

Although almost all participants showed readiness to try the new hand washing practices during the counselling visits, the mothers who did not try or sustain the new behaviours for the two weeks reported reasons such as: too ill, too busy, or their child was ill. Some mothers simply showed lack of interest and did not wish to open up about the constraints to the new hand washing practices, especially in Moroto.



Image 1.5 Broken and unused tippy-tap.



Image 1.6 Dry soap in the afternoon.

Three caregivers did not try to establish a hand washing space within their compounds and one caregiver did not try to make a tippy-tap because they still preferred a basin and jerry can for washing their own hands (or children’s hands). Two mothers did not try to wash their hands at all 5 critical times because of negative attitudes and/or pressure from their peers. Community members sometimes perceived having clean hands as being lazy. Hard workers are thought to have dirty hands and no time to wash them. In Amudat, regular hand washing was sometimes seen as an act of pride. Some neighbours viewed mothers to be bragging or arrogant in the attempt to keep so clean. One participant in Napak explained her situation:

*“My husband is complaining (and co-wife) that I have changed my lifestyle like washing hands all the time, changing my diet like working class so what is the meaning. I may divorce my husband so that I get a town man.”*

Although 25 out of 26 caregivers tried using a tippy-tap, many households did not continue to use them saying that the children always wanted to play with the tippy-taps, either stepping on the stick to pour all of the water out or tearing it down. As a result many mothers took away some of the parts or stopped using the tippy-tap altogether. Dirty water was also found in many of the tippy-taps. As the TIPs research was conducted during the rainy season, some households used water in nearby ponds, puddles, etc. to fill the jerry can. In Amudat, as there were no boreholes nearby and the distance to clean water sources was far, households also used the dirty rainwater. Nevertheless, almost all participants reported that they would like to continue to try the hand washing practices, even if they did not try the first time.

## Designated Defecation

### Results

For the behaviours of designated defecation a total number of 60 caregivers were interviewed on the tried practices and a total number of 60 recommendations were followed up. Out of 60 households, 13 caregivers tried to designate a space for defecation, 28 tried to dig and bury their faeces outside of the compound, and 4 participants used the existing latrine or took their faeces to the latrine with a shovel the next morning (if there were insecurity issues).

Designated Defecation – 60 HH interviewed								
Create a Specific Area			Dig and Bury Outside			Use Existing Latrine or Take Faeces to Latrine		
17 recommendations followed up			39 recommendations followed up			4 recommendations followed up		
Tried	Not Tried	Willing to Continue	Tried	Not Tried	Willing to Continue	Tried	Not Tried	Willing to Continue
13	4	11	28	11	35	4	0	4

Most of the spaces created for designated defecation were for the children only. Caregivers usually preferred to try to dig and bury their own faeces outside of the homestead or use the existing latrine, even if it was far. Although participants tried digging and burying for two weeks, most caregivers did not carry out the practice on a

daily basis. Some mothers said that digging a long trench was more convenient, although in Nakapiririt the rains destroyed the trenches that were dug in advance.

Other caregivers reported digging and burying to be easy, and helpful to eliminate flies and bad smells around the manyatta. They also felt that their compounds were very clean; hence children did not fall sick as often with diarrhoea for example. One mother responded,

*“I am glad I burry this poo poo. My children do not develop stomachaches these days. They are actually fine now.”*

### *Constraints*

For the practice of designating a space for defecation for the children, some mothers reported difficulties in controlling the children’s behaviours saying that the children refused to defecate in a specific area. Mothers complained that chickens and ducks would unearth the children’s faeces that had been buried, and they also found that rains and floods would continue to destroy the designated areas. When field staff returned to places that were previously identified and dug during the counselling visits, the designated areas were turned into gardens, with households preferring to use the newly cleared space for food rather than defecation. One mother who did not try the practice said that defecating in a designated area was just too strange.



Image 1.7 An unused space for designated defecation. Image 1.8 A cleared space for defecation, copied by a neighbour.

Digging and burying was the most recommended practice because many mothers accepted the suggestion more than creating a designated space. However, only 28 out of 39 caregivers tried the new behaviour and 11 did not try at all. Several participants found digging and burying and carrying a hoe or shovel each time to be too cumbersome. This was especially the case for participants in Amudat who work in gardens that are far from the homestead. They felt that it was too difficult to carry the shovel with them every time, especially when looking after animals, attributing the constraint to their mobile lifestyles. In other districts, mothers said that it was too much work to dig and burry not only for herself but also for her many children (one by one).

When participants were asked what they were willing to try to make the practice easier or to motivate them to continue, many mothers thought that digging a long trench lasting for two weeks or so was easier than digging a hole each and every time they defecate. However, some mothers said that digging trenches were tiring. One mother admitted she did not try to dig and bury because she feared to practice something that others were not doing. Despite the constraints, 35 out of 39 participants were willing to try digging and burying again.

### *Observations and Changes Noted*

Although 39 caregivers agreed to dig and bury during the counselling sessions many participants did not seem to internally accept the practice. Caregivers were aware of the health benefits of digging and burying and that it is a good hygiene practice, but the new behaviour did not prove to be critical enough to actualise on a regular basis. Some mothers reported to field staff that they carried out the practice but when the areas were observed, there was no evidence of this. Even though some participants were open and honest, many caregivers did not want to give a direct answer as to why they did not try digging and burying, even after much probing. Therefore, it was very difficult for field staff to get to the heart of the constraint and discover exactly what was not acceptable or feasible.

Some neighbours were positively influenced by the designated defecation recommendations and began digging and burying or using the nearby latrine. This increased mothers' confidence and motivated their desire to become role models to promote the new behaviours, especially in Napak and Amudat. On the other hand some neighbours thought that digging and burying was a time wasting and bothersome practice. Other neighbours did not trust or have confidence in those caregivers wishing to pass on messages or advice. Some showed jealousy, as they believed that mothers were benefiting from participating in the research, and in turn gave no support or approval in the new practices. One mother in Nakapiripirit commented,

*“ We fear what is not approved by everyone. It inconveniences, especially for the little time we have tried.”*

As a result, participants stressed the need for the involvement of community leaders to influence designated defecation behaviours, especially for adults. They also requested for more community mobilization with the men, as caregivers felt they didn't have the power to decide defecation practices for the whole community.

### **Contrasts Between Districts**

It is worth noting that many counselled mothers in Moroto District did not wish to follow through with the agreed upon recommendations. Although many participants reported to try the new practices and were willing to continue, caregivers in the Moroto district demonstrated low motivation and negative attitudes toward changing new behaviours. Caregivers gave the field staff reasons such as 'too busy' rather than giving open and honest responses for the lack of trying certain practices. If caregivers in Moroto reported in the counselling visit that silver fish were inexpensive, they reported the opposite in

the follow-up interview saying that silver fish was not affordable to give to a child on a daily basis. Even if they had cattle, mothers said that milk was too expensive. As for hand washing and digging and burying faeces, some mothers simply did not try.

## Conclusions and Recommendations

In conclusion, the outcomes of the TIPs research demonstrate that the RWANU programme should promote the three nutrition and hygiene behaviours of dietary diversity, hand washing, and designated defecation using specific, small doable actions identified in the research process. For dietary diversity, TIPs results show that fortifying porridge with a variety of additional foods was easy and time saving for caregivers, and creating a more diverse diet for a child depended on the affordability and accessibility of food items. With regards to hand washing, participants washed their hands at the five critical times in order to eliminate germs and illnesses in the home. Hand washing demonstrations, including tippy-taps, had a positive effect on the motivation of mothers as well as neighbours. For designated defecation, most mothers were willing to dig and bury, however there are many constraints such as lack of effort or interest, and a common request for community support, especially from decision makers such as husbands who have the final say on financial matters in the home, and elders or leaders who have the power to approve and disapprove of social norms.

The TIPs process also revealed positive responses to and appreciation of the repetitive house visits and counselling sessions, providing the caregivers with moral support and increasing motivation to carry out the new practices. This highlights the need for counselling and negotiating skills to be emphasized in future trainings for behaviour change activities.



Image 1.9 Counselling session with a caregiver.

Finally, due to the large-scale negative response of the designated defecation practices and the contrasting high number of participants willing to continue the recommended practices, follow up is necessary to confirm the intended continuation of practices. Verification of the designated defecation results through Focus Groups Discussions (FGDs) may also be necessary to confirm participants' responses as well as other community members' experiences and opinions. Most recommendations were feasible

and acceptable, but there is need for community support in order for behaviours to be sustainable.

Drawing from the key issues emerging from the trials, the final conclusions directly impacted the development of the recommendations for the Social and Behaviour Change Strategy Action Plan. The recommended behaviour change communication activities and messages below were based on the main motivations and barriers found in the outcomes of the home visits. They were discussed at length with the RWANU team and presented to stakeholders before updating the SBC-SAP document. The recommendations are:

## **1. Conduct Large-scale Community Sensitisation and Mobilization**

- Sensitize community leaders (male and female) on the three optimal behaviours and involve them in the decision making process for each village.
- Have community leaders support the mobilization of men with regards to the three behaviours
- Identify and include strong male leaders who are not intimidated to talk about certain topics with other men (i.e., any topics that are viewed as ‘women’s topics’).
- Have positive deviant husbands to give testimonials to other men at men’s groups
- Reach/include the next generation of leaders (in preparation for shift of power)
- Include story telling: Amusing stories can be created based on a real-life situation during TIPs research. When the husband returned to the homestead after his third wife had been counselled on digging and burying, he saw that the compound was clean, no faeces in the manyatta, she was very clean as well as the children from hand washing. As a result he decided to make her the 1<sup>st</sup> wife instead. (Stories obviously need to consider cultural sensitivity.)

## **2. IEC Materials and Key Messages**

The materials and should build on current practices and motivations identified in the TIPs research. The key messages are not final and do not indicate exactly how they will be worded. Rather, these are examples that demonstrate how to incorporate current practices, motivations, and address barriers in messaging for greater impact.

**Example 1:** “It is great that you are feeding you child porridge and continuing to breastfeed him. Create different porridge recipes to help him grow strong and healthy” ... or ... “to satisfy your child so that he cries less”.

**Image:** bowl of porridge + local greens + eggs + oils/fats = photo of a healthy baby

**Example 2:** “Help keep your family healthy by keeping your house clean. Dig and bury your family’s faeces OUTSIDE of the manyatta to avoid flies, bad smells, and diseases.”

**Image:** Pictures of two different homesteads side by side – one clean vs. one dirty with faeces and flies. OR...

**Image:** Two different images of mothers side by side, one mother with a shovel, just finished burying her faeces in a trench, with a happy face vs. a mother walking away leaving faeces open with flies and smells, perhaps an ill child nearby.

### **Recipe Booklet:**

- Integrate recipes created by the TIPs participants into the recipe book for the Mother Care Groups (the recipes should be images only).
- Have alternatives so as to spread out the food supply. For example, mothers can be encouraged to fortify porridge with a different food item on different days. This should only be shown through images with messages of the benefits of each food item.
- Include foods alone as a snack or as a reminder, such as photos of a mango, a papaya, or local wild fruits.

### **3. Counselling Sessions - Group and Individual**

- Integrate topics of the three promoted behaviours into the Care Group Model curriculum and reach out to secondary audience during counselling sessions with entire households.
- Ensure Lead Mothers, Health Educators, Health Promoters are well trained in counselling and negotiating skills.
- Integrate counselling and negotiating sessions at health facility level or during health campaigns.

### **4. Give Practical Support Through Demonstrations**

- Train one resident per village to construct tippy-taps so that he/she can support all households.
- Designate hand washing points at all sensitization meetings.
- Give hand washing demonstrations during health campaigns.
- Conduct cooking demonstrations during Care Group meetings.
- Incorporate CLTS activities in group counselling sessions such as ‘flagging’ (or shaming) open faeces with stones, pouring ash on faeces for quick-drying,

demonstrating the 'faeces on a plate' exercise, shake hands with chalk (showing spread of germs), for example.

#### **5. Other Recommendations (mainly brainstormed with the RWANU team)**

- Include the three promoted behaviours to be advertised on the planned radio advertisements. Have village elders verbally approve of the specific behaviours with a few seconds 'spot' each.
- Have 'community radio' sessions by attaching loud speakers on poles with a VHT announcing and promoting key messages via a microphone.
- Hire youth groups to mobilise communities through MDD (Music, Dance, Drama) related to dietary diversity, hand washing, and designated defecation.

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5. TOR for Trials for Improved Practices Consultancy, Concern Worldwide, 2013
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# Annexes

## Annex 1

Name of Beneficiary(ies):.....

Date and Time of Initial Assessment:.....

### Checklist for Initial Assessment Home Visit

#### Please Note:

- (1) Whole families (mother, father, grandmother, children, etc.) should be present during discussions if possible.
- (2) Assessment visits should ideally be made during COOKING TIMES.
- (3) TIPs counselors should be in teams of 2 (1 interviewer, 1 documenter).
- (4) Please carefully review the questions. Familiarize yourself with them before the home visit. Make sure the questions are clear to you.
- (5) Don't forget to ask (probe) "Which, what, when, how, where, by whom, etc." for more in-depth answers.

#### Scripted Introduction for TIPs Counselors:

Hello, my name is \_\_\_\_\_ and we work for the RWANU project with Concern Worldwide in partnership with ACIDI/VOCA and Welt Hunger Hilfe. The project is working with communities to help babies be healthy and grow well. We are interviewing families of young children to learn more about certain health practices in the home. We are doing this in order to learn how to improve our health programs.

This is a study that consists of three home visits during the coming month. During the first visit, we would like to ask you some questions now about feeding your child and your family's health and hygiene in general. We would then like to come back a second time and talk to you about trying out some new ideas; some things that could help your family to stay healthy. Then we would visit you a third time to discuss your experience with the new ideas.

Do you expect to be here at home during the coming month? If yes, do you have time now for the first interview? We know that you are busy and have many chores to do, so it is all right for you to continue with your chores while we talk. Our discussion might take as long as an hour. You are not at all obligated to talk with us. There is no payment for answering these questions nor is Concern dependent upon your participation in this study. It is completely voluntary. Would you be willing to talk with us now?

Before we begin the first interview, we want you to know that it is very important that you give us honest opinions and information. We are only recording your first name and only ourselves and a couple of colleagues will look at your answers. We will not share your specific information with anyone else. We would appreciate it if you would tell us how you really feel about things. Please avoid saying things just because you want to be polite. If you have any questions at the end of the interview, we will be happy to answer them as best as we can.

### GENERAL INFORMATION

a) District:..... Sub-county..... Parish.....

Village:..... Manyatta:.....

b) Names of Counselors: .....

c) First name of Caregiver or Head of Household:.....

d) Type of Household (please tick)

(i) Household Headed  Male  Female  Grandmother  Child (ii) No. of people currently in HH:.....

(iii) No. of Children in Household..... (iv) What are the names and ages of your children? .....

(v) Any children 6-24 months? Clarify ..... (vi) If currently enrolled in OTC/SFC ?.....

1. Do you watch to see how (child's name) is growing?  Yes  No

2. What, if anything, do you do to try to help (child's name) grow? .....

.....

3. What is your main source of food? (Check all that apply):

Food Aid  Loans  Gifts  Purchase  Own production  Bartering/Exchange  Other (*specify*).....

(If 'Own production' specify: E.g. livestock, vegetables, fruit trees, location of production, etc.)

.....

(If 'Purchase' or 'Barter' specify: which protein foods, which vegetables, which fruits, etc.)

.....

4. What is your main source of income?

Casual labor  Petty trading  Own business  Remittance  Bartering/Exchange  Formal labor salaried  Cash transfer

Other (*specify*).....

### FAMILY MEALS AND FREQUENCY OF CONSUMPTION OF FOODS

5. How many main meals does the family *eat* every day? (Specify).....

6. How many meals are *prepared* every day? (Specify).....

7. How many snacks does the family eat every day? (Specify).....

**8. What is the usual composition of your family meals (ingredients used)?**

Ingredients Often Used <i>(Please Tick in the right column if ingredient is OFTEN used)</i>	Breakfast	Lunch	Dinner	Snacks <i>(Morning and Afternoon)</i>	Remarks (Which types, if they don't consume specific foods, why not?, etc.)
Sorghum					
Maize/Millet					
Wheat					
Rice					
Fruits (specify)					
Vegetables (specify)					
Milk (or milk products)					What kind?
Beans					
Gourds					
Ground nuts					
Sim Sim					
Sunflower seeds					
Blood					
Porridge					Made from what?
Meat					Which animals? Which parts (e.g. offal)?
Fish					Which type?
Eggs					
Roots/tubers					Which type (cassava, sweet potato, Irish potato)?
Sugar cane or honey					
Alcohol					
Dregs from sorghum/maize brew (adakai)					
Oil/Fat					Which type?
CSB					
Others (specify)					

**FEEDING A CHILD 6-24 Months**

9. Does (child's name) share family foods?  Yes  No

10. If yes: Does (child's name) use a separate bowl?  Yes  No

11. What did (child's name) eat yesterday? *(Specify and list all foods, drinks, and ingredients in the foods/drinks. Don't forget to PROBE.)*

.....

.....

.....

.....

12. How many times a day does (child's name) eat? .....

13. How many times a day do you prepare food for (child's name)? .....

.....

14. Who usually feeds (child's name)?  Mother  Father  Grandmother  Brother/Sister  Himself/Herself  Babysitter

15. Are there any foods that are considered good or bad for small children?  Yes  No

16. If yes, which ones and why? (Table below)

Foods Considered Good for Children		Foods Considered Bad for Children	
Food Item	Why Good for Children	Food Item	Why Bad for Children

## FEEDING AND COOKING OBSERVATIONS

17. Observe the following: Look for common cooking utensils, measuring equipment, cooking methods used in the house. Note the most common ones, e.g. cups, cooking pots, spoons, family bowls and plates, etc. Are they clean? Are they off the floor? Do they cover food to avoid flies? Are there animals in the kitchen area? Etc?

.....

.....

18. What is cooking or being prepared (if anything)? Is there any food being stored that was prepared earlier? If so, how is it stored?

.....

.....

## HAND WASHING

19. What, if anything, do you do to try keep your family from getting sick? (Probe for detailed information. Is there any mention of hand washing or designated areas of defecation, etc?)

.....

.....

20. How many times a day do you wash your hands with water? .....

21. The last time you washed you hands, did you use something in addition to water?  Yes  No

22. If yes, what did you use  Soap  Ash  Other .....

23. Why do you wash your hands? .....

24. Are there certain times when you think it's especially important to wash your hands?  Yes  No

25. If yes, what are those times?  After defecating  Before cooking  Before eating  After cleaning my child who defecated

Before feeding my child  When my hands are dirty  Other (specify).....

26. Do you have enough water to wash your hands every day?  Yes  No  Sometimes (Specify).....

27. If 'no' What can you do to have enough water? .....

28. How do you and your family feel about washing your hands with soap or ash every day? .....

.....

29. What do you think could be the benefits of washing your hands every day? .....

.....

30. What would make it possible for you to wash your hands with soap or ash often during the day? .....

.....

## HAND WASHING OBSERVATIONS

**31. Can you please show me where you usually wash your hands? Can I see your soap? (Observe and note: Where is the hand washing area? How is the water stored (running water or container)? If there is soap, what type is it? Does it look used? Did you observe any family members wash their hands before eating, preparing food, after defecating, etc?)**

.....

.....

## DESIGNATED DEFECATION

**32. Where (what place) do you and your family usually defecate in the day?**

Latrine    Outside the manyatta    Within the manyatta    Near water/stream    Other.....

**33. Do you and your family defecate in another place when it gets dark?**  Yes  No   If 'yes', where? .....

**34. Why do you defecate in those places?** .....

**35. What are the advantages of defecating in (answer to questions 37 and 38)?** .....

**36. What are the disadvantages of defecating in (answer to question 37 and 38)?**.....

**37. Is there a latrine for this household?**  Yes  No

**38. How do you feel about using a latrine?** .....

**39. What would be the good things about defecating only in a particular place in your yard and nowhere else?** .....

.....

**40. What would be the bad things about defecating only in a particular place in your yard and nowhere else?** .....

.....

## DESIGNATED DEFECATION OBSERVATIONS

**41. If there is a latrine, does it look used? Is it clean? If there is a designated space for defecation, observe the area. What is the size? What is there now? How far is it from the house?**

.....

.....

### ***Scripted Conclusion for TIPs Counselors:***

*We don't have any more questions right now. Do you have anything else you would like to tell us? (Answer any questions you can, but do not make any promises.)*

*Thank you very much for taking the time to talk with us. We'll come back in about a week (tell the exact day if you know it) and talk with you about trying out some new practices that will help your family stay healthy.*

## Annex 2

### Recording Tool for Counselling Visit

TIPs Counsellors..... Date.....

District..... Village..... House/Manyatta.....

Name of Caregiver.....

<b>Complete shortly after <i>Counselling Visit</i></b>	
<b>Health Practices which need improvements in relation to: dietary diversity hand washing designated defecation. (Prioritize no more than 2 behaviours.)</b>	
<b>Recommendations and Choices Offered (Don't forget <i>how</i> you motivated the caregiver and demonstrations you did.)</b>	
<b>Reactions of the family members and what made caregiver to agree or disagree on the recommendations.</b>	
<b>Recommendations Agreed Upon</b>	1.  2.

### Annex 3

## Recording Tool for Follow-up Visit

TIPs Counsellors..... Date.....

District..... Village..... House/Manyatta.....

Name of Caregiver .....

<b>Complete shortly after <i>Follow-up Visit</i></b>	
<b>Recommendation 1</b> <input type="checkbox"/> Tried <input type="checkbox"/> Not Tried	<b>Details...</b>
<b>Recommendation 2</b> <input type="checkbox"/> Tried <input type="checkbox"/> Not Tried	<b>Details...</b>
<b>Results:</b> Ex: Describe the outcome. To what extent did the mother carry out the recommendations? What did she think? Use her words if possible.	
<b>Any Constraints:</b> Ex: Did she only carry out recommendation for a few days? Why? Was food expensive? Did dig and bury become too cumbersome?	
<b>Willingness to continue improved practices</b>	<input type="checkbox"/> Yes <b>Reasons...</b>
	<input type="checkbox"/> No <b>Reasons...</b>
<b>Dietary or Hygiene Changes Noted</b> These are your observations.	



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# **Report of Barrier Analysis Study**

## **Social and Behavior Change Strategy (SBC)**

## **and Strategic Action Plan (SAP)**

Submitted by:  
Bonnie L. Kittle  
January 30, 2013

Resiliency through Wealth, Agriculture, and Nutrition in Karamoja (RWANU)  
AID-FFP-A-12-00011

## I. Background

Since 2009, Concern has been implementing programs in Karamoja that focus on building government and community capacity for the roll-out of Integrated Management of Acute Malnutrition (IMAM). This project, which has been supported primarily by UNICEF, ended in October 2012. The staff of this project is familiar with IMAM, IYCF and capacity building approaches with health staff (clinical and managerial) and community-based Village Health Teams, however have not in the past used formative research methods, such as the Doer/Non-doer/ Barrier Analysis or Trials of Improved Practices (TIPs), to inform behavior change strategies.

In 2012, Concern Worldwide (Concern), ACDI/VOCA and WeltHungerHilfe (WHH) designed the Resiliency through Wealth, Agriculture and Nutrition in Karamoja (RWANU) program to respond to Food for Peace's (FFP) overall strategic objective for the USAID Title II program in Uganda: *reduce food insecurity among chronically food insecure households*. RWANU will be implemented in 16 sub-counties in the districts of Napak, Moroto, Amudat and Nakapiripirit, all of which are located in the Province of Karamoja. These districts were selected because of their high levels of malnutrition, the existing social and economic interrelationships, the relative security of the area, and the potential for sustainable results, particularly in agriculture. The project started in September 2012 and will end in August 2017 and is expected to reach a total of 200,399 beneficiaries.

ACDI/VOCA will lead livelihood activities, monetization and distribution of rations, as well as the overall management of the project, ensuring integration of activities across strategic objectives. WHH will lead on livestock activities. Concern will have primary responsibility for maternal and child health, nutrition and hygiene activities.

The project goal is: Reduced Food Insecurity among Vulnerable People in 4 districts in Karamoja, with two primary objectives and supporting intermediate results, as follows:

Objective	Intermediate Result
<b>1: Improved availability and access to food</b>	1.1: Improved smallholder farm management practices adopted 1.2: Improved smallholder livestock management practices adopted 1.3: Increased linkages to markets
<b>2: Reduced malnutrition in pregnant and lactating mothers &amp; children &lt; 5</b>	2.1: Improved health and nutrition practices at the household level 2.2: Improved prevention and treatment of maternal and child illness
<b>Cross-cutting</b>	Conflict mitigation; Disaster Risk Reduction/Natural Resource

Objective	Intermediate Result
	Management (NRM); and Gender (IR: Intra-household relationships improved)

Strategic Objective 2: (Concern) Activities will focus on preventing malnutrition during the first 1,000 days of life through a package of curative and preventative health care, behavior change activities, and improved consumption of micro- and macronutrients. RWANU will implement activities around proper infant and young child feeding practices, the nutritional needs of pregnant and lactating women (PLW) and children under 2 while promoting equitable intra-household food distribution. Concern will implement these activities through the Mother Care Group (MCG) approach, male change agents, religious and opinion leaders and social behavior change activities.

The start of the RWANU project provides the opportunity to accomplish two complementary objectives: to train staff in formative research techniques in a practical, hands-on way; and 2) to use the data collected through the learning activity, to develop evidence-based behavior change strategies for specific sub-optimal behaviors.

## II. Development of the Social and Behavior Change Strategic Action Plan

### A. Objective of the Consultancy

Concern would like their staff to learn to use formative research methods and to use this data to inform their behavior change strategies. Concern feels that knowing which barriers and motivators most influence behavior change will enable them to design more effective behavior change strategies.

To this end, Concern engaged a consultant to develop Social and Behaviour Change strategies and a Strategic Action Plan for each of 5-7 behaviors. The consultancy is expected to be implemented in two phases: Phase 1 (January 2013): the consultant will plan and support the implementation of Barrier Analysis surveys on 3-4 behaviours. Phase 2 (March 2013): the consultant will use the TIPs methodology to study two different behaviours and design behavior change activities.

The consultant is expected to provide the following key deliverables:

- A set of tools to identify key barriers and motivators to optimal health and nutrition behaviours, potential interventions to improve these behaviours, and ways to negotiate the behaviour change. The tools should draw on key components of the Designing for Behavioural Change approach, followed by an innovative adaptation of TIPs (Trials of Improved Practices) and PROPAN (Process for the Promotion of Child Feeding)
- Training materials on all tools and methodologies used

- A Social and Behavioural Change Strategic Action Plan that is inclusive of behaviours investigated through both Barrier Analysis and TIPs

## B. Phase 1. Barrier Analysis Implementation

Phase 1 activities were undertaken from December 2012 through 30 January 2013 (see Annex 1 for the full schedule). Two tasks were implemented in December: identifying the behaviors and developing the questionnaires. Both were done in consultation with Concern staff based in Kampala and Moroto. The following four behaviors were selected to be studied through the barrier analysis: Mothers of infants 6-8 months feed their babies at least 2 times per day in addition to breast milk; Lactating mothers eat more times/meals than they did prior to becoming pregnant; Mothers of children 0-23 months wash their hands with soap or ash at the five critical times each day; mothers continue to breastfeed their babies until 23 months of age. These behaviors were selected because: 1) they are critical to reducing malnutrition in children and PLW, 2) they are practiced at sub-optimal levels in the project area; 3) the project wanted to focus on at least one maternal nutrition behavior; 4) continued breast feeding is not dependent on food ration distribution; and 5) hand washing is known to be a "super-critical" behavior (see Annex 2 which includes an email discussion related to behavior selection). Selection of the behaviours to be studied was hampered somewhat by the fact that the study was scheduled to take place prior to the baseline data survey. Typically, when formative research is conducted in order to develop or inform a behavior change strategy at the outset of the project, the selection of the behaviours to study is informed by the baseline data survey results. In the case of RWANU, the baseline data survey is being conducted by an outside group and is out of the NGO's control. To enable Concern to begin project implementation as soon as possible, Concern decided to move ahead with the formative research (Phase 1) using data from the DHS, studies from the IMAM project and other sources, to decide which behaviours to study.

## C. Designing the Questionnaires

Four questionnaires were developed in December 2012, one on each of the four behaviours identified as sub optimal. The consultant drafted the first set of questionnaires based on an initial selection of behaviours and shared these with Concern staff in Kampala. A different set of behaviours were then selected and a second set of questionnaires were designed. These underwent a review in Kampala and some adjustments were made by the consultant before they were finalized. These four questionnaires were then translated into NgaKaramajong (the majority language of the intervention area) and Pokot, the language of about 10% of the target population. The translations, it should be noted, were done by native speakers, but not by professional translators. Each of the translators used a different formatting style as they translated,

which meant that the questionnaires had to be reformatted by the consultant once in country. The final questionnaires can be found in a separate file.

#### D. The Barrier Analysis Training

On 10 -11 January 2013, the consultant designed and facilitated a workshop whose primary purpose was to train the 23 data collectors and the six Concern RWANU staff to carry out the barrier analysis survey. The data collectors were all privately contracted from the target areas of the project. No MOH or RWANU Project partners served as data collectors (the training schedule is included in Annex 3, the list of data collectors and supervisors is in Annex 5). A secondary purpose of the training was to provide a contextual framework for the Concern staff. To this end, the first day was spent introducing the Concern staff (two of the five had attended a Designing for Behavior Change (DBC) course in 2012) and the data collectors to the DBC framework and the determinants of behavior change so they would better understand how the results of the survey would be used to inform the behavior change strategy. Although a full half day was spent practicing interviewing techniques, in retrospect, more time could have been spent examining each of the questionnaires, especially the screening questions and how to classify each priority group. This was not possible because when the English questionnaires were translated, the translators changed the formatting of the questionnaire. At the time of the training, the consultant has not had enough time to reformat and print out copies of all four questionnaires for each of 29 participants. Despite this, everyone practiced interviewing and all participants participated in the pre-test exercise on Saturday, January 12<sup>th</sup>. On Saturday afternoon and evening corrections based on the pretest were made by the consultant, and the reformatting was completed. The questionnaires were photocopied at a professional store in Moroto town. The lesson plans for this training are included in a separate file.

#### E. The Field Work

On Wednesday, January 9, the Concern team met with the consultant to discuss the selection of villages to visit for the survey. Since the project is being implemented in four districts – Nakapiripirit, Napak, Moroto and Amudat – it was decided that the survey would be implemented in each. There are also two ethnic groups who speak 2 different languages – NgaKaramajong and Pokot – so it was decided to survey both of these groups. The Pokot group only makes up about 10% of the target beneficiaries so 10% of the interviews (9) were conducted among Pokot – speakers. Unfortunately, however, the purely Pokot area of the project is a 5 hour drive from Moroto, which would not allow the team to return to Moroto each afternoon to participate in the coding and tabulation – which is essential. To address this, the team identified some communities that are closer to Moroto, where both Pokot and NgaKaramajong-speakers reside. That allowed this team to interview the requisite number of respondents from the Pokot ethnic group. Fewer interviews (18) were also conducted in Moroto District as the number of beneficiaries is fewer in this district. In total, 30 and 32 interviews were

conducted in Napak and Nakapiripirit, respectively. See Annex 4 for a table of sites visited each day by team.

Concern's Security Management Plan for Karamoja has a policy whereby cars cannot depart for the field before 8:00am and must be back by 5:00pm. This, plus the desire to code and tabulate the data each afternoon, meant that the communities selected for inclusion in the survey had to be within 1.5 – 2 hr driving time from Moroto. With these criteria in mind, the team selected a total of 10 villages in which the barrier analysis was conducted. There was only one village in Nakapiripirit where enough Pokot-speaking people of the priority groups could be found for the purposes of the survey, so this large village (Kormoret) was visited 4 times, but different respondents were interviewed each time.

With regard to how the different populations would be mobilized for participation in the survey, in Kampala, the consultant was told that the Concern staff in Moroto had contact numbers of Village Health Team members, Peer Educators and others living in the intervention area who could be contacted to mobilize the priority groups. In reality, this turned out to be a challenge and very few village-level resource people could be contacted by in advance. As a result, members of the priority group were contacted when the teams arrived in the village, which took more time than was originally anticipated. The group that visited the same village several days in a row however, was able to inform the Village Health Team and others the day before, and access to their respondents was easier.

The 23 data collectors were divided into four teams each of which was accompanied and guided by a Concern staff who received special instructions (and a checklist) regarding the roles and responsibilities of a BA survey supervisor. Each day the Senior Nutritionist from Concern also accompanied a team to provide additional supervision and support. On average each data collector only had to interview 4 – 5 respondents each day and the questionnaire took from 15 – 20 minutes each. Each team was led by a Concern supervisor who was responsible for liaising with the local representatives, keeping track of the questionnaires and the number of 'doers' and 'non-doers', corresponding with other teams regarding the total numbers of 'doers' and 'non-doers' and reviewing the questionnaires for errors prior to returning to Moroto. Concern provided two vehicles and drivers and two additional vehicles and drivers were rented for the survey. Interviews were conducted on each morning from Monday – Wednesday, January 14 – 16 and in the afternoons we coded and tabulated the questionnaires of that day. On Thursday we needed a 'catch-up' tabulation and rest day and on Friday, January 18, the last set of interviews were conducted and the data coded and tabulated. Each morning when the teams were in the field, the consultant prepared for the afternoon's coding and tabulation and after the first day of interviews, she entered the data into the barrier analysis excel spread sheet and began to work on

the SAP. She also took that opportunity to read project documents and other resource documents related to the behaviors being studied.<sup>1</sup>

### Lessons Learned

The primary lesson learned is that with sufficient numbers of data collectors, who have received basic training, and are well supervised, it's possible to collect data on one behavior per day and in most cases even complete the coding and tabulation in the same day.

Another lesson is that because the Barrier Analysis approach requires that all the interviewers be together for the coding and tabulation exercise, and because it is best to do this the same day (or very soon after) as the interviews are done, it is not always easy/possible to target a specific population if they live too far away from the place where the analysis will be done (in this case Moroto).

While Concern was able to find two people who could translate the questionnaires quickly and quite accurately, their computer skills (especially for one) were not up to the task and both used different formats for the translation. This meant that the consultant had to reformat all of the 8 questionnaires, which was very time-consuming. This prevented us from having enough questionnaires for each of the data collectors during the initial training.

Also, back-translating, while a recommended practice, is best done with professional staff, not hired contractors (the data collectors).

### F. Results of Barrier Analysis

For each behaviour a set of specific determinants were identified to be significant, as shown in the table below. These were identified by inputting the data into the excel spreadsheet especially designed for this purpose (the excel spreadsheets with the analyzed data are included in a separate file). Those determinants with a p-score greater than .005 are automatically identified as significant by the excel program. Those results are identified in Table 1. The shaded squares indicate which determinants were

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<sup>1</sup> In my experience, if I join a team in the field, the supervisor will defer to me when a decision needs to be made. By allowing them to go on their own, I showed my confidence in them that they could and would do the job. And they did. No issues that came up were mishandled. Thus my decision to not join the field work was deliberate and strategic – part of the learning process. Furthermore, I knew from experience that I would be more productive planning for the data coding, tabulation and analysis and after the first day I also used that time to start preparations on the SAP and report.

found to be significant. The text inside the squares is the consultant’s interpretation of the data.

**Table 1. Barrier Analysis Findings for the Four Behaviors**

<b>Behaviors →</b>	<b>Continued Breastfeeding</b>	<b>Hand Washing</b> (the definition was not with soap)	<b>Complementary feeding (more meals)</b>	<b>Extra meal – Lactating Mothers</b>
<b>Determinants ↓</b>				
<b>Self- efficacy</b> (Can you do it?)	Non-doers perceive more obstacles than Doers	Non-doers perceive more obstacles than Doers	Non-doers doubt that they can practice his behavior; Doers know that it’s hard to cook when you are drunk	Non-doers think it’s possible that they could eat more
<b>Self-efficacy</b> (What makes it easier?)	Not significant	Doers perceive access to ash would make it easier to wash hands frequently	Not significant	Not significant
<b>Self-efficacy</b> (What makes it difficult?)	Not significant	Doers recognize time as an obstacle – even though they wash frequently	Doers know that it’s hard to cook when you are drunk	Not significant
<b>Positive Consequences</b> (What are the advantages?)	Doers see more advantages than non-doers such as health and intelligence of the baby	Not significant	Not significant	Not significant
<b>Negative Consequences</b> (What are the disadvantages?)	Non-doers are afraid of infecting their baby (w/HIV) through breastfeeding	Not significant	Doers know that sometimes when a baby starts to eat semi-solid food it can cause indigestion	Not significant
<b>Social Norms</b> (Who approves?) <b>INFLUENCING GROUPS</b>	Doers are influenced by <b>health professionals and their mothers-in-law</b>	Not significant	Doers say getting support from the <b>husband</b> helps	Doers say getting support from the <b>husband</b> helps

<b>Social Norms</b> (Who disapproves?) <b>INFLUENCING GROUPS</b>	Not significant	Doers perceive that <b>elders and local leaders</b> DO NOT approve ; Non-doers perceive that their <b>neighbors</b> disapprove	Non-doers perceive that <b>family members</b> don't approve of feeding 2 meals a day to infants	Not significant
<b>Access</b> (How difficult is it to access what you need?)	Not significant	Both doers and non-doers find accessing the materials required for hand washing difficult	Doers know that it takes some effort to get the food to make baby food. (Non-doers don't see this challenge)	Doers know that it can be challenging to find enough food to eat more
<b>Cue for Action</b> (How difficult to remember)	Not significant	Not significant	Non-doers think they won't be able to remember to make the meals	Not significant
<b>Divine Will</b> (Does God control/approve?)	Doers are surer than non-doers that God does not cause malnutrition	Non-doers believe that diarrhea is caused by divine will. Doers do not	Not significant	Non-doers think that it's God's will if they have enough breast milk or not
<b>Policy</b> (Are there policies)	Not significant	Not significant	Not significant	Not significant
<b>Culture</b> (Any cultural taboos?)	Not significant	Not significant	Not significant	Not significant
<b>Susceptibility</b> (Could you have this problem?)	Not significant	Doers are slightly more convinced of the risk of getting diarrhea, but both perceive the risk	Doers recognize the risk of malnutrition more than non-doers	Not significant
<b>Severity</b> (How serious is the problem?)	Not significant	Not significant	Not significant	Not significant
<b>Action Efficacy</b> (How effective is the behavior in solving/preventing the problem?)	Non-doers are not convinced that cont.BF will reduce the risk of malnutrition	Not significant	Non-doers are less sure that feeding the child 2 times a day will prevent malnutrition	Not significant

<b>Universal Motivators</b> (What do you want most in life?)	Education for kids 63% Good health 53%	Being healthy 70% Education 59% Having food 44%	Good harvest 67% Health 56% Education 61%	Food 76% Education 66% Good health 60%
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### G. SBC/SAP Design Workshop

On Tuesday and Wednesday January 22 – 23, the facilitator planned a workshop attended by eight RWANU staff (ACD Programs, Interim RWANU Director, Sr. Nutritionist, Nutritionist, SBC Specialist, 2 Field Coordinators and SBC Trainer) the purpose of which was to use the data from the barrier analysis to decide which activities would best address the significant determinants, thereby completing the Designing for Behavior Change Frameworks. On the first day of the workshop, the facilitator reviewed the DBC Framework. Then, working in pairs (2 people per behavior) participants completed a description of the different priority groups which were inserted into column two of the frameworks. The process of selecting/developing activities was facilitated by a number of handouts. These included: the completed excel spread sheets, Table 1 (above), copy of the Action Plan from the DIP, and criteria for selecting activities, and a list of criteria for Care Groups. The participants then examined the DIP action plan and together we made a list of the activities that have already been selected for implementation. This step was critical since a project design already exists with many activities anticipated, so it was important for the RWANU staff to initially work within that framework and only suggest additional activities if none addressed a significant determinant. The pairs then worked on selecting activities for each behavior and these were discussed on the morning of the second day. After the discussion we realized that it would not be possible to proceed until the proposed activities had been more clearly defined, based on the discussions. To accomplish this, the consultant took the notes from the meeting, and completed the DBC frameworks (see Annex 8) and then developed a SAP framework and wrote the first draft of the SBC Strategic Action Plan (the SBC/SAP is included in a separate file).

The draft SBC/SAP was then reviewed and discussed by the RWANU staff on Tuesday January 29<sup>th</sup> and the SAP was finalized following that meeting incorporating comments from Concern/Dublin/NY.

### H. Stakeholders Meeting

On Monday, January 28<sup>th</sup>, Concern hosted a one-day meeting the purpose of which was to share the results of the barrier analysis and seek comments and suggestions on the proposed activities. The power point presentation can be found in a separate file in the SBC/SAP folder and the list of participants is included in Annex 9. The meeting was

attended by approximately 14 people from 6 organizations. Four representatives from the Ministry of Health (district level) attended as well. The USAID program officer in charge of the RWANU project was also in attendance. A number of questions about the formative research were posed and some comments/suggestions regarding the proposed activities were made. Some organizations shared what they are doing (participatory theatre) to promote some behaviours (latrine use) and many showed an interest in being trained and sharing information about the work each organization is doing in Karamoja.

### **III. Next Steps**

The SBC/Strategic Action Plan is a dynamic document that will continue to grow to include descriptions of all the behavior change strategies that are informed by some kind of formative research. In March 2013, the RWANU team will learn to conduct several Trials of Improved Practices (TIPs) on two different behaviors: designated defecation and complementary feeding (dietary diversity). Hand washing will be studied again using the TIPs approach to further explore the ways women can overcome the barriers to hand washing. When the strategies for behavior change promotion of these behaviours have been determined, they will be added to the SBC/SAP.

## **List of Annexes**

- Annex 1 – Schedule of Consultancy
- Annex 2 – Email from Suzanne about behavior selection
- Annex 3 – Barrier Analysis training schedule and learning activities
- Annex 4 – Field Visit Schedule
- Annex 5 – Data Collectors, Data Collection Teams and Team supervisors
- Annex 6 - SBC/SAP Workshop Schedule and objectives
- Annex 7 – Behaviour/Activity Analysis
- Annex 8 – Completed DBC Frameworks
- Annex 9 – List of Stakeholder Meeting attendees

(Included in separate files are: the curriculum for the 2-day training, four Excel spread sheets of the BA results, 8 BA questionnaires, the Powerpoint presentations of the stakeholders meetings and the SBC/SAP, the minutes of the stakeholder meeting and a summary determinant table & DBC framework for distribution)

## Annex 1 – Schedule of Consultancy (part 1)

<b>Trip 1 Activities (prior to baseline)</b>	<b>Locale</b>	<b>Duration</b>	<b>Tentative Dates</b>
Review Project Documents Develop questionnaires for 4 behaviors	USA	3 days	Dec 2012
Travel to Uganda	En route	2 days	Sun – Mon Jan. 6 – 7, '13
Finalize research plan, methodology and research tools	Kampala	1 day	Tuesday Jan. 8, '13
Travel to Moroto, meet with staff, discuss training plan and villages to survey	Moroto	1 day	Wed Jan. 9
Train staff/data collectors on methodology, tools and BA questionnaires	Moroto, Karamoja	2 days	Thur. -Fri Jan. 10-11, 2013
Pre-test the questionnaires; make revisions, photocopy questionnaires	Moroto, Karamoja	2 day	Sat - Sun Jan. 12 - 13 , 2013
Conduct interviews (90 for each behavior) code, tabulate and analyse data	Moroto, Karamoja	6 days	Mon - Sat. Jan. 14 -19 - 2013
Write a report on results and findings – plan workshop	Moroto, Karamoja	2 days	Mon –Tue. Jan. 21-22
Facilitate a workshop with staff and stakeholders to develop the draft Designing for Behavior Change Framework/Strategic Action Plan	Moroto, Karamoja	2 days	Wed. – Thur. Jan. 23-24
Finalize SBC-SAP on the 2-3 behaviours Document all activities, results and challenges in a short consultancy report	Moroto, Karamoja	2 day	Fri – Sat. Jan 25-26
Prepare and present a 15-20 minute presentation for the team to present to stakeholders including results and challenges	Moroto, Karamoja	1 day	Monday Jan. 28
Discuss SBC/SAP with project staff Finalize Report, plan second phase	Moroto, Karamoja	1 day	Tuesday Jan. 29
Fly to Kampala – depart	En route	2 days	Jan. 30 2013

## Annex 2 – Dec. 21 Email from [REDACTED] about behaviour selection and definition

Hi Bonnie,

Thanks for addressing some of the issues around the Barrier Analysis. To clarify some things:

- Yes, for hand washing it seems best if we define a doer as someone who washes their hand 3 out of the 5 times but not necessarily with soap.
- For complementary feeding meal frequency, if we have 6-8 month olds as the target group the definition of a doer should be '**child who eats 2 times per day or more**' and a non-doer is '**child who eats less than 2 times per day.**' Again, the sticking point is defining a 'meal' so might be easier to just use 'times per day' as the behaviour. This is also in line with how we will be measuring behaviour change in the baseline and end line (see attached IYCF definitions guide, indicator #6). But, I do see the importance of explaining what exactly is a meal, so if that can be done that is great.
- For maternal meal frequency, the ideal behaviour for a lactating woman is to eat an extra meal per day (this is in line with CORE group/linkages recommendations – see attached maternal dietary guide). Pregnant women do not need as such an extra meal, but they need extra food. We actually DO want to **encourage eating more times per day** because this helps ensure food is being prepared frequently for the child and that food is not stored improperly for long periods of times. We could **change the target group to just 'lactating women'** and then clearly the ideal behaviour is consuming an extra meal per day, but encouraging pregnant women to eat an extra time per day is also of interest as women often do not eat frequently. In the context, pregnant women eat as much as they can, so it may be easier to find doers if we look at both pregnant and lactating.
- For continued breastfeeding, from the UDHS 2011 only 45.8% of children are still breastfed at 20-23 months as compared to 86.9% which are breastfed at 12-15 months. So we could look at children 20-23 months as the target group with the behaviour being 'continued breastfeeding at 2 years.' If it is not possible to look at 4 behaviours we can drop this one, but it is something we are especially interested in for our SBC plan.

In RWANU areas, Pokot is only spoken in Amudat District and 1 sub-county in Nakapiripirit. In the **attached map**, the areas outlined in pink show the total implementation area for RWANU. The areas highlighted in yellow are where Pokot is spoken, while Ngakaramojong is spoken in all other areas. I would estimate that in our project area about 90% would speak Ngakaramojong and 10% would speak Pokot.

Also, you can see on the map where Moroto is located (north east) which is where the hotel is located.

For some of our behaviours, especially complementary feeding meal frequency, we need to find children of a specific age range. I hope we can train the enumerators in how to identify the child's age if the mother does not know the age and no birth record or health card is available.

Samaritan's Purse is promoting 4 key behaviours in Napak: 1) increased preventative behaviours (ITN use, hand washing). 2) increased proper treatment of infections for children <5 (ORT and anti-malarial). 3) exclusive breastfeeding for children 0-5 months. 4) increased utilization of ANC and birthing assistance through HCs.

Thanks for working with us to nail down exactly what we want to look at in the Barrier Analysis. Looking forward to getting the final questionnaires to pass on for translation.



### Annex 3. Data Collector Barrier Analysis Training Schedule and Learning Activities

<b>DAY ONE – Jan. 10, 2013</b>	<b>Approximate Duration</b>	<b>Lessons from the Barrier Analysis Curriculum</b>
Overview of the DBC Framework	1.5 hr.	Lesson 2 – Overview of the DBC Framework – this provided the context for which the BA survey was conducted. Most useful for the Concern staff
Introduction to Determinants of Behavior Change	2 hr.	Lesson 4 – Introduction to the Determinants of Behavior Change – this allowed the data collectors and Concern Staff to understand the origins of the BA questions and the reasons for conducting the survey (to identify the determinants/barriers)
Intro to the Doer/Non-doer and Barrier Analysis Surveys	2 hr.	Lesson 5 – Intro to the BA survey. During this session the trainer explained how the survey would be implemented; what a ‘Doer’ is, what a ‘Non-doer’ is; the sampling, logistics etc of survey implementation.
<b>DAY TWO Jan. 11, 2013</b>		
What is a Barrier Analysis Questionnaire	1.5 hr.	Parts of Lesson 8 – The Barrier Analysis Curriculum The data collectors and Concern staff reviewed the layout of the BA questionnaire. Special attention was given to the Doer/Non-doer Classification table
Back Translating the Questionnaires	2 hrs.	Participants were divided into 4 groups and each was provided a couple of copies of one of the questionnaires. As one person read the local language text, the others back-translated the questionnaire into English. This served to correct any translation errors, but also to further familiarize the data collectors with the questionnaires
Learning to Interview the Doer-Non-doer Way	2 hr.	Lesson 9 – after receiving guidance regarding ‘Dos’ and ‘Don’ts’ of interviewing, along with a Quality Improvement Verification Checklist (QIVC) for interviewing, data collectors watched a role play of a BA interview; then each data collector practiced interviewing using one of the BA questionnaires. Each person also received feedback on how to improve.

#### Annex 4. Villages Visited by Teams Each Day

	<b>POKOT*</b>	<b>NgKaramajong</b>	<b>NgKaramajong</b>	<b>NgKaramajong</b>
District -->	<b>NAKAPS/Pokot</b>	<b>NAPAK</b>	<b>NAKAPS</b>	<b>MOROTA</b>
Supervisor -->	Henry w/ Raymond	Eric/Kizi	Wilson	Charles
90 Questionnaires	10 Quest. Total	30 Question Total	32 Question Total	18 Quest. Total
45 Doers/45 Non-doers	5/5	15/15	16/16	9/9
Monday Continued Breastfeeding (16 – 23 months)	Moruita Parish	Morulinga Parish	Lokatafou Parish	Loputuk Parish
	Komoret or Korenga B Village	Naro-apalotiyario Village or Namakure	Nakuyon	Loputuk Village
Tuesday Hand washing among mothers w/ kids 0-23 months	Moruita Parish	Iriru Parish	Loregae Parish	Nadunget Parish
	Komoret or Korenga B Village	Alekilek Village	Ajokokipi Village	Lokilala Village
Wednesday Child (6-8 months) - Meal Frequency	Moruita Parish	Lomuno Parish	Kaiku Parish	Komoret Parish
	Komoret or Korenga B Village	Lomuno Village	Nabore	Arechek or Lodooi
Thursday Lactating Mothers-extra meal	Moruita Parish	Norwekorot Parish	Aknyam Parish	Lotiri Parish
	Komoret or Korenga B Village	Loputuk village or Lomerimong Village	Looi Village	Naitakwei or Nabokat Village

**Annex 5. Data Collectors, Data Collection Teams and Supervisors, Numbers of Questionnaires per zone** (all data collectors were independent contractors from the target areas, hired just for the purpose of conducting the barrier analysis.)

S/N	PARTICIPANT NAME	SEX	District	Supervisor	Interviews
1	Nayor Eunice	F	Nakapiripirit	<b>Wilson Kirabira</b> (Concern Nutritionist)	32 16/16
2	Nakut Enrica	F	Nakapiripirit		
3	Lomiro Mark	M	Nakapiripirit		
4	Akol Meshach	M	Nakapiripirit		
5	Apus Mary	F	Nakapiripirit		
6	Lukune Suzan	F	Nakapiripirit		
7	Obonyo Ennamuel	M	Nakapiripirit		
8	Lolopo Bilal	M	Nakapiripirit		
9	Athiyo Philip	M	Moroto	Charles Kalemeera (Concern SBC spec)	18 9/9
10	Aleper Emmanuel	M	Moroto		
11	Tukit Anna Grace	F	Moroto		
12	Anyakun Josephine	F	Moroto		
13	Limakal K Francis	M	Nakaps Pokot	Henry Losur (Concern Field Coord)	10 5/5
14	Chemasuet Abdulaziz	M	Nakaps Pokot		
15	Cherop Clara	F	Nakaps Pokot		
16	Napeyok Betty	F	Nakaps Pokot		
17	Chepet Celestine	F	Nakaps Pokot		
18	Lotee Addalla	M	Napak	Eric Mondo (Concern HF Sp.)	30 15/15
19	Logiel Gladys	F	Napak		
20	Lodim Raymond	M	Napak		
21	Awor Jennifer Rose	F	Napak		
22	Munyey Joyfree	F	Napak		
23	Alakas Joseph	M	Napak		

## Annex 6. SBC/SAP Development Workshop Plan

Moroto, Tuesday and Wednesday, Jan. 22 and 23, 2013

Session Title	Duration/ Time	Materials
<b>DAY 1</b>		
1. Opening Session – Where are we? Where do we want to go?	30 min	-Objectives on flip chart -Schedule of work on flip chart
2. Review of DBC Framework	30 min	-Flip chart of DBC framework
3. Describing the Priority Group	1 hour	-Six Ways to Describe your audience
4. Our Four DBC frameworks and the Interpretation Table	1 hour	-Excel spreadsheets of data analysis -The 4 partially completed DBC frameworks -Findings/Interpretation table
5. Designing and Selecting activities that address the Bridges to Activities	3-4 hours	- RWANU DIP - CARE GROUP Criteria - Definition of an Activity - Criteria for Activity Selection
<b>DAY TWO</b>		
6. Writing a Strategic Action Plan	All day	- Activity Planning Guide

### Workshop Objectives:

By the end of the workshop, we will have:

- Reviewed the DBC framework and where we are in the process of selecting activities for a behavior change strategy
- Described our Priority groups using the 6 categories
- Reviewed the findings from the formative research – (partially completed DBC frameworks and Interpretation Table)
- Reviewed the activities/strategies already planned for RWANU (DIP)
- Designed/Selected activities that address the Bridges to Activities
- Develop action plans for implementation of those activities (For better use of time this task was drafted by the consultants, reviewed by the team and revised)

## Annex 7. Behavior / Activity Analysis

The darkend squares indicate which activity will be use to promote which behavior.

Behaviors →				Mothers of children 0-23 mths. wash their hands with soap/ash at 5 critical times each day
Planned Behavior Change Activities (Proposed start dates from action plan ↓)	Lactating Women eat more than before	Continued Breastfeed -ing 'til 23 months	Mothers of infants 6-8 mths. Feed them 2 meals/day	
Care Groups - July 2013				
- counseling				
- gardening promotion 8/13				
- tippy tap promotion 5/13				
- cooking demonstrations/ new recipe dissemination				
Male change agent				
Health Worker training				
-Peer supervisor (Parish)				
-health assistant S. County May 2013				
-Village Health Team Village April 2013				
- Health educators (Concern)				
Growth Monitoring & counseling by clinic staff – June 2013				
Screening malnourished children by VHT March 2013				
Construct Pit Latrines for Children May 2013				
Community Kitchen Gardens				
Radio Messages				
Food Distribution				
Nutrition/cooking education at food distribution point				
Nutrition Education at health facility				
Health Education at Schools				
Training Opinion/				

Religious Leaders				
Soap making				
Community Led Total Sanitation Feb. March 13				
PHAST				
NEW ACTIVITIES PROPOSED				
Develop Cue Cards to remind mothers to make/feed second meal to infants				
Promotion of Fuel Efficient Stoves				

## Annex 8.

## Designing for Behavior Change Frameworks

Behavior	Priority Group/ Influencing Group	Determinants	Bridges to Activities	Activities (see SBC/SAP for Details)
<p>Mothers of children 0- 23 months, <b>wash their hands</b> with soap or ash at the 5 critical moments* each day.</p> <p>*after defecating; before preparing food/cooking; before eating, before feeding a child; after tending to a child who has defecated</p> <p>HW = Handwashing CG= Care Group LM = Leader Mothers HHCG =Household caregiver groups HP = Health Promoter</p>	<p><b>Demographics</b></p> <ul style="list-style-type: none"> <li>• Most of the mothers are between the ages of 15 to 45 years</li> <li>• Ethnic groups include Bokora, Matheniko, Tepes, Plans, Pokot</li> <li>• Most of the mothers are illiterate</li> <li>• Most of the mothers are Christians; Catholicism being the dominant religion, Muslims are few.</li> <li>• Most of these women are housewives doing household activities like cooking, brewing, collecting firewood, building manyattas, selling charcoal</li> <li>• Most of these women are married in polygamous families</li> </ul> <p><b>Daily Routine</b></p> <ul style="list-style-type: none"> <li>• Collecting firewood</li> <li>• Brewing alcohol(kwete)</li> <li>• Farming more during the rainy season</li> <li>• Cooking</li> <li>• Selling charcoal</li> <li>• Some of these mothers go around towns like Moroto and Matany looking for petty jobs like washing clothes, dishes, fetching water.</li> <li>• Attend to their children</li> <li>• Community work in the food for work/cash for work program</li> <li>• Others go to church on Sundays, Muslims to the mosque on Fridays.</li> </ul>	<ol style="list-style-type: none"> <li>1. Access – people don't know about ashes as an alternative to soap</li> <li>2. Self-efficacy – perception that it takes too much time to wash your hands often</li> <li>3. Social Norms - perception that elder/ leaders and neighbors do not approve of hand washing</li> <li>4. Divine Will – perception that diarrhea is caused by God</li> <li>5. Susceptibility/Risk - Doers and non-doers both understand the risk of getting diarrhea but higher in doers.</li> </ol>	<ol style="list-style-type: none"> <li>1. increase understanding that ashes can be used to wash hands</li> <li>2. Increase the perception that even busy people can make time to wash their hands (make it easy to HW)</li> <li>3. Increase the perception that leaders and neighbors approve of frequent HW with soap or ash</li> <li>4. Increase knowledge about how germs carried on hands cause diarrhea, not God</li> <li>5. Increase the perception that children whose mothers wash their hands frequently with soap or ash are less likely to get diarrhea, other diarrheal diseases and infections.</li> </ol>	<p>All Determinants - Form, Train and Supervise Care Groups</p> <p>2* - Teach Stakeholders to construction, place and use Tippy Taps or alternative hand washing station</p> <p>All Determinants -Train Village Health Teams (VHT) regarding Hand washing (combined with other topics)</p> <p>1. Teach women to make and market Soap</p> <p>3. Train/support (w/sermon outlines) Influencing Groups/Opinion Leaders including Religious Leaders</p> <p><u>Other suggestions:</u> 1, 2, 3, a. Create/make</p>

	<p><b>Big Desires</b></p> <ul style="list-style-type: none"> <li>• Education for their children</li> <li>• Food for the family</li> <li>• Healthy children</li> </ul> <p><b>Barriers to practicing the behavior →</b></p> <p><b>Knowledge, Feelings, Practices</b></p> <ul style="list-style-type: none"> <li>• They know washing hands is good</li> <li>• They know washing hands helps in preventing diseases like diarrhea</li> <li>• They know it is hygienic to wash hands</li> <li>• It makes them feel comfortable with friends after washing their hands</li> <li>• Few people used soap for washing hands</li> <li>• Most people don't know that ash is OK</li> <li>• Many use water to wash their hands</li> <li>• open defecation around their manyatta is the norm</li> <li>• Most of the mothers put water in a basin or saucepan and members of the household all wash their hands in the saucepan/basin</li> </ul> <p><b>Stage of Change</b></p> <p>awareness - most will not use soap or ash on a regular basis or wash at the five critical times every day</p>			<p>functional Hand washing stations at all Health Facilities for use by clients</p> <p>b. Create Hand washing stations at all outreach activity locations</p> <p>c. Create hand washing stations at all Growth Monitoring locales</p> <p>d. Propose to religious leaders to put hand washing stations at all churches, mosques and chapels</p> <p>* number relate to the Bridges to Activities that the activity addresses</p>
<p><b>Outcome Indicator:</b> % of mothers of children 0 – 23 months who report having washed their hands with soap or ash at the 5 critical times.</p>		<p>Process Indicators: # CG formed; number of HH/manyattas with hand washing stations with ash/soap; # of women making soap locally; # of religious leaders who support HW through sermons etc; number of public spaces with functional HW stations.</p>		

Behavior	Priority Group/ Influencing Group	Determinants	Bridges to Activities	Activities (see SBC/SAP for Details)
<p>Mothers of babies 6-8 months feed their infants 2 meals a day (in addition to breast milk)</p>	<p>Demographic:  <u>Age:</u> 15 – 40  <u>Ethnic Groups</u>  Pian ,bokora, matheniko, tepeth, pokot, lugizu (mbale)  <u>Literacy:</u> very low  <u>Religion</u>  Nakapiripirit Pian / Napak Bokora / Moroto  Matheniko – 98% Christian, Muslims 9%,  Napak Tepeth – 99% Christian, 1% traditional beliefs; Amudat Pokot and Luguzi 99% Christian, 1% traditional beliefs  <u>Occupation</u>  Farmers and herders  <u>Marriage</u> – majority polygamous  <u>Isolation</u>  Tepeth are isolated due to security living up Napak Hill, Kalip project attracts them down to Nabwel in Iriri; Amudat Pokot – isolated, poor road access 2 -3 hours from Amudat TC to Karita. Villages are sparse, no visible road or path, can be challenging to locate villages. Migrate October – March – April  <b>Daily Routine</b>  <u>Dry Season</u>  •Karamojong:  <u>Dry season:</u>  •Compound cleaning; laundry  •Porridge preparation for children; washing children?  •Ekwete brewing; charcoal-making &amp; selling</p>	<p>1. Self-efficacy/skills – Non-doers really doubt that they can practice his behavior; Doers know that it's hard to cook when you are drunk</p> <p>2.Cue for Action –Non-doers think they won't be able to remember to make the meals</p> <p>3. Social Norms – getting support from the husband helps ; Non-doers perceive that family members don't approve</p> <p>4. Action Efficacy – Non-doers are less sure that feeding the child 2xday will prevent malnutrition</p>	<p><b>1a.</b> Increase the perception that all mothers can make 2 meals a day for their infants;  <b>1b.</b> Increase the perception that lactating mothers should not drink “ngagwe” excessively, because it's hard to cook when you're drunk</p> <p><b>2.</b> Increase the ability of mothers to <b>remember when and how</b> to feed their babies twice a day</p> <p><b>3.</b> Increase the perception that husbands and family members approve of making 2 meals a day for the infant</p> <p><b>4.</b> Increase the perception that infants that eat 2 meals a day are much less likely to become malnourished</p>	<p>All Determinants - Form, Train and Supervise Care Groups</p> <p>All Determinants –Train Health Facility staff, Health Assistants and Village Health Teams (VHT) on Infant and Young Child Feeding (IYCF) best practices including meal frequency, detrimental effects of alcohol consumption by children, and sobriety and feeding</p> <p>2*- create Cue Cards to help remind mothers when to feed and how to prepare the meals</p> <p>1a. (also Access to food) Promote and support the establishment of Individual Kitchen Gardens in /around the manyattas.</p> <p>1b.Create, record, program and broadcast radio spots on the detrimental effects of alcohol consumption by children<sup>3</sup></p> <p>*numbers refer to the Bridge to activities</p>

<sup>3</sup> This topic is not directly related to meal frequency, but studies have shown that some mothers feed children alcohol (beer or dregs) as a way of soothing them, when they are hungry; essentially substituting alcohol for nutritious food.

	<ul style="list-style-type: none"> <li>• Firewood &amp; water collection</li> <li>• Collecting grass &amp; thatching work; Market; Drinking; Food preparation</li> </ul> <p><u>Raining season:</u></p> <ul style="list-style-type: none"> <li>• Start the day much earlier; Less drinking</li> <li>• Older children instructed to do housework and women leave for the fields; Farming/gardening (preparation: March/April; planting: May; harvest: August)</li> </ul> <p>Pokot:</p> <ul style="list-style-type: none"> <li>• Less farming work; Brew ekwete? but also a local wine out of honey; make change</li> </ul> <p>We know less about the Pokot's daily routine than the Karamojong</p> <ul style="list-style-type: none"> <li>• Better child feeding habits (note: shame if child is malnourished)</li> </ul> <p>Tepeth</p> <ul style="list-style-type: none"> <li>• Unknown!</li> </ul> <p><b>Big Desires</b> Education , Clean water, Good health, Livelihood security &amp; enough food - livestock (big &amp; small including poultry); seeds), Shelter)</p> <p><b>Barriers to the Behavior →</b></p> <p><b>Knowledge, Feeling and Practices (related to behavior)</b> most mothers feed their infants starting around 6-7 months; the frequency, content and consistency of meals is at issue. Also the practice of feeding beer dregs to children.</p> <p><b>Stage of Change – preparation</b></p>	<p>5. Risk – Doers recognize the risk of malnutrition more than non-doers</p> <p>A<sup>2</sup>. Disadvantages –Doers know that sometimes indigestion results from infant feeding</p> <p>B. Access – Doer know that accessing food can be a challenge</p>	<p><b>5.</b> Increase the perception that malnutrition is a common problem especially among infants who don't learn to eat semi solid foods around 6 months of age</p> <p>A&amp;B-Increase the ability of Health Workers &amp; Leader Mothers to address these challenges by counseling mothers as they begin to prepare 2 meals a day for their infants</p>	
<p>Outcome Indicator: % of infants ages 6-8 months who received 2 or more meals the day before in addition to breastmilk</p>	<p>Process Indicators: # of CG formed/trained; # of Health workers trained; number of cue cards distributed; # of HH with edible plants growing in the manyatta; # of radio spots broadcast on detrimental effects of alcohol consumption on children.</p>			

<sup>2</sup> These are not determinants to be used to promote the behavior, but rather determinants for the continuance of the behavior once it has been tried

Behavior	Priority Group/ Influencing Group	Determinants	Bridges to Activities	Activities <sup>4</sup> (see SBC/SAP for Details)
Lactating mothers eat more meals per day than they did prior to getting pregnant.	<p><b>Demographic features:</b>  <u>Ages:</u> 18-45 (maybe 15-49)  <u>Ethnic groups:</u> Pokot; Karamojong (clans Bokora, Matheniko, Pian: different dialect but understand each other &amp; similar behaviours); Tepeth  <u>Language:</u> Karamojong; Pokot (some can understand Karamojong); Tepeth (can understand Karamojong); Kiswahili (common to all)  <u>Literacy:</u> Very low (a few women per village maybe reached primary level)  <u>Religion:</u> Catholic; Anglican; Pentacostal; few Muslims; traditionally animist  <u>Occupation:</u> farming (sorghum; maize; vegetables); charcoal making; ekwete brewing; household activities – cooking; cleaning; childcare; firewood &amp; water collection  <u>Marital status:</u> married; widows; single mothers (rare); divorced (rare)  Polygamy is common (2+ wives) (no maximum)  <u>Living area:</u>  Karamojong: village – manyatta – ekal (compound); permanent; not isolated  Pokot: village – compound (some have manyattas); mobile (move the village often); isolated; far distance from Moroto/Nakapirpirit/Amudat  Tepeth: on top of hills - villages [we don't have much information on how they live]; far away and isolated  <b>Daily Routine</b>  •Some go to church/chapel on Sunday from morning to midday  •Weekly market on different day depending on area  •Karamojong:</p>	<ol style="list-style-type: none"> <li>1. Self-efficacy – 40% of non-doers think they could eat more during lactation</li> <li>2. Social Norms – husbands are a sources of support</li> <li>3. Divine Will – non-doers (56%) think that God controls how much milk they produce.</li> <li>4. Access – Doers know that it can be a challenge to get enough food to eat more often.</li> </ol>	<ol style="list-style-type: none"> <li>1. Increase the perception that all pregnant and lactating women can (and should) eat more.</li> <li>2. Increase the perception that husbands support pregnant &amp; lactating women eating more</li> <li>3. Increase the understanding of the link between mother's nutritional intake and breast milk production</li> <li>4. Increase knowledge of ways to manage food/income so there is enough food for pregnant &amp; lactating women to eat more</li> </ol>	<p>All determinants – Form, Train, Supervise Care Groups</p> <p>1&amp;4* - Register and refer eligible lactating women to Food Distribution Points to receive ration and information about maternal nutrition</p> <p>1 - Promote the Use of Fuel Efficient Stoves (FES) (only if research shows that fuel for cooking is a barrier)</p> <p>*numbers refer to Bridges to Activities that the Activity addresses.</p>

<sup>4</sup> Although the data from the formative research was conducted among lactating mothers and the determinants for pregnant women might be different, the activities you design could potentially be conducted among pregnant women as well since the behavior is the same.

	<p><u>Dry season:</u></p> <ul style="list-style-type: none"> <li>•Compound cleaning; laundry</li> <li>•Porridge preparation for children; washing children?</li> <li>•Ekwete brewing; charcoal-making &amp; selling</li> <li>•Firewood &amp; water collection</li> <li>•Collecting grass &amp; thatching work; Market; Drinking; Food preparation</li> </ul> <p><u>Raining season:</u></p> <ul style="list-style-type: none"> <li>•Start the day much earlier; Less drinking</li> <li>•Older children instructed to do housework and women leave for the fields; Farming/gardening (preparation: March/April; planting: May; harvest: August)</li> </ul> <p>Pokot:</p> <ul style="list-style-type: none"> <li>•Less farming work; Brew ekwete? but also a local wine out of honey; we know less about the Pokot's daily routine than the Karamojong</li> <li>•Better child feeding habits (note: shame if child is malnourished)</li> </ul> <p>Tepeth:</p> <ul style="list-style-type: none"> <li>•Unknown!</li> </ul> <p><b>Big Desires</b> Education , Clean water, Good health, Livelihood security &amp; enough food - livestock (big &amp; small including poultry); seeds), Shelter)</p> <p><b>Barriers to practicing the behavior</b> See Column three from Barrier analysis →</p> <p><b>Knowledge, Feeling and Practices (related to beh)</b></p> <ul style="list-style-type: none"> <li>-Women know: having food, money/work, time, and having an appetite/being healthy makes it easier to eat an extra meal.</li> <li>-that lack of food, lack on money/income/cattle, being sick, and lack of time makes it difficult to eat an extra meal.</li> <li>-Not knowing the consequences is not a barrier.</li> </ul> <p>Women know the consequences. Women know the</p>			
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	<p>positive and negative consequences of eating an extra meal.</p> <ul style="list-style-type: none"> <li>-eating an extra meal will result in more breast milk, good health of mother, strength/productivity of mother, and a healthier baby.</li> <li>-Most women say that there are no disadvantages of eating an extra meal (bust some mentioned time, expense, and upset stomach).</li> <li>-Women that eat an extra meal a day are more likely to say their husband approves of the practice.</li> <li>-Women that do not eat an extra meal say that 'myself' is the person who approves most often (not significant).</li> <li>-Most women say no one disapproves of them eating an extra meal.</li> <li>-Women know that not having enough breast milk is a very serious problem.</li> <li>-Women say that eating an extra meal is not difficult to remember to do.</li> <li>-Most people said there are no cultural taboos around eating an extra meal while lactating.</li> <li>-Women know that eating an extra meal helps them produce more breast milk.</li> <li>-Most women think that they won't produce enough breast milk if they don't eat an extra meal.</li> </ul> <p><b>Stage of Change</b> Some women are in the Action stage. Some are in maintenance if they have had a baby before and ate extra then. Some women (the non-doers) are between awareness and preparation.</p>			
<p>Outcome Indicator: % of lactating mothers who report eating more than they did prior to getting pregnant</p>	<p>Process Indicator: # of CG formed; % of attendance at CG meetings; # of supervision visits by HP; number of lactating mothers receiving rations; # of lactating mothers who receive Maternal Nutrition information; number of husbands supporting the behaviour</p>			

Behavior	Priority Group/ Influencing Group	Determinants	Bridges to Activities	Activities (see SBC/SAP for Details)
<p>Mothers continue to breast feed their children until 23 months of age</p> <p>(Continued Breastfeeding = <b>CBF</b>)</p>	<p><b>Demographic features:</b>  <u>Ages:</u> 18-45 (maybe 15-49)  <u>Ethnic groups:</u> Pokot; Karamojong (clans Bokora, Matheniko, Pian: different dialect but understand each other &amp; similar behaviours); Tepeth  <u>Language:</u> Karamojong; Pokot (some can understand Karamojong); Tepeth (can understand Karamojong); Kiswahili (common to all)  <u>Literacy:</u> Very low (a few women per village maybe reached primary level)  <u>Religion:</u> Catholic; Anglican; Pentacostal; few Muslims; traditionally animist  <u>Occupation:</u> farming (sorghum; maize; vegetables); charcoal making; ekwete brewing; household activities – cooking; cleaning; childcare; firewood &amp; water collection  <u>Marital status:</u> married; widows; single mothers (rare); divorced (rare)  Polygamy is common (2+ wives) (no maximum)  <u>Living area:</u>  Karamojong: village – manyatta – ekal (compound); permanent; not isolated  Pokot: village – compound (some have manyattas); mobile (move the village often); isolated; far distance from Moroto/Nakapirpirit/Amudat  Tepeth: on top of hills - villages [we don't have much information on how they live]; far away and isolated  <b>Daily Routine</b>  •Some go to church/chapel on Sunday from morning to midday  •Weekly market on different day depending on area</p>	<ol style="list-style-type: none"> <li>1. Divine Will – Doers are more confident than non-doers that God does not cause malnutrition</li> <li>2. Risk &amp; Action Efficacy Doers believe that CBF is a good way to prevent malnutrition.</li> <li>3. Positive consequences Doers recognize health and intelligence are related to CBF.</li> <li>4. Negative Consequences Non-doers are afraid of infecting the baby w/HIV through CBF</li> <li>5. Social Norms – health workers and mothers-in-law are influencing groups</li> <li>6. Universal Motivators – Education</li> </ol>	<ol style="list-style-type: none"> <li>1. Reinforce the perception that God wants all children to be well nourished</li> <li>2. Reinforce/increase the perception that CBF is an effective way to prevent malnutrition</li> <li>3. Reinforce the perception that CBF helps children be healthy and intelligent (succeed in school)</li> <li>4. Decrease the perception that CBF increases the chance of infection from Mother to Child</li> <li>5. Increase the perception that health workers and mothers-in-law approve of CBF</li> <li>6. increase the perception that children who are CBF are more likely to succeed in school</li> </ol>	<p>All determinants- Form, Train and Supervise Care Groups</p> <p>2,3,4,5* - Train Health Facility staff, Health Assistants and Village Health Teams (VHT) on breast feeding best practices including continued breast feeding; identify “teachable moments” at clinic and outreach locals when health education can be done.</p> <p>1-Train/support Religious Leaders to reinforce the message that “God wants all children to be well nourished; he does not cause malnutrition”</p> <p>2 &amp; 5 -Support MOH Outreach activities to include and reinforce continued breastfeeding</p> <p>*numbers refer to the bridge to activities that the activity addresses</p>

Behavior	Priority Group/ Influencing Group	Determinants	Bridges to Activities	Activities (see SBC/SAP for Details)
	<p>•Karamojong:  <u>O Dry season:</u>            •Compound cleaning; laundry            •Porridge preparation for children; washing children?            •Ekwete brewing; charcoal-making &amp; selling            •Firewood &amp; water collection            •Collecting grass &amp; thatching work; Market; Drinking; Food preparation  <u>O Raining season:</u>            •Start the day much earlier; Less drinking            •Older children instructed to do housework and women leave for the fields; Farming/gardening (preparation: March/April; planting: May; harvest: August)            Pokot:            •Less farming work; Brew ekwete? but also a local wine out of honey; We know less about the Pokot's daily routine than the Karamojong            •Better child feeding habits (note: shame if child is malnourished)            Tepeth            •Unknown!  <b>Big Desires</b>            Education , Clean water, Good health, Livelihood security &amp; enough food - livestock (big &amp; small including poultry); seeds), Shelter)  <b>Barriers to practicing the behavior</b>            See Column three from Barrier analysis →  <b>Knowledge, Feeling and Practices (related to beh)</b>            O it is common practice to continue to breastfeed until 2 years (and sometimes even to three years) in villages (but not for women who live in town)            Doers think continued breastfeeding makes their</p>			

Behavior	Priority Group/ Influencing Group	Determinants	Bridges to Activities	Activities (see SBC/SAP for Details)
	baby healthy, intelligent and makes the mother feel healthy oDoers think that their child can or will get malnourished (if not continuing breastfeeding) <b>Stage of Change</b> •Most women are in Action and we need to encourage Maintenance •a small portion of mother stop BF before 24 months, but even these months will BF up to 1 year			
<b>Outcome Indicators:</b> % of children 24 – 30 months who were breastfed for 2 years.		<b>Process Indicators:</b> Number of Care Groups formed; % of LM attending CG meetings; Number of Health Workers trained, number of Religious Leaders trained		

## **Annex 9. Stakeholder Meeting Attendees**

1. Julius Lwegaba, Welthungerhilfe
2. Nayar Joyce, Welthungerhilfe
3. Dr Simon Peter Akena, World Vision
4. ██████████ Concern Worldwide
5. ██████████ Concern Worldwide
6. Eric Martin Mondo, Concern Worldwide
7. Martin Wamaniala, ACDI/VOCA Kapel Michael, GIZ
8. Dr James Lemukol, DHO Napak
9. Dr Sagaki Patrick, DHO Amudat
10. ██████████ Concern Worldwide
11. David Mugurusi, AFC
12. ██████████ ACDI/VOCA
13. Moses Kibi, IRC
14. Martha Wahu, Concern Worldwide
15. ██████████ Concern Worldwide
16. ██████████ Concern Worldwide
17. Edward Eke, Ass. CAO Moroto
18. Benjamin Opolo, DNFP Nakapiripirt
19. Oroma Laurence, USAID
20. Wilson Kirabira, Concern Worldwide
21. Augustine Bazaale, GIZ
22. ██████████ Concern Worldwide
23. ██████████ WHO
24. Bonnie Kittle, SBCC Consultant



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## Report on Community-based Animal Health Workers' status in Napak District

Reporting period: 9<sup>th</sup> – 17<sup>th</sup> April 2013

### Objectives

- Identify the existing Community-based Animal Health Workers (CAHWs) per sub-county in Napak District
- Identify challenges and opportunities for CAHWs in Napak District
- Give direction to the CAHWs' support plan

### Proceedings and findings

The methods of data collection included Focus Group Discussions and Observations with the District veterinary officer (D.V.O); Dr. Francis Inangolet, members of the Community –based Animal Health Workers' Associations in Napak District (see attached CAHWs' lists) and CAHWs' supporting agencies' representatives.

### Opportunities and challenges

The D.V.O of Napak District revealed that there exist three registered CAHWs' associations and also gave us a list of the active CAHWs with their location per sub-county in the District (See attached list from D.V.O-Napak) who were then contacted.

The registered associations of Napak District and their areas of coverage are as below:

S/No.	Association name	Official location	Coverage	Number of members*	
				M	F
1.	Bokora West CAHWs' Association	Iriiri	Iriiri and Lorengechora sub-counties	26	4
2.	Bokora East CAHWs' Association	Matany	Matany, Lokopo and Lopeei sub-counties	17	3
3.	Kanamugiot CAHWs' Association	Ngoleriet	Ngoleriet	18	6
4.	Omaniman CAHWs' Association**	Lotome	Lotome	12	1

**Note:** *\*only active and registered members are indicated but there are others*

*\*\*not yet fully registered with the district but will not be supported by the RWANU project as Welthungerhilfe is supporting it with its other on-going projects.*

The following are the challenges and opportunities of the CAHWs' operations:

#### Opportunities include:

Resiliency through Wealth, Agriculture and Nutrition in Karamoja (RWANU)  
AID-FFP-A-12-00011

- The existence of organizational structures among the CAHWs depending on location and are registered with the District;
- There is support from development agencies in terms of training (e.g. KLDF, UN FAO, VET CAP, VSF-Belgium and KALIP )of some members and backstopping from government done by the D.V.O;
- Associations are active as each member pays membership and an annual subscription fees;
- All associations **apart from Kanamugiot** have drug outlets which they manage and support them with replenishing their kits and also generating some income for them neverthe less Kanamugiot association are in negotiations to take over an outlet structure that was constructed by Karamoja Agro-Pastoral Development programme (KADP);
- **Bokora West** Association has a functioning bank account for their financial management;
- **Bokora East** has a functioning **motorbike** to ease their operations and also acts as an income generating asset.

#### Challenges include:

- Insufficient knowledge on some livestock diseases as well as drug handling such as mixing of acaricides and proper dose rates by some members;
- The existing drug shops are not well established due to lack of funds while others are too expensive to rent;
- Lack of equipment such as protective wear, hard plastic reusable syringes, needles, burdizzos and proper drug carriers especially in the rainy season when drugs can easily get affected by rains;
- Insufficient time to carry out extension work due to other home work like gardening during the rainy season;
- Having to move long distances to offer their services: proposed that the association be supported with at least one motor bike to ease their operations.
- Bokora East and Kanamugiot lack bank accounts as such all returns from their operations are kept locally by executives which is dangerous.

#### Recommendations

- Carry out a training needs assessment for the CAHWs and thereafter conduct tailor-made refresher trainings;
- Support with proper and sustainable veterinary drug shop establishment with all the business skills training included;
- Support to associations with appropriate equipment that will ease their work like drug carriers, reusable syringes, needles, and spray pumps, protective wear etc.
- Associations can also be supported as far as crop farming is concerned with equipment like ox-ploughs, hoes etc. so as to ease their work during peaks of farming work load;

#### Important things to note



It was foreseen to have six (6) CAHWs' associations formed and supported for Napak District by considering the number of sub-counties the project will cover as far as support to CAHWs is concerned and those were: Ngoleriet, Lopeei, Lokopo, Matany, Lorengechora and Iriiri sub-counties; but from the above only three (3) association fully registered covering all the target sub-counties as shown in the table above will be supported as there is no intention of disintegrating them. This will change the number of CAHWs' groups to be supported from twelve (12) to nine (9) but the number of persons will not be affected that much and since there was limited funds allocated for the outlet structure (*only repairs*) this will help when combined together to do substantial improvements of the outlet structures.

**Next steps:**

Prepare a CAHWs' support plan for Napak District.

By: *Welthungerhilfe RWANU team*

# ACDI/VOCA UGANDA

## Fiscal Year 2013 Annual Results Report Annex H Photographs

### Narrative Section B: Success Stories

#### TIPs



Woman using a tippy tap she constructed herself as a result of TIPs. Suzanne Fuhrman, Concern Worldwide, July 2013.



Family recipe in Moroto District: Greens, ground peanuts, oil, and milk with maize and sorghum posho (porridge).

██████████ Consultant hired by Concern Worldwide, July 2013.

Life is what you make it



Household crop production improved through use of proper agronomic practices. Photographer: Akol Thomas, ACIDI/VOCA. September 5<sup>th</sup>, 2013 in Lokona Akapel village, Nakichumet parish, Matany subcounty.



Alice sun drying her groundnuts she harvested with the help of the husband. Photographer: Akol Thomas, ACIDI/VOCA. September 5<sup>th</sup>, 2013 in Lokona Akapel village, Nakichumet parish, Matany subcounty.