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EXAMINING THE COMPLEX DYNAMICS INFLUENCING PERSISTENT ACUTE MALNUTRITION IN TURKANA COUNTY – A LONGITUDINAL MIXED-METHODS STUDY TO SUPPORT COMMUNITY-DRIVEN ACTIVITY DESIGN

BASELINE QUALITATIVE REPORT

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CONTENTS

Executive Summary 1

1. Introduction 4

2. Study Methodology 4

2.1 Study Design 4

2.2 Samples and Sampling Strategy 5

2.3 Data Collection Procedures 7

2.4 Ethical Considerations 7

2.5 Challenges Encountered in the Field 8

2.6 Data Transcription, Coding, and Analysis 8

3. Findings 8

3.1 Participant Characteristics 9

3.2 Community Perceptions of Factors Associated with Acute Malnutrition 9

3.2.1 Causal Map of Factors Associated with Acute Malnutrition 9

3.2.2 Cultural Norms and Beliefs Related to Acute Malnutrition 16

3.3 Seasonal Variation in Malnutrition and Factors Affecting Malnutrition 17

3.3.1 Community Perceptions of Seasonal Variation in Acute Malnutrition and Factors Associated With It 17

3.3.2 Seasonality of Dietary Practices 19

3.4 Community Perceptions of Factors That Influence MIYCN Practices 21

3.4.1 Barriers to Translation of Knowledge into Optimal MIYCN Practices, by Livelihood Zone and Season 21

3.4.2 Differences in MIYCN Practices of Adolescent and Adult Mothers 25

3.4.3 Men's Perceived Role in MIYCN 27

3.4.4 Community Perceptions of Support for Optimal MIYCN 28

3.5 Use and Barriers to use of Health Care Services 31

3.5.1 Use of Health Care Services and Facilitators of Health Care Utilization 31

3.5.2 Contextual Barriers to Seeking Health Care 31

3.5.3 Community Perceptions of the Services Provided by the CHS 32

3.5.4 Men's and Women's Roles in Seeking Health Care Services 32

3.6 Gender Dynamics in Employment and Household Decision Making 33

3.7 Participants' Recommendations about Approaches to Tackle Acute Malnutrition 34

4. Triangulation of Qualitative and Survey Findings 35

5. Conclusions and Recommendations 36

Annex A: Thematic Areas for Qualitative Data Collection 38

Annex B: Percentage Distribution of Community Dialogue Participants, by Socio-Demographic Characteristics and by Livelihood Zone 39
Annex C: Percentage Distribution of Focus Group Discussion Participants, by Socio-Demographic Characteristics and by Livelihood Zone 41
Annex D: Percentage Distribution of In-Depth Interview Participants, by Socio-Demographic Characteristics and by Livelihood Zone 43
Annex E: Percentage Distribution of Key Informant Interview Participants, by Socio-Demographic Characteristics and by Livelihood Zone 45

List of Tables

Table 1. Targeted and completed samples in Turkana County 5
Table 2. Villages selected for qualitative study, by livelihood zone, Turkana County 6

List of Figures

Figure 1. Causal map of factors related to acute malnutrition from community dialogue 10
Figure 2. Summary of MIYCN and IYCF practices, behaviors, and challenges, by livelihood zone 24

ACRONYMS AND ABBREVIATIONS

APHRC	African Population and Health Research Center
CHA	community health assistant
CHS	community health system
CHV	community health volunteer
COVID-19	coronavirus disease 2019 (SARS-CoV-2)
FGD	focus group discussion
GAM	global acute malnutrition
IDI	in-depth interview
IYCF	infant and young child feeding
KII	key informant interview
MIYCN	maternal, infant, and young child nutrition
NA	not applicable
NGO	nongovernmental organization
PREG	Partnership for Resilience and Economic Growth
RTI	RTI International (registered trademark and trade name of Research Triangle Institute)
RUTF	ready-to-use therapeutic food
SBCC	social and behavior change communication
USAID	United States Agency for International Development

EXECUTIVE SUMMARY

Study aims

This report presents the results from the baseline qualitative research conducted in 2021 as part of the United States Agency for International Development (USAID) Nawiri longitudinal study in Turkana County, Kenya. The goal was to inform pilot studies and Phase 2 design implementation by collecting in-depth and nuanced evidence on immediate, underlying, and systemic drivers of acute malnutrition. The study also gathered insights from communities on appropriate solutions to achieve sustained reductions in acute malnutrition.

The qualitative study aimed to identify community perceptions of the factors related to acute malnutrition and how those factors varied by season and livelihood zone. In-depth data also were collected in three areas known to play an important role in acute malnutrition: factors that influence maternal, infant, and young child nutrition (MIYCN) practices; use and barriers to use of health care services; and the role of gender dynamics in employment and household decision making.

Methods

The researchers collected data from May 10 to June 30, 2021, in selected villages representing four livelihood zones: fisherfolk, urban/peri-urban, pastoral, and agropastoral. Data collection methods included community dialogues, focus group discussions (FGDs), in-depth interviews (IDIs), and key informant interviews (KIIs). Participatory exercises were incorporated into the community dialogues and FGDs. Text data were coded and analyzed thematically, while data from participatory exercises were analyzed using descriptive statistics.

In all, 331 individuals participated, including mothers and fathers with young children, divided by age group (adolescent, young adult, and adult); community leaders; and county officials and nongovernmental organization (NGO) representatives.

Findings

Community perceptions of factors related to acute malnutrition: Mothers and fathers from all livelihood zones reported the following.

- **Strongest factors** contributing to acute malnutrition in children: Poverty, lack of food, inadequate caring and feeding practices, unclean water and poor hygiene and sanitation, and child illness.
- Factors **moderately related** to acute malnutrition: Drought, water scarcity, livelihood challenges (including unemployment), poor child spacing, inadequate health-seeking behaviors, lack of food markets, parental alcohol use, and child negligence.
- Factors **weakly associated** with acute malnutrition: Livestock diseases and pests, maternal illness, distance to health facilities, inappropriate use of ready-to-use therapeutic food (RUTF), poor leadership and corruption, and early pregnancies.

Seasons played a major role in influencing food availability, while seasons and poverty affected dietary practices. Global acute malnutrition (GAM) was perceived to be most common in the dry season, which the respondents characterized as being beset with raids and other conflicts, unemployment and low income, and livestock diseases.

Community perceptions of factors that influence MIYCN practices: Poverty was perceived to be the main barrier to optimal MIYCN practices. Suboptimal feeding practices were acknowledged to be common because of food insecurity and the unavailability and unaffordability of nutritious foods. Seasonality was named as a key factor for food access and utilization. Behaviors adopted by households during dry or lean seasons included consuming monotonous diets, reducing meal portions, adding water to soups to increase the quantity, and consuming wild foods. Other factors that contributed to suboptimal MIYCN practices were food preferences and taboos during pregnancy; perceived insufficiency of breast milk; cultural practices that delayed initiating breastfeeding; inadequate birth spacing, leading to early weaning; and alcohol use by caregivers, leading to neglect of child feeding. Although adolescent mothers had good knowledge of infant and young child feeding (IYCF) practices, they were generally unprepared for the role of motherhood.

Use and barriers to use of health care services: Communities in Turkana County overwhelmingly recognized the importance of seeking care from skilled providers, including CHVs for integrated management of acute malnutrition, and health facilities. This level of recognition stemmed from intensive public health campaigns that had been implemented in the county. However, some barriers were named as needing particular attention in interventions, such as logistical and cost barriers to reach facilities and obtain health services; stigma related to having an acutely malnourished child; and cultural practices, such as using a kid goat to resolve a child's illness. In terms of gender roles related to health-care seeking, mothers were seen as responsible for taking children for health care, while fathers were said to be responsible for financially supporting health-care seeking.

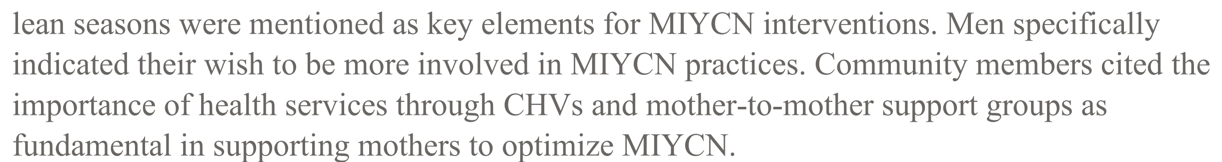
Gender dynamics in employment and household decision making: For the most part, women in Turkana County continued to be involved in manual labor and petty-trade economic activities with low margins of return, while men controlled land, assets, and capital. Men were still to a large extent the main economic providers in the family and the ones to make decisions regarding purchases of food.

Recommendations

Key interventions suggested by community members to tackle acute malnutrition included:

- Organize continuous community sensitization and advocacy on issues related to health and nutrition, to address knowledge gaps among community members;
- Include adolescents, fathers, and grandmothers in nutrition programming and messaging;
- Strengthen the community health system by supporting community health volunteers (CHVs) to enhance their effectiveness in their roles to support households in identification and prevention of acute malnutrition;
- Execute high-impact nutrition interventions, such as deworming campaigns, supplementation programs, and family-led mid-upper-arm circumference measurement; and
- Implement interventions to increase women's empowerment, which would help to increase their role in household decision making and their access to and control over factors of production.

Shock preparation, livelihood diversification, increased involvement of men in MIYCN, support for adolescent mothers, and alternative solutions for accessing nutritious foods during



lean seasons were mentioned as key elements for MIYCN interventions. Men specifically indicated their wish to be more involved in MIYCN practices. Community members cited the importance of health services through CHVs and mother-to-mother support groups as fundamental in supporting mothers to optimize MIYCN.

Conclusions

In Turkana County, the community members who participated in the qualitative research were aware of good nutrition practices. However, gaps in nutrition practices persisted, arising from poverty, lack of food, inadequate caring and feeding practices, unclean water and poor hygiene and sanitation, and child illness. Seasonal cycles and limited mechanisms to adapt to shocks have led to the persistence of acute malnutrition. Nutrition interventions and other health services, though available, are often sought late because of costs of services, transport challenges, stigma, and sometimes communities' inability to recognize signs of malnutrition. A feeling of resignation and acceptance of their situation was noted throughout the conversations with caregivers in communities. Conversations with men revealed that some of them sometimes feel hopeless and helpless as providers, but also signaled their desire for more nutrition information. Proactive attitudes were observed, with numerous caregivers thinking through potential solutions to tackle the issue of malnutrition.

1. INTRODUCTION

The goal of the United States Agency for International Development (USAID) Nawiri program is to sustainably reduce levels of persistent acute malnutrition in Kenya's arid and semi-arid lands. In Turkana County, USAID Nawiri is facilitated by a Mercy Corps-led consortium of partners that share a commitment to putting county governments and their citizens in the driver's seat of their own journeys to self-reliance. In Phase 1 of USAID Nawiri, the consortium is conducting desk reviews, several types of primary data collection, and implementation research to identify household and systemic factors associated with acute malnutrition. USAID Nawiri is using the information collected to tailor and test program activities, to ensure that they will address the key factors associated with acute malnutrition.

The causal pathways leading to acute malnutrition in Turkana County are complex, are interlinked, and require in-depth assessment and analysis to fully understand the contextual, seasonal, and shock-specific factors associated with acute malnutrition. The USAID Nawiri longitudinal study aims to produce evidence-based insights for the development of overarching as well as micro-solutions for sustainably reducing acute malnutrition and informing Phase 2 USAID Nawiri activities in Turkana. Its two main objectives are to:

- Understand and map how a variety of immediate, underlying, basic, and systemic drivers interact to influence acute malnutrition over time among infants and young children living in different livelihood zones; and
- Identify and prioritize opportunities and barriers to achieve sustained reductions in acute malnutrition.

The baseline study used a mixed-methods approach: a quantitative survey with households, and qualitative data collection using various methodologies. The qualitative investigation was designed to be triangulated with findings from the surveys, highlighting communities' perceptions of the complexity of factors related to malnutrition, and gathering data on the "hows" and "whys" of key findings from the household survey.

2. STUDY METHODOLOGY

2.1 STUDY DESIGN

The methods used in the qualitative component of the longitudinal study were community dialogues, key informant interviews (KIIs), focus group discussions (FGDs), and in-depth interviews (IDIs).

Community dialogues were conducted separately for men and women of different age groups to mitigate power dynamics and maximize self-expression. The women's groups included adolescent mothers (10–17 years), young mothers (18–24 years), and adult mothers (25+ years). The men's groups included young fathers (15–24 years) and adult fathers (25+ years). All community dialogue participants had a child aged 3 years or younger. Each community dialogue had 24 participants. The community dialogue included three methods: (1) free listing of factors that the participants viewed as contributing to acute malnutrition; (2) a seasonal calendar, used to explore and understand how different seasonal factors influence malnutrition, from the communities' perspective; and (3) causal mapping, used to map community perceptions of the connections between factors said to contribute to acute malnutrition. The free listing was done by all participants together. They were then divided

into four groups by age and gender (i.e., adolescent and young mothers, adult mothers, young fathers, older fathers) to do the seasonal calendar and causal mapping activities.

KIIs were conducted with county government officials, community gatekeepers, representatives of local nongovernmental organizations (NGOs), United Nations agencies, USAID Partnership for Resilience and Economic Growth (PREG) partners, and national government officials. These respondents offered expert insights into the nutrition and food security issues in the community, including the challenge of acute malnutrition and how it can be addressed.

FGDs and IDIs were conducted with adolescent mothers (10–17 years), young mothers (18–24 years), adult mothers (25+ years), young fathers (15–24 years), and adult fathers (25+ years), all with children aged 3 years or younger. Separate **IDIs** were conducted with adolescent mothers, young mothers, and adult mothers with malnourished children aged 2 years or younger. The FGDs and community dialogue discussions were undertaken separately for both men and women. The FGDs and IDIs were used to collect information on community perceptions of factors related to acute malnutrition; maternal, infant, and young child nutrition (MIYCN) practices; water, sanitation, and hygiene practices; and health-seeking behaviors. Additionally, **FGD** respondents participated in a free listing activity to collect information on what constitutes an enabling environment for mothers to achieve optimal MIYCN practices, what support networks already exist to promote optimal MIYCN practices for community women, and how the enabling environment and networks could be enhanced.

Annex A summarizes the themes investigated by different qualitative methods, the target population of each method, and the knowledge gaps that the methods sought to fill.

2.2 SAMPLES AND SAMPLING STRATEGY

Table 1 summarizes the number of participants targeted for each data collection activity. All the targets for numbers of interviewees and numbers of discussions were achieved.

Table 1. Targeted and completed samples in Turkana County

Survey type	Number of interviews or group discussions held				
	Pastoral	Agropastoral	Fisherfolk	Urban / peri-urban	Overall
KIIs					
Community leaders (ward administrators, chiefs, village elders, women's group leaders, youth leaders, religious leaders, community health volunteers and assistants [CHVs and CHAs])	9	9	8	9	35
County officials and NGO representatives	Not appli-cable (NA)	NA	NA	NA	14

Survey type	Number of interviews or group discussions held				
	Pastoral	Agropastoral	Fisherfolk	Urban / peri-urban	Overall
Community dialogues (Target: Individuals with a child aged 3 years or younger)					
Mothers (all ages)	1	1	1	1	4
Fathers (all ages)	1	1	1	1	4
Number of participants	42	48	42	48	180
FGDs (Target: Individuals with a child aged 3 years or younger)					
Adolescent mothers (10–17 years)	1	1	1	1	4
Young mothers (18–24 years)	1	1	1	1	4
Adult mothers (25+ years)	1	1	1	1	4
Young fathers (15–24 years)	1	1	1	1	4
Adult fathers (25+ years)	1	1	1	1	4
Total number of groups	5	5	5	5	20
Total number of participants	31	30	30	30	121
IDIs (Target: Individuals with a child aged 3 years or younger and women with an undernourished child aged 2 years or younger)					
Adolescent mothers (10–17 years)	3	5	4	4	15
Young mothers (18–24 years)	4	6	6	8	18
Adult mothers (25+ years)	6	6	7	8	26
Young fathers (15–24 years)	2	2	2	2	8
Adult fathers (25+ years)	2	2	2	2	8
Total number of participants	17	21	21	24	83

Four villages were purposefully selected for qualitative data collection **(Table 2).** The villages were selected in consultation with county officials to represent the different livelihood zones (one village per livelihood zone) and sub-counties. In each village, participants were recruited with the support of gatekeepers (the chief or assistant chief and one CHV). Participants with the targeted characteristics were identified by the CHV, then invited to give their informed consent and take part in data collection.

Table 2. Villages selected for qualitative study, by livelihood zone, Turkana County

Sub-county	Location	Sub-location	Village	Livelihood zone
Central	Kangathotha	Namukuse	Nakwamekwi	Fisherfolk
Central	Township	Nakwamekwi	Nanyangakipi	Urban/peri-urban
South	Lokichar	Naposmoru	Kekorongor	Pastoral
East	Katilia	Katilia	Kanakipe B	Agropastoral

2.3 DATA COLLECTION PROCEDURES

Data were collected face-to-face with eligible participants, using qualitative guides for each data collection modality (e.g., FGD, KII, IDI, community dialogue) and type of participant. Teams of trained research assistants collected the data during May 10–June 30, 2021. All fieldworkers were recruited from their communities, were familiar with the area and customs where they would be working, and spoke the local languages. They received intensive training using African Population and Health Research Center's (APHRC's) training protocol, which included both theoretical training and practical exercises. The training also covered using audio recording devices and taking field notes to capture nonverbal cues, observations, and other relevant information. The fieldworkers were initially trained for 7 days in March 2021; however, due to delays in commencing fieldwork, a 2-day refresher training was offered to all fieldworkers in May 2021 before the data collection. A pilot was carried out immediately after the training to test the tools and field procedures. All notes and feedback by fieldworkers were considered in the subsequent review of tools. The main changes after the pilot exercise were rewording some questions to make them easier for communities to understand, editing local-language translations, and adding probes to certain questions.

Field operations were supervised in two layers: (1) daily supervision by team leaders to ensure that the recruited participants met the target criteria, that fieldworkers undertook the appropriate interviews as assigned, that recorded data were backed up daily, and that the teams held a daily debriefing meeting; and (2) weekly reviews by the data coordination team to ensure that all interviews were undertaken and that the data were of good quality. All the field teams shared a daily report on issues arising in the field with the APHRC research team, who advised on the necessary actions to take.

During fieldwork, data quality assurance was enhanced by the APHRC research team randomly observing group discussions or interviews, having team leaders conduct daily debriefing meetings, cross-checking field summary notes, and holding weekly debriefing meetings between the APHRC research team and fieldworkers to review the quality of the incoming data. The APHRC research team also offered both group and individualized feedback and led discussions of challenges encountered. The research team backed up the field audio recordings daily to a secure computer. The APHRC research team also checked data quality by cross-checking 10% of transcribed data against the guide to ensure that all research questions were answered.

2.4 ETHICAL CONSIDERATIONS

The researchers sought and obtained ethical and research approvals and research permits from the Ethical and Scientific Review Committee of Amref Health Africa and the National Commission for Science, Technology, and Innovation of Kenya, respectively. A reliance agreement between RTI's and APHRC's Institutional Review Boards was put into place. All individual participants provided written informed consent. To ensure respondent confidentiality, the research team saved transcripts on a dedicated password-protected computer and removed all identifiers from the transcripts. Only anonymized transcripts will be kept in the APHRC data repository.

2.5 CHALLENGES ENCOUNTERED IN THE FIELD

Respondent fatigue: Some respondents complained about the long duration of interviews. The IDIs and KIIs took an average of 1.5 hours, while FGDs and community dialogue took an average of 4 hours.

Absenteeism: In many households, particularly those in the fisherfolk livelihood zone, caregivers spent the better part of the day away from their homes engaged in fishing-related activities. In other villages, family members were away to receive distributions of food relief or to attend other community events. In Central and Turkana West Sub-Counties, some caregivers—especially men—were absent from the villages due to mining activities.

COVID-19 warnings: Delays occurred at the beginning of data collection because of COVID-19 warnings. The team decided to observe the situation for 2 weeks before kicking off the data collection. Afterward, the team ensured that all group activities took place in safe spaces—outside where possible, or in large school halls.

2.6 DATA TRANSCRIPTION, CODING, AND ANALYSIS

All audio files were cross-checked for standard labeling and to confirm the achievement of the set targets per livelihood zone and group. The audio files (for IDIs, FGDs, KIIs, and community dialogues) were then transcribed verbatim from local languages and translated into English by a team of 12 experienced transcribers with good mastery of local languages and English. Content analysis and thematic groupings were undertaken by experienced independent coders. After reading and rereading the transcripts, the coders developed a codebook of deductive and inductive codes for each interview guide. Transcripts were then cleaned, saved in rich-text format for importation into NVivo (QSR International) software, and analyzed according to the developed codebook using a thematic framework approach.[1] Intercoder variability on thematic groups was limited to less than 10%.

Transcripts from the seasonal calendar and causal mapping exercises were coded and analyzed thematically. Rankings of factors in the seasonal calendars were analyzed as counts and compiled into graphs by livelihood zone. Information collected through the causal mapping exercise was presented visually using a causal diagram to demonstrate community perceptions of linkages between factors, their relative importance, and the livelihood zones that mentioned them.

The free listing data from FGDs were analyzed by grouping responses from participants on the different items of support for optimal MIYCN, and then tabulating the frequencies. This step was followed by consolidating the responses further into broader thematic areas. The detailed description of the broader themes was derived from the transcripts of the discussions during the free listing exercises.

3. FINDINGS

The study findings describe community perceptions of factors that contribute to acute malnutrition and how they vary by season. In-depth data also were collected on three areas

[1] Pope, C., Ziebland, S., & Mays, N. (2000). Qualitative research in health care. *BMJ, 320*(7227), 114–116. https://doi.org/10.1136/bmj.320.7227.114; https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1117368/

that play an important role in acute malnutrition: factors that influence MIYCN practices, use and barriers to use of health care services, and the role of gender dynamics in employment and household decision making. Findings are highlighted by livelihood zone.

3.1 PARTICIPANT CHARACTERISTICS

Of the 180 participants included in community dialogues, a majority were married (96%), were Christian (99%), were not formally educated (60%), and had one or two children younger than 5 years (73%). Slightly more than half (52%) were women, and 49% were aged 25–49 years **(Annex B).**

Of the 121 participants who participated in FGDs, most (60%) were women, younger than 25 years (60%), married (98%), Christian (99%), not formally educated (67%), with one or two children younger than 5 years (86%), and engaged in petty trade (47%) **(Annex C).**

Annex D shows the characteristics of 83 participants of IDIs. Most were women (81%), younger than 25 years (51%), married (95%), Christian (98%), not formally educated (65%), with one or two children younger than 5 years (84%), and their main occupation was petty trade (48%).

All the 35 participants in KIIs were Christians and a majority were male (60%), aged 25–49 years (66%), married (83%), educated beyond primary level (83%), engaged in livestock farming (54%), and with one or two children younger than 5 years (54%) **(Annex E).**

3.2 COMMUNITY PERCEPTIONS OF FACTORS ASSOCIATED WITH ACUTE MALNUTRITION

3.2.1 Causal Map of Factors Associated with Acute Malnutrition

After the community dialogues, a causal map of factors associated with acute malnutrition was developed (see **Figure 1**). The shading of the boxes represents how strongly participants said a factor was associated with acute malnutrition. The livelihood symbols in the shaded boxes indicate which livelihood zones mentioned each factor.

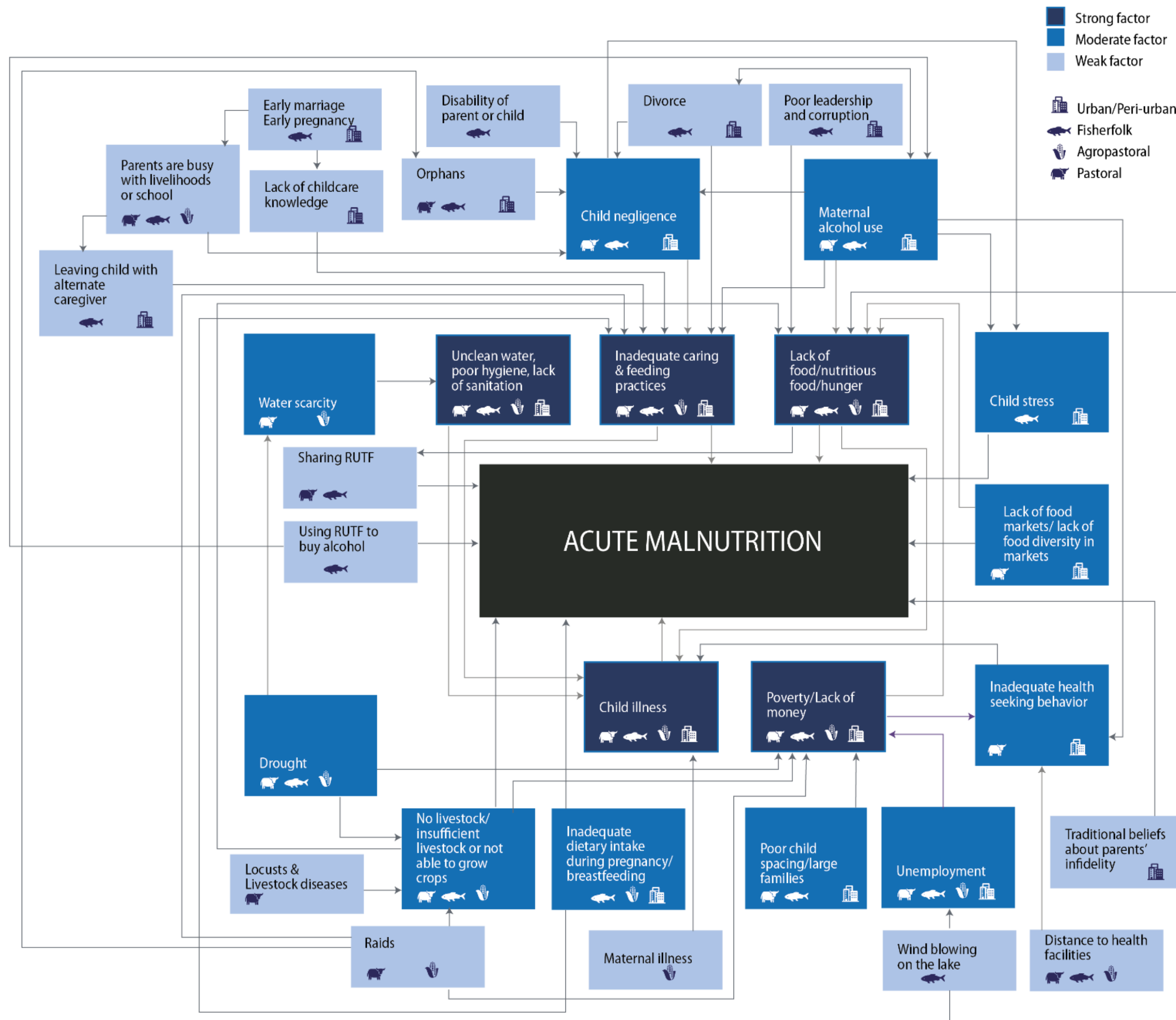
Strong factors: The factors that participants across all livelihood zones said were most strongly linked with acute malnutrition were lack of food, lack of nutritious food, and hunger; inadequate caring and feeding practices; unclean water, poor hygiene, and lack of sanitation; child illness; and poverty or lack of money.

- **Lack of food, lack of nutritious food, and hunger** were considered to be directly related to acute malnutrition.

> *In my opinion, what causes the child to get kwashiorkor is a child surviving from morning to evening without food. So, the child doesn't get food, and when the child gets food in the evening, it is not enough and this will not help…And the child's body wastes with a protruding stomach because there is no food. — Urban/peri-urban mother, Community dialogue*

> *People here consume whatever is available, whether maize or millet, because they have no variety of meals to choose from, so they do not get a balanced diet.*
> *— Agropastoral father, Community dialogue*

Figure 1. Causal map of factors related to acute malnutrition from community dialogue



- **Inadequate caring and feeding practices** were directly related to acute malnutrition, but also contributed to it through their effect on child illness.

  > *We need to reheat the food to give the child, but for us we just give the food to the child and this causes stomach problems. And this also causes malnutrition.*
  > *— Urban/peri-urban mother, Community dialogue*

  > *Another thing that contributes to malnutrition among children is there is no education on handling a child's nutrition needs. Most people in this community have no idea of the importance of certain food groups. For example, women here do not know what iron is and how important it is to the body. These women usually make their children eat one type of food again and again. This results in malnutrition of the child. This is why children suffer in this community. — Fisherfolk father, Community dialogue*

- **Unclean water, poor hygiene, and lack of sanitation** contributed to acute malnutrition through their effect on child illness.

  > *Lack of toilets, open defecation attracts flies that carry around that dirt in your home. If they come to your home and maybe you have not yet covered your food well, it will land on it, you eat that food without knowing that the flies touched it, thinking that you left all your feces out there. The flies eat the food and the children eat it too. That's how diarrhea comes. — Fisherfolk mother, Community dialogue*

- **Child illness** was considered to be directly linked to acute malnutrition. Participants described how illness or disease is frequently linked to poor sanitation and hygiene and illness reduces a child's appetite, thereby leading to malnutrition.

  > *Diseases or illness affects children's daily activities. This is because children depend on strength to do their daily activities like playing or doing chores given by their parents, so if sickness comes in, it will affect their eating habits and cause a loss of appetite. The cycle of disease will make the kids malnourished. — Agropastoral father, Community dialogue*

- **Poverty or lack of money** was related to acute malnutrition through lack of food and inadequate health-seeking behavior.

  > *Malnutrition is caused by poverty. We do not have money to buy food. We depend on livestock for our livelihood but now the animals were raided. We do not have crops in the farms to harvest, forests have dried, and so we do not get wild fruits or wild animals to feed our families. Therefore, we are just surviving, and as a result the children are malnourished. — Agropastoral father, Community dialogue*

Moderate factors: The factors that participants said were moderately associated with acute malnutrition were drought, water scarcity, various livelihood-specific challenges, inadequate dietary intake during pregnancy and breastfeeding, poor child spacing along with large families, unemployment, inadequate health-seeking behavior, lack of food markets or lack of food diversity in markets, child stress (e.g., anxiety stemming from family dysfunction), maternal alcohol use, and child negligence.

- **Drought** was mentioned by participants from all livelihood zones except urban/peri-urban. It contributed to water scarcity, livelihood challenges, and poverty or lack of money.

Drought is a major cause of malnutrition in Turkana. This is because when it strikes it brings along with it challenges like lack of food: animals lack pasture and farming becomes difficult. — Agropastoral father, Community dialogue

Drought brings malnutrition, you sleep hungry in the evening. There is no grass for livestock. They die, maybe you had 10 goats, all those 10 can die because they have nothing to eat, that can also bring malnutrition. — Pastoral mother, Community dialogue

- **Water scarcity** was mentioned by those in the agropastoral and pastoral livelihood zones. It contributed to unclean water and poor hygiene.

  During the dry season, we are forced to drink dirty water, which poses big health risks to our children. When children drink this water, they experience health-related problems, like stomachache, diarrhea, and cholera, and in the long run they end up being malnourished. — Pastoral mother, Community dialogue

- **Livelihood challenges**, including having no livestock or insufficient livestock, inability to grow crops, or lack of fish, were mentioned by participants from all livelihood zones except urban/peri-urban. Livelihood challenges were said to lead to poverty or lack of money.

  What brings poverty is when you don't have or lose your livestock. Mostly for us natives, we only depend on livestock. When our livestock dies, we have no other way to help ourselves. — Pastoral mother, Community dialogue

- **Inadequate dietary intake during pregnancy and breastfeeding** was mentioned by individuals from all livelihood zones except pastoral. The respondents explained that lack of food contributes to inadequate dietary intake during pregnancy and breastfeeding, and inadequate dietary intake then directly contributes to acute malnutrition in children.

  As a lactating mother, your child can only be healthy if you breastfeed them well and also if you are eating good food. Now in the absence of some foods, like milk, meat, there's no way that that child will be healthy. If I eat the same food day in day out and sometimes when I can't get food I sleep without food, what will that child get? Nothing at all. — Agropastoral mother, Community dialogue

- **Poor child spacing plus large families** was mentioned by all participants from livelihood zones except agropastoral. It was said to contribute to lack of money or poverty.

  A person gives birth to many children and has nothing to feed these children. When you have 10 children, how will you feed these children if you are not working? — Urban/peri-urban mother, Community dialogue

- **Unemployment** was mentioned by respondents from all livelihood zones as contributing to poverty or lack of money.

  Lack of employment or any income-generating activities causes malnutrition… So when you are not doing anything then that means you have no food to feed your children and your household in general. So that is how cases of malnutrition become prevalent. — Pastoral father, Community dialogue

- **Inadequate health-seeking behavior** was mentioned by those from the urban/peri-urban and pastoral livelihood zones and was said to contribute directly to acute malnutrition. Participants explained that the distance to health facilities made it difficult to take children to them. At times, the facilities lacked the necessary medications, or health providers were unavailable.

Even when the child is sick, it is difficult to afford transportation to take the child to the hospital. — Pastoral mother, Community dialogue

- **Lack of food markets or lack of food diversity in markets** was mentioned by those from urban/peri-urban and pastoral livelihood zones. They commented that it contributes to lack of food and lack of nutritious food.

  We do not have shops here where we can buy food…People are faced with hunger. — Pastoral father, Community dialogue

  In our village, the shops are inadequately stocked. People only sell beans, maize, there are no other foods in the shop. This situation means that we don't get a variety of products to ensure a balanced diet. — Urban/peri-urban mother, Community dialogue

- **Child stress** was mentioned by those from the fisherfolk and urban/peri-urban livelihood zones, who believed it contributed directly to acute malnutrition.

  When the child wakes up and finds that her mother has left to look for alcohol in the village, the child will cry, and already that stress will contribute to malnutrition in her. — Fisherfolk mother, Community dialogue

- **Maternal alcohol use** was mentioned by participants from all livelihood zones except agropastoral. The participants also saw it as contributing to child stress and child negligence.

  We have parents who depend on alcohol. They take alcohol and when they are drunk, they forget to breastfeed or even cook for their children. — Pastoral father, Community dialogue

- **Child negligence** was mentioned by participants from all livelihood zones except agropastoral. They tied it to inadequate caring and feeding practices and to child stress.

  Parents who are negligent of their children could also expose their children to [acute malnutrition]…Some parents are too busy with their stuff. They love their livestock in a way that they cannot sacrifice to sell even one of the animals to save their children from cases of hunger…So in this case, their children end up being malnourished. — Pastoral father, Community dialogue

Weak factors: The factors that participants said were weakly associated with acute malnutrition were locusts and livestock diseases, maternal illness, distance to health facilities, wind blowing on the lake, traditional beliefs about parents' infidelity, sharing ready-to-use therapeutic food (RUTF) with other family members not designated to receive it, selling RUTF to buy alcohol, poor leadership and corruption, divorce, lack of knowledge about child care, early marriage and early pregnancy, disability of parent or child, orphanhood, parents busy with livelihoods or school, leaving child with alternate caregiver, and raids.

- **Locusts and livestock diseases** were mentioned only by individuals from the pastoral zone. They explained that locusts and livestock diseases kill animals that people depend on, and then they do not have the resources to obtain food, which contributes to malnutrition.

  Locusts have a greater effect on people's nutritional health…A lot of us depend on animals as a source of living. When the locusts kill all our animals, we remain poor. We lack any source of income. Because of this, our children start being exposed to high cases of malnutrition. — Pastoral father, Community dialogue

- **Maternal illness** was mentioned only by representatives of the agropastoral zone. They explained that when the mother has malnutrition, the child is born sick and with malnutrition. This contributes to child illness, which then results in child malnutrition.

  > *When the mother is malnourished during pregnancy, mostly the child is born malnourished. Then this child is disadvantaged right from the uterus and continues to experience hunger due to lack of breast milk from the mother. — Agropastoral father, Community dialogue*

- **Distance to health facilities** was mentioned by participants from the agropastoral, pastoral, and fisherfolk groups. They explained that long distances prevent them from seeking health care for their children, which then contributes to malnutrition.

  > *You may find that your child is underweight and needs medical attention. The hospital is far from here where we live, so we find that to be a challenge. — Agropastoral mother, Community dialogue*

- **Wind blowing on lake** was mentioned only by fisherfolk because it affects their ability to fish, which limits food availability and income.

  > *When there is too much wind, it becomes difficult for people to go and do fishing. People are forced to stay hungry. — Fisherfolk mother, Community dialogue*

- **Traditional beliefs about parents' infidelity** were mentioned only by representatives of the urban/peri-urban zone. They explained that when a parent has extramarital sex, this is believed to make the parent "hot." When the parent then touches his or her child, the heat or hotness transfers to the child and causes malnutrition.

  > *When a parent, either a mother or father, engages in extramarital affairs, it is believed to have an effect on the child. If they come and touch the baby, the baby grows thin. — Urban/peri-urban father, Community dialogue*

- **Sharing RUTF** was mentioned by fisherfolk and pastoralists. When households lack food and one of the children has been given RUTF to treat malnutrition, it is often shared with other children in the household. This makes it difficult for the child assigned the RUTF to recover.

  > *We have some [children] that are given supplementary food…but when [the mother] comes home, she may not give it to the affected child. Instead, she gives it to all children and it gets depleted sooner than it should have. This practice contributes to the child remaining malnourished. — Fisherfolk mother, Community dialogue*

- **Selling RUTF to buy alcohol** was an issue among fisherfolk. When a child has acute malnutrition and is given RUTF, sometimes the parents sell it to buy alcohol. Parental use of alcohol contributes to child stress, which leads to malnutrition.

  > *When the doctor finds that the child is malnourished, he gives him supplementary food. When the mother is given these foods, she sells it and uses the money to buy alcohol. — Fisherfolk mother, Community dialogue*

- **Poor leadership or corruption** was mentioned by those from the fisherfolk and urban/peri-urban zones. They explained that when leaders are corrupt, they take part of the food aid destined for communities, which limits the amount of food available and contributes to malnutrition.

  > *These corrupt people are ruthless. They do not care about the common citizens like us. When nongovernmental aid comes into our village, they are usually the first*

people to take the better part of it, then we are left to divide amongst ourselves the smaller portion. — Fisherfolk father, Community dialogue

- **Divorce** was mentioned by those from the fisherfolk and urban/peri-urban zones as a factor that contributes to maternal alcohol use, to inadequate child caring and feeding practices, and subsequently to malnutrition.

  Another thing that contributes to malnutrition in children is the divorce of parents…when the parents divorce, the husband leaves the woman with a child. So, the woman lacks the means of feeding that child. — Fisherfolk father, Community dialogue

- **Lack of child-care knowledge** was mentioned by participants from the urban/peri-urban zone. It was considered to be a consequence of early marriage or early pregnancy and to lead to inadequate child care and feeding.

  Another factor that can contribute to the development of these diseases in a child is ignorance from parents. Lack of knowledge on better nutritional practices could contribute to the child not receiving nutritional foods, and at long last, the child suffers from malnutrition. — Urban/peri-urban father, Community dialogue

- **Early marriage and early pregnancy** were mentioned together as a factor by those from the fisherfolk and urban/peri-urban zones. They explained that when young people marry or get pregnant early, they do not have the knowledge to take care of the child. When adolescents marry or get pregnant early, especially the girls, they may continue going to school and leave the child with an alternate caregiver, who may not care for the child well; or they may drop out of school.

  You might get a girl aged 13 years and the person responsible for her pregnancy is a fellow 13-year-old boy. Now all of them are still adolescents, so they will find it difficult to feed the child because they are too young. Sometimes you find all of them crying of hunger, so [early pregnancy] contributes in a big way. — Urban/peri-urban mother, Community dialogue

- **Disability** was mentioned as a factor by representatives of the fisherfolk and agropastoral zones. They explained that when a child has a disability, the parents do not always take care of it very well. Similarly, when the parent has a disability, they may not be able to take care of the child well.

  [The child] will be neglected because they will be asking what this one will do for me in the future. It is a burden. No one will be taking care of them wholeheartedly. — Urban/peri-urban mother, Community dialogue

- **Becoming an orphan** was mentioned as a factor by respondents from all livelihood zones except agropastoral. Participants explained that orphans tend to be neglected and are not well fed or cared for, which leads to malnutrition.

  Being an orphan causes malnutrition in a child because when the parents die they leave no hope for the child. They depart with any wealth/opportunities. The [orphans] are left without anything, loitering around at peoples' home, and end up malnourished because no one is taking care of them. — Urban/peri-urban mother, Community dialogue

- **Parents are busy with livelihoods or school** was mentioned by participants from all livelihood zones except urban/peri-urban. They noted that when parents are occupied,

they may neglect the child or leave the child with an alternate caregiver who does not adequately care for them.

> *The mother [may go] to collect firewood for sale and the child will be left with other older children, and because there is no food, the child will be crying the whole day until we come back at night. — Agropastoral father, Community dialogue*

- **Leaving child with alternate caregiver** was mentioned by residents of the fisherfolk and urban/peri-urban zones. They explained that alternate caregivers are often too young to care for the child adequately or they do not have the means to do so.

> *This child is given to the grandmother, and the grandmother has nothing to give the child. — Urban/peri-urban mother, Community dialogue*

- **Raids** were mentioned by those from the agropastoral and pastoral zones. These incursions were said to cause many disruptions in the community. When parents are killed in raids, it leads to orphaned children. When livestock are killed in raids, it leaves the family within inadequate income and food, which contributes to poverty and hunger.

> *I would say raids are one of the causes of malnutrition in this area. People here majorly depend on livestock as a source of food, and in situations where their livestock are gone, they remain vulnerable to hunger and diseases. So, when animals are not there, they have to depend on wild fruits. — Agropastoral father, Community dialogue*

3.2.2 Cultural Norms and Beliefs Related to Acute Malnutrition

Through in-depth interviews with parents of children who had experienced acute malnutrition, the research team learned that many caregivers across the different livelihood zones were not conversant with how to identify a malnourished child. Only a handful of the participants, mostly women who had experience with a malnourished child, were able to positively identify signs of malnutrition among children, such as body thinning; protruding ribs; thinning or scanty hair; and susceptibility to infections due to lowered immunity.

> *I realized the child is malnourished when the doctor checked the child's measurements and referred the child to a section [in the health facility] that deals with supplementary feeding. — Urban/peri-urban mother, IDI*

> *When a child shrinks or appears to have weight loss, the child becomes tiny and the stomach becomes huge. I observe the hair, the hair appears yellowish in color. — Agropastoral mother, IDI*

Cultural beliefs were mentioned as a hindrance to timely identification of children with malnutrition. Residents of these Turkana communities said it is acceptable to be thin, and they are used to having one meal a day. In addition, there is a sustained belief that thinness is a hereditary condition within the family line; that is, children are generally born with small bodies, and they will acquire weight as they grow older.

> *Nowadays women are just thin and weak. The baby is thin and I am thin. — Urban/peri-urban mother, IDI*

Caregivers' health-seeking practices around malnutrition were found to be wanting in all livelihood zones and across age groups. For example, mothers did not seek timely treatment for their children if they were experiencing denial about having a malnourished child. Caregivers could describe the symptoms, but they would not acknowledge malnutrition as the

main cause of the symptoms they observed. They would instead attribute the symptoms to either their background or other illnesses. Caregivers sometimes opted to engage traditional healers, who often misdiagnosed malnutrition, further worsening the condition of the child. Further, the participants acknowledged discrimination around malnutrition in some communities, where men were seen to shun their wives whose children were receiving food supplements to treat malnutrition.

> *There is discrimination against people with malnourished children in Turkana reserve. This is because your husband has just married [another wife] and your child is a beneficiary of Plumpy'Nut.[2] Your husband will try to avoid you because you receive Plumpy'Nut. — Pastoral mother, IDI*

Lack of support at the household level to care for a malnourished child was noted by many. This situation intensifies the responsibilities of women caregivers who need to provide nutritious meals, apart from RUTF, to achieve maximum effectiveness and avert relapse of the child and or worsening of the malnutrition condition. Hence, the affected children face difficulties in recovering, leading to a vicious cycle of malnutrition.

> *Normally when he becomes malnourished, I usually take him to hospital and he responds. The response to medication is anchored on having something to eat. The body is weak and wasted, but we don't have anything to eat here hence the child mostly takes long to be well. — Fisherfolk mother, IDI*

Women with malnourished children reported discrimination from fellow mothers who looked down on them, and they said they faced abuse because they were viewed as lacking good caregiving practices.

> *There is this habit among women. They will treat you as if you are not human. They will sometimes abuse you and say look at this one that her kid eats Plumpy'Nut every time. — Pastoral mother, IDI*

3.3 SEASONAL VARIATION IN MALNUTRITION AND FACTORS AFFECTING MALNUTRITION

3.3.1 Community Perceptions of Seasonal Variation in Acute Malnutrition and Factors Associated With It

Across all livelihoods, global acute malnutrition (GAM) was ranked as most common in the dry season.

> *Malnutrition is common during the dry season because people have no food to eat but otherwise diseases are much less common during the dry season. — Pastoral father, Community dialogue*

Water scarcity was ranked as more common during the dry season by participants from the urban/peri-urban and fisherfolk zones, whereas those from the agropastoral and pastoral zones mentioned water scarcity during the dry season, but other water challenges, such as flooding, during the rainy season.

> *It is during the dry season that we start having water shortage. When people experience water shortage, they start drinking dirty water and get exposed to health-*

[2] Plumpy'Nut: Peanut paste fortified with micronutrients, designed for feeding to children with acute malnutrition. Also known as RUTF.

related illnesses, like cholera, typhoid, and also cases of malaria. — Pastoral mother, Community dialogue

Raids and conflicts were mentioned only by those from the agropastoral and pastoral zones. Participants from the agropastoral zone ranked raids and conflicts as highest during the rainy season, whereas those from the pastoral zone ranked them highest during the dry season.

Raids usually happen during drought, but they are worse during the rainy season. — Agropastoral mother, Community dialogue

Poverty, unemployment, and lack of income were ranked by everyone as highest during the dry season.

It is during this dry season that people start losing their livestock due to lack of green pasture for animals. All the livestock die and people live in poverty. — Pastoral fathers community dialogue

Lack of work intensifies during the dry season. This is the season where people desperately look for food. There are no jobs. But during the rainy season, jobs are in plenty. — Urban/peri-urban father, Community dialogue

Poor hygiene and sanitation were ranked by fisherfolk and pastoralists as more prevalent during the dry season. Agropastoralists also mentioned that during the rainy season, human feces mix with water and enter water sources, leading to contamination. Urban/peri-urban participants mentioned that hygiene is a problem all year and leads to diseases.

Hygiene is also another major cause of malnutrition [during the dry season]. Women here do not know how to dispose human waste. They just recklessly leave it anywhere. Sometimes children will just eat the waste and in the end, they fall sick. — Fisherfolk mother, Community dialogue

Hygiene issues are there during dry season and rainy season, because there are a lot of diseases. — Urban/peri-urban father, Community dialogue

Poor breastfeeding practices and breastfeeding challenges were mentioned by those from the agropastoral and urban/peri-urban zones as a challenge during the dry season.

I would say that poor breastfeeding practices usually happen in the drought season. Because during this season, mothers don't get enough food. Also, it is when mothers go out in the field to look for food, most of them wean their children early so that they may have a chance to go and look for food for the household. — Urban/peri-urban father, Community dialogue

Access to health facilities was a challenge mentioned by fisherfolk during the rainy season and by pastoralists during the dry season.

During the dry season, we fathers become very busy with taking care of livestock…So during the dry season, it is very hard especially for us men to access the hospital to seek medical [care] for the child. — Pastoral father, Community dialogue

Surely, are there airplanes that the facility can set aside to carry people to the health facility? Because once it floods and you are on this side of the river and facility on the other, we just stand by and watch from the riverside, unable to do anything. — Fisherfolk father, FGD

Lack of food was ranked by participants from all the livelihood zones as more common during the dry season.

> *During those three months, it is really hot, and there's nothing that you can get, no food. There is nothing in the lake. No farms that we can depend on. When the earth is dry like that and you are not employed, that is how malnutrition creeps and people die. — Fisherfolk father, Community dialogue*

Lack of external support from NGOs or government was mentioned as a general problem among the pastoralists. Urban/peri-urban participants and fisherfolk mentioned external support as more prolific during the dry season, but also explained that even then it was not sufficient.

> *Nongovernmental organization aid occurs in seasons and especially during the dry season, when there is hunger or disease outbreak. NGO support intensifies during these periods. They bring goodies like medicine, foodstuffs, [bed]nets and other things. — Urban/peri-urban father, Community dialogue*

> *Many people cry out for support during the dry season. A good number of people need support from the government. When people don't have water, they just pray that if there's any person who can support them or provide maize that can help them in those difficult moments. In this place, our goats die and we just wish someone would come and drill for water. — Fisherfolk father, Community dialogue*

Livestock diseases were mentioned by pastoralists and mostly were experienced during the dry seasons.

> *When drought comes, there is a high prevalence of disease that inflicts our livestock. The disease outbreak wipes out our livestock. — Pastoral father, Community dialogue*

Lack of livestock and food markets were mentioned by the agropastoralists and pastoralists. They explained that livestock markets do not occur in the dry season when the livestock are malnourished, and food markets sometimes do not occur in the rainy season.

> *There is no market for livestock during drought because livestock are malnourished. — Agropastoral mother, Community dialogue*

> *During rainy season, there is no market. — Agropastoral mother, Community dialogue*

Human diseases were mentioned by participants from all livelihood zones except urban/peri-urban as being seasonal. Diarrhea and malaria were said to be more common during the rainy season. Fisherfolk also said that cough is more common during the windy season.

> *During rainy season, cholera is very high…There is plenty of fish in the lake, we go and collect them from the lake…We eat fish, every time, and everyone here will start to have diarrhea. — Fisherfolk mother, Community dialogue*

> *During the rainy season, we may experience diseases like malaria due to the presence of mosquitoes and stagnant water. — Pastoral father, Community dialogue*

3.3.2 Seasonality of Dietary Practices

It was clear from group and individual discussions with mothers and fathers that seasons and the ability to buy food played a major role in influencing food availability and dietary practices.

The **urban/peri-urban participants** reported a wide variety of foods across all seasons, but found those foods harder to access during the dry season due to scarcity and high prices.

> *During the rainy season, we have plenty of food. We have maize, beans, and other foods, but in the dry season, the food items are scarce. So, in my opinion, lack of a balanced diet varies over seasons. — Urban/peri-urban father, Community dialogue*

The fact that the **fisherfolk community** depends heavily on fish as a source of food as well as a source of income heavily impacts their households, because during the dry period, they do not have either income or food. Fisherfolk participants reported a variety of food items during the rainy season, including plenty of fish as a source of protein.

> *There are times when food prices are high, especially when they say food supply is minimal or not available from the main/usual sources. Usually there is scarcity and high food prices. For us, we are at the lake where the main food is fish, and if the fish disappear, then there is no food and we remain without food. — Fisherfolk father, FGD*

Agropastoralists reported relying mostly on milk and animal blood, as well as food crops, such as millet, maize, and beans, obtained from farming activity during the rainy season. Millet, beans, and maize were the main meal options during dry seasons.

> *During the wet season, we will be able to obtain milk and other animal products, but now when there is extreme drought, it becomes difficult to even have a little milk to drink. Therefore, we don't have any other choice but to rely on maize.*
> *— Agropastoral mother, Community dialogue*

Nutrition in the **pastoral zone** was said to be more affected than in the agropastoral and urban/peri-urban zones by the nature of the livelihoods as well as behavior patterns adopted during the dry season. For example, migration in search of pasture heavily impacts families. When they are on the move, accessing food and water becomes quite difficult. There are also raids between communities that push families into hiding, affecting their ability to participate in gainful work. In some cases, communities report the loss of all their animals, which means loss of food and money to buy food.

> *When we experience livestock raids, people are left at survival mode, given that the main source of livelihood is livestock. Raids have been a challenge to us. Every now and then we are raided. This what has made us poor. — Pastoral father, FGD*

Respondents across all the livelihood zones reported adopting certain behaviors to cope with droughts or famine. *Githeri* (a mixture of maize and beans) and maize were the main foods consumed.

> *There is nothing else I can eat apart from maize alone. Let's say until during wet season that we can be able to obtain milk and other animal products. But now when there is extreme drought, it becomes difficult to have even a little milk to drink and we don't have any other choice but to rely on maize alone. — Agropastoral mother, IDI*

> *You find that when a person doesn't have anything, she cooks whatever she gets. If it is maize and beans she cooks. So, it becomes one diet that the child gets malnourished. — Urban/peri-urban mother, IDI*

Another coping strategy was changing the quantity of food served and the food preparation methods. For example, men reported that they reduced food portions and skipped meals to

conserve something for the next meal. There were also reports that households increased food volume by adding a lot of water to ensure that everyone in the household would get something to eat.

> *When the food is not enough, I will prepare porridge and everyone shares it in the family in smaller quantities. In other cases, it will be only the children who will eat, and as for me, I will stay without eating anything for them to be satisfied with the little food available. Another strategy I use is to skip meals during the day, for example. I decide the children will skip breakfast and lunch, and during supper time is when I cook for them because the food is not enough for the children to cover all the meals, or sometimes they eat in the morning skip lunch and later in the evening they eat again. — Fisherfolk mother, IDI*

3.4 COMMUNITY PERCEPTIONS OF FACTORS THAT INFLUENCE MIYCN PRACTICES

3.4.1 Barriers to Translation of Knowledge into Optimal MIYCN Practices, by Livelihood Zone and Season

The longitudinal study quantitative baseline survey in Turkana County indicated that more than 80% of participants had appropriate knowledge and attitudes related to optimal MIYCN practices across livelihood zones, except for knowledge of dietary diversity (6%–15% across livelihood zones). On the other hand, suboptimal feeding practices were the norm, with only 4% of children and 2% of mothers achieving minimum dietary diversity.

The qualitative FGDs and IDIs with caregivers of children under 3 years old confirmed that knowledge of MIYCN practices was high across communities and in all livelihood zones. Participants explained that for a mother, a balanced diet constituted food groups that brought about health and nutritional benefits that would ensure increased blood volume during pregnancy and stimulate milk production during the lactation period. When participants talked about child nutrition, they explained that breastfeeding and a balanced diet are needed to facilitate child growth and development. Further, the community members listed examples of foods they perceived as having good nutritional value, including meat, vegetables, and fruits.

> *One is not supposed to eat an unbalanced diet especially unfortified foods, like eating plain boiled maize…Lactating mothers should not eat this type of food continuously because it will result in insufficient production of breast milk and that phenomenon can lead to child malnutrition…The more I consume non-nutritious food the more the child suffers, because he cannot obtain nutrients from the breast milk.*
> *— Agropastoral mother, Community dialogue*

Participants described several barriers to optimal maternal and child nutrition practices, including poverty, food insecurity, food preferences, cultural beliefs about foods and breastfeeding, perceived breast milk insufficiency, lack of experience among new mothers, and maternal alcohol use. Not surprisingly, several of these barriers align with the factors identified in the causal mapping exercise, but they are explored here in more detail.

Poverty leading to **food insecurity** was highlighted as the main challenge to the nutritional well-being of a household. Food insecurity was reported as most common in households headed by single mothers, and cases of acute malnutrition were said to occur more frequently in female-headed households. Cyclical poverty characterized by dependence on petty trade

was cited as common across all livelihood zones. The main kinds of employment were reported as wage income from fish trade for women in the fisherfolk community, small businesses for women in the urban/peri-urban livelihood zones, and sale of charcoal and firewood for women in pastoral and agropastoral livelihood zones. The returns from these sources of employment were low considering their household needs, resulting in limitations on their ability to buy diverse and nutritious foods. In the urban/peri-urban livelihood zones, participants described the interplay of poverty, low income, and high food prices. In general, it was noted that availability and affordability of food and access to funds were the main factors guiding household decisions around food.

> *For us, we eat any kind of diet that is available, be it animal products or maize. We consume the available items. This is because of lack of money to buy nutritious foods to eat. The situation remains that way until the wet season when we can obtain milk and other animal products. — Agropastoral mother, IDI*

Food preferences and taboos during pregnancy were attributed to hormonal changes. The preferences were often related to foods that were considered necessary for pregnant or breastfeeding women to consume. For example, "pancakes" (a thin mixture of wheat flour and water and some oil, if available) were mentioned by mothers across the livelihood zones as an important food that should be consumed during pregnancy and lactation. They were preferred over commonly consumed foods, such as maize and milk, which they felt were less desirable.

> *Maybe when I get enough money after selling firewood, that's when I can afford to purchase the nutritious foods. We have "pancakes" because it is a required meal when someone is pregnant. One is supposed to eat them, but unfortunately when there is no money to purchase the nutritious food, one is forced to eat foods which are not helpful to the human body and do not rejuvenate the blood volume. — Agropastoral mother, IDI*

Despite the preferences, women had to consume the commonly available food items due to availability and affordability. Food preferences could be met only if resources permitted.

> *There are so many things pregnant women eat during pregnancy...I can say, my diet was not strict, just the normal food that we are eating now. Food like ugali with kale or cabbage, porridge. Sometimes when I have money, I will buy meat. Sometimes also when you have money you can decide to buy maize and beans and sometimes you sleep hungry. — Urban/peri-urban mother, IDI*

Pregnant women's diets were reported to be influenced by cultural taboos or beliefs reinforced by older women in the community. The main types of foods that were strongly prohibited as part of the diet were eggs and avocado. These foods were thought to contribute to excessive weight gain, which mothers feared would lead to a caesarean birth. Mothers wanted to avoid a caesarean delivery because of the inadequate health care infrastructure. This taboo was noted across all livelihood zones, but was more pronounced in the interior/reserve areas.

> *For, me, I was told not to eat avocado because it can make the child to be big in the stomach. I was also told not to eat a lot of fats. The child can grow bigger and you will have to deliver through caesarean section. — Urban/peri-urban mother, IDI*

Insufficient breast milk: Many women indicated that they exclusively breastfed their children for the recommended 6 months. In some cases, however, women reported having insufficient breast milk, which they perceived to be caused by poor maternal nutrition resulting from lack of food or the monotonous diet mothers consumed. Most women also reported introducing complementary feeding or mixed feeding earlier than recommended due to the need for them to look for income-generating activities outside of the household. Insufficient breast milk and early complementary feeding or mixed feeding were identified as barriers to exclusive breastfeeding by both men and women in all livelihood zones.

> *Those [older] mothers advise on breastfeeding the child and when to wean, especially when there is not enough milk. — Agropastoral father, FGD*

Cultural practices around birth that delay breastfeeding initiation: Timely initiation of breastfeeding was highlighted as a challenge. Conversations with mothers revealed that breastfeeding initiation within 1 hour of delivery rarely happened because households deliberately delayed the process until the naming ceremony *(ngíraya).*

> *If I deliver in the evening hours, the child will sleep until the next day. Then very early in the morning when we have named the child, we can give them breast milk. — Pastoral mother, FGD*

Inadequate birth spacing: Among those from the agropastoral, fisherfolk, and urban livelihood zones, mothers mentioned that they stopped breastfeeding their youngest child as soon as they knew they were pregnant again. In such circumstances, the affected child was introduced to complementary foods, and was weaned if older than 6 months. Close birth spacing in those communities means more dependents in the household. The mothers further stated that this situation does not allow a mother to recover to optimal health and that the subsequent pregnancies exacerbate poor health outcomes for both mother and baby.

> *I breastfeed my children for only one year. Even when I try not to get pregnant within one year, I still get pregnant. It is very difficult for me to go two years without getting pregnant. — Fisherfolk mother, IDI*

Alcohol use by caregivers was most commonly mentioned by urban/peri-urban and agropastoral communities. Conversations with both men and women revealed that households with alcoholic caregivers had suboptimal breastfeeding practices. Alcoholic mothers either neglected breastfeeding or breastfed their child under the influence of alcohol.

> *Some mothers drink alcohol so much that they forget to breastfeed their children. They indulge in taking alcohol so much that the only thing that the child can breastfeed is the alcohol content that the mother drank. — Urban/peri-urban father, Community dialogue*

Figure 2 summarizes these challenges, as well as key practices and behaviors, by livelihood zone.

Figure 2. Summary of MIYCN and IYCF practices, behaviors, and challenges, by livelihood zone

Findings specific to Agro-pastoral zone

During rainy season:

- Families experienced better diets as food became available from farms (i.e., beans, maize, vegetables) and from the markets.
- Children's diet improved as high biological proteins (milk and blood) became available from livestock.

During dry season:

- Children's diets lacked milk and blood; no food was available from farm due to loss of crops, migration, or death of livestock due to drought.
- Families became dependent on the markets for food, thus limiting food variety.

Findings specific to Fisherfolk zone

During rainy season:

- Women and children experienced a more diverse diet due to abundance and variety of food in the market, including fish.

During dry and windy seasons:

- Many families lost their livelihood. Fishing labor opportunities were limited due to low fish harvests or inability to fish.

Findings specific to Urban/peri-urban zone

During rainy season:

- Women and children experienced a more diverse diet due to abundance and variety of food in the market.

During dry season:

- Food prices increased dramatically.
- Families experienced limited diversity in meals (i.e., vegetables and fruits not included in the diet).

3.4.2 Differences in MIYCN Practices of Adolescent and Adult Mothers

Both adult and adolescent mothers had access to sources of support for MIYCN. Older mothers reported that they could get information on MIYCN from health facilities, CHVs, women's groups, community members with indigenous knowledge, and personal experiences. Adolescents said they got information from older experienced women, grandmothers, neighbors, and the community in general. Older, more experienced women were identified as crucial in assisting adolescent mothers to fulfill their caregiving role. For example, adolescents in the fisherfolk community mentioned a specific intervention known as *Ngachopae* that targets adolescent mothers with cash to provide nutritious food for their

children and capital to help them start businesses and provide food support during periods of drought and hunger. These supportive environments were pointed out as locally relevant and viable for mothers.

> *Support from Ngachopae (cash funds that are given to adolescent girls and young mothers) helps us to do business and to feed the children. — Fisherfolk adolescent mother, FGD*

Adolescent mothers in the agropastoral and urban/peri-urban livelihood zones had interventions targeted toward them but faced economic challenges with implementing optimal MIYCN practices. The respondents in these subpopulations said that health care workers and older women played a vital role in providing nutrition information and support. The limiting factors were lack of independence or access to resources to buy food, and little influence over household decision making. Many adolescent mothers said they depended on their husbands or other family members to purchase or bring food home. This meant that even if they had good nutritional knowledge, they could not necessarily apply it.

> *Healthcare providers actually do educate others on proper feeding practices. They advise that one should eat green vegetables and other nutritious foods. We have knowledge about feeding practices but there is no capacity to act. All the information doctors give us on proper feeding goes to waste because we do not have options to put the suggestions into practice.…Lack of resources or money to facilitate the advice from the doctor handicaps implementation.. The recommendations can only be achieved through well-wishers' support. But these interventions only take care of us for a short time. — Agropastoral adolescent mother, IDI*

Adult or older women engaged in economic activity had some leverage to influence decisions around food at the household level. For instance, some older women benefited from paid work, yet they often held jobs characterized by long working hours and meager earnings. They also typically had to divide their income to cover the many needs in their families.

Adolescent mothers faced challenges with IYCF because they lacked experience. This point was mentioned by adult men and women across the livelihood zones, and in some cases, by adolescents themselves. Adolescent mothers, especially those who were first-time mothers, lacked experience, which impacted their caregiving practices. Many of them delegated caregiving to their mothers or grandmothers, which led to premature mixed feeding.

> *It was hard the first time because I had no prior experience of breastfeeding. This is my first child. — Urban/peri-urban adolescent mother, IDI*

Adult mothers reported consuming a more diverse diet, while adolescent mothers reported being open to eating a wider variety of foods during pregnancy and lactation. Adult mothers mentioned including fruits in their diet, whereas adolescents reported little variation in their diets. These differences were likely related to adult women's purchasing power when their income-generating activities were successful.

> *I was eating ugali, mangoes, oranges, that is what I craved and desired to eat. This is what I ate [when pregnant] and it brought health benefits to my body. I also ate meat and took soup…I was working in the market those days and I was selling vegetables and I used the money to buy food. When my business was lost, food like meat was*

> *scrapped off my list because I had no money to buy. — Urban/peri-urban adult mother, IDI*

Adolescent diets during pregnancy and lactation practices were reportedly less influenced by cultural practices that might influence consumption of some foods than those of older mothers.

> *I don't think there is food that breastfeeding mothers are not supposed to eat. They eat everything. — Pastoral adolescent mother, IDI*

3.4.3 Men's Perceived Role in MIYCN

Men in all the livelihood zones reported their **role as providers and protectors.** They were keen to engage in meaningful income-generating activities that would ensure their families had food and other necessities. They paid particular attention to pregnant and lactating mothers. Men reported that they often took up the responsibility of soliciting assistance from friends and neighbors during a wife's pregnancy and soon after birth to ensure that their wives could get adequate rest. Men also acknowledged the importance of good nutrition to maternal and child health and well-being. They highlighted provision of high-energy food items especially for women after delivery, including the practice of slaughtering a goat to ensure that there would be soup and meat for a lactating mother. They believed these foods would support a new mother with much-needed nutrients. Some men mentioned that they supported their younger wives who had less breastfeeding experience compared to their first wives, especially during the night, when they had to wake them up.

> *She does not have much experience as compared to the first wife. She is still being forced to do everything including breastfeeding the baby. When she sleeps, she can even sleep and forget about the child. You [the husband] will have to wake her up. — Agropastoral father, FGD*

Men from the agropastoral and fisherfolk zones reported that they were also **supporting their wives to visit antenatal and postnatal clinics** by providing transport money for motorcycle rides to and from health facilities. Further, adult men from the fisherfolk zone reported that they would go the extra mile in preparing food for their children and families when the wives were unwell, especially after birth. They also offered emotional support to their wives during this period.

> *If I get something like 500 shillings, I keep it well, and when it's the time for my wife to return for a clinic visit, I give her so that she can hire a motorcycle to and fro. — Agropastoral father, FGD*

Men indicated that they **needed to be more involved in MIYCN practices**. They wanted to be educated on how to better support maternal and child nutrition, including building awareness on what would locally constitute a "balanced diet" and how best to provide nutritious meals during times of scarcity or when their incomes were limited. The men were aware of the CHVs' and health workers' role of providing information on MIYCN at the community level, but they perceived the target population to be women. Men were of the view that they needed targeted information, at the community level, driven by the CHVs. Other men were of the view that a government-led initiative that employed vetted, qualified health professionals, including doctors and other health care workers, would be the best approach for cascading this information to the community.

> *To reduce child neglect, guide parents of [an adolescent] who has given birth, as it is difficult for a [very young mother] to think of some crucial things like taking the infant for immunization, which puts the baby's life at risk of some deadly diseases or loss of life. — Urban/peri-urban father, FGD*

Older and young men mentioned that **the key barrier to their supportive role was seasonal availability of jobs and income.** Persistent drought was noted to drain them of their assets, leaving them with no income to fend for their families. They highlighted how children and women suffer during this period and amplified the government's responsibility in taking care of the situation.

> *I have already told you that the men in this place have no jobs for them to provide food for their families. The only thing we normally do here is to provide animals to be slaughtered so that people at home can eat. — Urban/peri-urban father, IDI*

> *That a man should do is just to help, but he may not be able to help sometimes. Take for instance he has five goats, and the goats lack pasture, hence they provide less milk or do not get fat enough to provide enough meat with fat when slaughtered and eaten at home. — Agropastoral father, FGD*

3.4.4 Community Perceptions of Support for Optimal MIYCN

As noted earlier in the report, during FGDs, community members participated in a free listing exercise to elicit their perceptions on what constitutes an enabling environment for mothers to achieve optimal MIYCN. Overall, 331 responses were elicited; they were consolidated and categorized into health services, production and economic support, government and development partners, and community support. As expected, a higher percentage of responses (44%) quoted health service delivery as being critical, followed by inputs from government and development partners at 27%, production and economic support at 18%, and lastly community support at 11%. A key insight of these findings is that these mothers expected to have external support if they were to achieve optimal MIYCN.

Within each of the four major categories (health services, production and economic support, inputs from government institutions and development partners, and community support) discussed in more detail below, the percentages are based on the total.

Health services

The researchers further categorized the specific services the respondents said they expected as part of "health service delivery" (i.e., 44% of the 331 responses) into those provided at health facilities (21%), by CHVs and CHAs (16%), from mother-to-mother support groups (5%), and through outreach (2%). The detailed activities as reported by the respondents are outlined below.

<u>CHVs/CHAs</u>

CHVs and CHAs were said to teach mothers about hygiene and sanitation (e.g., washing hands, washing cooking utensils, cleaning the family compound), breastfeeding, complementary feeding, antenatal care services, iron and folic acid supplementation, and family planning. They also explain about supplements for children and for pregnant and lactating mothers (Plumpy'Nut, porridge), including training on how children can eat Plumpy'Nut. They also encourage women to deliver in hospitals, to go for antenatal care, and

to take their children for immunizations. They keep records on the status of pregnant and lactating mothers as well as providing simple medications during cholera outbreaks and training on how to use chlorine for water treatment. The CHVs/CHAs monitor children's growth and make appropriate referrals if growth is flagging.

Health facilities

Health facilities were reported to provide food and materials, include Plumpy'Nut, iron and folic acid tablets, porridge, sanitary towels, mosquito nets, lessos (a large piece of fabric) or towels, basins, and soap during delivery. Also reported were immunization services for children under 5 years old; advice on nutritious foods; family planning; antenatal care services; iron-folic acid supplementation; and training on IYCF, hygiene and sanitation, safe delivery of babies, and exclusive breastfeeding. Palpations for pregnant mothers, child delivery (including ambulance services), and blood transfusions featured in some of the responses.

Outreach

The following services were identified as key community outreach activities that contributed to optimal MIYCN: treatment of minor illnesses, distribution of nutrition supplements (especially Plumpy'Nut) to malnourished children, growth monitoring, immunization, and preparation of corn–soy blend.

Mother-to-mother support groups

Mother-to-mother groups were identified as being critical for supporting other women, especially expectant mothers, and supplying food, towels, lessos, and baby clothes. The groups apparently chose to replicate what the women were seeing happening in health facilities. The groups were also said to be handy at raising money to give to group members in need. Respondents also explained that group members took it upon themselves to visit expectant mothers for one-on-one health talks, especially on exclusive breastfeeding, as well as taking pregnant mothers to health facilities for delivery.

Government institutions and development partners

The 27% of responses that specified government and development partners as having a role in optimal MIYCN were subdivided as follows: government, NGOs, and United Nations support (16%); relief food domain (10%); and learning institutions, especially schools (1%). The detailed activities as reported by the respondents are outlined below.

Most of the support the respondents anticipated needing from the government and its development partners took the form of cash transfers, grants, relief food, and capacity building (mainly for CHVs). They explained that the government or donors periodically give cash transfers to beneficiaries (e.g., the elderly, adolescent girls, disabled, orphans), sometimes at the end of every month. The cash is mainly used for buying food, clothing, school fees, and schoolbooks, and paying for transport to hospitals. The participants gave examples of grants being used to start a business; buy food; support hygiene and sanitation services (provision of water, towels, lessos, sanitation pads for schoolgirls, towels, jerrycans, latrines); spur production through provision of water tanks, loans, boats, fishing nets, seed, or farm tools *(jembes, pangas);* and facilitate marketing of farm produce, particularly greens such as kale or collards *(sukuma wiki).*

Food relief essentially targets under-5-year-old children and pregnant and lactating mothers during drought. The most distributed relief foods mentioned were Plumpy'Nut, porridge (corn–soy blend), sorghum, maize, maize flour, beans, peas, rice, cooking oil, and salt. Other relief items were soap, cooking pots, school uniforms, and mosquito nets. Through the Food For Work program, communities build canals in exchange for food.

Production and economic support

From the 18% of community members who specified production and economic activities as being useful for supporting optimal MIYCN, the researchers further subdivided the category as follows: petty trade (6%), saving groups (5%), casual work (3%), livestock (2%), farming (1%), and fishing (1%). The detailed activities as reported by the respondents are outlined below.

Casual work involved being paid for washing clothes and bathing children for neighbors; doing manual work for other fish farmers at the lake; and for youth, engaging in government-sponsored manual work (*kazi kwa vijana*). Money acquired from these types of manual labor was almost always used for buying food. Vegetable farming was strongly linked to promotion of optimal MIYCN. Fish and milk from livestock were sold to buy food for the households or start small businesses. Sometimes, animals (particularly goats) were sold to get money to buy food. Other items mentioned as being sold to raise money for food were local brew (*chang'aa*), charcoal, donuts (*mandazi*), palm seed for fish smokers, firewood, reeds for building, brooms, and sleeping mats.

One of the coping strategies reported by women in particular was initiation of savings groups to enable them to pool their money. This strategy was indicated as having helped them meet the short- and long-term needs of their families.

Respondents explained that saving groups teach their members business skills, and subsequently offer access to small loans. Members can use the loans to start a new business, to enhance the profitability of an existing enterprise, or to purchase food. Sometimes CHVs come to savings group meetings to share information on hygiene and sanitation, child care, and breastfeeding.

> *Sometimes I do table banking[3] and borrow money from a group like KSh 10,000 to facilitate my charcoal selling business. The business supports me in buying maize flour for household use. — Fisherfolk mother, FGD*
>
> *We contribute and keep the money, and when someone has a problem, we use the money to help her in whichever way, be it school fees or even buying food. — Urban/peri-urban mother, FGD*

Community support

Finally, of the 11% of participants who named community support as important, the responses were subdivided further as follows: family members (6%), religious organizations (3%), friends (1%), and neighbors (1%). The participants clarified that family members, particularly husbands, contributed to MIYCN by selling goats to purchase food and soap, slaughtered animals (especially goats) for food, bought clothes, and encouraged women to

[3] Table banking is a type of savings and loan association.

breastfeed the child at night. Some family members, particularly mothers-in-law, shared their knowledge about child care, helped to monitor the pregnancy, and provided financial support (especially those who were enrolled in cash transfer programs). Religious organizations provided towels, lessos, food, money to pay hospital bills (for pregnant mothers), clothing and soap for children, and maize and beans for the elderly.

3.5 USE AND BARRIERS TO USE OF HEALTH CARE SERVICES

3.5.1 Use of Health Care Services and Facilitators of Health Care Utilization

Respondents indicated that there had been intensive campaigns and awareness-building initiatives in the community to encourage the use of health services. The activities were carried out through the community health system (CHS) in collaboration with implementing NGOs.

> *Our antenatal care support comes from the facility and when you go to the clinic with a sick child they provide you with medicine. — Fisherfolk father, FGD*

Adolescent mothers also described seeking health care for issues such as child illness, antenatal care, and delivery.

> *Usually, I check her body temperature and monitor for 2 hours. If [the fever] persists, I take my child to hospital. — Urban/peri-urban adolescent mother, IDI*

Some of the factors mentioned as facilitators of health care use in the communities included: (1) availability of medication in the facility after treatment; (2) free antenatal care services for pregnant women; (3) the government's "*Linda mama*" program that supports women to deliver for free in hospitals; (4) follow-up support and education services offered by the CHVs at the community level; and (5) assurance of proper treatment in the case of malnourished children through existing nutrition supplementation programs.

> *That card called "Linda mama" is good. It contains [important health information and allows the woman to get free services] from pregnancy conception to delivery date, hence a woman does not struggle when she goes to the clinic. — Fisherfolk father, FGD*

3.5.2 Contextual Barriers to Seeking Health Care

Barriers to health care services varied across subpopulations and included **logistical barriers** and sometimes **stigma and cultural practices.**

Women from the pastoral and agropastoral zones reported distance and cost as the key challenges to accessing health services, while those from the urban/peri-urban and agropastoral zones reported few skilled personnel and inadequate infrastructure as the main challenges.

> *Doctors are few in the hospitals, therefore it is a challenge. — Agropastoral mother, FGD*

Fisherfolk respondents indicated that during times when rivers were running high, they had to look for money to hire a boat to reach a health facility. For pastoralists and agropastoralists, the distance to health facilities and terrain to hospitals were challenges. Participants from all the livelihood zones reported that hiring a motorbike to and from the health facility was common due to the sparse distribution of health care facilities. In addition to the

transportation and logistical challenges, fees at some of the health facilities—and in most instances, medication costs—were barriers.

> *Yes, it can affect because when there are raids, people are displaced from where they were living, thus they cannot get to the hospital for treatment and again you cannot get any means of transport. — Agropastoral mother, FGD*

Women representing the agropastoral zone reported that fellow women living in interior areas were not keen to seek skilled health care services in facilities because of fear of reproach from staff at the facility, fear of taking medication, general body lethargy, and lack of knowledge about the importance of seeking skilled health care services. Insights from a young mother from an agropastoral community revealed that some cultural practices are still hindering appropriate care for sick children. For example, this participant knew about a belief that holding a kid goat behind a sick child and letting it bleat would cure the illness.

> *Women living in the interior parts of Turkana are afraid of going to the clinic. For most of them, on getting to the gate of the clinic, and the watchman shouts at her, they run away. They were forced to go to the clinic and are afraid of medication. — Agropastoral mother, FGD*

> *The young one of a goat is held behind the child so that it can bleat several times…so that the child can recover from the illness. — Agropastoral mother, IDI*

3.5.3 Community Perceptions of the Services Provided by the CHS

Women and community leaders said they appreciated the role played by the CHVs. They saw CHVs as more accessible to the community than health workers at facilities, and they recommended that CHVs be trained to better address the issues within the community. Respondents often viewed CHVs as village doctors because of their contributions. Most caregivers said that CHVs were trained to manage moderate acute malnutrition and also to refer severe cases and infections. Many caregivers mentioned that the CHVs had provided information and referrals on malnutrition to their households.

> *For instance, the CHVs train us on the type of meals that should be taken by the pregnant and lactating mothers. She should be taking liver so that she can have enough blood. — Agropastoral mother, FGD*

3.5.4 Men's and Women's Roles in Seeking Health Care Services

Men's roles were described as providing financial support for the family, including support for seeking health care. They provided resources to pay for transport costs and medical bills in the case of hospitalization. Women were largely viewed as promoters and actual consumers of health care, as well as the ones responsible for supporting other household members, especially children, to seek access to health care services in health facilities. Decision making for health care seeking largely was seen as a family responsibility, with men playing a supportive role and women taking an active role.

> *It's actually me that can be able to deal with household issues, including referrals to the health facility. The husband can only decide to facilitate the cost of referral to the health facility if a member of the family gets a serious health condition that requires attention. What he does is sell his livestock to pay the medical bills. — Pastoral mother, IDI*

It is the man who is the head of the household. They work and are the ones who will give the money so that a person can be taken to the health facility. Normally, the woman is responsible for taking persons for health services, whether a child or the woman herself. — Urban/peri-urban mother, IDI

3.6 GENDER DYNAMICS IN EMPLOYMENT AND HOUSEHOLD DECISION MAKING

As Section 3.4.4 and the annex data suggest, most of the **women participating in this qualitative research depended mainly on manual labor and petty trade to earn money.** They indicated that they rarely own assets; instead, land and other assets, capital, and businesses are mostly held by men. Even so, men with assets said they found it difficult to subcontract for labor from others, given the seasonal aspects of the economy, and the reliance on distant markets. Finally, it became clear that most women depend on and compete for the same kinds of opportunities, which leads to a labor oversupply.

Women reported that gender-related power dynamics in their households influence food purchases. They noted that in households with an adolescent mother, the mother has very little control over decisions, including decisions around food. In most cases, it was reported that their husbands or mothers-in-law determined meals that were purchased and consumed in the household. A drawback of this situation is that even if the young mothers have learned about food groups that would be nutritious and wholesome for the household, they are rarely able to influence purchasing decisions. Participants reported that older women were able to make decisions around food, mostly because they contributed to household income.

There were some reports of marital conflict where the husband withheld the right to food or resources to purchase food.

During quarrels my husband refuses to give me money for some time and the child ends up eating one diet that is available. — Urban/peri-urban mother, FGD

When there is some fighting in the house that is between the husband and the wife, this may bring malnutrition to the child. When you quarrel with your husband, he may decide to go away for a long period of time and he will take time to come home. You will have no food to give to the children. — Pastoral mother, FGD

The women interviewed noted that a way to enhance women's empowerment could be through financial and entrepreneurship opportunities. They said that if women's natural skills were sharpened and capital was provided, either through table banking groups or through other financial interventions, they would be able to meaningfully participate and increase their role in household decision making.

*The government can give women in support groups additional funds on top of their regular contribution so that they can take their businesses to other levels.
— Fisherfolk mother, IDI*

The support that mothers need is facilitation in their groups and giving them a group certificate to assist them in doing their activities effectively. — Agropastoral father, FGD

3.7 PARTICIPANTS' RECOMMENDATIONS ABOUT APPROACHES TO TACKLE ACUTE MALNUTRITION

The following were participants' suggestions to overcome challenges that contribute to acute malnutrition.

- **Regularly provide high-impact nutrition interventions**. Participants said this assistance should include deworming campaigns; nutrition supplementation programs; and use of CHVs to diagnose and treat moderate malnutrition cases and to make referrals for severe cases. Participants also thought that mass screening and mapping of hotspots would better inform integrated health outreach. Another strategy that was reported to have worked well was family-led measurements of mid-upper-arm circumference, which sought to empower mothers and other family members on early detection of acute malnutrition and self-referrals to health facilities.
- Have the county government **sensitize communities and advocate for health and nutrition.** This suggestion was mentioned by men as a gap that the county should address, using its credibility as a symbol of authority and stability in the community, as well as its understanding of the indigenous cultures and the environment. This approach would lead to co-creation of tailored solutions across various age groups and could be linked to job creation and loan strategies.
- **Use early warning systems** that are sensitive to variations in rainfall between and within seasons so they can be used to guide programs and ensure that communities are prepared in advance for shocks.
- **Offer training in optimal allocation and use of land resources,** to enable communities and individuals to practice farming for their own consumption and as an income-generating activity. Participants said they need training on irrigation, encouragement to grow diverse and drought-resistant crops, and support in obtaining seedlings. Women also mentioned selling surplus produce in markets to earn income and encourage a thriving local economy.
- **Offer job skills training** to help community members gain skills and resources to have year-round employment. The participants suggested creating vocational training centers to equip youth and adults with skills to start their own businesses and create employment opportunities, such as driving, tailoring, hair dressing, and vehicle mechanics. Participants said that job-creation strategies would lead to empowerment through diversification of income sources.
- **Supply tools or loans for tools,** which would allow people to have their own businesses so that they could feed their families throughout the year. Participants mentioned fishing equipment, sewing machines, and salon equipment as the types of tools they might need. Better fishing equipment was described as necessary for having better returns from fishing.
- **Create a seed fund and related institutions or organizations** that could support individuals or groups with seed grants or loans to boost their business, or with start-up capital for their business.
- **Establish a system to exchange labor for food,** as a way for community members to obtain adequate food for their families during the dry season.

- **Provide additional relief food** in times of severe drought. Mothers mentioned that they need maize and cooking oil to feed their children and prevent acute malnutrition.
- **Establish school feeding programs within early childhood education centers** and maintain them throughout the year. This proposal was viewed as a route to improve nutrition status of the young children and a tool for promoting education.
- **Strengthen the continuity and sustainability of programs in preparation for donors' exit**. One respondent noted that there had been an organization operating in Turkana County called Merlin (Medical Emergency Relief International),[4] which was known for fighting acute malnutrition, but when Merlin withdrew, community members could no longer access nutritional supplements.

4. TRIANGULATION OF QUALITATIVE AND SURVEY FINDINGS

The qualitative study findings in Turkana pointed to reasons for differences observed in GAM rates and also produced insights on some other key factors that influence acute malnutrition.

- **Differences in GAM rates by livelihood zone.** Regression analysis of the quantitative survey data showed that children in fisherfolk communities were twice as likely to suffer from acute malnutrition (assessed by weight-for-height z-score) as children in other livelihood zones. Qualitative data collected from women and men in the community indicated that acute malnutrition was seen as a problem across all livelihood zones. However, fisherfolk and pastoral communities were more affected than urban/peri-urban communities, most likely because of their dependence on a single livelihood tied to seasonal and climatic conditions. Representatives from the fisherfolk zone reported not having adequate fish during the dry and windy seasons because of poor catch and unpredictable markets. Conversations with CHVs working in fisherfolk communities indicated that the misuse of nutritional supplements in those communities (e.g., selling them for money) also may explain the low levels of improvement among children enrolled in nutrition programs. Pastoral communities and their livestock face challenges during droughts, when animals often die due to lack of forage, and during raids when livestock are taken or killed.
- **MIYCN and IYCF practices.** The quantitative survey analysis showed that only 4% of children met the threshold for minimum dietary diversity, despite high levels of knowledge about child feeding among caregivers. The survey also indicated that cereals were most commonly consumed (74%) followed by dairy (46%). Less than 2% of children consumed eggs and other fruits and vegetables. Qualitative data collected from women, men, and key informants indicated even though the communities recognized the importance of a "balanced diet" across the different livelihood zones, there seemed to be a gap in knowledge of practical ways to use local available foods to prepare a variety of meals. Poverty and lack of resources were also mentioned as key limiting factors for implementing the knowledge received. In general, it was noted that availability and affordability of food were the main factors guiding households' decisions around food. Other important factors limiting the implementation of knowledge received included: perceived insufficient breast milk due to mothers' inadequate diets, prevalent harmful cultural beliefs about certain foods, alcohol consumption (mostly occurring in the

[4] Merlin, a United Kingdom-based NGO that sent medical experts overseas to assist with emergencies, merged with Save the Children in 2013.

urban/peri-urban zone), and poor birth spacing practices. Adolescent mothers had good knowledge of MIYCN practices but were more constrained in providing an adequate diet to their children because they had less economic autonomy and less decision-making power than adult mothers.

- **Health-seeking practices.** In the quantitative survey, 78% of children who had cough, fever, or diarrhea in the past 2 weeks had been taken to a health facility. Vaccination coverage was quite high for all vaccines except measles. Deworming and vitamin A supplementation coverage were moderate. None of these health-seeking behaviors varied appreciably by livelihood zone. Qualitative data indicated that community members were aware of the importance of using health services for treatment and prevention, but they noted barriers to use of health services, including distance to health facilities, fees at some health facilities, costs of medication, and lack of staff and medicines at facilities. Other barriers to use of health services were stigma related to acute malnutrition from other community members and health staff, as well as cultural healing practices that could delay treatment-seeking.
- **Gender issues related to decision making and control over resources.** The quantitative survey indicated surprisingly high levels of decision making by women at the household level. About 48% of married women/caregivers from the urban/peri-urban livelihood zone made all decisions by themselves or jointly with their husband/partner on usage of household income, child health, their own health care, food purchases, major household purchases, and visits to friends/relatives. Sole or joint decision making by women was as follows in the other livelihood zones: agropastoral (45%), pastoral (40%), and fisherfolk (38%). Women in polygamous marriages had more decision-making power for use of household income, major household purchases, and overall decision-making. Qualitative data indicated that women had control over low-value productive assets and made decisions, but they could be considered “low level” decisions. They still mostly relied on men to provide for the family and to decide how money was used. The situation was worse among adolescent girls, who heavily depended on husbands and mothers-in-law for major decisions in the household, including decisions regarding what foods to purchase.

5. CONCLUSIONS AND RECOMMENDATIONS

In Turkana County, the findings indicated that most community members were aware of good maternal and child nutritional practices. Some had both indigenous and scientific knowledge, yet practice gaps still persisted. This situation was attributed to poverty, preferences, cultural beliefs, family planning gaps, and seasonality.

The cyclic nature of the seasons and limited mechanisms to adapt to the shocks have led to the persistence of acute malnutrition. A feeling of resignation and acceptance of their situation was generally felt through conversations with caregivers in communities. Conversations with men revealed that some of them sometimes feel hopeless and helpless as providers. Nevertheless, some proactive attitudes were observed, with numerous caregivers thinking through potential solutions to tackle the issue of malnutrition. Examples of such solutions included table banking among women, introduction of drought-resistant crops, and improvements to local markets to ensure a variety of foods. Some male respondents also requested nutrition education and information.

The health care system has played an important role in preventing and treating acute malnutrition, by leading intensive health campaigns, increasing access to health facilities, and

strengthening the quantity and quality of services provided by CHVs at the household level. However, even when they are available, health interventions often are sought late because of costs of services, transport challenges, stigma, and sometimes refusal by communities to recognize signs of malnutrition.

Gender inequities in access to assets and factors of production also were found to limit women's ability to be autonomous and to contribute fully and adequately to household decision making, including decisions about foods to be purchased. There is therefore a need for planners to consider the broader sociocultural and economic contexts, including the value of women's autonomy, when designing and implementing nutritional interventions for women and children in the county.

Overall, findings from the qualitative study point to the following recommendations:

1. **Continue to strengthen community awareness of the importance and practice of optimal nutrition,** going back to the basics and using social and behavior change communication (SBCC) channels and packaging information to be sensitive to the low levels of formal education among caregivers.
2. **Prioritize the zones worst hit by malnutrition** (fisherfolk communities) by allocating resources and strengthening accountability systems to ensure that resources are efficiently used and that the vulnerable populations and zones are the true beneficiaries.
3. **Continue to strengthen the community health system** by supporting CHVs to enhance their effectiveness at supporting households.
4. **Improve transportation infrastructure** for better access to health facilities.
5. **Continue to empower women** through enrollment of girls in school, involvement in income-generating activities, involvement in decision making at the community level, and adequate access to family planning information and services for appropriate child spacing.
6. **Provide targeted support to adolescent mothers** through appropriate child-care education. Involving grandmothers in nutrition education interventions could create substantial leverage, given that many adolescent mothers leave their children with their grandmothers while they work or go to school.
7. **Continue to implement SBCC interventions** for women on nutrition and **develop strategies to reach men** with SBCC and messages on their role in maternal and child nutrition.
8. Implement SBCC interventions to **strengthen households' preparation and ability to respond to shocks** beyond reliance on emergency food.
9. **Adopt appropriate water service delivery options** based on context. USAID Nawiri—in co-creation with the county and leveraging the newly developed Water Services Regulatory Board's rural water management guideline—should design service-delivery models that seek to enhance the professionalization and uptake of water service delivery by the private sector in rural areas.
10. **Create demand in the community for sanitation and hygiene services** by promoting safe sanitation practices and disseminating hygiene messages.

ANNEX A: THEMATIC AREAS FOR QUALITATIVE DATA COLLECTION

Thematic area	Methods	Knowledge gap to be filled
Community perceptions of factors related to acute malnutrition	Focus group discussions (FGDs) In-depth interviews (IDIs) Community dialogue	▪ Understand perceptions of the factors related to acute malnutrition and how they change over time, including during shocks ▪ Understand best approaches to tackle factors related to malnutrition, including during shocks ▪ Understand level and quality of support received by women through mother support groups and community health system (CHS) ▪ Understand the seasonality of factors affecting malnutrition
Community perceptions of factors that influence maternal, infant, and young child nutrition (MIYCN) practices	FGDs IDIs Community dialogue	▪ Understand barriers to translation of knowledge into optimal MIYCN practices, by livelihood zone and season ▪ Understand seasonality of behaviors ▪ Understand adolescents' MIYCN practices versus those of adult mothers ▪ Understand men's perceived role in maternal and child nutrition and care practices ▪ Understand challenges and opportunities by season
Health-seeking behaviors	FGDs IDIs Community dialogue	▪ Understand the factors that influence decision making in utilization of health care ▪ Understand the contextual barriers and drivers to seeking health care ▪ Understand the perceptions of communities regarding services provided by the CHS ▪ Understand men's involvement in decision making to seek integrated management of acute malnutrition and other health care services
Gender and equity dimensions	Community dialogue	▪ Understand how gender dynamics and sociocultural norms impact decision making regarding access to resources (livestock, food, and financial resources)

ANNEX B: PERCENTAGE DISTRIBUTION OF COMMUNITY DIALOGUE PARTICIPANTS, BY SOCIO-DEMOGRAPHIC CHARACTERISTICS AND BY LIVELIHOOD ZONE

Characteristic	Livelihood zone				Overall
	Pastoral	Agropastoral	Fisherfolk	Urban/peri-urban	
Number of participants	42	48	42	48	180
Sex					
Male	42.9	50.0	45.2	50.0	47.2
Female	57.1	50.0	54.8	47.9	52.2
Missing value	0.0	0.0	0.0	2.1	0.6
Age					
< 25	28.6	35.4	52.4	50.0	41.7
25–49	64.3	39.6	45.2	47.9	48.9
50+	3	25.0	2.4	2.1	9.4
Marital status					
In union	100.0	100.0	88.1	93.8	95.6
Not in union	0.0	0.0	11.9	6.3	4.4
Religion					
Christian	100.0	97.9	100.0	100.0	99.4
Non-Christian	0.0	2.1	0.0	0.0	0.6
Highest education					
No education	100.0	87.5	35.7	18.8	60.0
Primary and below	0	8.3	57.1	31.3	23.9
Above primary	0	4.2	7.1	50.0	16.1
Occupation					
Petty trade	40.5	18.8	90.5	41.7	46.7
Livestock herding/farming	28.6	35.4	0.0	14.6	20.0
Employed	7.1	6.3	7.1	16.7	9.4
Unemployed	23.8	39.6	2.4	27.1	23.9
Number of children under 5 years					
1–2	59.5	45.8	92.9	93.8	72.8
3+	40.5	54.2	7.1	6.3	27.2

Characteristic	Livelihood zone				Overall
	Pastoral	Agropastoral	Fisherfolk	Urban/peri-urban	
Number of children above 5 years					
0	19.0	12.5	7.1	0.0	9.4
1–2	23.8	31.3	26.2	27.1	27.2
3+	57.1	56.3	66.7	72.9	63.3

ANNEX C: PERCENTAGE DISTRIBUTION OF FOCUS GROUP DISCUSSION PARTICIPANTS, BY SOCIO-DEMOGRAPHIC CHARACTERISTICS AND BY LIVELIHOOD ZONE

Characteristic	Livelihood zone				Overall
	Pastoral	Agropastoral	Fisherfolk	Urban/peri-urban	
Number of participants	31	30	30	30	121
Sex					
Male	38.7	40.0	40.0	40.0	39.7
Female	61.3	60.0	60.0	60.0	60.3
Age					
< 25	61.3	60.0	60.0	56.7	59.5
25–49	38.7	33.3	40.0	43.3	38.8
50+	0.0	6.7	0.0	0.0	1.7
Marital status					
In union	100.0	93.3	100.0	93.3	96.7
Not in union	0.0	6.7	0.0	6.7	3.3
Religion					
Christian	90.3	100.0	96.7	100.0	99.4
Non-Christian	9.7	0.0	3.3	0.0	3.3
Highest education					
No education	96.8	90.0	66.7	13.3	66.9
Primary and below	3.2	6.7	16.7	40.0	16.5
Above primary	0.0	3.3	16.7	46.7	16.5
Occupation					
Petty trade	48.4	43.3	76.7	20.0	47.1
Livestock herding/farming	22.6	33.3	0.0	0.0	14.0
Employed	6.5	3.3	10.0	26.7	11.6
Unemployed	22.6	20.0	13.3	53.3	27.3
Number of children under 5 years					
1–2	67.7	83.3	96.7	96.7	86.0
3+	32.2	13.3	3.3	3.3	13.2
Missing	0.0	3.3	0.0	0.0	0.8

Characteristic	Livelihood zone				Overall
	Pastoral	Agropastoral	Fisherfolk	Urban/peri-urban	
Number of children above 5 years					
0	32.3	56.7	46.7	3.3	34.7
1–2	19.4	20.0	43.3	23.3	26.4
3+	48.4	23.3	10.0	73.3	38.8

ANNEX D: PERCENTAGE DISTRIBUTION OF IN-DEPTH INTERVIEW PARTICIPANTS, BY SOCIO-DEMOGRAPHIC CHARACTERISTICS AND BY LIVELIHOOD ZONE

Characteristic	Livelihood zone				Overall
	Pastoral	Agropastoral	Fisherfolk	Urban/ peri-urban	
Number of participants	21	17	21	24	83
Sex					
Male	19.0	23.5	19.0	16.7	19.3
Female	81.0	76.5	81.0	83.3	80.7
Age					
< 25	52.4	47.1	47.6	54.2	50.6
25–49	42.9	52.9	52.4	41.7	47.0
50+	4.8	0.0	0.0	4.2	2.4
Marital status					
In union	100.0	100.0	100.0	83.3	95.2
Not in union	0.0	0.0	0.0	16.7	4.8
Religion					
Christian	100.0	94.1	100.0	95.8	97.6
Non-Christian	0.0	5.9	0.0	4.2	2.4
Highest education					
No education	95.2	82.4	66.7	25.0	65.1
Primary and below	0.0	5.9	28.6	33.3	18.1
Above primary	4.8	11.8	4.8	41.7	16.9
Occupation					
Petty trade	52.4	47.1	66.7	29.2	48.2
Livestock herding/farming	9.5	17.6	0.0	4.2	7.2
Employed	28.6	29.4	9.5	12.5	19.3
Unemployed	9.5	5.9	23.8	54.2	25.3
Number of children under 5 years					
1–2	81.0	70.6	85.7	95.8	84.3
3+	19.0	29.4	14.3	4.2	15.7

Characteristic	Livelihood zone				Overall
	Pastoral	Agropastoral	Fisherfolk	Urban/ peri-urban	
Number of children above 5 years					
0	14.3	47.1	19.0	58.3	34.9
1–2	42.9	29.4	38.1	29.2	34.9
3+	42.9	23.5	42.9	12.5	30.1

ANNEX E: PERCENTAGE DISTRIBUTION OF KEY INFORMANT INTERVIEW PARTICIPANTS, BY SOCIO-DEMOGRAPHIC CHARACTERISTICS AND BY LIVELIHOOD ZONE

Characteristic	Livelihood zone				Overall
	Pastoral	Agropastoral	Fisherfolk	Urban/peri-urban	
Number of participants	9	9	8	9	35
Sex					
Male	66.7	55.6	62.5	55.6	60.0
Female	33.3	44.4	37.5	44.4	40.0
Age					
< 25	11.1	11.1	0.0	0.0	5.7
25–49	77.8	55.6	62.5	66.7	65.7
50+	11.1	33.3	37.5	33.3	28.6
Marital status					
In union	88.9	88.9	100.0	55.6	82.9
Not in union	11.1	11.1	0.0	44.4	17.1
Religion					
Christian	100.0	100.0	100.0	100.0	100.0
Non-Christian	0.0	0.0	0.0	0.0	0.0
Highest education					
No education	0.0	0.0	0.0	22.2	5.7
Primary and below	0.0	11.1	37.5	0.0	11.4
Above primary	100.0	88.9	62.5	77.8	82.9
Occupation					
Petty trade	44.4	11.1	12.5	33.3	25.7
Livestock herding/farming	33.3	66.7	75.0	44.4	54.3
Employed	22.2	22.2	12.5	22.2	20.0
Unemployed	0.0	0.0	0.0	0.0	0.0
Number of children under 5 years					
0	0.0	0.0	37.5	33.3	17.1
1–2	44.4	66.7	37.5	66.7	54.3
3+	55.6	33.3	0.0	0.0	22.9

Characteristic	Livelihood zone				Overall
	Pastoral	Agropastoral	Fisherfolk	Urban/peri-urban	
Missing	0.0	0.0	25.0	0.0	5.7
Number of children above 5 years					
0	33.3	11.1	0.0	11.1	14.3
1–2	44.4	22.2	25.0	44.4	34.3
3+	22.2	66.7	75.0	44.4	51.4

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