USAID FROM THE AMERICAN PEOPLE

SPRING
Strengthening Partnerships, Results, and Innovations in Nutrition Globally

SPRING/Kyrgyz Republic Formative Research

Factors Affecting the Family Diet

May 2015

DISCLAIMER
This report is made possible by the generous support of the American people through the U.S. Agency for International Development (USAID) under the terms of the Cooperative Agreement AID-OAA-A-11-00031, (SPRING) managed by JSI Research & Training Institute, Inc. (JSI). The contents are the responsibility of JSI, and do not necessarily reflect the views of USAID or the United States Government.

ABOUT SPRING
The Strengthening Partnerships, Results, and Innovations in Nutrition Globally (SPRING) project is a five-year USAID-funded Cooperative Agreement to strengthen global and country efforts to scale up high-impact nutrition practices and policies and improve maternal and child nutrition outcomes. The project is managed by JSI Research & Training Institute, Inc., with partners Helen Keller International, The Manoff Group, Save the Children, and the International Food Policy Research Institute.

ACKNOWLEDGEMENTS

SPRING would like to thank consultant Judiann McNulty for her vital role in conducting the formative research and drafting this report. SPRING also thanks SPRING/Kyrgyz Republic staff for their assistance in diligently completing all interviews and focus group discussions, ensuring that the survey questionnaire was well rounded, and providing reflective comments on the data and contextual anecdotes. In particular, Saikal Bozova was instrumental in the Health Facility Assessment, and Aida Shambetova spent long hours in difficult conditions to reach women in distant villages. SPRING is also grateful to Britta Seifert, a Peace Corps volunteer who helped with data collection in Toktugul, and the government Health Promotion Unit staff of Jalabad and Jumgal, who assisted in organizing focus groups and interviews, and in some cases, participated in these activities.

Many people reviewed the initial draft of this report and made helpful suggestions for improvements, including Bridget Rogers, Tim Williams, Ashley Aakesson, and Denish Moorthy.

Finally, SPRING is especially grateful to the Ministry of Health in Kyrgyzstan, and local governments who welcomed and authorized SPRING to carry out the survey, and to the people of Jalalabad and Jumgal, for their willingness to participate in interviews and answer questions about their families, homes, and practices related to nutrition.

RECOMMENDED CITATION
SPRING, 2015. *SPRING/Kyrgyz Republic Formative Research Report*. The Strengthening Partnerships, Results, and Innovations in Nutrition Globally (SPRING) Project. Arlington, VA.

SPRING
JSI Research & Training Institute, Inc.
1616 Fort Myer Drive
16th Floor
Arlington, VA 22209 USA
Phone: 703-528-7474
Fax: 703-528-7480
Email: info@spring-nutrition.org
Internet: www.spring-nutrition.org

COVER PHOTO: Judiann McNulty, SPRING Consultant

Contents

Acronyms ..... **iv**

Background **1**

SPRING Project in Kyrgyzstan 2

Nutrition Issues Identified in the 2012 Demographic and Health Survey 2

Context of the Target Areas 4

Purpose of the Formative Research 4

Methodology 6

Methods and Tools 6

Sampling 7

Data Management and Analysis 7

Key Findings and Implications **8**

Detailed Findings **11**

Dietary Pattern by Region 11

Factors Affecting Dietary Diversity 12

Nutrition Knowledge 16

Current Child Feeding Practices 17

Water, Sanitation, Hygiene 20

Gender and Intra-familial Dynamics 23

Health Facility Assessment Results **24**

Recommendations **26**

Annex A. Use of Iron Supplements among Pregnant Women in Target Areas of Jalalabad and Naryn Oblasts **27**

Annex B. Schedule of Phase I Formative Research Field Work **31**

Annex C. Tools for Phase I Formative Research **33**

Annex D. Women's Dietary Diversity, SPRING Baseline **47**

Annex E. Food Acquisition by Region **48**

Annex F. Baseline Data on Food Storage **53**

Annex G. Summary of WASH Observations **55**

Annex H. Health Facility Assessment Results for all Areas **57**

Acronyms

DHS	Demographic and Health Survey
FAP	Lowest level health facility staffed by a *feldsher* (medic) or nurse
FGD	Focus Group Discussions
HFA	Health Facility Assessment
HPU	Health Promotion Unit
IYCF	Infant and Young Child Feeding
JSI	John Snow, Inc.
MNP	Micronutrient Powder (*Gulyzak*)
SPRING	Strengthening Partnerships, Results, and Innovations in Nutrition Globally
USAID	United States Agency for International Development
VHC	Village Health Committee

Executive Summary

According to the 2012 Demographic and Health Survey (DHS), 18 percent of children in the Kyrgyz Republic under the age of five are stunted, while 43 percent of children ages six to 59 months and 35 percent of women of reproductive age are anemic. The SPRING project in Kyrgyzstan works primarily in Jumgal *rayon* of Naryn *oblast* and 10 jurisdictions of Jalabad *oblast*. This study was conducted to gain a better understanding of dietary practices of families with children under age two, and what factors affect family food consumption, child feeding, and nutrition status. The research was conducted over a period of four weeks in October and November in 2014, immediately following the baseline quantitative survey. The methodology was comprised of six different activities; including focus groups with mothers of young children, key informant interviews with men, a participatory activity with women of all ages, focus groups with Village Health Committees, transect walks with a structured observation guide, and health facility assessments.

Findings of this research are intended to inform SPRING project strategies and communication materials. In general, food insecurity did not appear to be a barrier for most households, but dietary diversity is a serious seasonal issue. Fruits and vegetables are seldom consumed in winter due to scarcity and price. Most women believe that infants need additional water and/or food within a month or two after birth because the mother's breast milk is not adequate. The first food is most often a gruel made of browned flour, animal fat, and either water or milk. Women do not seem to know the benefits of immediate breastfeeding for themselves, and maternity center staff lack training on the early initiation of breastfeeding. There is also a lack of awareness among women about the appropriate frequency or amount of complementary feeding. While most women start complementary feeding too soon, SPRING baseline data showed that 12 percent of women delay complementary feeding until eight months, believing breast milk is enough food for their child at this time. The cleanliness of a latrine is not a cultural expectation, and only half of mothers properly dispose of small children's feces. Women in most households have complete mobility and decision-making power to shop for food and seek health services, but mothers-in-law are involved in feeding young children in their households and giving advice to young mothers. Health professionals are perceived as very credible sources of information, providing an opportunity to train them on good counseling skills and build their technical knowledge and capacity.

Key recommendations from the health facility assessment include: collaborating with local government and district health officials to ensure each health facility has the appropriate number of clean, functional latrines or toilets for their staff and patient load; providing all professional health staff training on infant and young child feeding and on anemia, conducting supportive supervision jointly with district health officials; and assisting the Ministry of Health to develop an anemia protocol, including designing a training for health workers on its implementation.

Background

SPRING PROJECT IN KYRGYZSTAN

The Strengthening Partnerships, Results, and Innovations in Nutrition Globally (SPRING) project is a five year USAID-funded Cooperative Agreement to strengthen global and country efforts to scale up high impact nutrition practices and policies and improve maternal and child nutrition outcomes. SPRING provides state-of-the-art technical support and focuses on the prevention of stunting and maternal and child anemia in the first 1,000 days. The project is managed by JSI Research & Training Institute, Inc., with partners Helen Keller International, The Manoff Group, Save the Children, and the International Food Policy Research Institute.

USAID in the Kyrgyz Republic has asked SPRING to improve the nutritional status of women and children within the Feed the Future zone of influence by improving nutrition-related behaviors, enhancing the quality and diversity of diets, and supporting evidence-based nutrition policies. SPRING's geographic focus is Jumgal *rayon* of Naryn *oblast* in the north and 10 jurisdictions of Jalalabad *oblast* in the south. SPRING's work plan includes community interventions and mass media to improve nutrition practices at the household level as well as activities to strengthen delivery of nutrition services, including counseling through the health services.

In October and November of 2014, SPRING undertook formative research in the target areas. The findings, combined with additional information gleaned through a baseline survey, will be used to design an effective behavior change strategy with activities, messages and materials for the target population.

NUTRITION ISSUES IDENTIFIED IN THE 2012 DEMOGRAPHIC AND HEALTH SURVEY

According to the 2012 Demographic and Health Survey (DHS), 18 percent of Kyrgyz children under the age of five are stunted. The prevalence of stunting varies among regions, with the highest prevalence concentrated in the south in the regions of Osh and Batken. No apparent association exists between stunting and wealth quintile or stunting and mother's educational attainment, and rates of stunting do not differ significantly between urban and rural inhabitants. Just seven percent of women are classified as undernourished, while 31 percent are overweight. Women classified as thin (BMI<18.5 cm) are more likely to have a stunted child.

According to the DHS, 43 percent of children ages six to 59 months and 35 percent of women of reproductive age have anemia. Anemia prevalence is highest in the regions of Talas and Chui, and lowest in Osh City and Jalalabad regions. As with stunting, there appears to be little association between anemia and wealth quintile or maternal educational attainment, and rates do not differ significantly between urban and rural inhabitants. The DHS reports that only two percent of women took iron supplements for 90 days during pregnancy.

Dietary Intake

Global recommendations suggest that children under the age of six months should be exclusively breastfed, and that children should continue to receive breast milk through the age of two years, with complementary foods introduced at six months of age. Although nearly all mothers in Kyrgyzstan initiate breastfeeding, the DHS indicates that only 38 percent of children are exclusively breastfed at ages 4 to 5 months, the median duration of exclusive breastfeeding is 3.3 months and only 56 percent of children receive breast milk through age two. The findings on infant and young child feeding (IYCF) practices differ somewhat between the DHS and the SPRING baseline conducted in October of 2014 as shown in Table 1 below.

Table 1. Comparison of Infant and Young Child Feeding Indicators, DHS and SPRING Baseline

Indicators	DHS[1]	SPRING Baseline
	%	%
Dietary diversity for children ages 6 to 23 months with emphasis on food sources rich in iron and vitamin A		
% of children ages 6–23 months who ate foods from four or more groups in the previous 24 hours	44%	45%
% of children ages 6–23 months who ate iron-rich foods in the previous 24 hours	61%	78%
% of children ages 6–23 months who ate vitamin A-source foods in the previous 24 hours	66%	56%
Minimum meal frequency for children ages 6 to 23 months		
% of children ages 6–23 months who were offered food the appropriate number of times per day for their age and breastfeeding status	44%	45%
Minimum acceptable diet for children ages 6 to 23 months		
% of children ages 6–23 months who had the minimum adequate diet for their age and breastfeeding status	16%	22%
Early initiation of breastfeeding		
% of children who were put to the breast within one hour of birth	84%	67%
Exclusive breastfeeding from birth through the first six months		
% of children ages 0–5.9 months who received only breast milk during the previous 24 hours	56%	32%
Bottle feeding		
% of children ages 0–23 months fed anything with a bottle	22%	29%
Timely introduction of appropriate complementary foods		
% of children ages 6–8 months who received semi-solid or solid food during the previous 24 hours	57%	88%

[1] The Kyrgyz Republic Demographic and Health Survey, 2012, was conducted by the Kyrgyz National Statistical Committee, the Ministry of Health, and the USAID MEASURE project. The sample included 8,208 women of reproductive age and 2,636 women with children under age five. Fieldwork was conducted in August through December of 2012.

CONTEXT OF THE TARGET AREAS

SPRING works in one district in the northern province of Naryn called Jumgal where the population is of Kyrgyz ethnicity. The entrance to Jumgal is at the edge of a wide plain, but most of Jumgal is mountainous and along a steep and narrow river valley. There is some irrigation along the river for growing grain and potatoes, but most of the agricultural activity in this area focuses on raising livestock, including sheep, goats, horses, and cattle. The baseline survey reports that, on average, families interviewed have 17 sheep, which is their predominant livestock. Much of Jumgal District is at an altitude of 1,850 meters (6,000 feet) or higher, which means barely three frost-free months and a very short growing season. Livestock are moved to high mountain pastures during the summer. There are several mines in Jumgal where some local men are employed. Few men leave Jumgal to work abroad.

Most of the target jurisdictions in Jalalabad Province are equally mountainous, but with a drier climate. These are also pastoral regions, although people have fewer livestock, and some households have a milk cow. Most families grow potatoes, and some families also grow wheat, which they sell and in turn buy flour to make bread. There are forests in the mountains of Jalalabad, including the world's largest native walnut forest. Some of the target districts in this zone are isolated four to five months each winter when roads are blocked by snow.

A geographically smaller but more populous portion of the Jalalabad target area is part of a wide, irrigated, heavily farmed valley. This region has a much greater population density and more ethnic diversity, with as much as one-third of the population non-Kyrgyz – primarily Uzbeks, but also Turks, Kazakhs and Russians. There are some enclaves of conservative Muslims. A greater proportion of people in this area have salaried employment either as professionals, skilled laborers, or on large farms, which are former Soviet collectives. At least one-third of households in this area have someone working abroad as either seasonal or longer-term laborers in Russia, Kazakhstan or the Gulf States. Most rural families and those living in small towns have vegetable gardens and fruit trees. In recent years, there has been rural-to-urban migration to the city of Jalalabad, with families living in substandard conditions in deteriorating apartment blocks. The growing season is almost six months with very hot summers. Throughout this report, the area will be referred to as "Lower Jalalabad" to distinguish it from the mountainous areas.

PURPOSE OF THE FORMATIVE RESEARCH

This formative research was conducted to gain a better understanding of dietary practices for families with children under age two, and what factors affect family diet, child feeding and nutrition status, in order to inform SPRING project strategies and communications materials. The formative research was also used to triangulate findings from the baseline survey. The formative research was designed to answer the following questions:

- What do families normally eat in different parts of the target area?
- How is that affected by food availability and food access?
- Which food groups are particularly affected by seasonal availability?
- Does current household food preservation and storage minimize seasonal unavailability?

- Are some nutrient-dense foods available and accessible but underutilized?
- Is there gender bias in intra-household food distribution?
- How much and what food is purchased and what is primarily from home production?

Food Attributes

- Are certain foods perceived as unsuitable for pregnant or lactating women, or young children?
- Are certain foods considered particularly nutritious?
- What do women know about the relative nutritional value of different foods?
- What are attitudes towards foods of low nutrient value?

Infant and Young Child Feeding Practices

- What are attitudes about colostrum, pre-lacteals and immediate breastfeeding?
- What are barriers to exclusive breastfeeding for the first six months of a child's life?
- When (and how and with what) is complementary feeding started, and when are other liquids introduced?
- Who in the household makes decisions about IYCF practices?

Water Sanitation and Environmental Hygiene

- What is the availability and condition of latrines?
- What are the barriers to maintaining hygienic latrines?
- Are there conditions around houses that expose children to environmental enteropathy?
- What is the access to clean water and who carries water to the house?

Health Facilities

- How well equipped are health facilities to provide nutrition-related services?
- Do health facilities have micronutrient powder (*Gulyzak*) to distribute? Are iron supplements available in the pharmacy?
- Do health staff have practical knowledge about nutrition?
- Are there any nutrition education materials available for patients to view or take home?
- What are the general conditions of hygiene and sanitation in health facilities?

METHODOLOGY

Men's Focus Group Discussion in Naryn

The formative research was conducted over a period of four weeks in October and November of 2014, immediately following the finalization of the baseline quantitative survey which was conducted in late September and early October. A complete schedule of the fieldwork and sites is included in Annex B.

Three members of the SPRING/Kyrgyz Republic staff and one consultant conducted the research, and were assisted in one district by a Peace Corps volunteer. In Jumgal, the two government Health Promotion Unit (HPU) staff were actively involved in leading focus groups and/or taking notes. Health Promotion Unit staff in the two Jalalabad regions assisted in organizing focus groups and interviews, but did not lead focus groups due to a lack of time to train them.

The Health Facility Assessment (HFA) was conducted simultaneously in the same villages by the SPRING Capacity Building Specialist. She always went to the Maternity Center and Family Practice Center for the district and when time allowed, she also visited health facilities in adjacent villages.

Everyone interviewed was read a formal consent statement explaining the purpose of the study and giving them the option to decline to participate. Signed consent forms were collected and have been appropriately filed.

METHODS AND TOOLS

Six activities comprised the formative research:

1. Focus groups with mothers of young children;
2. Focus groups or key informant interviews with men from the community;
3. A participatory activity with community women to examine food availability and access;
4. Focus groups with Village Health Committees;
5. Transect walks with a structured observation guide in communities and district centers;
6. HFAs.

The SPRING team and consultant developed guides for each of these activities, adapted primarily from guides used in similar formative research in the region or elsewhere with Feed the Future projects. The guides were translated into Kyrgyz, back-translated and tested before use. English versions of the guides can be found in Annex C. The activities and guides enabled the team to triangulate critical information as well as triangulate findings from the baseline survey. Additional, less-structured opportunistic interviews with individuals filled in gaps in qualitative information.

The HFA tool was adapted from a similar tool used in the USAID Quality Health Care project for prenatal care. The adaptation focused on nutrition-related services of the health system such as anemia, pre-natal nutrition counseling, IYCF counseling, distribution of supplements, and related record-keeping. The HFAs included interviews with health staff, record reviews, and observations.

Team members were given individual training for their assigned activities and worked under the close supervision and guidance of the consultant. After the first day in the field, additional revisions were made to the tools and methods.

SAMPLING

The first stage of sampling was based on geographic differences. The sample at this stage included Jumgal, lower Jalalabad, and a remote mountain area of Jalalabad, since topography was hypothesized to be a significant factor in food availability and access, together with possible cultural differences in food and child feeding practices between the northern and southern regions of the country. For the second stage, a purposeful sample of nine villages was selected in Jumgal to further capture differences due to topography, physical access, and livelihoods.

Topography was less of a factor in selecting sites in lower Jalalabad than elsewhere, although the purposeful sampling captured one low elevation village and one foothill village as well as urban, peri-urban and rural settlements. One village selected was a former mining town where people do not engage in extensive food production.

Toktogul, the largest mountain district in terms of land area in Jalalabad, was selected to represent the mountain areas because it was still accessible in November from the Bishkek route where the pass is kept open. Villages were purposefully selected in Toktogul to represent both those that are remote and difficult to access, as well as those that are closer to the district center.

DATA MANAGEMENT AND ANALYSIS

Focus groups and interviews were recorded and transcribed the same day they took place or soon thereafter. Paper copies of notes were typed and shared among the team. Team members debriefed daily and began an initial synthesis of findings. The debriefing helped to further refine the guides and questioning techniques and to identify new threads or additional research questions.

After work in each district or area was completed, team members went through a synthesis process using flip charts to highlight findings. This exercise was completed in English to enable the consultant to begin coding all findings manually. Ultimately, the conclusions coincided completely with those of the initial synthesis.

Key Findings and Implications

Table 2 below highlights key findings and implications from the formative research conducted.

Table 2. Summary of key findings and implications

Findings from SPRING formative research	Implications and recommendations
Factors affecting household food consumption and dietary diversity	
– Food insecurity does not appear to be a barrier for most households. – Fruits and vegetables are seldom consumed in winter due to scarcity and price. – Fruits that are preserved have high sugar content and few nutrients. – Family gardens do not currently produce a large surplus for preservation. – Unimproved winter storage methods are utilized for potatoes, root crops, cabbage, etc. – There is little or no family knowledge about nutrient content of different foods. – Egg production of rural households is low due to poor poultry care. – There are underutilized foods such as pumpkin. – Families with cash income have more diverse diets. – All families purchase large amounts of sugar, oil, and considerable amounts of sweet snacks. – Mothers eat extra vegetables while preparing food and eat often between meals. – Tea is the beverage of choice at meals, even for very young children.	– Focus on increasing availability of, and access to, diverse foods rather than overall food availability. – Improve production of, or access to, more fruits and vegetables to store in winter, and improve storage and preservation techniques. Through AgroHorizons Project, pilot a small business venture to rent out freezer storage. – Seek viable methods or technologies for households to produce vegetables earlier in the spring and later in the fall. – Improve poultry care as well as a sustainable system of vaccination to increase survival. – Disseminate messages and materials on dietary diversity and good food sources for key nutrients. – Promote consumption of available vitamin-rich foods which are currently not consumed at high levels. – Create awareness of the concept of "empty calories" and the health risks of overweight and obesity. – Encourage consumption of herbal teas or water with meals, or milk and local wheat drinks for children and adults. – Further investigate possible food taboos or food-related beliefs for pregnant women.
Breastfeeding	
– Women do not know the benefits of immediate breastfeeding for themselves. – Maternity center staff lack training on immediate breastfeeding and believe women are too tired to do so after delivery. – Some maternity staff are giving infants formula, sugar-water, glucose water, etc. – Overall, women lack knowledge about exclusive breastfeeding and/or receive false information. – In traditional culture, breastfeeding is considered very important and women receive familial support to breastfeed in terms of time and workload.	– Train health workers on the need for immediate breastfeeding and the dangers of pre-lacteals. – Disseminate accurate information to pregnant women and women of all ages about the benefits of immediate breastfeeding, and the meaning of exclusive breastfeeding. – Train health workers to counsel on exclusive breastfeeding and enable them the assist women with attachment and other breastfeeding challenges. – Change the social norm to favor not just breastfeeding but exclusive breastfeeding for six months, including promoting understanding that infants do not need

Findings from SPRING formative research	Implications and recommendations
– A general belief persists that breast milk is not sufficient and that infants need supplemental liquids and food. – There is a widespread belief that infants get thirsty without water. – Some believe that infant formula is superior to breast milk. – Women believe they don't produce enough milk. This may be related to poor attachment of their infants. – Complementary feeding starts very young. – Women rarely leave very young infants for others to feed.	other foods or liquids during this time.
Complementary feeding	
– Generally children start receiving food at three months. This is a thin porridge – *bulamyk* – which is made from browned flour with animal fat, milk or water, and sometimes with sugar. – Some women (12% in the baseline survey) delay complementary feeding until eight months, believing breast milk is enough. Women have not heard recommendations on when to start complementary foods. – Women do not have an understanding of what foods are good for young children in terms of relative nutrition content. – There is a lack of awareness among women about the appropriate frequency of complementary feeding and why such recommendations are made. – Mothers feel frequent feeding would take too much of their time. – There is widespread use of sweet biscuits as a weaning food and children are also given cake, pastries, and candy at very early ages.	– Link complementary feeding messages to the concept of exclusive breastfeeding so mothers and family members understand the rationale for waiting to introduce complementary foods. – Rather than discouraging *bulamyk*, focus on improving consistency and nutrient value through the addition of carrots, pumpkin, egg yolk, ground meat or legumes, etc. – Disseminate messages on timing for the introduction of complementary foods, feeding frequency, selection of nutrient-dense foods. – Emphasize convenient, healthy snacks.
Water, sanitation, and hygiene	
– Most families in Jumgal and Jalalabad have access to piped water. – Some families in Jalalabad are drinking water from unprotected sources, but usually boiling it. – Overall latrine coverage is very high, but most in Jumgal and some in Jalalabad do not have cement slabs. – In general, latrines are not clean or well maintained.	– Access to water does not appear to be a problem, which means it is likely not a factor in nutritional status or hygiene. SPRING will not have to focus on access on water availability. – Make promotion of proper cleanliness of latrines and proper disposal of children's feces a priority. The approach of promoting a sense of disgust or shame related to feces may be useful.

Findings from SPRING formative research	Implications and recommendations
Cleanliness of a latrine is not a cultural expectation and there is no sense of shame or disgust about having a dirty one. – Handwashing stations were not observed near household latrines. – Only half of mothers properly dispose of small children's feces.	– Engage former community members who now live in urban areas with toilets to promote clean latrines and/or indoor toilets. – Investigate further the potential for sanitation marketing to create a desire for [clean] indoor toilets.
Other key findings	
– Women in most households have complete mobility and decision-making power to shop for food and seek health services. – Mothers-in-law are involved in feeding young children in their households and giving advice to young mothers. – Health professionals are perceived as very credible sources of information but need counseling skills and improved technical knowledge and capacity.	– Engage mothers-in-law and all older women, including retired health professionals in the community, as an important secondary audience. – Provide health professionals with accurate information and good counseling skills in order to advise women well.

Detailed Findings

DIETARY PATTERN BY REGION

Main dishes and hot foods served are almost always mixed foods, such as hearty soups or rice pilaf, or a pastry filled with meat and or vegetables. Soups are generally served in separate bowls, but in the South, variants of pilaf are sometimes served on a single platter from which the whole family eats. Meals are always accompanied by bread and sometimes by vegetable side dishes known as *salat* (salad), even if the vegetables are cooked. In summer, fresh raw vegetables and fresh fruit are often served at meals and eaten as snacks. The most commonly served fresh produce are tomatoes and cucumbers. Dill, fresh or dried, is used liberally to season food. There is a strong preference for white bread, but if families grind their own wheat, the bread may be whole wheat. Wheat, buckwheat, and other grains are often served as porridge either in the morning or evening.

There are distinct differences in common foods between Jumgal and the whole Jalalabad area, and lesser distinctions between the mountains and the valley of Jalalabad. In Jumgal, due to the predominance of livestock production and the shorter growing season, animal products figure prominently in the daily diet. Rice is much more common in the Jalalabad area and consumption of fruits and vegetables is higher, at least during the autumn season when the baseline survey and formative research were conducted. Table 3 lists the most commonly consumed foods as described by women participating in the formative research, who reached consensus on these food items.

Table 3. Commonly consumed foods in each area

Jumgal	Lower Jalalabad	Toktogul
Bread	Bread	Bread
Jam	Jam	Jam
Milk and milk products – all kinds	Milk products (kefir, yogurt, cream, *sary may**)	Milk products (kefir, yogurt, cream, *sary may*)
Potatoes	Rice	Rice or macaroni
Pasta (homemade noodles)	Pumpkin (butternut squash) in season	Pumpkin (butternut squash) in season
Meat – chicken, goat, mutton or beef (not daily)	Corn in season Potatoes	Meat – mutton or goat (not daily)
Eggs	Sprouted wheat	Butter
Wheat drinks without sugar	All vegetables and fruits in summer	All vegetables and fruits in summer
Home-canned salads (sautéed vegetables) in winter	Home-canned vegetables or salads	Corn
Tea with sugar	Tea with sugar	Tea with sugar

**Sary may is a type of clarified butter, not ghee.)*

These results were largely verified by the analysis of dietary diversity for women from the baseline survey (see graph in Annex D), however, the formative research also asked about quantity and frequency of consumption. While the baseline indicates a relatively high level of meat consumption in all areas, formative research participants said that they only consume meat three to four days a week and that the amount put in the usual soup, pilaf, or other mixed dish and shared among all family members is small, about 200 grams. With an average size family of five members, this would be only 40g or less than 1.5 ounce each.

Tea, either black or green, is the universal beverage of choice and is taken with meals and in between meals. Tea is generally sweetened and is given to children. The baseline survey found that a quarter of infants ages 0-5 months were given tea and that increased to almost three-fourths of children between ages 6 and 11 months. This is a concern given the role of tea in inhibiting iron absorption from non-heme sources. Women in the focus group discussions (FGDs) also mentioned that families drink milk and a local beverage made from wheat or corn. Fruit juice with sugar, either homemade or purchased, is generally reserved for special occasions.

FACTORS AFFECTING DIETARY DIVERSITY

Food Availability

A wide range of foods is available in all regions. Annex E shows which foods are produced, purchased, consumed on a daily basis, and stored. Most nutrient needs could be met through consumption of locally available foods most of the year, with the exception of vitamin C. Local vitamin C food sources are mostly non-existent in winter months, after all stored cabbage is consumed. People in urban areas have access to shops or supermarkets which import vitamin C-rich foods, however, FGD participants indicated these foods are too expensive for regular consumption. Imported lemons make their way to most market towns, but are used sparingly in tea. The lack of vitamin C is related to the issue of anemia since the vitamin enhances the absorption of any non-heme iron that is consumed.

Red meat is available and is consumed, at most, two or three times a week. Furthermore, the amount consumed by any one family member is small. Families who have chickens report eating more eggs and eating them more often than those who do not have chickens. Egg production from chickens is generally limited, however, since hens are often not kept enclosed or fed well. Households with chickens report frequent epidemics of Newcastle and other possible diseases since there is no longer a vaccination program and the vials of vaccine, when available, are for 100 chickens, which is not practical for smaller household use. The baseline survey reports that the average number of chickens among households who have chickens is six for Jumgal and five for Jalalabad.

There are locally available nutrient-dense foods that are currently underutilized. One of particular note is pumpkin, which grows well in Jumgal. People there report that they don't know how to use it and often just feed it to their chickens. These pumpkins (*cucurbita moschata)* keep well long into the winter and are an excellent source of vitamin A. They also grow well in Jalalabad, and people there have various ways of cooking them. Pumpkin leaves as well as from leaves from radishes, beets, and turnips are not consumed at all, but would be a good source of iron and offer some vitamin A as well.

Food Access

Families with cash income eat a much more varied diet than families that produce most of their own food. This was true even in the remote mining communities where food has to be brought in from market towns or purchased in shops. These families reported not only eating more processed food, but also a larger variety of meats and vegetables in particular. In contrast, families with land and livestock but less cash income seem to confine their food choices to what they can produce, purchasing very little except oil, sugar, salt and some foods of low nutrient value such as cakes and instant noodles. In both cases, there does not seem to be much purchasing or trading conducted within communities among neighbors.

The common sentiment about fruit and vegetable purchases is that they are always less expensive in a market town than in more rural areas, and those who live in market towns perceive that produce is cheaper in the next bigger market town, so they sometimes pay for transport to go shopping there. Some women did report that the cost of transport to reach the nearest market or the time involved travelling is a barrier to purchasing fruits and vegetables. On the other hand, professional working women interviewed as key informants in Jumgal mentioned the lack of time is a barrier to purchasing food, particularly to seeking out diverse foods in their local market and shops.

The World Food Programme Food Security Assessment conducted in September of 2013[2] found that approximately 14 percent of households, primarily day laborers and pensioners, were food insecure. Focus group participants confirmed that these are the groups spending the largest share of their income on food. They mentioned that there is a protective factor in rural households where young couples with small children sometimes live with parents, thus reducing their need to completely depend on their own income for sustenance.

Food Preservation and Storage

Most families contacted in the formative research, with the exception of some urban families, say they store and preserve foods for winter. The foods preserved or stored are fruits or vegetables, including tubers. The formative research did not investigate grain storage since under-consumption of cereal foods is not an issue. In urban households, the main limitation is space, although even some urban households keep tubers, apples, and cabbages in a cold room. They further pointed out that they can buy fresh fruits and vegetables in the market and shops year around, although at high prices in winter.

Jumgal women with their preserved vegetables

Foods that are stored rather than preserved include potatoes, cabbages, root vegetables such as carrots and turnips, apples, pomegranates, and pumpkins. According to the baseline, the most common place for storing produce is in a cellar under the house.

[2] http://documents.wfp.org/stellent/groups/public/documents/ena/wfp262003.pdf Accessed 11/19/14

Potatoes, cabbages, and root vegetables are sometimes buried in trenches and will keep that way for three or four months, with potatoes keeping even longer. This system is quite primitive and all can be lost in severe winters. Apples, pomegranates, some root vegetables and cabbages are sometimes stored in an unheated room, where they will keep for up to three months. Grapes, persimmons, tomatoes and eggplants can be stored in a cool place for up to two months. Families reported that they always consume the stored food by late winter and then must purchase additional potatoes, carrots, and other produce or, if prices are too high, they go without.

The baseline survey asked specifically about what foods are stored and about approximate quantities of those foods. Details are provided in Annex F. The amounts stored are significant. In Jalalabad and some communities of Jumgal, families reported purchasing additional vegetables to store, which implies that home garden production is not sufficient to meet their needs.

Day-to-day food storage is facilitated by the fact that nearly all villages have electricity and most families (85 percent in the baseline survey) have a refrigerator. This has made it much easier for families to store perishable foods such as meat and dairy products as well as leftover food. However, the amount of the products that can be stored at one time or for longer than a few days is limited by the small size of the refrigerators and by erratic power outages in winter.

Food preservation is widely practiced. Ninety five percent of women interviewed for the baseline in Jalalabad and 71 percent of those in Jumgal preserved food in 2014. Food preservation involves manipulating fresh products in order to stop ripening and slow or halt decomposition by bacteria, yeast, and molds. This is most often done by sealing off air, or by adding sugar, salt, or acid. This manipulation may also involve heating the product. The most common method of preservation, namely canning, consists of packing foods that have been sterilized by heat into jars and sealing out all air. Ideally, the jars are also sterilized prior to filling them, and the filled jars are further processed in boiling water or with steam pressure to kill anaerobic pathogens such as botulism. These last two steps, which are globally recommended, are not always practiced in Kyrgyzstan.

Produce most commonly preserved in all regions are cucumbers as pickles, and tomatoes. There are a lso varying versions of mixed vegetables, which are usually sautéed in oil before being sealed in jars. These are simply known as “salad” and present the most risk for botulism because they are low in acid. Soft fruits such as berries are made into jam. Other fruits, particularly apples, cherries, plums, and peaches are canned as “compote” which is a small amount of fruit with water and sugar added. In the case of fruits, whether preserved as jam or as compote, the long cooking time destroys virtually all the vitamin C content, which means they primarily contribute calories and some fiber to the winter diet. During field work, it was evident that rural women were very proud of their canning efforts and motivated to preserve food this way as much by an enjoyment of the flavors as by the need for a variety of food available in winter. From observations during the formative research, the amount of food canned or pickled is small for the size of the households.

The other method for preserving food, used primarily in the south, is solar drying. Eighteen percent of families interviewed for the baseline in Jalalabad had dried some food. This method is used for apricots, plums, and grapes. When asked, people had not heard of drying vegetables. It should be noted that the

hot dry summers in the south are good for this type of food preservation. Much of the fruit that is dried is sold rather than saved for home consumption.

Other than tiny compartments in refrigerators, people in the target area do not have access to freezers. Freezing fruits and vegetables would preserve more nutrients, eliminate the need to add sugar or salt, remove the risk of anaerobic food borne illness, and be much more cost effective than canning, which requires expensive jars, lids, and heat.

Food Attributes

Women in the focus groups and in the food availability exercise were asked to name foods that are forbidden for, or not consumed by, different family members, including pregnant women and young children. In all regions, but particularly in Jumgal, women had received a message that the frozen chicken sold in markets and shops (usually imported from China) is full of hormones and dangerous to the health of everyone. They said they previously consumed more chicken until they learned this. It is unclear where the message originated, but it seems to have been widely disseminated in very recent years.

In lower Jalalabad, women said they wouldn't use cottonseed oil, preferring oil made from other plants such as corn or soy. This may be because of their intimate knowledge of cotton-growing, including heavy use of pesticides on the crop.

There is also concern about the safety of eating purchased mayonnaise. No one could articulate what the safety issue might be, but a government decree banned it from being served in preschools and kindergartens. This issue has been around for quite some time.

Women have heard that liver is good for preventing and curing anemia, but they shy away from eating it because they have frequently seen liver flukes when butchering an animal. This is an animal health issue that could be addressed by agriculture programs.

The only foods that women identified as unacceptable for very small children were spicy foods made with peppers. They said that children wouldn't like them. More investigation could be completed about foods deemed unacceptable for small children.

The theme of foods considered unacceptable for pregnant and lactating women needs to be further explored as nothing emerged in the discussion. This may have been because of the presence of health workers in the focus groups.

Food Consumption within the Household

Families reported that they eat two or three meals together per day. Some families prepare hot food only for the evening meal. Women are responsible for food preparation. They were asked during focus groups whether they eat while preparing food and all reported that they do, particularly raw vegetables such as carrots, cabbage, tomatoes, cucumbers, and onion. They also share these snacks with children who are present. Women also reported that they often eat while cleaning up after a meal, for example, finishing soup left by a child.

Foods women consume between meals
Jumgal: bread, cookies, apples, wheat national drinks, corn drink, kefir
Jalalabad: bread, cookies, apples, dried or fresh apricots, kefir
Toktogul: bread, cookies, corn when in season, wheat drinks

Women in the focus groups said they frequently eat between meals, often three or four times a day. This practice was much more common among women who do not work away from home. Snacks vary somewhat across the regions as shown in the box at the left. This non-meal food consumption may be a significant source of extra nutrients and calories for women.

When asked whether men are favored in intra-household food distribution, there was consensus that men get a larger serving, but are rarely served different foods than the rest of the family because of the mixed dishes. Women in focus groups commented that if men and boys need more to eat, they can fill up on bread.

Leftover main dishes from the previous day are frequently re-heated to give to men for breakfast. Women and children are more likely to eat porridge, bread and jam for breakfast, always with tea in all regions. Table 4 shows the usual meals eaten in different regions.

Table 4. Foods Most Often Prepared for Family Meals

Meal	Foods prepared
Breakfast	**All regions:** milk, cream, tea with bread, tea with jam or sugar, leftovers from the night before (mostly for men), butter or homemade *sary may*, and sometimes porridge made of buckwheat or wheat
Lunch	**Jumgal:** fried potatoes, macaroni, eggs **Jalalabad:** milk with rice, pumpkin with milk **Toktogul**: rice or pasta with vegetables
Dinner	**Jumgal**: mostly soup but also pasta filled with meat or vegetables (*manti, samsa)* (soup is meat broth with carrots, potatoes, herbs, sometimes meat, other vegetables) **Jalalabad**: rice soup with vegetables, rice pilaf, with meat at least once a week **Toktogul**: rice pilaf with or without meat, pasta filled with meat and vegetables

Focus group participants said that many pregnant women eat more than three meals a day. Some said when they were pregnant, they ate four, five, or even six small meals. They get advice from health workers to eat more during pregnancy and to eat more fruits and vegetables.

NUTRITION KNOWLEDGE

Women who participated in the formative research exercises understand that some foods are better or more nutritious than others. Very few women, however, know the relative nutrition content of different foods. This lack of knowledge included health workers. For the most part, they were unable to identify

good food sources for different nutrients when presented with a range of food photos. They could say that fruits and vegetables "*are good for the body*", or that "*vitamins prevent diseases.*" They knew that it is important to use iodized salt, and many were able to explain that iodine prevents goiter, but others said it is for "*making children grow smarter*."

Only the men who are Village Health Committee (VHC) members had some concept of malnutrition and anemia and their consequences. Other men in the focus groups and interviews equated the word nutrition with food in general. Some expressed that animal source foods make people stronger and healthier.

CURRENT CHILD FEEDING PRACTICES

Immediate Breastfeeding

The most revealing information about immediate breastfeeding came from the baseline survey results. Virtually all children are delivered in maternity centers and women stay there with their infants for approximately five days. The survey found that almost all children were put to the breast within a few hours of birth, however, 11 percent of infants in Jalalabad and seven percent in Jumgal were given a pre-lacteal, usually infant formula or sometimes sugary water. It seems probable that the decision to give the pre-lacteal is being made by maternity staff rather than by the mother and is in accordance with the existing protocol for low birth weight infants or for women who have had a caesarian section.

Exclusive Breastfeeding

According to the baseline survey, 99 percent of new mothers initiate breastfeeding, however infants start receiving other liquids at one month and gruel by three or four months of age. Only one-third of children ages 0-5 months in the survey were being given breast milk exclusively, which is much lower than the 56 percent reported in the DHS.

Table 5. Liquids consumed by children ages 0-5 months

Liquids consumed by children ages 0-5 months SPRING baseline survey	Region					
	Jumgal		Jalalabad		Total	
	Count	%	Count	%	Count	%
Breast milk	67	85%	99	99%	166	93%
Plain water	47	60%	38	38%	85	48%
Tea	21	27%	28	28%	49	27%
Commercially produced infant formula	12	15%	15	15%	27	15%
Milk such as tinned, powdered or animal milk	6	8%	13	13%	19	11%
Any other liquids	2	3%	13	13%	15	8%
Fortified, commercially available infant and young child food	4	5%	4	4%	8	5%

In the focus groups, women said they start giving other liquids because they think their young child must be thirsty. Many also said they are afraid they are not producing enough breast milk and some said they

think infant formula is good for the child. Some said they have been told by health workers that breastfeeding is still considered exclusive if they are only giving other liquids, but not food, to their child. Table 5 highlights liquids consumed.

No one talked about breast problems interfering with breastfeeding. Women agreed that they don't leave breastfeeding babies with caretakers except in real emergencies and then, they might leave formula or cow milk for the child. Using a bottle to feed the other liquids is common, even among children older than six months.

There is a general belief, particularly in Jumgal, that breast milk is not sufficient after two or three months, that the baby is hungry and therefore that it is necessary to start giving semi-solid food. This is usually a thin gruel described further below in the section on complementary feeding.

About a third of women in the focus groups say they still use a traditional cradle with swaddling. Babies are left in the cradle four to five hours at a time or overnight. It is unclear whether babies are lifted out for breastfeeding, and if not, what effect this might have on breast milk production.[3]

In general, breastfeeding is viewed as an important practice, and women receive support from their mothers-in-law and other family members to have time to breastfeed and to eat well while lactating. However, as shown in the baseline survey, women discontinue breastfeeding long before the recommended two years, with only about half of women still breastfeeding when the child is one year old. During focus groups, women said they quit when they become pregnant again or when they took a medicine, or when they had no more milk. A few women mentioned that the Quran says not to breastfeed when pregnant with another child, but eminent religious leaders say that this is not found in the Quran.

Complementary Feeding

In both target areas, but particularly in Jumgal, complementary feeding starts too early rather than too late. The baseline reported that fewer than 15 percent of children between the ages of 6 and 8 months were not getting food in addition to breast milk. By nine months, all children were being fed solid or semi-solid food.

The most common first food in both regions is a gruel called *bulymak,* which is made by browning flour in animal fat and adding either milk or water, and sometimes sugar. At first, it is made to be very thin, but as the child grows, the thickness of the gruel increases. Many women in the focus groups reported giving this food to their child daily while others said they made it every other day. Children are also given other porridges, mashed potatoes and rice as early foods. Many women also give sweet biscuits or bread.

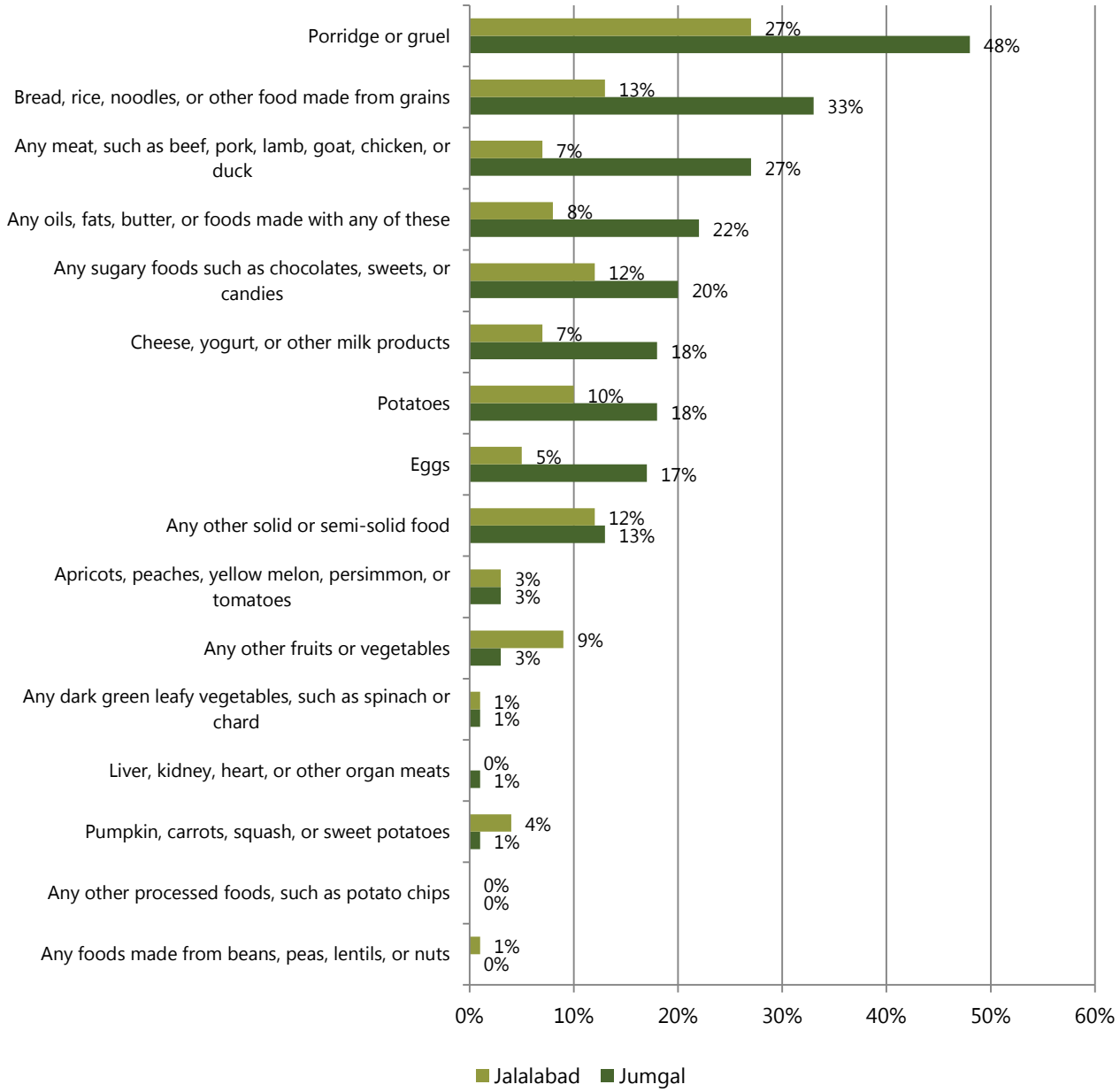
Women in the focus groups said they feed their child at regular mealtimes and many give small children snacks as well. It appeared that many had not received messages about how often to feed their child and some who had heard the recommendation thought it meant preparing hot food more times a day, which they wouldn't have time to do. Most women said children are given food on a separate plate.

---

[3] This question specifically asked whether a mother lifts the infant out of the cradle to hold him/her while breastfeeding or whether the mother simply leans over the cradle to breastfeed.

Table 6 lists the different foods children ate in the 24 hours prior to the baseline survey. Children ages 6-23 months in Jumgal ate a mean of 2.9 food groups out of seven, while in Jalalabad the mean was 3.3 food groups. The table shows that children in Jumgal were given more animal source foods while children in Jalalabad were given more vegetables, which is consistent with the focus group findings.

Table 6. Solid and semi-solid food consumption among children ages 0-5 months yesterday during the day or night

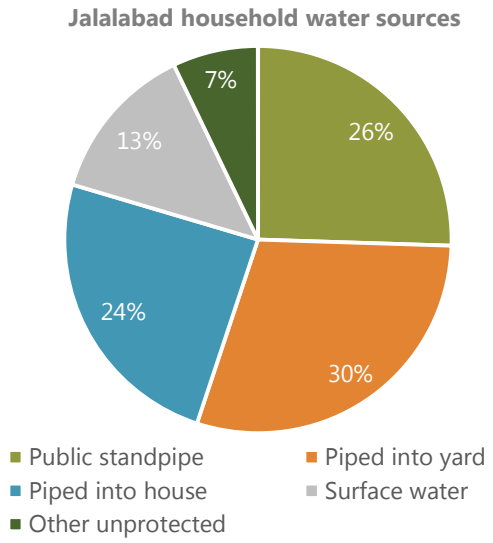


In general, women participating in focus groups did not appear to have received much information about optimal child feeding practices. They reported getting some advice from health workers, but tend to follow suggestions from their mothers or mothers-in-law to feed the child in traditional ways.

WATER, SANITATION, HYGIENE

Access to Clean Water

Access to clean, piped water in Jumgal is generally very high. Families go only a short distance to a public standpipe to retrieve water and some families have a standpipe in their yard. According to local leaders, approximately 5 percent of families have water piped into their homes. According to the baseline survey, few families in Jumgal treat their water, which may be acceptable since the water is coming from a protected source.



The situation is more complex in Jalalabad, as shown in the graph to the left, where many more people have access to water piped into their yard or dwelling, with approximately one quarter of households getting water from a public standpipe, and the rest getting surface water or water from an unprotected spring. The baseline survey reported 98 percent of families surveyed say they treat their water, usually by boiling. The concern is the 13 percent of families that use surface water, which is often contaminated by agro-chemicals or mining waste in this zone. During the formative research, boys were observed drinking from a drainage channel along a street as well as from an irrigation ditch.

Latrine and Toilet Coverage and Condition

The 2012 DHS reports that 99 percent of all households and 94 percent of rural households have a ventilated improved latrine or a latrine with a slab. This definition of slab did not specify material. The 2014 Multiple Indicator Cluster Survey (MICS) reports that 97.5 percent of all households have access to an improved toilet facility, with no definition given for "improved." The SPRING baseline also considered any latrine with a slab as improved, but the translation of the word "slab" in Kyrgyz specifies that the slab has to be cement/concrete, not wood or other material. With this more specific definition, 90 percent of households in Jumgal and 31 percent in Jalalabad use unimproved latrines. The formative study used observation to verify this and also observed for the presence of latrines at public institutions (schools, health facilities, eating establishments, etc.) and the hygienic conditions of the toilet facilities. Observations are highlighted in Annex G.

Researcher observations revealed that many or most latrines are in poor condition, and roofs and doors are sometimes missing. Some were located quite close to houses, but most were a reasonable distance away. No handwashing facilities were observed close to household latrines. Most importantly, the latrines observed were unclean, with excrement all around the hole. Virtually all latrines observed in Jumgal and many in Jalalabad have a wooden "slab" which is considered an "improved latrine" by international definition, but these are harder to clean than cement and subject to rotting away quickly.

Not all health facilities have latrines. The ones that had latrines kept them only slightly cleaner than household latrines. Toilets inside hospitals and maternity centers were reasonably clean although some lacked running water, hence, were pour-flushed. Water and soap were available for handwashing at health facilities.

The situation at schools is concerning. All of those observed had some kind of latrine and usually had separate sides for boys and girls, but there was often just one of each for a school with many students, and all of them could be described as filthy. In two cases where donors had constructed very nice latrines of sufficient number for both boys and girls, these new facilities were locked up and unused. Only these new latrines had handwashing stations.

If anything, latrines observed in other establishments including a restaurant, city hall, office buildings, and business establishments were the least hygienic of all. It was evident that anyone who enters one will subsequently track fecal matter outside upon leaving, which has serious health implications. While very small children may not go near latrines, the pathogens are brought right to their play areas.

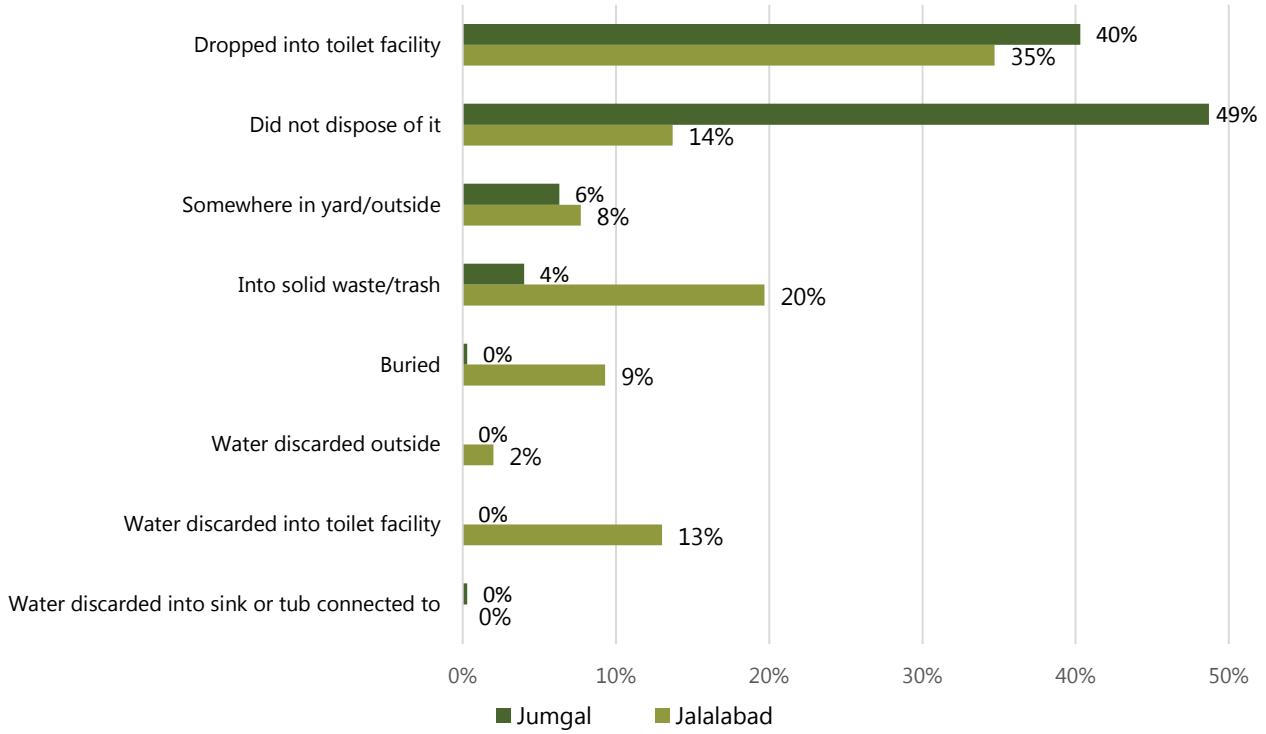
Since the formative research team could not find clean household latrines in order to conduct a Doer/Non-doer study of the barriers and motivators to maintaining clean latrines, the study relied on interviews with school personnel and VHCs, using a tactic of having them analyze the reasons why other people in their communities don't use latrines properly and keep them clean. To assess potential for sanitation marketing, the study team also asked random individuals in Jumgal about interest in, and barriers to, indoor plumbing as well as why the few households who have indoor toilets keep them clean.

It is evident both from observations and discussions that the prevailing social norm is unclean latrines. There is no felt need to keep them clean, no sense of disgust or shame because everyone's latrine is in the same unhygienic state. Other barriers cited by the VHCs include the lack of running water near homes, the lack of cleaning materials, and laziness. On the other hand, there was agreement that the incentive to keep indoor toilets clean is to prevent or eliminate odors. Obviously, anyone who has an indoor toilet also has piped water which makes cleaning easier.

When asked, individuals cited that the principal reason they might want, or have, an indoor toilet is for the benefit of an elderly or disabled household member. No one mentioned other benefits of indoor plumbing such as not having to go out into the cold or for the convenience of small children. For most households in Jumgal, cost is the major barrier to an indoor toilet, because they would not only have to pay for plumbing the house but also for putting piped water into the house from the nearest source and building a septic tank.

The results of the baseline survey reveal a problem with proper disposal of children's feces. More than half of women in both Jumgal and Jalalabad did not dispose of their children's feces properly by putting them in the latrine or toilet. Table 7 below shows that feces are often simply left outside the house or put in the trash. The formative research did not investigate attitudes about children's feces or why they are not put in the toilet or latrine, therefore, this will have to be included in another round of research.

Table 7. Location of child feces disposal last time child passed stools



Other Environmental Hygiene Issues

The study team observed additional aspects of environmental hygiene as well. In smaller villages, garbage disposal was a very evident problem. Household garbage is tossed into vacant lots or left along the side of the street. One of these dump sites of waste from a market area was adjacent to the Jumgal District Hospital complex. Domestic animals scavenge in the garbage while children play nearby.

In observing for conditions that are associated with environmental enteropathy, such as children's contact with animal feces, the team noted that chickens roam freely around dooryards. Other livestock are kept in pens farther from the house, but manure may be tracked on shoes to the house, although shoes are always removed before entering the house. Women appeared quite conscious of what children were putting in their mouths and children are generally set down on rugs, not directly on the ground. Therefore, we concluded that exposure to environmental enteropathy pathogens is not high, except in summer when small children may play outdoors without direct supervision.

Handwashing

According to the baseline survey, most women reported that they wash their hands after going to the toilet, before eating, and before preparing food, but less than half wash their hands before feeding a child and very few wash their hand after toileting a child. This last action provides further evidence of the belief that children's feces are harmless.

Further investigation is recommended to learn about barriers to handwashing at all appropriate times. It seems from the good coverage data that access to water should not be a barrier. The baseline also

reported that the vast majority of families have soap for hands at the place of washing but over a quarter of women admitted they don't always use soap when washing their hands.

GENDER AND INTRA-FAMILIAL DYNAMICS

In modern Kyrgyzstan, gender and women's roles show the influence of not only traditional Kyrgyz pastoral culture, but also the centuries of living in mixed communities with Russians, and the Soviet influence on education for women and working women. According to the DHS and the SPRING baseline, 99 percent of women have at least a high school education. In Jumgal, 46 percent have post-secondary training or education, while in Jalalabad, 35 percent of women interviewed have post-secondary training or education. The baseline found that about one quarter of women interviewed work in some profession, a relatively high percentage considering that most of the target area is rural with few available job opportunities.

The formative research found distinctions between Jumgal and Upper Jalalabad with Lower Jalalabad in terms of women's roles in agricultural work. In Lower Jalalabad, women report working long hours in their family fields or for other farms, especially during planting and harvest seasons. In the other two areas, where agriculture is primarily livestock-raising, women reported spending little or no time on agricultural activities other than caring for poultry and livestock kept near the house such as a milk cow.

In all areas, caring for vegetable garden is primarily the responsibility of women, with men taking an active role in preparing the soil and harvesting. Decisions about what to plant and sell are often made jointly, but women report that they usually decide by themselves or with other women in the household. Decisions about selling large livestock are usually made exclusively by men, who are also responsible for care of the large animals.

Housework is considered the domain of women, however, fetching water was observed to be almost entirely the responsibility of young boys. Except in some very conservative families, women have independence in mobility. In focus groups, men reported that it is up to a woman to decide whether to seek health care for herself or a sick child, but in most families, she would have to discuss it with her husband because she would need to ask him for money. Men feel it is their role to handle family finances.

Some newly married couples live with his parents until they can afford a house of their own. The mother-in-law has primary decision-making responsibility about what foods to purchase and prepare, although she may expect the young woman to complete food preparation. Older women also influence child care decisions within the house, as noted above in the discussion of child feeding practices.

Among those of Kyrgyz ethnicity, young men must pay a bride price, either in cash or livestock. In return, the young woman's family must provide a dowry of a household start-up package, which will include furniture, kitchen utensils and bedding, and may include appliances such as a stove or small washing machine. Thus, the number of assets a young couple has may be a reflection of her parents' affluence or the size of bride price they received rather than a measure of wealth of the young couple itself.

Health Facility Assessment Results

The purpose of the HFAs was to obtain an overview of conditions and of supplies available at health facilities, particularly items related to providing nutrition-related services. The HFA was conducted using a checklist for observation and reviewing patient records. Whichever health worker was available to show the researcher around was also given a brief written exam consisting of seven questions to assess practical knowledge. The tools used for the HFA can be found in Annex C. The SPRING staff member in charge of this part of the research, a physician, has many years of experience conducting similar assessments and monitoring health facilities throughout Kyrgyzstan.

Reviewing Materials at a Health Facility

In total, this assessment included 23 health facilities of all sizes. These included five maternity centers, six Family Medical Centers (the main referral centers for a district), and eight lower level centers called Family Group Practice and two rural health posts called FAPs. The sample was purposive; these medical facilities were located in or adjacent to the sites selected for other formative research activities.

The health facilities visited had most necessary equipment along with growth charts. All of the health facilities had some kind of toilet facility, but 9 of the 23 were rated as being in very poor condition. Six of the health facilities in the HFA did not have running water inside, and five others did not have a functioning handwashing station. Almost all of them had the handwashing protocol displayed and soap was available, even if there was not water on hand. While the observation guide did not document this, several of the health facilities did not have central heat, while others had coal stoves in one room and still others had only small electric heaters in some rooms.

None of the health facilities had handout materials on any nutrition topics nor audio visual equipment. Several had nutrition-related posters on the wall, but some were outdated and others were not adapted to the Kyrgyzstan context. Only two health facilities had the existing anemia treatment protocol for pregnant women and five had the protocol for anemia in children. None of the health facilities had iron supplements available to distribute free of charge. Only the Jumgal health facilities had *Gulyzak* (a micronutrient powder) fully stocked and available for distribution (provided by the Swiss Red Cross.)

The review of clinical records for pregnant women revealed that they are neither being prescribed iron supplements according to the protocol, nor is there the recommended follow up for those who are told they should purchase iron. More details are provided in a separate formative research report on anemia.

In general, there are deficits in record-keeping, although records are much better kept in Jalalabad than in Jumgal. Of particular note was one Family Medical Center that had no records for children under age two. Additional investigation will be needed to identify the barriers to keeping complete and accurate records.

The results of the HFA are shown in the chart in Annex H. More detailed descriptions are available in Russian for staff use upon request.

An additional component of the HFA consisted of giving a short training needs assessment to one or more available professional staff at each facility. This short exam existed of seven practical questions as shown in Annex C. The exam was administered to 67 health workers including 42 nurses, 6 gynecologists, 4 *feldshers* (medics), and 5 family doctors. The average score was 2.17 out of 7 points possible, and gynecologists and doctors did not score better than nurses or *feldshers*. All tested had difficulty with the two questions related to prevention of anemia and counseling on the side effects of taking iron supplements. A surprising number of the respondents could not explain counseling messages for pregnant women nor explain the purpose of using iodized salt. They all scored relatively better on recommendations for breastfeeding and complementary feeding.

Recommendations

1. Implement IYCF, BFHI, and anemia training, as stated in the project work plan, for all health workers in the target areas. Follow up with supportive supervision and mentoring to ensure institutionalization of protocols, and new skill development.
2. Conduct supportive supervision jointly with district health officials, with particular attention to improving charting/record keeping.
3. Collaborate with local governments and district health officials to ensure that each health facility has a clean, functional latrine and that the number of latrines or toilets is appropriate for the number of staff and patients.
4. Work with local governments and district health officials to provide handwashing stations and a consistent supply of clean water.
5. Ensure that the Strategic Behavior Communication strategy includes ample nutrition materials for distribution or display at health facilities.
6. Assist the Ministry of Health to develop a new anemia protocol, including designing a training for health workers on implementing the protocol, and a system for distributing iron–folic acid, which has already been procured along with MNP (*Gulyzak*) for Jalalabad.

Annex A. Use of Iron Supplements among Pregnant Women in Target Areas of Jalalabad and Naryn Oblasts

BACKGROUND

According to the 2012 Kyrgyz Republic Demographic and Health Survey (DHS), 35 percent of women of reproductive age have anemia. There appears to be little association between anemia and wealth quintile or maternal educational attainment, and rates do not differ significantly between urban and rural inhabitants. Among women who gave birth during the five years prior to the survey, 39 percent were told they had anemia during pregnancy. Forty-five percent reported taking iron (alone or combined with folic acid) and only eight percent were given any deworming medicine. Among women who were told they had anemia, 80 percent took iron. Among those who did not have an anemia diagnosis, 21 percent took iron. According to the DHS, 97 percent of women received prenatal care and 84 percent attended four or more times. This confirms that accessing health services is not an issue in the Kyrgyz Republic but indicates there is need to strengthen quality of services, particularly counseling of pregnant women on the importance of taking iron and how to cope with side effects.

According to the government's protocol issued in 2002, family doctors, (who are providing pre-natal care), are mandated to prescribe iron and folic acid for pregnant women diagnosed with anemia, however, they are not routinely prescribing for all pregnant women. The tablets are not free, due to the assumption that cost is not a barrier to consumption. Iron and folic acid are provided at low cost for those women covered by the mandatory health insurance program. To understand the dynamics of why pregnant women do or do not take iron, SPRING project staff undertook a qualitative study in the project target areas of Jalalabad and Naryn *oblasts* during October and November of 2014.

METHODS

The study involved obtaining information from the health services and from clients. The former was carried out by visiting health facilities in each region. The numbers and types of health facilities visited are as follows:

6 Family Group Practices in lower Jalalabad,

1 Family Medicine Center, and 2 Family Group Practices in upper Jalalabad (Totogul District)

1 Family Medicine Center and 5 FAPs in Jumgal

A checklist was used to verify service delivery-related to antenatal care and anemia. The gynecologist who collected the information observed for existence of the protocol or materials related to iron-deficiency anemia and reviewed a random sample of charts for women who had recently delivered; approximately 30 charts in each location. She noted how many received prescriptions for iron or iron folic acid, how many were diagnosed with anemia, and whether there was any follow-up to verify they filled the prescription,

took the tablets, or were measured again for hemoglobin status. Doctors and nurses at each health facility were asked whether they had ever had any training on treating or preventing anemia.

To determine availability and cost of iron supplements, including pre-natal multi-supplement, IFA, and iron as ferrous sulfate tablets or syrup, three pharmacies were visited in the remote district of Toktogul. To learn about use of iron supplements from the client side, SPRING conducted 15 focus groups with women who had been pregnant in the past two years. The women were asked about services they received as part of antenatal care, whether they had received a prescription for iron, whether and where they filled it, and why some chose not to fill the prescription or take iron. Focus groups were held in 15 communities, in a mix of locations from very remote to those with good access to services. There were seven or eight women in each group, each having an average of three children. In Totogul, a very large district of Jalalabad, an additional activity was carried out to identify both facilitating factors and barriers to consuming iron or IFA during pregnancy. Individual interviews were conducted with 20 women who took iron during pregnancy and with 20 women who did not. This methodology also defines existing levels of understanding about benefits and potential secondary audiences.

RESULTS

As per the current practice (2002 protocol), iron is prescribed only for pregnant women who have been diagnosed with a hemoglobin reading below 11. A review of the charts showed that one-fourth of women diagnosed with anemia during their initial antenatal care visit never received a prescription for iron, even though one had a hemoglobin of eight.

Physicians mostly prescribe a ferrous sulfate supplement with includes:

Active ingredient – iron as ferrous sulfate (III) 256.30mg, iron equivalent 80.0mg

Additive: ascorbic acid (Vitamin C) 30.0mg; potato starch, 0mg; triethyl citrate 20.08mg, etc.

Active ingredient – folic acid 0.350mg

Additive: sodium hydrocarbonate 0.25mg, talc powder 7.0mg

The price of this French-made product in local pharmacies is approximately 400 som (USD 7.25) for 30 tablets. Families enrolled in the national health insurance scheme pay only about 200 som. The SPRING study found that ferrous sulfate or IFA was available in many formulations in even remote areas.

Many of the charts showed that some doctors gave the prescription without mentioning a name or formulation, leaving it up to the women to decide with the pharmacist what to buy. Many prescriptions were written without mentioning a dosage. The pharmacists visited in Toktogul late in the study and shed light on this. Women who have the insurance are entitled to receive a formal prescription with the dosage and formulation information. In order to get the discount, they must go to the insurance fund to get a statement that they don't owe any premiums. Many women owe money and don't want to bother with this; however, if the doctor writes the full prescription and they go straight to the pharmacy and get it filled, the doctor then is liable for the premium payments in arrears. This seems to be a serious disincentive to the doctors to write any complete prescriptions. They choose to simply jot down "ferrous sulfate" and let the woman take that note to the pharmacy where she will not get a discount. Pharmacists said that, because of the cost, most women purchase only a few tablets at a time.

The 2002 protocol calls for women diagnosed with anemia to return in two weeks for follow-up. Hemoglobin is to be checked twice during pregnancy. (Six pre-natal visits are recommended.) The SPRING review of charts showed no follow-up to ensure that women were taking the prescribed iron and most were not given the subsequent hemoglobin test. The situation was similar in both regions. There was no difference in protocol adherence between gynecologists and family doctors. For both, charting was inadequate, as well. (In one Group Family Practice, no charts/records were being kept on children under two.)

Focus Group Results

Most of the women in the focus groups had been told during one or more of their pregnancies that they had anemia. Some reported severe symptoms of anemia for themselves and their children including *pica*; that is, eating clay. Only one or two women in each group had taken iron or IFA. Folic acid is rarely prescribed and only two out of the 110 FGD participants had ever taken it. They cited cost as the major barrier to taking any iron supplement. For 30 tablets of simple ferrous sulfate, they said it costs about 300 som or $6.00. Several mentioned they didn't like the taste and stopped taking it for that reason. No other side effects were mentioned. Most women said they did not receive any nutrition counseling while pregnant, although those that did were told by nurses to eat more fruits and vegetables in general. Overall, the women expressed great interest in learning more on how to prevent anemia.

Women and health professionals have virtually no correct knowledge of what foods might contain iron or Vitamin C and only one health worker mentioned that tea was related to iron absorption. There is a pervasive belief that apples are a good source of iron.

Individual Interviews Doer/Non-doer

The women interviewed have only vague knowledge that anemia is related to blood, but no information on the consequences for mother or child. None of them could articulate the benefits of taking iron during pregnancy other than to say it would "make stronger blood." As far as side effects, only one woman mentioned constipation, one mentioned nausea and two others mentioned that the iron has a bad taste. Most of the women identified cost as the barrier to taking iron supplements. One said that getting it with a prescription from the doctor [under the insurance scheme] reduces the cost by half. Two of the women mentioned that their husbands are supportive of them taking it in spite of the cost; in fact, when one was hesitant to purchase it for herself because of the cost, her husband went out and bought it for her. One said her mother-in-law and other older people said she should improve her iron status by drinking juice and bozo (a fermented drink made from wheat sprouts), and eating apples, and honey.

IMPLICATIONS FOR SPRING'S INTERVENTION

Improving IFA Coverage for Pregnant Women

The Ministry of Health is in the process of developing a new protocol for anemia. Discussion includes free distribution of IFA to all pregnant women for 90 days. It is unclear whether de-worming is going to be included for either women or children. SPRING will provide an expert anemia consultant to review the protocol, make suggestions based on evidence-based best practice, and participate in developing the

training curriculum and in training national leaders and trainers. The protocol and training should take into account the following:

1. Counseling on the benefits of taking IFA and the consequences of anemia for women and child
2. Presumptive de-worming
3. Follow-up for patients diagnosed with anemia
4. Importance of accurate charting
5. Counseling women on dietary changes to improve hemoglobin status

Communication Campaign

Anemia will be one of the two principal topics of SPRING's mass communication campaign. The messages on iron should focus on the following:

1. Definition of anemia
2. Consequences of anemia for pregnant women and the infant
3. Benefits of taking IFA supplements
4. Dietary causes and recommendations to prevent anemia, including dietary changes

Community Education

Committee members will need a training that incorporates the same information listed above for the communication campaign. As part of the learning sessions or counseling they conduct in the community, they should also help women and their husbands think about ways to afford the iron-rich foods and to pay for supplements, if needed.

Annex B. Schedule of Phase I Formative Research Field Work

Date	Community	Activities	Health facility assessment	Key observations
Jumgal District, Naryn Oblast				
October 23	Chaek town	Transect walk Key informants HPU	Maternity Center, FMC	It is a *rayon* center, large bazaar is located in this town, most villages come to town for shopping
October 23	Kyzyl-Jyldyz		FAP	Near Chaek town 15km east
October 23	Kok-oi		FMC	Near Chaek town 15km west
October 24	Bayzak	FGD women FGD men Transect walk	FMC	Largest village in Jumgal, productive agriculture, flour mill, closest village to Chaek town. This village has large bazaar and other villages come for shopping
October 25	Dyikan	FGD women FGD men Transect walk VHC	FMC	Desert, coal miners with cash income, it is a large village, divided into parts with one part close to mountains, the other part in the valley
October 25	Epkin	FGD women Transect walk VHC	FAP	About 20 km from Chaek in the wide valley with irrigation, VHC is very active in this village
October 27	Ornok	FGD women FGD men Transect walk		Remote mountains, very productive valley with more fruits and vegetables during brief warm season. 60km from Chaek
October 27	Aral	FGD women Transect walk VHC		A small village with 64 households registered, 17 km up in the mountains from Chaek village. Too rocky for much cultivation
October 28	Doskyl	FGD women Transect walk VHC	Family Group Practice (without a toilet)	The coldest village in Jumgal, in winter –(minus 60 degrees wind chill), 60 km NE of Chaek in another mountain range with less snowfall

Date	Community	Activities	Health facility assessment	Key observations
Lower Jalalabad				
November 3	Micro *rayon* "Jenish-Dacha"	FGD women Transect walk	FMC, FGP 8, Maternity Hospital	This is a new settlement of rural immigrants in Jalalabad town, people have opportunities to have livestock in this location but little water or sanitation in the decaying apartment blocks
November 4	Kochkor-Ata town	FGD women 2 groups Transect walk	FGP 16, FGP17	70 km from Jalalabad town, productive farm land with ample irrigation, fruit orchards
November 4	Komsomol village	FGD men Transect walk VHC		A village in Kochkor-ata town
November 5	Kok-jangak town	FGD women FGD men Transect walk VHC	FMC, Center of joint practice, Maternity department	It used to be a mining town before the perestroika period, 40th block of the town, almost a village, high unemployment and many men have left to work in other countries
Toktogul				
November 13	Toktogul town	FGD women Transect walk	FMC, 3 FGPs, Maternity hospital	One of the remote *rayons* of the Djalalabad *oblast*, it has 25 villages and 42 VHCs
November 14	"Ozgorysh" village	FGD women FGD men Transect walk VHC	FGP , Maternity Center	69 km from Toktogul town, remote village, very cold, has severe winter and water shortages
November 14	"Uch-terek" village	FGD women FGD men Transect walk	FGP, Maternity Center	45 km from Toktogul town, near the highway
November 15	"Talasbai" village	FGD women Transect walk	FGP	A new settlement in Toktogul near town
November 15	"Komsomol" village	FGD men Transect walk VHC		A village near the Toktogul town

Annex C. Tools for Phase I Formative Research

PARTICIPATORY EXERCISE ON FOOD AVAILABILITY AND ACCESS

Participants: Six to ten married women of any age from the community

Materials: Color photographs of all possible foods sold in a major market center and shops. Each photograph shows only one type of food, but may show varieties of that food. For example, one photo of sausage will show different common forms in which it is sold.

1. Obtain women's consent to participate using a signed consent form.
2. Have the women sit in a circle either around a large table or on the floor.
3. Explain that we are there to learn what people in the community eat.
4. Spread all the photos out on the floor. Ask each woman to name out loud the items pictured in the photos nearest to her. If she cannot identify an item, ask other women to help her. Only as a last resort, the facilitator can name the item in the photo.
5. Now, ask the women to gather photos of any foods they don't recognize or have never eaten. They should reach consensus on this group of foods. If they know the food but never eat it, ask why. Give these foods to the recorder to list along with the reasons they are not eaten.
6. Next, ask the women to gather photos of foods they consume only for holidays or special occasions. The recorder will take these photos away and list them in the appropriate column.
7. Ask the women to gather photos of foods they eat rarely, probing to find out why they rarely eat these foods and how often they eat them. The recorder will take careful notes.
8. Have the women gather photos of foods they eat on a regular basis – at least three times a week. Further sort this pile into foods eaten every day. For each food in the "frequently" or "eaten daily" pile, ask where it is obtained, which seasons it is available, the cost if it is purchased, and how it is prepared. The recorder will note all this information on the form.
9. Now ask the women to make a pile of foods eaten most frequently in each season: spring, summer, autumn and winter. The recorder will take careful notes of seasonal change.
10. Ask the women if they set some food aside (stored or preserved) for winter. How long into winter does each type of stored food last? When are they used up? How are they stored? What methods of food preservation are used?
11. Again spread out all the photos of foods eaten. Are there foods that are not given to very young children? Why not? Are there foods that pregnant women should not eat? Why not?
12. Ask the women to select the photos of foods that are high in iron. Which foods give us vitamin A? Which ones give us only energy, but no nutrients?

FOCUS GROUP DISCUSSION GUIDE FOR USE WITH WOMEN WITH CHILDREN UNDER AGE TWO

1. How often do you go to the market? Where?

2. Where do you get your food?

List types by sources, probe for oil and salt, foods they might not purchase. Who purchases?

Do you get any foods from the forest/river/edges of fields?

Food	Produced	Where purchased?	How often purchased?
Milk			
Dairy products			
Wheat or other grains			
Flour or bread			
Meat – mutton or beef			
Poultry meat			
Eggs			
Vegetables			
Fruits			
Oil, sugar, salt			
Sausages[4]			

[4] Sausages are purchased and not made at home, so they are included as a separate category.

3. How many times a day do you prepare food? What food do you prepare?

Time	Foods prepared
Breakfast	
Lunch	
Dinner	

4. How often do you eat? Do you eat between meals? What do you eat between meals? Do you usually eat some ingredients while you are preparing the food? What kinds of ingredients do you eat?

Between meals:

While preparing food:

5. Do your small children eat between meals? What do they eat? Who decides what they eat between meals? During meals? Is the child fed from a separate dish?

6. What vegetables do you prepare for your family to take during meals? Where do you get the vegetables you prepare? How do you prepare them? When you serve the hot food, does anyone in the family get more than others? Which food? Why?

7. Do you know what iodized salt is? What are the advantages of using iodized salt?

8. How much oil do you use each day? Where do you obtain/buy it? Cost?

9. How much sugar do you use each day? How do you use sugar? Cost?

10. What kinds of processed foods (snacks, noodles) do you eat? How often?

11. Do most women work in the fields/pastures part of the year? When working in the fields, how many hours a day are they gone from the house?

    When they have a small baby less than six months, what do they do for feeding this baby?

    If they do not take the baby, how is the child fed? (type of food, method)?

    If the child is older and stays behind, who cares for and feeds the child?

12. What recommendations are given by nurses or doctors to pregnant women? Did you receive iron or a prescription for iron? How many iron tablets did you receive? Did you have any difficulties taking them every day?

13. When do women in this village give their children liquids other than breast milk? What are the first liquids? Why do mothers think the baby needs more liquid than the breast milk?

14. When do women in this village give their children food other than breast milk? What are the first foods? For how long do they continue to give breast milk?

15. What do women consider when they decide to stop breastfeeding?

16. Are there many families who put the baby in the cradle with swaddling? How many hours a day is the baby out of the cradle? What are the advantages of having the baby in the cradle most of the time? What are the disadvantages for the child to be in the cradle most of the time?

FOCUS GROUP DISCUSSION GUIDE FOR USE WITH MEN

1. Where do you get news and information? (Probe for radio, TV, mobile phone) If radio, what time of day? If TV, what time, and where? With family, with other men? If mobile phone is mentioned, probe for how many men have mobile phones, primary use, cost of air time.

2. How often do you leave the village? When you leave the village, where (town, city) do you go?

3. What food does your family usually eat? (Probe for whether each food is food produced, purchased, acquired from other sources like fishing, hunting, etc.)

4. *If market is mentioned*: Which family member goes to the market to purchase food? How often? Distance and cost of transport? If the man goes, does he decide what to purchase alone, or does he purchase what his wife asks? On average, how much is spent per week or per trip? How does he know how much he can spend that day?

5. Do you buy some food that only <u>you</u> eat?

6. Do you ever buy special foods for your children? How often? What kinds? Why these particular foods?

7. Do most people have spaces to grow vegetables to eat? Who takes care of this garden/space? Who decides what to plant there? How many months of the year can they grow vegetables to eat? Is there water to irrigate/put water on them in dry months? What makes it difficult to put water on them?

8. Do people grow fruits? What type of fruits do you grow? What do you do with the fruits? How much do you keep for the family to eat? Do some fruits grow by themselves (wild)? Which ones? Abundance?

9. Do people keep chickens in this village? How do they use them? How many chickens does a household have? Who cares for chickens? What are some problems with raising chickens here?

10. How much of the food that your family eats do you produce? How much do you purchase? Or sell?

Food	% produced	% sold	% purchased	How often purchased?
Milk				
Dairy products				
Wheat or other grains				
Flour or bread				
Meat – mutton or beef				
Poultry meat				
Eggs				
Vegetables				
Fruits				

11. Is there anything else you would like to tell me about producing food in your community?

12. Are you aware of any malnourished children in your community? What do you think causes this malnutrition? What are the long term effects of malnutrition on this child in the future?

13. If a woman or child is sick, who makes the decision to go to the FAP (rural health post) /doctor?

14. Would you like to learn about which foods are most nutritious for you and your family?

TRANSECT WALK WITH A NUTRITION AND HYGIENE "LENS"

Objectives:

- Obtain a "snapshot" of conditions in the target villages
- Pinpoint existing resources and opportunities on which to build desired practices
- Discern barriers to prospective project interventions
- Identify some existing practices and social norms

Products:

- Narrative descriptions of representative villages selected purposely
- Summary chart to assess potential project activities

Steps

Select villages which can be considered representative of the diversity of the target area. Take into consideration their location in relation to main roads, different ecological zones, size, ethnicity, etc.

From your team, identify one or two people to conduct the transect walks in each of the villages. These individuals must familiarize themselves with the Transect Walk Observation Guide.

Upon arrival, explain to village leaders that the purpose of the visit is to learn more about the village. It may be prudent to have a community member accompany the "walkers" as a guide and to allay concerns of villagers about strangers walking by. Try to avoid having more than one guide. Other community leaders can be engaged in a different activity.

Start at one corner of the village and work your way diagonally across the village. Take your time to observe carefully. While your principal goal is to observe, you may ask questions for clarification. When you have completed the diagonal, you may go off in another direction to observe something specific, for example, to see the water source for the community, the shops in the center, school, etc.

When finished, sit and write down everything you observed. If time allows, write up the narrative immediately. Alternatively, you may write the narrative in the evening, but make time to write it while the visit is still fresh in your mind.

After all visits are completed, fill in the summary chart with the needed information.

Observation Guide for the Transect Walk

1. Do most households have latrines? Do they look used? Clean? Where are they located in relation to the house? (uphill, downhill, very far, across a swamp, etc.) Is there evidence of defecation happening elsewhere?

2. How close are large livestock to the house? Is the area where they are kept clean? What kind of large animals? Estimate how many families have large livestock.

3. Do most households have chickens, turkeys or ducks? Are they free-roaming? Are there structures where they spend the night? Estimate the average number per household. Are there households which don't appear to have poultry?

4. Are there fruit trees around the houses? What kinds? Do most households have one or more fruit trees? Are there fruit trees not close to the houses? What kinds?

5. Are there vegetables growing close to the houses? What kinds? Are they protected from animals? Approximately how many households are growing vegetables?

6. If there are few or no vegetable plantings near the houses, is there a sunny space to grow some?

7. What kinds of structures exist for storing staple crops? Condition?

8. Around the houses do you see evidence of income generation other than farming?

9. Are people carrying water to their homes? Who carries the water? How far is the source? (If possible, visit the source and describe it.) Do women take laundry to the water source or wash at home?

10. Are there small shops? Are they scattered throughout the village or concentrated in one area? What are the main kinds of goods they offer? How much junk food is for sale?

11. What public buildings do you see? (schools, mosque, med point[5], etc.) Do they have latrines? What is the condition of the latrines? Water source? How clean is the area around them? Are any of them centrally located?

12. Do you see any wild food sources? (greens, berries, nuts, etc.)

13. Where are the smallest children? Who is watching over them? How is their hygiene?

[5] Local terminology for any medical facility.

Summary Chart for Transect Walks

The following chart will enable us to see the needs and potential for project intervention. Based on notes and the narrative for each transect walk, put a + by conditions that are good and a ✓ for needs that could be addressed by the project.

Perceived Needs					
	Village 1 name	Village 2 name	Village 3 name	Village 4 name	Village 5 name
Access to improved water source					
Appropriate use of water source					
Hygiene of children					
Handwashing stations					
Latrines in use					
Cleanliness of latrines					
Cleanliness of dooryard					
Vegetable production for consumption					
Poultry rearing					
Availability of fruit trees					
Take advantage of existing foods					
Consumption of junk food					
Availability of health services					
Diversity of livelihoods					

FOCUS GROUP DISCUSSION GUIDE FOR USE WITH VILLAGE HEALTH COMMITTEES (VHC)

1. How long have each of you been a member of the VHC?

2. What special programs has your VHC carried out?

3. What trainings does VHC receive from the Health Promotion Unit?

4. What other organizations offer trainings in your community? What topics? When?

5. Do you keep a listing of pregnant women? What contact do you have with them?

6. What is anemia? What are the effects of anemia on mother and child?

7. What are the causes of anemia?

8. What problems might children have due to malnutrition?

9. What fresh food products are available in summer in your community?
    a. What fresh food products are available during winter in your community?
    b. What products are not available during winter?

10. How many households store vegetables for winter? How many households conserve fruits for winter?

11. How many households have a refrigerator with freezer?

12. Why is it so difficult for families to keep latrines clean?

Checklist for Health Facility Assessments

Items	Rating + or -
Privacy availability when consulting pregnant women and children	
Visible timetable of hours for receiving patients	
Toilet availability	
Toilet condition	
Handwashing facility	
Handwashing scheme	
Phonendoscope	
Height chart	
Height meter for adults	
Adult scale	
Infant scale	
Measuring tape	
Hemoglobinometer	
Hemoglobin estimation scheme	
Hand out materials on «Danger signs in children» as a poster	
Hand out materials on «Nutrition during pregnancy»	
Hand out materials on «Exclusive breastfeeding»	
Hand out materials on «Complementary feeding»	
Hand out materials on «IYCF recommendations »	
WHO recommended Height and Weight Diagrams for Children	
Child Anemia Treatment Protocol	
Iron supplements for free distribution	
Availability of *Gulyzak* micronutrient powder (MNP)	
Availability and use of anemia treatment protocol during pregnancy	
Availability of pharmacy with broad range of iron supplements and de-worming medications	
Availability of television/video and nutrition-related materials for population	

Items	Rating + or -
From Record Reviews	
Medical prescription of iron supplements, dosage and duration for children	
Pregnant women iron supplement intake monitoring	
Children iron supplement intake monitoring	
Child's nutritional status charted	
Feedback to mother on child nutrition problems noted	
Tracking of MNP and vitamin A distribution	

QUESTIONNAIRE FOR HEALTH WORKERS

1. If a young mother with a baby one or two months old comes to you and says she doesn't have enough breast milk, what advice do you give her?

2. When should a mother start giving a baby soft food in addition to breast milk?

3. What kind of food do you recommend for the first foods?

4. 3. When a small child has diarrhea, should the mother give food or not? Why or why not?

5. Many women have anemia when they are pregnant. What can they do to prevent getting anemia?

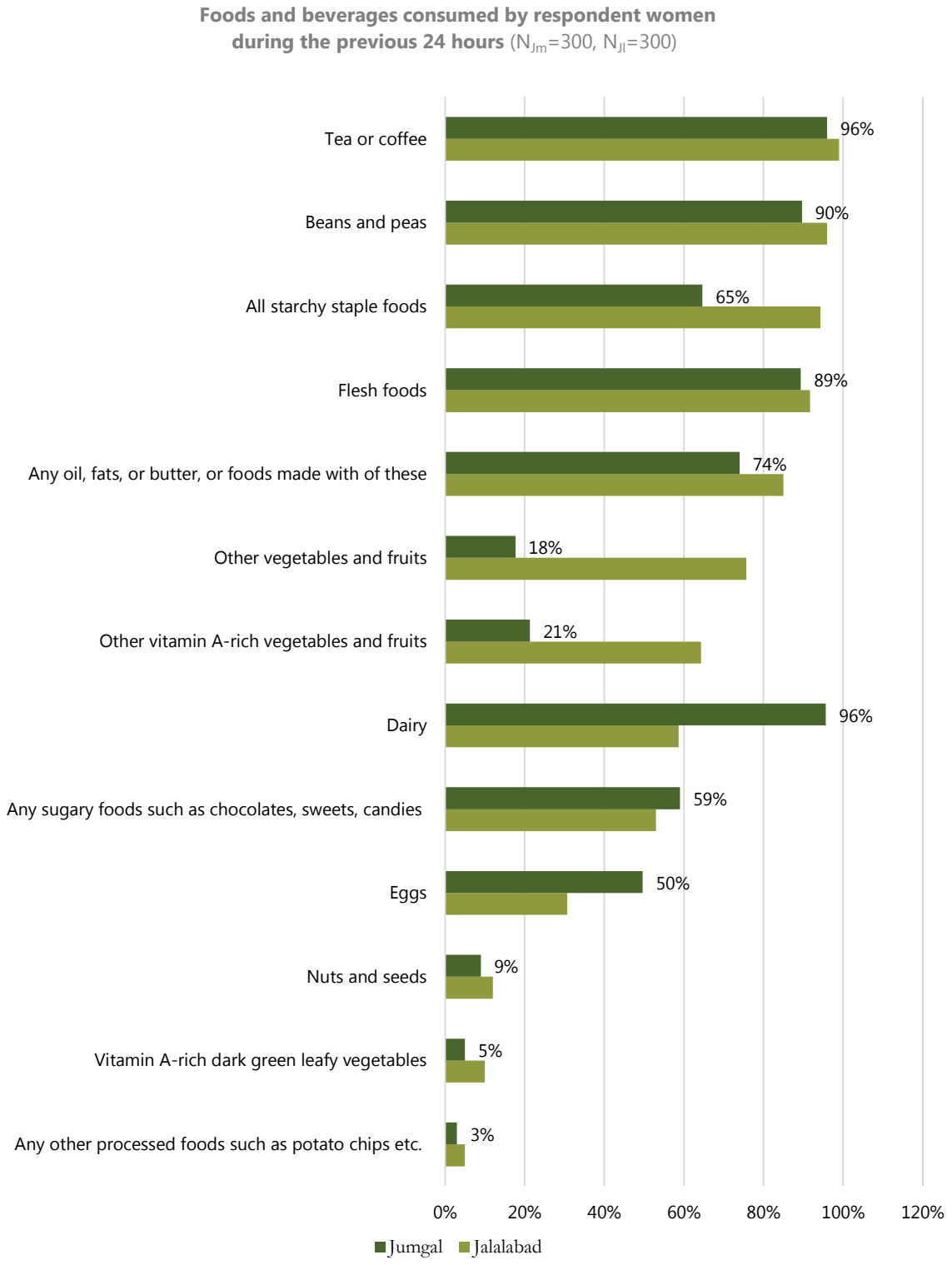
6. 5. Do you know about iodized salt? Why is iodine added to salt?

7. What advice about eating or diet do you give to pregnant women?

8. Do you know some side effects of taking iron?

9. What do you tell women they can do to prevent these side effects?

Annex D. Women's Dietary Diversity, SPRING Baseline



Annex E. Food Acquisition by Region

The following are estimates provided by rural men participating in focus groups. The ranges represent maximum and minimums for different villages in each region.

Source of foods usually consumed

Region	% produced	% purchased	% of production sold
Milk and Dairy Products			
Jumgal	90-100%	0 – 10%	0-5%
Lower Jalalabad	50%	50%	10%
Toktogul	90%	10%	10%
Wheat or flour			
Jumgal	60 – 90%	10 – 40%	50%
Lower Jalalabad	0 – 20%	80 – 100%	0
Toktogul	0 – 50%	50 – 100%	0
Meat			
Jumgal	70-100%	30%	30 – 40%
Lower Jalalabad	30%	70%	0%
Toktogul	40-100%	50-60%	0%
Eggs			
Jumgal	70-90%	10-30%	0 – 20%
Lower Jalalabad	40-60%	40-60%	0%
Toktogul	40%	60%	0%
Potatoes			
Jumgal	0-70%	30-100%	0-30%
Lower Jalalabad*	0-50%	50-100%	10%
Toktugul	80-90%	40-50%	10-30%
**Rice is more the staple and is produced in neighboring regions. It is all purchased in the target area.*			

Region	% produced	% purchased	% of production sold
Vegetables			
Jumgal	10-80%	20-90%	10-15%
Lower Jalalabad	30-100%	50-70%	20%
Toktogul	70-100%	30%	10%
Notes: *The most commonly grown vegetables include herbs (dill, coriander), cucumbers, tomatoes, onions, peppers, eggplants and carrots. Some households produce pumpkins as much to sell as to eat. Other vegetables grown include cabbage, turnips, and turb (giant green radish). Families want tomatoes and onions all year long and purchase them often. Herbs are preserved in large quantities by drying. Cucumbers, eggplant, peppers and cabbage are pickled. Cabbages, eggplants, carrots and turnips are stored in dirt-filled trenches for months. Pumpkins can be kept in a cool dry place for up to five months. Tomatoes are most frequently canned. Combinations of vegetables are often canned as cooked "salads."*			
Fruit			
Jumgal	10-70%	20-90%	10%
Lower Jalalabad	90-100%	10-30%	50%**
Toktogul*	50-100%	10-50%	20%
Includes an abundance of wild fruits in many communities. ** Many farms are producing excess, mostly melons and apricots, to sell.* ***Notes:* *The most commonly grown fruits in Jumgal are raspberries, apples, plums, and there are some grapes and apricots as well as wild berries in limited areas. The same fruits are grown in Toktogul, with the exception of grapes, but there are also persimmons and cherries plus there are many more wild berries as well as walnuts. In Lower Jalalabad, fruit abounds with apricot orchards, peaches, nectarines, plums, and some pomegranates, Melons are grown on commercial scale.*			

Jumgal Key Foods	
Foods not eaten	
Frozen chicken legs (considered harmful for health)	Oatmeal
Sauerkraut, except a few households	Cauliflower, broccoli
Foods purchased by rural households	
Flour	Potatoes after eating their own up
Carrots	Onions
Meat – weekly or up to three times a week	Flavor – soup mixes
Eggs, when household doesn't have chickens	Oil, sugar, salt
Foods stored	
Underground or in cellars:	**Preserved:**
Potatoes	Jam from berries
Carrots	Tomatoes
Onions	Salad mixtures
Cabbage	Compote – cherries, apple, plum
Pumpkin	Cucumber pickles
	Juice – apple or berry
Plant foods produced by rural families	
Some wheat	Potatoes – everyone
Raspberries, in Ornok also harvest wild berries	Tree fruit – apples, plums, some grapes
Pumpkin, turnips, radish, beets, carrots	Herbs, tomatoes, cucumber
Eggplants, peppers in lower elevations	
Daily foods	
Bread	Milk
Airan/kefir – homemade	Soup with meat and vegetables two-three times a week
Potatoes	Butter or *sary may*
Apples in season or stored for some time	Sometimes pumpkin and carrots, cabbage[6]
Jam or honey	In winter, compote or preserved salad, canned tomatoes, pickles
Porridge, in some families	

[6] These foods are seasonal and available only during particular times of the year.

Summer foods consumed by everyone	
Tomatoes	Cucumbers
Peppers	Carrots – late summer
Raspberries if they grow on their own	Yellow turnips or green *turb* (giant green radish)
Radish	Herbs used in small amounts – dill, cilantro, basil
Fish is available to villages near the river	

Many families sell their wheat and then purchase flour to make their own bread.

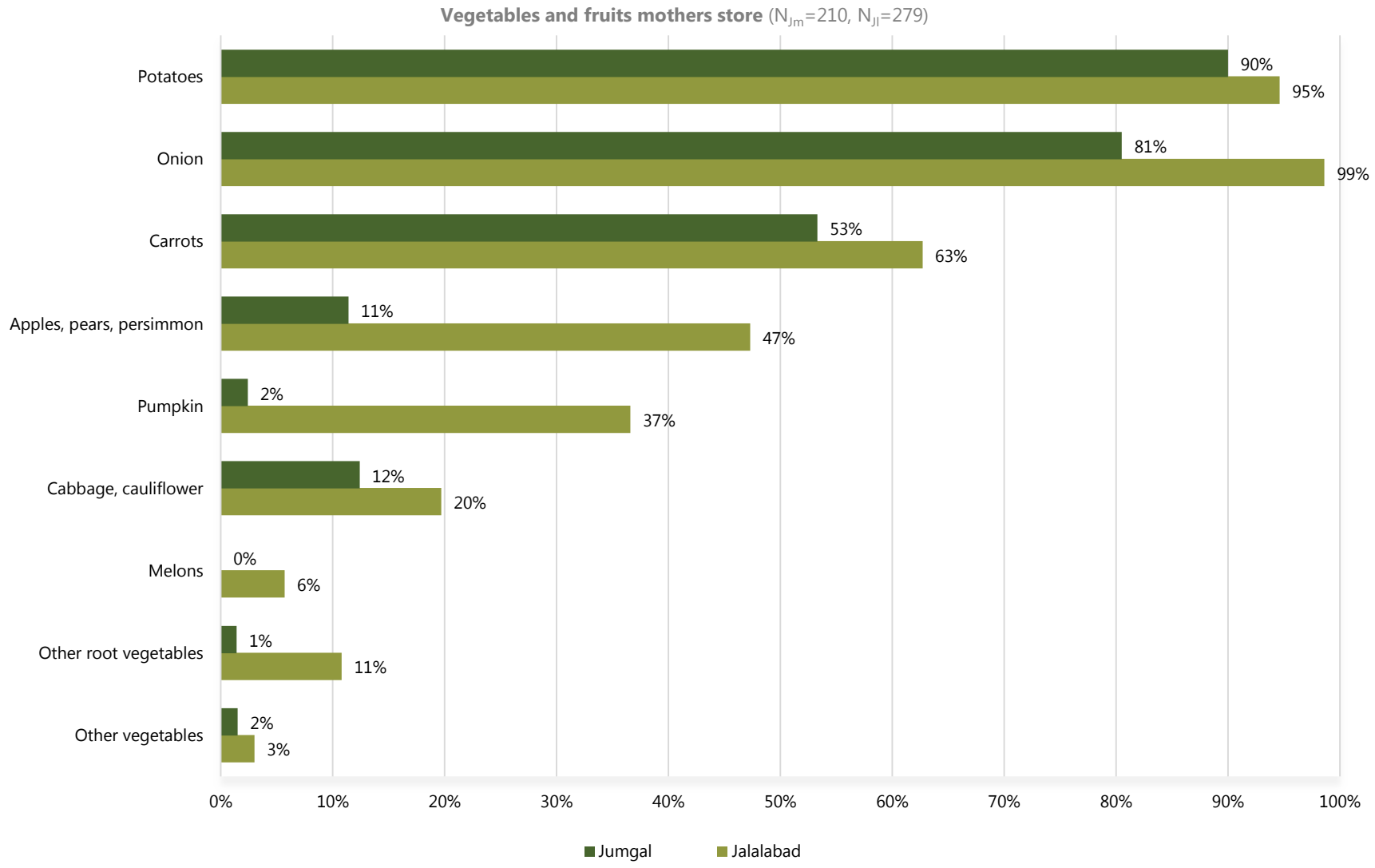
Jalalabad and Toktogul Key Foods	
Foods not eaten	
Frozen chicken legs (considered harmful for health)	Oatmeal
Sauerkraut	Cauliflower, broccoli
Duck meat	Cottonseed oil – considered not safe
Foods purchased by rural households	
Flour	Potatoes after eating their own up
Carrots	Onions
Meat – twice per month (sell their livestock)	Flavor – soup mixes
Eggs (few have poultry) twice per week	Oil, sugar, salt
Fish – frozen from unknown source	
Foods stored	
Underground or in cellars:	**Preserved:**
Potatoes – more in Toktogul	Jam of all kinds
Carrots and yellow carrots	Apricots – dried and canned
Onions	Tomatoes
Cabbage in Toktogul	Salad mixtures
Pumpkin	Compote – cherries, apple, peach
Ripening tomatoes	Cucumber pickles
	Summer squash (patty pan)
	Juice
	Apples

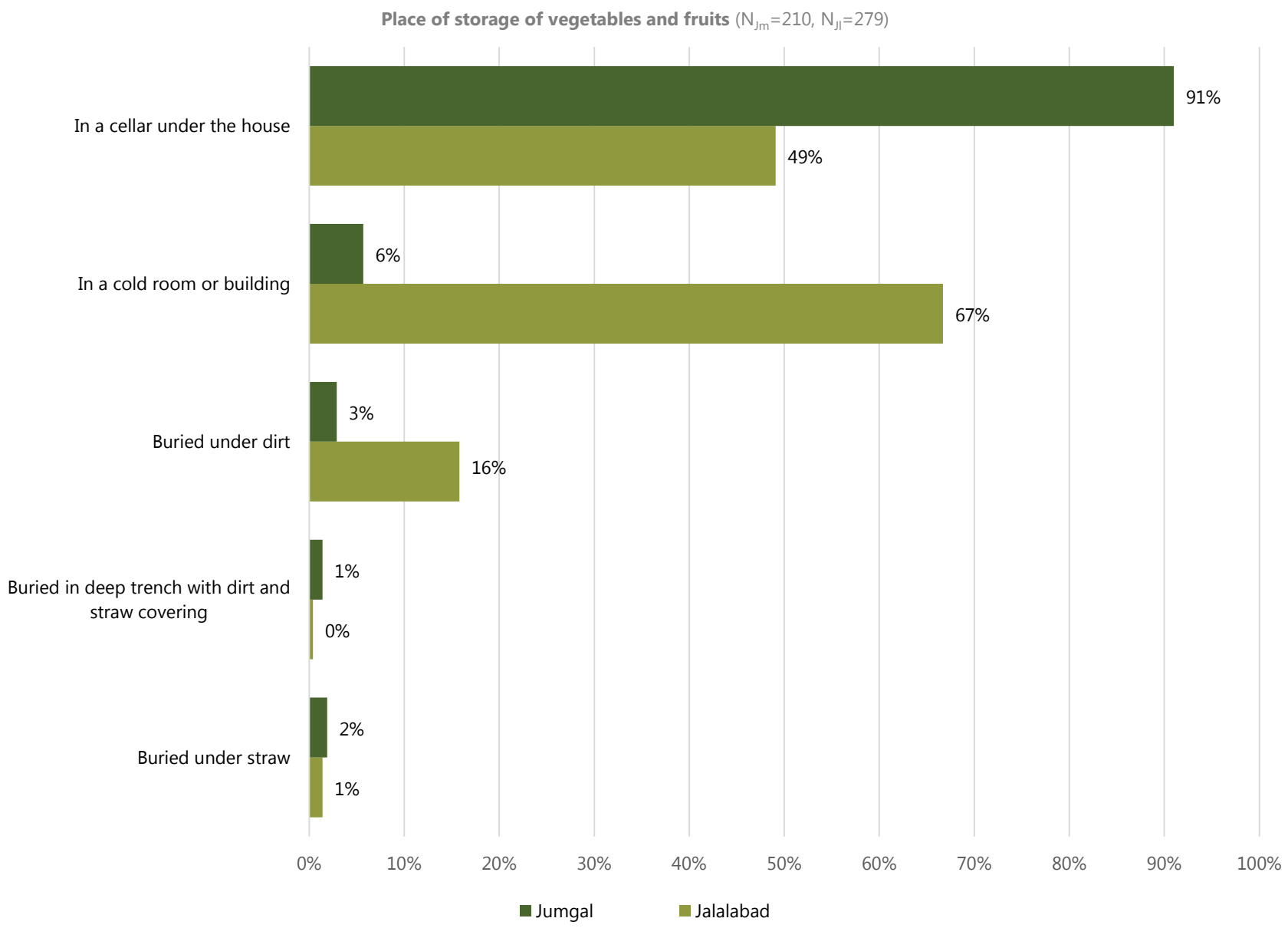
Plant foods produced by rural families	
Some wheat and potatoes	Berries of all kinds, also harvest wild berries
Tree fruit – apples, plums, apricots, peaches	Pumpkin, turnips, radish, beets, carrots
Herbs, tomatoes, cucumber	Eggplants, peppers, chilies in Lower Jalalabad
Daily foods - urban	
Bread	Meat (beef, mutton) two or three times per month
Honey	Rice – pilaf with vegetable, or with milk, plain
Jam	Compote of apples or apricots
Butter in some households	Pasta
Potato	*Airan*/kefir
Sprouted wheat	Wild mushrooms from mountains – in autumn
Dailey foods – rural	
Bread	Homemade sweetened condensed milk
Airan/kefir – homemade	Rice with meat, milk, vegetables
Potato	Butter, if they make homemade
Apples, apricots, walnuts (conserved)	Sometimes pumpkin and carrots, cabbage[7]
Summer foods consumed by everyone	
Tomatoes	Cucumbers
Eggplants – Lower Jalalabad	Peppers
Watermelon or Melon (occasional in Toktogul)	All types of berries
Yellow turnips or green *turb* (giant green radish)	Radish
Herbs used in small amounts – dill, cilantro, basil	

Vulnerable groups purchase flour only by the kilogram to make bread. Apartment block dwellers very rarely eat meat, eat few fresh vegetables, and do not store items.

[7] These foods are seasonal and available only during particular times of the year.

Annex F. Baseline Data on Food Storage




Place of storage of vegetables and fruits (N_{Jm}=210, N_{Jl}=279)
In a cellar under the house
91%
49%
In a cold room or building
6%
67%
Buried under dirt
3%
16%
Buried in deep trench with dirt and straw covering
1%
0%
Buried under straw
2%
1%
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Jumgal
Jalalabad

Annex G. Summary of WASH Observations

	#	Villages	Location	Cleanliness	Water availability	Attitudes/Excuses
Toktogul	1	Ozgorush	> 50 km, deep in mountains	Less than average	Carry water from a distance (in car, on donkey)	Water problem, they drink from the same sources as animals.
	2	Uchterek	~ 30 km	Clean	Plentiful: available both for irrigation and drinking (faucets).	"We do not have pumps or special machines to clean latrines when they are full." Water available 2-3 hours/day in the faucets.
	3	Komsomol (pop. 3236)	~5-10 km	Toilets of FAP are clean; villagers disinfect with chloramine. Five or six families have toilets inside houses.	Plenty of water for irrigation flowing 24 hours. Water taps in streets.	"Better keeping outside." The village has "the old ladies club" to control hygiene
	4	Janyjol	~5 km	Cleaner	Have public sauna, 20-30 households have bathhouses	"We are accustomed to nomadic lifestyle among mountains, so even someone builds us euro-toilets, we would go outside."
	5	Balachichkan	~ 10 km	Average	Water flowing freely everywhere, but have no faucets, get water from springs	"We need an example to follow in building latrines."
Jalalabad	6	Kok Jangak	~ 50-60 km	Clean	Water comes from mountains. Good facilities. Households have bathhouses in the yard. Village was formerly occupied by Russians.	"Old Soviet system is worn out and we need new pipes and faucets."
	7	Kommunism	~ 50-60 km	Clean	VHC have special programs on latrine cleanness and ventilation.	Plenty of water for irrigation. The VHC has poor knowledge on other topics.
	8	Dachnoe	~ 5 km	Clean	Run-down apartment blocks with	"We cannot change this by

	#	Villages	Location	Cleanliness	Water availability	Attitudes/Excuses
		(Outskirts of Jalalabad)			many households sharing a single outdoor hydrant and latrine.	ourselves. The building needs all new pipes."
Jumgal	9	Chaek	0	Public latrines very dirty	Water available for both irrigation and drinking. About 10% have bathrooms inside houses.	"We need a sewage system and cleaning machines, which is the reason why we do not hurry to install warm bathrooms."
	10	Bayzak	~ 10 km (plain)	Latrines near the hospital clean and has separate rooms for females and males	Water available both for irrigation and drinking. Latrines are 20-25 meters from houses.	"We do not need to install toilets in houses. It is unclean."
	11	Dyikan	~ 8 km (plain)	Very dirty, mountains of feces	No water for irrigation, but the Community Development and Investment Agency (ARIS) has installed water supply system, which could be used for toilets	"Please help us to build water reservoir."
	12	Epkin	~ 15 km (hills)	Average	Some water for irrigation	"VHC has a very good monitoring program."
	13	Ornok	~ 70 km (mountains)	Dirty	River flows 30 meters down to the village, however the village needs to install a pump to get water into the village, which would improve hygiene	Villagers requested construction of a bathhouse. Observed a mother helping her small child to defecate in the street. Another boy was washing his face in the water flowing along the street.
	14	Aral	~ 40 km (canyon, alongside South-North road)	Dirty, some households do not have latrines and two-three share the latrines	Water available, but dirty village with livestock and houses mixed.	"People do not pay attention to the importance of toilets."
	15	Doskulu	~ 50 km (Last village, mountain.)	Latrines are near livestock, not clean.	Water runs in the middle of the village	"We have only 50 years of history."

Annex H. Health Facility Assessment Results for all Areas

Key: Number in parenthesis is the total number of health facilities visited in that region.

+indicates the item is present and useable in that number of health facilities. **–** indicates the item is missing or unusable.

#	Items	Jumgal (7)	Jalalabad (9)	Toktogul (7)
1	Privacy available when examining or counseling pregnant women and children	4+ ; 3-	9+	7+
2	Visible timetable of patient reception hours for family doctor, feldsher, and family nurse	3+ ; 4-	9+	6+ ; 1-
3	Toilet availability	7+	9+	7+
4	Toilet condition	3+ ; 4 poor	8+ ; 1 very poor	3+ ; 4 poor
5	Handwashing facility	2+ ; 5-	5+ ; 2-	4- ; 3+
6	Handwashing scheme	6+ ; 1-	7+ ; 2-	5+ ; 2-
7	Sethoscope	7+	7+	7+
8	Height chart	7+	9+	7+
9	Height meter for adults	7+	9+	7+
10	Adult scale	7+	9+	7+
11	Infant scale	7+	9+	7+
12	Measuring tape	7+	9+	7+
13	Hemoglobinometer	2 labs in Chaek ; 5-	9 lab	2 lab ; 5-
14	Hemoglobin estimation scheme	7-	9-	7-
15	Hand out materials on «Dangerous signs in children» as a poster	7-	9-	7-
16	Hand out materials on «Rational nutrition during pregnancy»	7-	7- ; 2+	7-
17	Hand out materials on «Exclusive breastfeeding»	7-	3+ ; 6-	7-

#	Items	Jumgal (7)	Jalalabad (9)	Toktogul (7)
18	Hand out materials on « Complementary feeding»	7-	9-	7-
19	Hand out materials on « Infant child feeding»	7-	9-	7-
20	WHO recommended Height and Weight Diagram	1+ ; 6-	9+	3+ ; 4-
21	Child Anemia Treatment Protocol	2+ ; 5-	9+	2+ ; 5-
22	Iron supplements free distribution	7-	9-	7-
23	Availability of *Gulyzak* micronutrient powder (MNP)	7+	9-	7-
24	Availability and use of anemia treatment protocol during pregnancy	2+ ; 5-	9-	7-
25	Availability of pharmacy with broad range of iron supplements and de-worming drugs	7+	8+ ; 1-	7+
26	Medical prescription of iron supplements, dosage, and duration for pregnant women	7-	9-	7-
27	Medical prescription of iron supplements, dosage, and duration for children	7-	9-	7-
28	Pregnant women iron supplement intake monitoring	7-	9-	7-
29	Children iron supplement intake monitoring	7-	9-	7-
30	Availability of television and nutrition-related materials for population	7-	9-	7-
31	Availability of television and anemia-related materials for population	7-	9-	7-
32	Connection with local government, VHC, NGO	2+ ; 5-	9-	7-