**Formative Research on Wash, Child Health and Nutrition**

**Final Report**

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**Prepared by**





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# Acronyms

|  |  |
| --- | --- |
| ANC | Ante-Natal Care |
| BF | Breastfed |
| FOTR | Faecal-Oral Transmission Route |
| HH | Household |
| LSR | Lao Social Research Ltd. |
| LWU | Lao Women’s Union |
| GFS | Gravity-fed-system (water supply) |
| GM | Grandmother(s) |
| OD | Open Defecation |
| ODF | Open Defecation Free |
| RANAS | Risks, Attitudes, Norms, Abilities, and Self-regulation |
| WASH | Water Sanitation Hygiene |
| WB | World Bank |
| SBCC | Social and Behavior Change Communication |
| SDG | Sustainable Development Goals  |
| BCTs | Behavior Change Techniques |
| NNC | National Nutrition Committee |
| VHV | Village Health Volunteer |

# Executive Summary

A formative Research on Water Supply, Sanitation and Hygiene (WASH) and child health and nutrition was carried out in four provinces of Lao PDR to assess social and behavior change communication (SBCC) needs in the thematic areas of water, hygiene, poverty, and nutrition to support two World Bank projects in the Lao PDR: the *Scaling-Up Water Supply, Sanitation and Hygiene Project;* and the *Reducing Rural Poverty and Malnutrition Project.* This includes a particular focus on concepts around 1. *interrupting fecal-oral routes of transmission among infants and young children 0-24 months* (defined as *“Baby WASH”)* and 2. *household consumption/ behavioral patterns.*

Research objectives focused on identifying dominant fecal-oral routes of disease transmission and related attitude and social norms; attitudes about related household financial management, and community figures of influence.

A literature review (summarized in this report) was carried out, enabling further research focus, particularly for priority areas of research regarding BabyWASH.

The formative research was carried out in sample villages in four northern provinces of Lao PDR (Xiengkhouang, Oudomxay, Phongsaly, Houaphan), targeting poor rural ethnic communities (Eight ethnic groups were identified in surveyed villages)[[1]](#footnote-2). Qualitative methods were used (focus group discussions (FDGs); household and field observations, key informant interviews (KIIs), photo-voice). Survey tools were developed by the research team, reviewed by the World Bank, and then approved by the National Ethics Committee for Health Research (Ministry of Health) (with piloting over two days in rural communities in Vientiane Province).

The RANAS (Risks, Attitudes, Norms, Abilities, and Self-regulation) approach to behavior change was adopted (see section 1.4.3 for further details on this approach). A systematic behaviour change approach that identifying target behaviours, designing behaviour change strategy and measuring the success of the intervention.

Following survey and analysis in round one – Houaphan and Xiengkhouang, the research identified and shortlisted three behavior changes for focus within RANAS: handwashing with soap; mouthing (defined as contact of an object with the mouth of an infant with the exclusion of eating and drinking); 6-month exclusive breast feeding. Key interviews were then adapted to support further analysis of these 3 behaviors in the remaining two provinces (with data shared with *RANASMosler* for further analysis).

The current research identified the likely dominant fecal-oral transmission routes (FOTR) for children under 2 years of age. FOT refers to the transmission of pathogens in feces from one person (or animal) to the mouth of another person (either directly or through contaminated water, food or surfaces). Hands and handwashing, defecation practices and feces management, food hygiene and feeding practices as well as the spaces in which children crawl and play, and the items they mouth in that process were considered to be the dominant routes of transmission.

The hands of children under 2 years of age as well as their mothers and other carers are avenues for Fecal-Oral Transmission (FOT) and are implicated through food preparation and feeding, and explorative play activities. Handwashing is practiced by some; the small sample observed in this research observed that overall 46% washed their hands at key trigger points (after toileting, or handling infant feces, before preparing foods and before feeding etc.) but this was rarely (only 8% of the time) with soap, which is reserved for bathing. Handwashing is viewed as a healthy behavior, however the role of soap in interrupting FOT and potentially preventing illness is poorly understood, especially by ethnic groups such as Hmong, and Akha. Other barriers include adequate access to running water, for example in Namkhouang, Moklahang, and Phosy – limited access, and the cost of soap.

Defecation practices and ways in which infant feces is disposed of is likely to be increasing the fecal load in many households. Babies under 1 year typically defecate into pants (feces removed and later washed – rarely with detergent) or nappies (disposed of over fence or in rubbish bin). Babies 1-2 years old are typically practicing open defecation on floors inside homes or in yards/gardens. Feces is generally disposed of into bushes/yard/garden, over the fence or into the river, or left for animals to eat. Open defecation by children is related to convenience as infant feces was seen as less dangerous than adult feces. Attitudes to latrines are positive, citing convenience and cleanliness as major benefits. However, barriers such as adequate latrine access with running water year-round, the latrine size compared to the child, difficulty/delay in toilet training, and the location of the latrine relative to the child’s typical location are all barriers to consistent latrine use.

Knowledge regarding the importance of adequate food hygiene for children under 2 years was reported by many in the communities to prevent illness. However, limited practical strategies were observed for managing food hygiene and related feeding practices for children under 2 years of age. Bottled water, which is purchased for around 5000-6000kip ($0.50-$0.60USD) per 20-liter bottle, is used for drinking and occasionally cooking. Strategies considered beneficial in improving hygiene were washing raw vegetables, maintaining a clean kitchen, storing food in cupboards, use of clean cooking utensils, boiling/frying for a long time, to a high temperature. Such strategies were observed occasionally (but not consistently), predominantly in better-off villages or households, where women do not work as many hours in the field and thus have more time to attend to domestic duties, which are considered their responsibility. Feeding of infants is generally via multiple household caregivers (including grandparents, parents, and other siblings) (or the infant) where food is put to the infant’s mouth using fingers not utensils, amplifying effects of poor handwashing compliance in adults. The traditional practice of pre-mastication of food, whereby carers chew and then roast rice to give to young infants remains a difficult practice to challenge. Time for practicing adequate hygiene is particularly scarce for women in poorer households who shoulder a larger burden of responsibility for income generation.

The current research suggests that household environments are potential spaces for FOT to occur. Children under 2 years of age move around on hands and bare feet to walk, crawl, play and eat. In the current research household cleanliness was determined by consistent cleaning and rubbish removal strategies (e.g. sweeping, rubbish bins), appropriate animal and infant feces management strategies, and infrastructure such as building material/layout of homes and access to latrines and running water. Household cleanliness varied considerably among ethnicities, Phuan, Tai Deng, Hmong found to be more strongly engaged in the household cleanliness approaches described above, Lao Bit, Akha and Khmu found to be less so. Strategies for improvement may include education regarding importance of sweeping and rubbish removal, and improved access to relevant infrastructures (e.g. latrines).

Of important consideration in all the above routes is the high number of people involved with infant care (this may include mother/father, grandmother/father, siblings, cousins and friends). The high number of short- and long-term interactions with children amplify FOTR. Other potential avenues for FOT found in the current research were mouthing soil (potentially contaminated with animal feces), presence of flies, mouthing of toys and other objects such as empty water bottles and shoes.

As well as exploring dominant FOTRs for children under 2 years of age, this research sought to understand dominant earning and expenditure patterns on food and healthcare as well as potential intersections of gender and BabyWASH, healthcare and nutrition/feeding practices for infants. A patriarchal belief system pervades much of Lao village society. Men are responsible for hard labour, building and constructing things and earning money, while women provide labour that is considered by the community to require less physical strength (e.g. planting, weeding, harvesting, feeding small/medium livestock) as well as for cleaning, washing clothes, cooking, fetching water, and managing the health of the family. Permission of men is required for larger purchases (including food and healthcare). Increasing income earned by women in off farm activities is slowly weakening this norm. However, for ethnic groups such as Hmong and Akha, who remain entrenched in family farming activities, women were found to have much less agency in decision making. Food consumption patterns are based on the availability of food produced by subsistence agricultural practices. Food is not generally purchased (except for food for infants such as eggs, instant noodles, rice cereal, snacks/candy, breastmilk alternatives; soya milk, sweet and condensed milk, and formula). Diet diversity is poor: high levels of carbohydrates from rice (and sometimes noodles), very small amounts of protein (from fish, eels, chicken, ducks, squirrels, insects), and small amounts of only a few types of fruits and vegetables grown by the household are consumed. Money is for education, ceremonies and healthcare. Breastfeeding to 6 months is rarely achieved, with mothers returning to work being the most common barrier reported. Colostrum has traditionally been discarded; this practice still continues for some. As a result of early cessation of breastfeeding, early introduction of solids (usually rice) is commonplace as is the use of milk alternatives such as soymilk, sweetened condensed milk and formula. The role of grandmother in caring for infants when mothers return to work is a powerful one, influencing pregnancy including Ante-Natal Care (ANC) and infant feeding practices. Decisions around healthcare are made with the family, not solely by mothers. Cost, location, mobility and language are considerable barriers for many. A combination of modern healthcare (doctors, health clinics, hospitals, medicine, and preventative health approaches) and traditional healthcare (herbal/plant-based remedies, food taboos, and rituals) are utilized, ethnic groups predominantly using the latter. That health of the family is the domain of women, and that good health comes from good food, may be a good entry point for discussion into allowing women increased decision making and purchasing power in the domains of food and healthcare.

# Introduction

## Overview

Formative Research on Water and Sanitation Hygiene (WASH) and child health and nutrition in four provinces of Lao PDR has been carried out to assess social and behavior change (SBCC) needs in the thematic areas of water, poverty, and nutrition to support two World Bank projects in the Lao PDR: the *Scaling-Up Water Supply, Sanitation and Hygiene Project;* and the *Reducing Rural Poverty and Malnutrition Project.*

The *Scaling-Up Water Supply and Sanitation Project* will contribute to nutrition-sensitive goals of interrupted fecal-oral routes of transmission (FOTR) among infants and young children 0-24 months through promotion of village-wide use of improved sanitation; proper waste disposal (including safe disposal of child and animal feces); water quality monitoring; hand-washing facilities; household level water treatment; and hand-washing with soap at critical times.

The *Reducing Rural Poverty and Malnutrition Project* consists of a nutrition-sensitive cash transfer program for poor and nutritionally vulnerable pregnant women and children ages 0-24 months. Cash transfers will coincide with SBCC delivery in selected areas and will seek, to the extent possible given limited supply, to increase demand for health and nutrition services and to improve diet diversity.

These projects have been developed in response to a measured growing rural-urban divide (70% of poor are rural), where WASH gains are not benefiting rural populations to the extent seen in urban areas (e.g. 67% of urban population has access to piped water on their premises; but only 6% in rural areas). WASH is an underlying determinant of undernutrition (WASH borne and related diseases impacting nutrient intake and depletion). Health and nutrition risks for infants in the ‘first 1000 days of life’, together with inadequate child-care practices, can result in poor outcomes such as stunting and wasting. In poor ethnic groups, in some upland areas, child stunting rates are upward of 60%. Nationally in Lao PDR there has been a small reduction in rates of stunting in children under 5 years, from 44% in 2012 to 36% in 2016. Wasting rates for children under 5 years have been found to be as high as 14% in poorer ethnic groups, while they are around 10% nationally. The Government of Laos’ National Nutrition Strategy 2025 and Plan of Action 2016-20 has set a target to reduce stunting from current levels to 25% by 2025. The Action Plan combines geographical convergence of “nutrition-specific” and “nutrition-sensitive” interventions (including WASH), a common Nutrition Social Behavioral Change and Communication Strategy leveraging/shared delivery platforms, and a combined M&E framework.

## Scope and objectives

### Scope

The scope of the formative research is to provide insight to the design of an effective and scalable SBCC strategy and related interventions to support the World Bank’s multi-sectoral engagement in general, and the water and sanitation and social protection projects [in Lao PDR], in particular. This includes a focus on concepts around *“Baby WASH”* and *household consumption/ behavioral patterns* to inform the design of tailored strategies to change behavior among the target audience, and tools to measure the effectiveness of these strategies.

### Objectives

|  |  |
| --- | --- |
| Objective 1.  | To identify the dominant fecal-oral transmission routes (FOTR) relevant in the household setting. |
| Objective 2. | To gain an understanding of caregivers, child, and other household member barriers and other determinants – understanding of health risks, positive and negative attitudes, social norms, ability or how-to-do and self-regulation to handwashing, toilet usage (including for disposal of child faeces), food hygiene, and household/village environmental cleanliness. |
| Objective 3. | To observe and document attitudes and preferences relating to household behaviours in terms of expenditure and savings, financial literacy, use of cash, food consumption patterns and selections, relative importance of barriers to access, i.e. affordability versus availability, and the perceived importance of the health, nutrition, and diet of pregnant women and children in the household. This will focus on heads of household (male and female) and will specifically explore the role of females (mothers and grandmothers in particular) in the household and their agency in financial and other decision making, particularly regarding household expenditure decisions on food and healthcare. |
| Objective 4.  | To identify potential influential figures at the village level who could influence households’ decision-making patterns for improved nutrition, and health seeking behavior and diet variety. |

## Literature review (summary)

The inception report for the formative research includes a detailed literature review. The Inception Report Reading List is provided at Annex 8. The following is a brief summary of the initial findings:

### WaSH

61% of households (nationally) use drinking water from an improved source whilst more than a third take water to drink from unprotected sources. Only 13% of people living in rural areas without (year-round) roads have access to improved sources of water. 73.2% of households have access to an improved sanitation facility (94% in urban households, 41% in rural areas without roads)[[2]](#footnote-3). 64% of people in rural areas without roads practice open defecation[[3]](#footnote-4). Amongst the four target provinces of the formative research, Phongsaly has the lowest percentage of people with access to an improved water source at 14.4% (Xiengkhouang highest at 42.4%) as well as the lowest levels of improved sanitation (43.9%).

### Nutrition/childhood stunting

There have been slight improvements in recent years in levels of childhood stunting in Lao PDR (a fall from 44% in children <5 years of age in 2012 to 36% in 2016) although they remain some of the highest in Southeast Asia. This mirrors economic gains, where improvements have mainly been in wealthier, urban areas. Higher levels of stunting were found in poorer, rural areas and those from non-Lao/Tai ethno-linguistic backgrounds, for example 60% of children from Hmong-Mien households were found to be stunted in 2016 (WFP 2017). Children from 12 – 59 months have been found to be less well-nourished than those aged 0-12 months (Kamiya 2011). Levels of childhood stunting are lower where mothers have higher levels of self-efficacy, control of healthcare, higher self-esteem, and control of money (Kamiya et al 2017). Children are 1.5 to 2 times more likely to be stunted in rural areas, in the poorest economic quintiles and in regions where women’s status/education is lowest. This stems from disadvantages in access to health care and WaSH, as well as nutritious food and health-related information.

Dietary diversity is more of a concern than overall caloric adequacy. Rice makes up the vast majority of diets with only small quantities of other food groups consumed. Overall, the Lao diet is high in carbohydrates, inadequate in protein and fats and very low in micronutrients (vitamins and minerals) (WFP 2017). Minimum dietary diversity for children 6-23 months is being achieved in only 16% of the population (5 or more of the 9 food groups) (Ministry of Agriculture 2013). Breast-fed babies are given pre-masticated rice if hungry and mothers are not present to breast-feed (WFP 2017). Only 19% of pregnant women living in rural areas with no roads achieve adequate dietary diversity, and exclusive breastfeeding to 6 months is only being achieved by 40%of lactating women nationally. Almost 1 out of every 2 children under five years in the four target provinces are stunted (it is 1 in 3 nationally).

In Lao PDR there has been a strong political commitment and action towards achieving the Sustainable Development Goals (SDGs), in particular SDG 2. This process has been formalized by the National Nutrition Policy to 2025 and Plan of Action 2016-2020 (NNPPA).

It is widely recognized that access to clean water, sanitation and hand hygiene is an underlying determinant of undernutrition. A Cochrane review assessed 12 Link Nutrition Causal Analysis Studies between 2014-2016 and confirmed that inadequate WASH is indeed a major contributor to undernutrition (Dodos et al 2017). Further research has highlighted multiple ways in which these two areas intersect to determine causal pathways (Chase & Ngure 2016).

Strategies for improving nutrition in Lao PDR have historically been ‘nutrition specific’[[4]](#footnote-5). There has been increased recognition that substantial gains will only be made deploying strategies that are ‘nutrition sensitive’ (Eggersdorfer et al (eds) 2016). Recent programs in Laos considered to be nutrition-sensitive include: Save the Children: *USAID Nurture program*; WFP: *Fill the Nutrient Gap (FNG);* SNV: *ENUFF project*.

### Baby WASH

Improved access to high quality WASH during pregnancy and childbirth can reduce maternal and newborn mortality and morbidity by decreasing rates of infection and sepsis. Healthy WASH conditions and behaviours in a young child’s feeding and play areas can prevent diarrhoea and infections and are likely to reduce environmental enteric dysfunction (EED), which is associated with (and likely cause of) chronic undernutrition[[5]](#footnote-6).

Nutrition is important throughout a person’s life, but the most critical period in a person’s development is the first 1,000 days - beginning with conception, throughout a mother’s pregnancy and until the age of two. Undernutrition can begin with the undernourished mother who cannot provide her child with sufficient nutrients at the fetal stage, as she herself has not benefited from optimal nutrition. Unsafe drinking water, poor sanitation and inadequate hygiene significantly increases the risk of undernutrition, in particular, during the critical window of 1,000 days, when a child is more vulnerable to the adverse effects of Faecally Transmitted Infections (FTI). Damage done to a child’s physical growth, immune system and brain development during this period is usually irreversible (Dodos 2017).

‘Baby WASH’ practices include adequate sanitation, access to safe water, hand washing with soap, food hygiene, clean infant feeding equipment and a clean play environment (Mbuya & Humphrey 2016). Exploratory play and hand-to-mouth behaviours have considerable impact on gut health, resulting in undernutrition, and related poor physical and cognitive development (Ngure et al 2014).

Environmental Enteric Dysfunction (EED), *“chronic infection of the small intestine caused by extended exposure to fecal pathogens,”* whichreduces children’s ability to absorb nutrients and subsequently provoke undernutrition and growth stunting, is greatly facilitated by unhygienic environments in which infants and young children live and grow. (Mbuya & Humphrey 2016). Interventions targeting this pathway include reduction in both human and animal fecal contamination of the environment. The effects of poor hygiene during the first 1,000 days of life can determine whether a child will reach his or her developmental potential. Unhygienic diet and exploratory hand-to-mouth behaviours lead to microbial ingestion/environmental enteropathy, which, combined with a low nutrient diet, influences early child development (stunting, anemia, brain development).

‘Baby WASH’ key interventions focus on hotspots in the first 1,000 days, including pregnancy, delivery, the first week of life, the onset of complementary feeding, events in development throughout a child’s mobility, such as learning to crawl, stand, walk, as well as exploratory play behaviors such as touching and placing objects in the mouth. Common WASH interventions generally focus on improving sanitation, point-of-use water treatment and hygiene, but are not designed to interrupt primary vectors of fecal-oral transmission (FOT) for children within the first 2 years of life, e.g. important vectors of soil, poultry feces, and infant foods, providing a clean play and infant feeding environment (Dodos 2017).

Safe disposal of children’s stools hasn’t received enough attention, mainly because many cultures consider the stools of infants fed on breast milk as ‘not harmful’, or less harmful than those of adults (smaller/less smell). However, due to a higher prevalence of diarrhoea, soil-transmitted helminths and other pathogens such as hepatitis A, rotavirus, and E. coli, child stools often pose a greater health risk than adult stools. Latrines are not often designed in a “child-friendly” manner and their use by small children is thus uncommon. For infants and young children, open defecation (e.g. on the floor) is common and potentially seen as the most practical option until the child is potty trained. Improving sanitation for children up to the age of 24 months, thus targeting the critical 1,000-day window of opportunity, plays a significant role in reducing the risk of EED and stunting (Dodos 2017).

Good hygiene is the most cost-effective means of preventing infectious diseases. Household food hygiene plays a vital role in good health and nutrition outcomes, especially for children under five.

An earlier assessment for the upcoming World Bank project in four provinces of Northern Laos[[6]](#footnote-7) provides the following insights in relation to ‘Baby WASH’ for the target population. *In assessed villages children practice open defecation. In two villages households claim to wash hands but not with soap. The use of soap was associated with bathing and was not used for handwashing in any of the assessed villages. In schools, students need to request soap from the teacher, which rarely happens. In general, families know they need to wash hands with soap after defecating, after cleaning children’s bottoms, and before eating, and that they need to wash foods before eating them. In villages without tap water, most people do not wash hands after cleaning children’s bottoms. Those that have water available, tend to wash hands more often. Soap is scarce in all contexts, including school. People attested that diarrhoea is common all year around, particularly in children. In villages in Xiengkhouang and Houaphan children were running around without shoes (or clothes) [viewed in terms of poverty, but also presents a risk of worm infection by walking in bare feet].*

The World Bank nutrition survey carried out during the preparation of the current projects noted that Houaphan has the highest proportion of households (within the 4 target provinces) that either treat water or obtain water from an improved source (71%). Phongsaly has the lowest proportion of households with access to improved sanitation (25%). Overall 60% have access to improved sanitation. Appropriate management of child feces is low in all provinces (31%). One-third of households do not have access to a hand washing facility in or near their house. Almost all children under two are breastfed for some period of time. Overall, 56 percent of children under two were exclusively breastfed until the age of six months (according to the mother’s recall). Few mothers (15%) washed their hands with soap before preparing food for their child. Despite most households obtaining water from surface sources such as rivers, only 63% of mothers boiled water for their children under two. 47% of surveyed villages were considered open defecation free (ODF) (22% in Phongsaly). In 39% of villages all households have a latrine. Meanwhile, 48% of households do not have access to a latrine.

### Cash transfers for social protection in Laos

Lao PDR has yet to endorse a social protection strategy or framework and coverage of social protection programs is restricted by budget and scope. Notable project examples include: World Bank-financed Community Nutrition Project (CNP) in 2010, implemented by the Ministry of Health; DFAT funded Social Protection and Sustainable Livelihoods Project[[7]](#footnote-8) (2014-2017); A new World Bank financed program, led by the Ministry of Agriculture and Forestry’s Department of Rural Development is to roll out a nutrition-sensitive CCT for poor and nutritionally vulnerable households with pregnant women and/or children under two years.

## Formative research approach (overview)

### Approach overview

The formative research was carried out in sample villages in four northern provinces of Lao PDR (Xiengkhouang, Oudomxay, Phongsaly, Houaphan), targeting poor rural ethnic communities (particularly in the highlands). Qualitative methods (focus group discussions (FDGs); household and field observations, key informant interviews (KIIs), photo-voice) were implemented by a team of international and national experts, moderators and enumerators, and local translators and interpreters. Survey tools were developed by the research team, reviewed by the World Bank, and then approved by the ethics review board (Ministry of health). The survey tools appear at Annex 3 of this volume.

The initial set of tools was piloted over two days in rural communities in Vientiane Province and then reviewed.

Houaphan/ Xiengkhouang village surveys were carried out in two provinces (Xiengkhouang, Houaphan), two villages per province. An interim report was submitted. This supported a review of WASH/nutrition related key behaviours to identify 3 key changes that would be addressed through the RANAS[[8]](#footnote-9) approach to behavior change (see Annex 1, and section 1.4.3 below). Tools were then re-reviewed and refined. A second round of surveys was carried out in two additional provinces (Phongsaly; Oudomxay), two villages per province, with an increased focus on KIIs to support implementation of the RANAS methodology.

Initially selection of districts and villages within the provinces was to be based on pre-determined criteria including major ethnic groups, different livelihood systems, access to different types of water sources, and access to the nearest health centre. However, the research permissions process required a final decision on village selection from the Ministry before going to the field. In the event, village selection followed broad criteria of ethnicity, population size, distance from the district capital, and overall suitability as assessed by the District Office of Agriculture. Round 1 villages tended to be larger, relatively accessible to the district centre and have a health clinic, and in general were not poor. In round 2 the team pushed for permission to work in villages which were more remote and poorer. See summary below:

Table 1 Summary of Research Locations

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **survey** | **Provinces** | **Villages** | **Broad profile** | **Survey tools** |
| **Round 1:** | **Houaphan** **Xiengkhouang** | Kohing; MuangpeuPhosy; Pa-aen | Large villages; health clinic in village; ethnic community. | HH/ field observations; transect walk; Village authority KII, Health clinic; health centre KIIs; photo voice; positive deviant KIIs, Mother/ Father/ grandmother FGD.  |
| **Round 2:** | **Oudomxay** **Phongsaly** | Houayxang; MoklahangNamkhouang; Naboua | Poorer (than round 1); more remote village; Ethnic community | HH/ field observations; village walk, Village authority KII, Mother/ Father/ grandmother FGD; 3x RANAS KIIs. Health clinics |

For each round of research, the field team divided into two groups of five or six members. Groups worked in each village for a period of 2-3 days.

The standard procedure of seeking permission to conduct the study through government channels at the national, provincial and district levels was followed. World Bank Vientiane staff assisted with this process.

Within the village, participant selection was made by organizing a meeting of mothers with children under two. The team tried to select families with healthy-looking children as well as ones with less healthy-looking children to support a range of observations and information.

### Survey tools and data collection

A minimum set of data was collected in each village (see table below). 12 tools were used in round 1 (first two provinces; Houaphan/ Xiengkhouang). The tools were revised for round 2 to allow for an increased focus on KIIs to support the RANAS approach.

Qualitative methods included semi-structured interviews, focus group discussions and systematic observations. In addition, the team trialed the method of “Photovoice”, which is a participatory method based on photography by the target audience. The voices through photography are followed by a critical dialogue or interactive interview in order to understand the rationales for the pictures taken.

The 12 draft tools for round 1 were submitted to the World Bank, and feedback was then incorporated to produce a set of updated tools. Some tools were then revised after the survey piloting in Vientiane Province. Prior to the survey, the tools were submitted to the Laos National Ethics Committee for Health Research for approval. Approval was granted on 24th May 2019. The table below shows the quantity of data achieved with the 12 initial tools and those added/revised in the second round of data collection.

Table 2 Tools developed, and frequency of use

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Province** | **Houaphan** | **Xiengkhouang** | **Oudomxay** | **Phongsaly** | **Total** |
|  | **Survey type** | **Kohing** | **Muangpeu** | **Phosy** | **Pa-aen** | **Houayxang** | **Moklahang** | **Namkhouang** | **Naboua** |  |
| 1 | Demographics (village chief) | 1 | 1 | 1 | 1 |  |  |  |  | 4 |
| 2 | Village authority FDG | 1 | 1 | 0 | 1 |  |  |  |  | 3 |
| 3 | Village health worker KII | 1 | 1 | 1 | 1 |  |  |  |  | 4 |
| 4 | Survey 1,2,3 combined |  |  |  |  | 1 | 1 | 1 | 1 | 4 |
| 5 | Transect walk/Village walk | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 8 |
| 6 | Baby wash observations - HH | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 12 |
| 7 | Baby wash observations - field | 0[[9]](#footnote-10) | 0[[10]](#footnote-11) | 1 | 1 | 0 | 1 | 0 | 0 | 3 |
| 8 | Photovoice Observations - HH | 2 | 1 | 2 | 1 |  |  |  |  | 6 |
| 9 | FDG Mothers/ FGD fathers | 1 M1 F | 1 M1F | 1 M1F | 1 M1F | 1 M1 F | 1 M1 F | 1 M1 F | 1 M1 F | 16 |
| 10 | FDG - grandmothers | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 9 |
| 11 | PD - Good practice KII | 1 | 1 | 1 | 1 |  |  |  |  | 4 |
| 12 | PD – breastfeeding KII | 1 | 1 | 1 | 1 |  |  |  |  | 4 |
| 13 | Health clinic KII | 1 | 1 | 1 | 1 | 2 (HC + Hos) | 1 | 1 | 1 | 9 |
| 14 | RANAS - handwashing |  |  |  |  | 3 | 2 | 3 | 3 | 11 |
| 15 | RANAS – mouthing |  |  |  |  | 3 | 2 | 3 | 3 | 11 |
| 16 | RANAS - breastfeeding |  |  |  |  | 3 | 3 | 2 | 2 | 10 |
|  | Totals | 14 | 13 | 15 | 14 | 17 | 15 | 15 | 15 | 118 |

Of note, for round 2, the demographic/village authority surveys were combined as one interview. KIIs were removed in round 2 (photovoice, positive deviant, health KIIs) and replaced with targeted RANAS questionnaires for mothers of children under two (or under four months for the breastfeeding survey).

### RANAS (Risks, Attitudes, Norms, Abilities, and Self-regulation)

RANAS is an approach used to systematically design and evaluate behavior change strategies that target and change the factors influencing a specific behavior in a specific population. The four *Phases* of RANAS include (i) identify potential behavioral factors (ii) measure the behavioral factors identified and determine those steering the behavior (iii) select corresponding behavior change techniques/strategies (iv) implement and evaluate the strategies. The formative research has supported the initial phase of RANAS as follows:

|  |  |
| --- | --- |
| ***Phase 1:*** *Identify potential behavioral factors.* | *The exact behavior to be changed and the specific population group to be targeted are defined; - who exactly should change which behavior.* |

The broad ‘target behavior’ was defined in the research design (i.e. baby-WaSH). Following the pilot and Houaphan/ Xiengkhouang research (including the interim report), the results were reviewed to identify key behaviours for change and to decide on the three most important changes for a closer focus in the second round in Phongsaly/ Oudomxay.

The three changes are as follows:

***Behaviour 1:*** *Hand Washing with Soap before feeding or giving food to children (0-2 years of age)*

***Behaviour 2:*** *Controlling ‘Mouthing’ of items children under 2 years could come into contact with: the carer prevents/forbids the baby from placing objects picked up from the floor/ground into their* ***mouth.***

***Behaviour 3:*** *Exclusive breastfeeding for the first 6 months, includes; expressing/pumping of breast milk and storing it, and potential use of a wet-nurse.*

Other priority considerations included safe water use and reducing open defecation by infants. These were not selected, in part as the change could not be supported by messaging alone, but would also require infrastructure/equipment (e.g. child-friendly latrines/potties).

|  |  |
| --- | --- |
| ***Phase 1:*** *Identify potential behavioral factors.* | *Collect information on behavioral factors (psychosocial and contextual factors that might influence the target behavior) (can use short qualitative interviews with various stakeholders)* |

RANAS survey questions were developed for each of the three selected behaviour changes using the RANAS templates (19 questions enquiring about the interviewee’s opinions of the specific behaviour in terms of Risks, Attitudes, Norms, Abilities, and Self-regulation in relation to themselves and others in the community).

A total of 33 interviews were conducted. 23 mothers who have children under two years of age were interviewed regarding hand washing and mouthing behaviours, and 10 mothers of children under four months old were interviewed regarding the exclusive breastfeeding behaviour.

The results will then feed into phase-2 of RANAS, where a quantitative survey will consider the behaviour of ‘doers’ and ‘non-doers’ in greater detail to support intervention design in phase 3.

## Target Area and Ethnic Groups

### Target provinces and villages

The formative research was carried out in four provinces in Northern Laos, the focus of the upcoming World Bank interventions, with targeting relating to WaSH and nutrition needs.

The following table gives a demographic overview of the target area.

Table 3 Target provinces

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Province** | **Population** | **Poverty %** | **No. of poor individuals** | **% with Improved water source** | **% with Improved sanitation** | **Literacy rate** | **Female literacy** |
| Houaphan | 285,459 | 37 | 105,680 | 14.3 | 74.6 | 81.3 | 73.1 |
| Xiengkhouang | 238,766 | 28.2 | 67,336 | 42.4 | 83.2 | 88.5 | 83.5 |
| Oudomxay | 295,813 | 25.5 | 75,325 | 27.7 | 61.2 | 72.8 | 61.8 |
| Phongsaly | 171,426 | 22.7 | 38,894 | 14.4 | 43.9 | 62.6 | 54.3 |

Population/poverty data from the Lao PDR 2015 Census-Based Poverty Map – June 2016; WASH/literacy data from the Country Analysis Report: Lao PDR (UN 2015).

### Ethnic groups

The four targeted provinces include many different ethnic groups. Seven ethnic groups were identified in surveyed villages in the process of the formative research. Diversity between ethnic groups can include language, literacy, culture, and gender roles and relations.

For example, unlike the majority Laoloum population, which is matrilineal, most ethnic communities in the Lao PDR are patrilineal and patriarchal societies. Khmu are the most numerous in the target area, traditionally farming lower mountainous areas, while Hmong traditionally farm higher mountain areas and have lower educational achievements than other ethnicities. Tai ethnicities are considered more integrated with Lao loum (lowland majority) and typically speak the Lao language fluently. These cultural influences each ethnicity brings to bear should be considerations when reviewing attitudes and practices in relation to WaSH and Nutrition and subsequent social and behavioral change.

Table 4 Ethnic Groups Surveyed in 4 provinces

|  |  |  |  |
| --- | --- | --- | --- |
| **Province** | **Village** | **Main Ethnicity** | **Ethnicity 2**  |
| Houaphan | Kohing | Khmu (126HH) |  |
| Meungpeu | Tai Dam (116HH) | Khmu (7HH); Hmong (2HH) |
| Xiengkhouang | Pa-Aen | Hmong (117 HH) |  |
| Phosy | Phuan (97HH);  | Khmu (57HH) |
| Oudomxay | Houayxang | Hmong(105HH)  | Khmu (45HH); Lanten (19HH) |
| Moklahang | Khmu (64HH) |  |
| Phongsaly | Namkhouang | Akha (68HH) |  |
| Naboua | Tai Deng (37HH) | Lao Bit (28HH); Akha (24HH) |

|  |  |
| --- | --- |
| **Khmu** | Khmu people (over 700,000 in Laos in 2015 or >10% of the national population) are regarded as the original inhabitants of mountainous northern Laos. They are the most numerous ethnic group in Oudomxay and Phongsaly. Khmu speak a number of dialects of the Austro-Asiatic language family, constituting the Khmuic group. They have traditionally farmed lower mountainous areas than the Hmong.  |
| **Hmong** | Hmong people (595,000 in Laos in 2015 census or about 9% of the total) migrated to northern Laos from southern China from the late C17 to late C19. Hmong people traditionally have followed a farming life in higher mountain areas of northern Laos. |
| **Tai Dam** | Tai Dam *(*Black Tai) are a Tai group from southern China. Ethnically similar to Thai in Thailand and Laoloum in Laos, they have developed a separate written language, and do not follow the Buddhist religion. They are usually well-integrated with the Laoloum majority and can typically speak Lao language fluently.  |
| **Tai Deng** | Tai Daeng (red Tai) are similar to Tai Dam, also originating from China, arriving in Laos in the 19th Century, with agricultural livelihoods in valleys and on riverbanks (including the Red River). |
| **Phuan** | Phuanare another Lao/Tai group, regarded as closely related to Laoloum, have adopted Buddhism, and speak a language similar to Tai Dam. A large majority speak Lao fluently.  |
| **Akha** | Akha originate from China, arriving in Southeast Asia during the early 20th century. The language is Sino-Tibetan. Traditionally they are upland farmers, following animist traditions within a patriarchal community. Population 112,979. |
| **Lanten** | Lanten (Lao Houay) a sub-group of the Iu-Mien ethnolinguistic group. Population 828 (Lao population and housing census 2015) |
| **Lao Bit** | Lao Bit are a sub-group of the Mon-Khmer ethnolinguistic group. Population 2,372 (Lao population and housing census 2015) living around Phongsaly province. |

## Child Protection

The field work has included observations by field staff with communities and households where there are young children. To manage risks related to child protection:

* Staff only observed children when their parents/adult family were present.
* All staff were reminded by email to ensure any images on their phones which include children are removed. Government staff that accompanied the field staff were also copied.
* Images taken using the tablets to support field observations (e.g. via the photovoice tool) were downloaded to a single secure device and all images were removed from the tablets.
* Images were reviewed, and images that did not show children in a positive manner were removed once related *Baby WaSH* notes had been made.
* No image showing children will be published without consent from their parents.
* The names of children will not be used in the report.

# Summary of Key findings

## Objective 1. (Fecal-Oral Transmission Routes - Baby WASH)

### Hands & Handwashing

#### Data and evidence from the field

The current research has found that hands of infants and their caregivers are a likely vessel for transmission of fecal matter to mouths. Handwashing with soap for adults and babies’ hands at key trigger points such as after toileting, after handling soil, or before preparing food and feeding is not routine, thus presenting a major avenue for FOT.

Handwashing is a protective tool to interrupt FOT relative to the items which are touched by children. Household observations found that the most frequently touched items by children under 2 years of age were: The hands of carers including siblings (16%), food (15%), toys (15%), floors (14%), Soil (8%) and eating and drinking utensils (8%). Dominant items mouthed by infants were similar and included: hands of carers including siblings (18%), kitchen utensils (22%), Toys (14%) and floors (13%). Other items commonly touched and mouthed were phones, keys, shoes, and empty water bottles.[[11]](#footnote-12)

Handwashing practices (of both the caregiver and baby/infant) were surveyed through **direct household observations**, across four provinces. It was found in this very small sample that while most adults (around 70% of 10 observations made) wash hands after their own toileting, none were observed to use soap. Rates of hand washing with soap after changing a diaper or handling infant feces was slighter higher at 19% of the 31 occasions observed. Washing of infants’ hands after toileting was found to occur 56% of the time, but soap was only used in 13% of 16 observations made. Adults washed their own hands 46% of the time before feeding an infant (soap used 38% of the time), while infants’ hands were washed 31% of the time but soap used only 3% of the time. The general pattern throughout all handwashing observations was that handwashing may occur at key trigger points, but rarely with soap (see tables below for full details).

Figure 1 Handwashing Frequency in Adults



Figure 2 Handwashing Frequency for Infants’ Hands



Caregivers such as grandparents, siblings or other family members were repeatedly seen giving food to babies without handwashing. Food such as rice often goes directly from the caregiver’s fingers into the mouth of a baby and therefore the hygiene of their fingers/hands is of concern. **Children, from about 18 months, will also often take food themselve**s if they can access it.

Babies are often passed around amongst the family to hold/care for them, often to older siblings or other children when the mother is busy working. In the upland fields the grandparents usually have this role. In general, these family members were not observed to wash their hands before holding the baby, and the mothers generally do not wash hands when finishing work and the baby is returned to her. Grandmothers in most settings reported that they wash their hands before feeding the babies, but not with soap. They would also wash their hands after washing up or cleaning up baby’s feces, again without soap. Observations confirmed this practice of handwashing at some trigger points, but without soap.

A mother, (who was a school teacher), in Muangpeu was uniquely observed to wash hands on a range of occasions (after toileting infant/changing diaper; before breastfeeding; before handling food; before eating; before feeding infant) but the observer considered that overall handwashing with soap was still inconsistent. It was noted that this mother bathed her baby twice a day using a baby shampoo, but then re-dressed the baby in unwashed clothes, and the baby returned to playing on the floor without a mat. Overall, it was observed that soap is used for bathing, not for handwashing. This mother reported that her knowledge regarding handwashing had come from many sources, including health staff.

As an exception, one grandmother was observed to wash both her and her baby’s hands with soap before feeding the 8 month old infant, meanwhile as was seen more commonly, mothers, grandmothers and grandfathers in different houses in Muangpeu were observed to not wash their own or the child’s hands before giving them something to eat.

In Pa-Aen an infant was passed around between relatives (for example the father after returning from work; neighbors, other children) and so the unwashed hands of the many short-term caregivers were considered a potential FOTR.

A 20-month infant in Naboua in a home considered well off ate snacks, sweets and orange juice and played with a bicycle and mobile phone, without any handwashing. However, the observer noted that the child was always sitting on a mat or tiled floor, sleeping or watching television, and was not observed to mouth items, other than hands when eating. When outside, the child was carried and in the kitchen was often put on a chair. Overall the infant was not in places where there was dirt (the house was clean). However, it was noted that the parents wash their hands (water only) and the infant’s hand (water and soap) before eating main meals. The infant was bathed daily in the afternoon, using shower soap.

In Moklahang a 16 months infant was observed crawling with no pants on, played on the tiled floor with no mat, mouthing house keys that he played with, as well as a water cup and a hammer. In the kitchen, he was then moved to the earth floor, and later placed in bed with the mother, no handwashing was observed throughout, despite the baby being visibly dirty. It was observed that the mother did not wash hands before cooking, when feeding the baby or after using the latrine. There was no water in the kitchen (basic rainwater harvesting was done outside).

The **photo voice** **activity** to support household observations suggested awareness of the importance of hand washing, but again these images showed that people mostly wash their hands without soap. Participants reported (using the photos they had taken) that they always wash hands before eating, feeding their baby and after using the toilet. Observed practices however, as discussed above, do not always match this self-reporting of behaviour. People demonstrated washing their babies’ hands before eating (rarely with soap), but more so with their own hands when they could see they were visibly dirty.

Four household observations were made where the families were considered **positive deviants** (i.e. better practices than the norm). It was found that two mothers had a good awareness about the importance of hand washing, washing hands with soap for both mother and baby (if the baby was dirty) and before eating. A third mother showed how she washed hands with soap after the baby defecated and was cleaned and changed. In one case, two babies were left with the grandmother while the mother worked in the field. The grandmother washed her hands before she ate, and before feeding the babies. The mother would then bathe after coming back from the field before she fed the babies. It was seen that these parents would clean and wash babies, but they do not normally wash their hands as a separate action afterward.

When observing families working in **upland fields** together (which is often the case during planting and harvesting season, or if the field is a long distance from the home) it was again noted that handwashing was only practiced with water, and washing of infant hands is only done on rare occasions (sometimes before eating a meal at the same time as a parent washes their own hands). It was not unusual to observe a mother who did not wash her hands at all. Routinely when a baby urinates the wet pants are removed, put out to dry (e.g. on a rock or the roof of a shelter), and dry pants are put on (often dried but not washed). Hand washing was not observed following this practice; one father preparing food after doing this.

Focus group discussions across all areas found that the vast majority of people believe handwashing is a positive practice, and indeed most know how to do it. However, most do not understand the mechanisms or fully recognize its protective capacity in preventing illness, especially the role that soap plays in interrupting the FOTR. It was observed in households of **positive deviants** that families have better hygiene knowledge. Handwashing was carried out before and after meals, before feeding the baby, after using the toilet and before entering the house after working in the field. However, most of the time soap was still not used. Reasons include that soap is being kept in the bathroom for use when bathing, rather than near the tap or water storage for the house, and that washing with soap required far more water (which has to be collected and is often scarce).

Almost all observations were consistent across **ethnicity and province**. However, Hmong and Akha women were found to have less understanding of the role soap in handwashing could play in reducing diarrheal disease.

#### Key findings (in consideration of KAP, ethnicity and location)

The hands of children under 2 years of age and their caregivers are a key avenue for FOT. This is associated with feeding and play activities (mouthing hands/objects), where handwashing with soap is not common practice.There is reasonable understanding by most that handwashing is a positive practice for good health. However, for many and especially for Hmong women there is little understanding of why hand washing (and particularly the role of soap) can interrupt FOT and reduce diarrheal disease. Hand washing with soap is perceived to use more water, thus soap is usually reserved for bathing. A key limitation remains accessible running water, this disproportionately affects remote areas with less access, especially in the dryer months. The current research suggests that there is a need for messaging to strengthen the understanding of soap use during handwashing to reduce FOT (even where hands are not visibly dirty), and for handwashing to be promoted as part of infrastructure development, with consideration of increased water access through household connections.

### Toilet use, open defecation and disposal of infant feces

#### Data and evidence from the field

Fecal disposal practices observed for children under 2 years of age are likely to provide effective routes for FOT. Observations and discussions with carers found that babies under 1 year generally defecate into their pants (if worn) or in some cases nappies where they can be afforded. After 1 year of age open defecation is widespread (floor of homes and gardens being the most likely locations). The training of children to use toilets varies with ethnicity and having a toilet in or near the house. There are no potties or devices to assist with the toilet training process, the family toilet is used. Toilet training was reported to occur between the ages of 18 months and 5 years and was seen by most as a positive practice.

When babies defecated into pants the baby was taken to be washed at the location of the toilet (4 observations of this practice were sighted). Pants would be washed later, usually in the stream, in one of these cases the pants were washed in detergent.

Where nappies are being used (1/3 of households in round 1), they are wrapped and thrown in a waste bin, later to be taken to a rubbish dump outside the village or thrown from the riverbank into the water, where the house is close by a waterway.

In many cases babies defecated on the ground of the home or garden and the feces were later thrown over the fence, into the bush or into a hole in the ground, this occurred even where a pour flush toilet was near the house, where infant feces could be disposed of.

Discussions with mothers, particularly in Phongsaly/ Oudomxay villages revealed that it is common for children to defecate on the ground around the house. They usually encourage dogs to eat it or throw it into the garden before washing the child’s bottom (mothers from Namkhouang reported using a stick if there is no water). The fathers in the FGDs had limited concern regarding child feces management, letting the children defecate on the ground around the house, including in households where there is a latrine.

Household observations across the four provinces found that disposal of infant feces was into a pour flush toilet 38% of the time, into the yard or garden 44% of the time, into a rubbish pile/pit or dug hole 18% of the time.

Observations at two households that had no toilet found a 2-year old and 10-month baby defecated around the house and the fecal matter would be thrown over the fence when found.

In Moklahang a 16-month baby was observed urinating in the yard where he was crawling/playing without clothes. The mother did not wash him and allowed him to continue to crawl/play in the same area. Later, the baby also defecated in the yard, the mother waited for the dogs to eat it rather than clean it up.

Households of **positive deviants** tended to use nappies, disposal involved wrapping up the nappy, throwing it outside or in a bin, then washing the baby in the toilet or in the stream if no water in the toilet, soiled pants are then washed later.

**Village authority** discussion groups confirmed that households located near rivers are using river-water for bathing and washing their clothes, including cleaning the baby clothes that have feces on them. It was estimated that 90% of households in each of the Houaphan/ Xiengkhouang villages have a toilet, many (more often Lao Loum) households have a separate toilet and bathroom. Most children aged older than 6 years are using the toilet when they are at home and school.

In the **direct household observations,** it was seen that most young babies defecate in their pants or nappy (see disposal of feces below). Some children over 3 years of age were observed to be using toilet facilities, but most defecated in the open.

In the **transect walk** in Phosy village, a grandmother was observed carrying one grandchild (under 2 years) while watching another grandchild (3 years) defecating in the yard. There was a latrine, but it was located far from the house.

Further observations included a 19-month-old being taken to a toilet for defecation, parents reporting she was trained at an early age to communicate needing to go. Another mother reported training her child to use the toilet, but still allowed her child to defecate on the ground outside the house.

The **photo voice** activity found a similar example where a 23-month-old baby let the parents know when it should be taken to the toilet, parents reported training commenced when the baby could walk (in this case the mother also washed the baby’s bottom with soap, as well as her hands when she finished). **Photo voice** found another baby being toilet trained as they were starting to walk.

**Mother/father** focus group discussions found that **Tai Dam** mothers in Houaphan are using nappies for their infants from 1 month of age to 1 year at night. Only young mothers with medium income levels are using nappies both day and night. Mothers receive four nappies from health clinics as part of a birth ‘gift-set’. Some young Khmu mothers are also using nappies with their babies at nighttime.

In Muangpeu it was observed that most latrine floors had a lot of mud/soil from people’s feet (onset of rainy season at time of survey). Some households in Phosy keep footwear for use in the bathroom.

In relation to toilet training, mothers and fathers reported that the majority of children from 1-3 years old do not use the toilet, and that parents do not know how to teach them at this age, citing children’s inability to communicate need as a barrier. Girls are generally considered easier to toilet train than boys.

Many mothers reported they would train children to use the toilet when they are 3 years old. A Tai Deng woman commented on the convenience of a toilet noting it would keep the house and environment clean. However, they felt that children under 4 years would find it difficult given their size. Men suggested a wide range of ages to start toilet training for children (Naboua (Tai Deng) from the age of 2; Houayxang at age 5; Moklahang at 9 months old) suggesting ~~either~~ a low level of awareness of what happens in practice, possibly because the use of toilets is relatively new.

#### Key findings (in consideration of KAP, ethnicity and location)

Defecation practices and disposal strategies of infant feces are most likely contributing to the fecal load in household environments. Similar findings were made through different tools and different locations: if babies have soiled pants they are washed in the room where the toilet is located and pants are washed later (often in a stream); babies over one year defecate on the ground in the home or compound and fecal matter is thrown on nearby grass, or over the fence, even where there is a latrine located close by. Nappies are popular (both promoted by health clinics and available in larger villages), and used by those that can afford them, mainly at nighttime, but are used day and night where incomes are higher but never past 1 year of age (presumably less need as urination frequency decreases). Soiled nappies are wrapped and binned and later dumped (either outside the village or over the fence). Baby feces is generally considered less harmful or contagious by most. It therefore appears that fecal disposal is about convenience and that FOTR from openly discarded faeces near the house or riverbank is not perceived as a risk by most. Over 1 year of age open defecation is dominant, and for those that toilet train for use of latrines this is generally occurring between 18 months and 4 years of age. Attitudes to toilet use are positive but practice is limited by availability/ cost of latrines, running water, size of toilet compared to child and distance to toilet from location.

### Food Hygiene and Feeding Practices

#### Data and evidence from the field

Feeding practices and food hygiene are implicated in FOTR in the current research. There exists some knowledge about the importance of better hygiene practices in food and drink preparation as well as feeding for children under 2 years of age, however this is only translating to a small increase in changed behavior. This, combined with low levels of handwashing with soap, amplifies the opportunities for FOT.

Positive deviant interviews and FGDs found that many participants reported that food hygiene was more important for small children, because they could get sick more easily than adults. However, strategies for achieving improved hygiene specifically for children were found to be limited and inconsistent across all locations.

**Direct household observations** found that a majority in round 1 villages use filtered water or boiled water for drinking (but not always cooking), and often Gravity-fed-system (GFS) water was used for washing dishes and bathing. The **photo voice** **activity** also found that families used filtered or boiled water for drinking. Boiled water is usually kept in either a kettle or a container with a lid, and poured out as required. Water that babies drink is the same as the water drunk by the adults. One household in Phosy washed baby bottles in un-heated well water, before filling with boiled water for mixing with formula. Kitchens in Akha households in Namkhouang were found to be less clean, cooking utensils were not washed right after each meal, instead they were kept until the end of the day and some of the used dishes and spoons were used again during the day.

It was found that food is generally prepared separately for children until about 12-18 months, when children usually eat the same foods as adults. Younger children are given less of a variety of food than adults (fibrous vegetables, fruits, strong flavored foods, spicy, oily or sour foods were those reported by some to be avoided).

Food preparation is generally carried out by mother and grandmothers for the household, and only occasionally included washing of raw food before preparing (observed on two occasions in round 1). Clean utensils and storage of food in cupboards was witnessed in a few households. Only one household was observed to have a very unclean kitchen in round 1, but many were found to be unclean in round 2. Unclean dishes and utensils were observed to be left on the ground in some kitchen spaces where children were crawling and playing.

Food is typically boiled for a long time or fried, potentially reducing some pathogen transmission, but food is not usually eaten directly after cooking. Food cooked in the morning would often be eaten for lunch (not necessarily heated again), but not any later as it was thought it would be spoilt by that time. Food for babies is sometimes covered with a lid and sometimes stored in a fridge but this was only seen on occasions across villages.

The traditional practice of feeding children pre-masticated rice is less common than 20 years ago, but still practiced, particularly by grandmothers caring for young babies (especially where they are hungry for breastmilk when the mother is away in the fields). FGDs with grandmothers in both rounds of data collection confirmed that where mothers are away working in the field and they are responsible (in part) for feeding infants, many pre-masticate rice (and sometimes meat and vegetables) to give to the infant.

When infants are fed, it is predominantly from the fingers of mothers/grandparents/older siblings. Thus the hygiene of those fingers is of considerable importance in any attempts to interrupt FOTRs.

While there were variations in hygiene standards and practices around food preparation, these did not appear obviously related to location or ethnicity. However, where mothers work longer hours, houses including kitchens were less clean. One exception to this may be where grandmothers have a caregiver role, where mothers return to work earlier (e.g. Khmu mothers returning to farming work as early as 1 month post birth) it appears that pre-chewing food for babies is more common. Feeding very young babies (from as young as 1 month) food from unwashed fingers where they may be hungry for milk while the mother is away working is also common practice.

#### Key findings (in consideration of KAP, ethnicity and location)

Most respondents understood that more stringent food hygiene is beneficial in preventing sickness in small children. However, there were only minimal practices observed aiming at achieving a different standard of hygiene for infants as opposed to adults. In ‘better-off’ villages there was an understanding about different water qualities, particularly for drinking water (with use of filtered water and boiling widely practiced). Dirty dishes and utensils are often left within reach of children (on kitchen floors). The practice of giving prepared food to babies via hands/ fingers that are not washed with soap or as pre-masticated food from other mouths is a common route for FOT. This practice is more widely seen when mothers return to work early after the birth of the baby and others must care for it, for example for Khmu mothers this may be as early as one-month post birth.

### Spaces for Infants to sit, crawl and play –household cleanliness

#### Data and evidence from the field

The household environment provides the landscape in which children under 2 years of age move around on hands and bare feet, eating, playing with, and mouthing objects as they go. Here unclean environments provide multiple FOTRs for children. In the current research household cleanliness was found to be influenced by appropriate and consistent cleaning and rubbish disposal strategies, adequate water access, and infant and animal feces management.

Participant reports suggested that some children are left to play on the floor/ground (usually in the living area, with carers nearby) while others are carried, observations confirmed a mix of both practices. Children able to crawl or walk (while supervised by adults) were found to be on bare floors with no covering 39% of the time, outside ground/soil 31% of the time and mats 30% of the time, however often these were dirty with rough surfaces.

The photovoice activity found less evidence of children placed directly onto exposed ground, normally they were found to put their baby on a mat to play and explore, some photos showed babies on the dirt floor and grass, but mothers said they cleaned (swept, removed obvious rubbish) these places before putting the babies down.

A house surveyed in Pa-Aen was considered generally clean, although there was a dirt (clay) floor and no mat, here however the baby was never on the ground, either in the bed or on a lap with the mother sitting in a chair. At one small shop/household in Naboua a baby was crawling on a dirty concrete floor, playing with chickens and ducks.

Levels of cleanliness in and around homes varied greatly. Adequate water and latrine access impacted significantly on overall environmental cleanliness. House cleaning strategies such as sweeping and use of rubbish bins were common but not universal.

Findings from **direct household observations** demonstrated this variability - four houses observed in Houaphan/ Xiengkhouang were considered very clean, including the kitchen, toilet (which also has water); presence of a rubbish bin outside the house; floors were swept 3 times per day; and mats were on the floor. Two homes were considered less clean, both homes untidy, one with an external toilet which was dirty (despite having tap water nearby). The second house had belongings (clothes, baby things, and sacks of corn) piled up, with no evidence of floor sweeping.

In Kohing most houses did not have rubbish bins and rubbish was thrown into their home garden or into the river that ran close to the village (the village authority also made this observation). Children aged 6-13 years old were seen using the river for bathing, and all houses along this river used it for washing their clothes (including soiled baby pants). Khmu houses in Kohing however were tidier, they were found to have minimal waste, and cleaned their houses each morning.

Observations of the Tai Deng sub-village in Naboua village in Phongsaly found generally clean homes, use of rubbish bins, minimal litter and few animals wondering around, compared to Bit and Akha sub-villages which had fewer rubbish bins and were considered less clean. Muangpeu households have a rubbish bin under the house/kitchen (taken to a dump 2 km from village when full). They also burn rubbish near the house. A rubbish bag was observed in Pa-Aen near to a tap stand. In Phosy it was observed that 17 households place a rubbish bin close to their upstairs sink. Rubbish bins are also placed in the front yard, and a bin is built at the rear of the house, yet close by for burning waste. It was observed that Kohing households don't have a lot of waste, and that they clean their houses each morning. Three rubbish bins were observed at households and one at the health clinic. Houses are very close together (as there is limited space on the mountain ridge). Houayxang and Naboua use small rubbish pits and burn rubbish in them. **Village authorities** said that CARE International has a project (in some Phongsaly villages) to improve village environments by identifying rubbish dump locations, so some villages do have rubbish collection (includes nappy disposal in some cases) but all households also burn rubbish, or throw it into the garden or river.

Observations in households of **positive deviants** found that five households had very clean houses and toilets, and babies in these households were put on mats when on the ground.

None of the four villages in Houaphan and Xiengkhouang have a drainage system, but have wastewater flowing through the yards, potentially carried by feet into houses.

**Transect walk** observations found small amounts of visible ***faecal matter*** on the ground. Cows, buffalo, pigs, goats, chickens, ducks, turkeys and pigeons provided the faecal matter. In Muangpeu most pigs are penned, whilst some piglets range free. (People can be fined 10,000 Kip if large pigs are freed). In Muangpeu floors were considered very clean, with no chicken or animal pens built close to the house (many are raising silkworms under the house, which require good hygiene to be successful). In a few houses in Muangpeu, where chicken faecal matter was found under the house it was put in a bucket and used on the garden. In Kohing and Pa-Aen all pigs were penned, and cows and buffalo are generally kept outside of the villages (and fodder crops are grown to support this). Meanwhile, in Phosy, cows are tethered to trees around the house, calves/young cattle can graze freely around the house/yard (and so cowpats are not uncommon). Notably in Pa-Aen there are four households engaged in pigeon raising (for food) (an additional source of fecal contamination near the house). Two households kept turkeys, which included penning the turkey in large enclosures using high chicken netting (an uncommon practice, with a focus to protect the higher value poultry, but with hygiene/fecal management benefits). Chickens are kept in all villages, a few at each house. In Phosy village where there are both Phuan (Lao/Tai) and Khmu **ethnicities,** it was noted that there was a lower level of household/environmental hygiene practices in the Khmu sub village. Khmu sub village kept cows close to houses, chicken and pig pens were not well-made meaning animals roamed freely.

As discussed previously open defecation practices by many young children in and around the home are also likely contributing significantly to the fecal load in the home environment, where feces may be trodden on and through homes, carried on shoes or feet, picked up by infants or animals.

#### Key findings (in consideration of KAP, ethnicity and location)

The cleanliness of the space in which children under 2 years of age are free to sit, crawl, play or walk is a contributing factor in FOT routes. The current research found household cleanliness to be quite variable. Cleaning strategies such as floor sweeping and rubbish bins are utilised by many, and households of Bit, Akha and Khmu ethnic groups were found to be less clean, and Phuan, Tai Deng, and Hmong were considered to have cleaner homes. Animal and infant feces is most likely contributing to (even if not obviously visible) fecal load in the household environment. Limited livestock fecal matter was observed close to houses. Keeping cattle away from the village and penning pigs is common practice. Rubbish generated by households is managed by burning or dumping the rubbish either outside of the village or away from the house (creating a FOTR risk when in/near water courses). An unexpected finding was the practice of keeping pigeons in lofts (increasing FOTR risks) and fencing turkeys (reducing FOTR), it is assumed as they are much larger than chickens and therefore more valued (this may be an entry point for behavior change regarding the fencing of poultry). The need for hygiene for silkworm raising and weaving is a motivational factor to help manage hygiene. Other FOTR relate to open water storage, unprotected water sources and wastewater flowing in the yard.

### Other potential FOTR for children under 2 years of age.

#### Data and evidence from the field

Other potential FOTR pathways were identified. In the **direct household observations** feeding of complimentary food can include caregivers putting rice in the infants’ mouth with their fingers, but also infants and siblings sharing a piece of fruit or other snack item, or lump of sticky rice which may get passed around or dropped on the floor in the gradual process of eating. Sharing of food between individuals appears common especially with children.

Bath-time in Pa-Aen homes involved standing up in a large plastic tub (adding boiling water from a kettle) and using a water scoop. The single scoop was also used as a drinking vessel, for washing up, and transferring water for cooking, making it a potential source for transmission of microbes back to the stored water.

Toys were identified as another item regularly being touched and mouthed by children under 2 years of age, amounting to 14% of occurrences of mouthing.

In Muangpeu, a crawling infant was seen mouthing toys and licking the floor. Flies were also found around garbage bins, swarming through the house, and resting on children’s clothing.

Floors were mouthed/licked (usually in response to fallen food) in 13% of mouthing occurrences observed, confirming the importance of clean floors/spaces for children to move, explore and eat.

As discussed earlier, FOTR are amplified where multiple caregivers pass a baby around. It is common for children under 2 years of age to be passed between multiple caregivers to hold, breastfeed, be fed, sleep, and explore/play, but they are sometime left to explore/play with adults nearby but engaged in work/domestic tasks. In Pa-Aen an infant was observed to be firstly with the grandfather on his lap in the morning; in the afternoon he worked with the baby on his back while he cut wood. The infant sucked the grandfather’s (unwashed) fingers when he was feeding snacks/rice. Later in the morning the grandfather helped with rice planting, and the baby was passed to the father, then the mother, then the grandmother. He was always held, and never on the ground, which is relatively common practice with younger infants. Later the grandfather washed his hands in a water bowl used for chickens drinking water (a cut-in-half empty plastic can that had held herbicides). While men were involved in child-minding in this scenario, this is usually the domain of women.

Soil is a potential vehicle for FOT, its frequency as a touched item by children under 2 was 8% of all items touched. In Phosy mouthing of soil by an infant was observed, and as many babies were sitting on dirt floors, it is likely dirt on hands is entering mouths. Proximity of animals to homes varies, chickens are often close to home or farming huts, sometimes contained, but not always effectively. The transect walk in Pa-Aen noted that 4 households had pigeon lofts (for food) as well as the ubiquitous village chickens. This can result in a high concentration of bird fecal matter in soil within the household compounds.

#### Key findings (in consideration of KAP, ethnicity and location)

As well as the previously identified routes, FOT is likely increased due to exposure to multiple caregivers, as well as from flies, water scoops, soil contaminated with animal feces, and the mouthing of toys, floors and other objects. Observations indicate that infants under one year that are pre-walking/or not active crawlers are exposed to fingers (from the multiple caregivers who are not washing hands with soap, across multiple locations), food/flies, and toys. Once actively crawling/walking, then soil, floors, toys and other objects have increased relevance (noting that often there is only 1 toy, and therefore this is getting dropped, mouthed, push on the floor, and passed around regularly by the infant and siblings). These patterns were observed across locations; however, Khmu, Bit and Akha may have greater risks with less clean homes and animals more proximate to households.

### Chain/process leading to exposure

Here we consider what leads to the child being exposed to FOTRs. Key FOTRs identified are shown in the table below, with suggestions of the cause or lead up to that exposure:

Table 5 Key Faecal-Oral Transmission Routes

|  |  |  |
| --- | --- | --- |
| **Behavior/Practice/ Environmental Characteristic** | **Point of possible exposure** **(potential FOTRs for children)** | **Causes** **(potential points of intervention)** |
| Caregiver’s and children’s hands not being washed with soap at key exposure points.  | * No handwashing with or without soap by caregivers including mothers
* Mothers breastfeeding without washing hands of baby/mother or breast.
* Babies being passed between caregivers who have not washed hands after exposure to faecal matter when in the field or after work.
* No handwashing before food preparation/cooking/ before eating or feeding.
* No handwashing after changing soiled pants/ nappies.
* Caregivers putting food directly into baby’s mouths (e.g. sticky rice, or pre-masticated rice) with unwashed hands.
 | * limited water availability.
* The increased volume of water needed to wash with soap.
* Limited understanding of potential FOTR (and the impact of same) by some caregivers (all family members need this knowledge as all are caregivers)

  |
| Exploratory play – Infants on floors/mouthing objects.   | * Infants placed on earth or concrete floor (noting that the mats were also not all necessarily hygienic, accumulating waste food and dirt), which children sit and play on.
* Infants touching/ mouthing items from the floor, including dropped food, soil, tools, toys, and playing with older siblings (who have more range for play and therefore more exposure to potential FOTR)
 | * Hmong culture to prefer an earth floor
* Workload of mother/women means she cannot hold/nurse/ carry baby all the time
* Limited understanding of FOTR by some caregivers
* Mother or grandmother have multiple children to care for (therefor cannot nurse all children, older ones are on the floor)
* Natural need for exploratory play by crawling/ toddling infants
 |
| Open-defecation and less than ideal disposal practices of child feces/nappies | * Open defecation by children 1-3 years in houses and yards.
* Nappies used in the first year only.
* Nappies (or collected feces from open defecation) thrown over the fence or in rubbish pit.
* Fecal matter not disposed of adequately (accessible to children directly, and indirectly via livestock being in contact with the fecal matter and returning to the house)
* Soiled pants not washed immediately; and washed in streams where people also bathe. Urinated pants reused when dry without washing.
 | * Lack of water and time for more efficient fecal matter disposal
* Access/ cost of nappies.
* Delay in toilet training (at earliest 18months, but usually at three years of age), starting later than crawling/ toddling (6-12months) linked to lack of knowledge re toilet training (high levels of toilet/latrine coverage is a relatively new development)
* Limited understanding of FOTR by some caregivers.

  |
| Exposure to poultry and other animal feces in the house/yard(evidence of animal fecal matter around the house was limited, and it was noted daily sweeping of the house and yard is practiced in many households, potentially reducing contamination)  | * Fecal matter from poultry or other animals in yard or house where infants may engage in exploratory play.
 | * Most households keep some free-range chickens and/or ducks
* Food is not bought for poultry (not financially viable) they are fed household scraps (so need to be near the house).
* Fencing poultry is expensive/ difficult; feeding poultry feed that needs to be bought is not cost effective; keeping poultry away from the house has risks of loss via theft, taken by dogs, etc.
 |
| Unhygienic environment (specific examples) | * Wastewater flowing through the yard (where children play)

  | * Lack of sanitation infrastructure
* Wastewater from kitchens going to open drains.
 |

## Objective 2. (Determinants, Attitudes, Knowledge and Barriers)

### Handwashing

#### Data and evidence from the field

As identified for objective 1, poor handwashing practices present an opportunity for a direct FOTR. Focus group discussions across all areas found that most people are aware that handwashing is a positive practice, and indeed most know how to do it. However, many do not fully recognize its protective capacity in preventing illness, especially the role that soap plays in interrupting FOT. This lack of awareness was particularly pronounced among ethnic groups such as the Hmong and Akha ethnic groups.

One of the main barriers to limited knowledge about hygiene practices is the language, where multiple languages are spoken, and health promotion activities and health literature/advertising may not be accessible to all. This was found to be especially true for non Laoloum ethnic women, who reported difficulty understanding what health staff were trying to say and were relying on partial/ occasional translation by husbands or other male family members.

Dissemination of appropriate information by health staff is also problematic. Interviews with health staff also showed that the importance of soap in handwashing and the causal pathway between unwashed hands and illness has not been explained well to the public. It was noted in Houayxang and Naboua that the village Health volunteer (VHV) did not offer a lack of handwashing as a potential cause of diarrhoea.

**Health clinic staff** explained that most people know how to wash hands, knowledge demonstrated by handwashing as if scrubbing for surgery (implying that the way handwashing is promoted may be less practical, and therefore less likely followed). In FGD in round 2 Phongsaly and Oudomxay some respondents reported they disliked the smell of soap, as it lingered on their hands which are then used for eating (no cutlery).

Adequate infrastructure to support handwashing is also a major barrier, water access is variable across locations and water is extremely scarce at certain points of the year. One of the reasons often given by individuals for not handwashing with soap was inadequate running water (washing with soap is perceived to require much more water and so soap is usually reserved for bathing). The cost of soap itself may also be a barrier. Cost is around 4000-6000kip ($0.35-0.65USD) per bar of soap. Limited access to running water is a more important issue for ethnic groups living in remote areas such as Lao Bit and Akha ethnicities in Naboua and Namkhouang.

Interviews with positive deviants, who had better WASH practices, suggested lack of time and laziness as reasons people don’t wash their hands with soap at key points in the day. They also suggested that some poorer households may not be able to afford soap, this was also reported in some focus group discussions.

#### Key findings (in consideration of KAP, ethnicity and location)

Handwashing is considered a positive and important practice by most. From the interviews and observations limited access to running water is a significant barrier for most people. The absence of soap in handwashing appears to relate more to lack of knowledge or understanding of the role that soap has in interrupting the FOTR. This is linked closely to a poor understanding by most of the connection between unwashed hands and the spread of illnesses such as diarrhoea. Health staff may not always relay accurate information on this topic. They are promoting handwashing but not prioritizing use of soap. This situation is worse among ethnic groups living in more remote areas where language is a barrier to receiving health messages, and where finances may limit capacity to purchase soap, and poor or absent infrastructure provides less access to running water.

### Toilet use, open defecation and disposal of infant feces

#### Data and evidence from the field

Child (and adult) defecation practices are influenced by latrine and water infrastructure, location/proximity of latrines, perceptions of the dangers of fecal matter, and ability to train children to use toilets.

Benefits of latrines identified in FGDs included disease prevention, reduced bad smells, improved hygiene, increased convenience at night and when raining, as well as less exposure to mosquito bites when entering bushes for defecating.

As discussed under objective one, babies normally defecate into their pants/nappy (feces into toilet, bin, or garden). Open defecation is still usual for children over 1 year of age. Child feces is considered less contagious or dangerous than adult feces by most and therefore the use of latrines by children is felt to be less important. Mothers from Houayxang and Moklahang villages believed that adult feces are more contagious than the children’s because adults eat all kinds of things. Some of the fathers interviewed believed children’s feces present a lower health risk than adult feces and so they would let children defecate on the ground for pigs and dogs to clean up.

Adequate infrastructure to support routine toilet use varies, related **transect walk** observations from Houaphan and Xiengkhouang found that most houses had pour-flush latrines which were used and suitably clean and have water for flushing/cleansing. However, in Phongsaly/ Naboua, 100% of Tai Deng houses had a latrine but only 18% of Lao Bit and 17% of Akha households had one.

**Village authority discussions** showed that people prefer using the toilet when there is sufficient water for cleaning and flushing, thus access to running water is paramount and as discussed in regards to handwashing above, infrastructure and available water year round are barriers for many here especially for ethnic groups in remote areas.

Open defecation is still common in all villages for young children and some adults. Some deterrents exist. The program has been carried out in all Sam Sang villages, for example in Muangpeu village it was explained that the village women’s union and youth union check the village environment twice a month and people who practice open defecation will be fined and their names announced at the village meeting (the ‘shaming’ approach suggesting the Kamal Kar CLTS method has been promoted here as in other Sam Sang villages). However, in Namkhouang the village head said the program was not very successful as people had no money to pay the fines.

Financial constraints prevent many from having access to latrines. Several households had a pit (drop hole), reporting they could not afford a pour-flush latrine. In Namkhouang people reported wanting to have toilets but not having enough money to buy materials. They reported that they had requested many times to the district to provide materials for latrines. In Naboua, latrine cost is also identified as a barrier to construction.

**The Village Health Volunteer** in Kohing noted that 50 households do not have a toilet, while some have unused toilets due to a lack of water, especially in the dry season. Some families have no money to buy and build toilets, although some have received ceramic pans from the Poverty Reduction Fund (PRF) project (with insufficient funds to provide to all households). The cost to build a pour-flush toilet in these villages is upwards of 2 million Kip ($230 USD).

#### Key findings (in consideration of KAP, ethnicity and location)

Latrine use for children is not prioritized as most see children feces as less ‘contaminated’ than adults’. This also affects the way child feces is managed, with many small children allowed to defecate around the house or in the garden, the faeces then being removed and thrown into the garden, river or placed in rubbish bin, or left for animals to clean up. General attitudes towards latrines are positive citing convenience, improved hygiene and reduced bad smells as benefits. Available infrastructure to support toilet use is variable. All Tai Deng and most Khmu HH have latrines, while most of Akha, Lao Bit and Lanten HH do not have one. Cost of latrines and a lack of running water are considerable barriers for many. Akha, Lao Bit and Khmu ethnic groups understood the benefits but had much lower latrine access, with cost to build the most common reported barrier.

### Food Hygiene and Feeding Practices

#### Data and evidence from the field

Discussions about complementary feeding practices across all villages showed some awareness of the need for increased hygiene in preparation of babies’ food and drink. The use of clean kitchen equipment, plates, utensils, washing of food, using clean water and using suitable storage practices/covering of food were all given as suggestions for ways in which babies food/drink might be prepared differently to that of adults.

As found in behaviours relating to food hygiene under objective one, these ideal strategies around food preparation, storage and feeding practices are not always or even often adhered to. Positive deviant interviews found that barriers for many may be time, understanding of the importance, and lack of infrastructure for example refrigeration, or adequate water for washing dishes. For those who did have good food hygiene and feeding practices, motivating factors were improved health/less sickness for children.

Kitchen cleanliness and management is considered a women’s responsibility and so where mothers are working longer hours outside the home, kitchens spaces, food utensils, and food storage were observed to be less hygienic.

Discussions with mothers found that often the beliefs they hold about food hygiene practices are not the same as their mothers in law whom they often live with and who often care for and feed infants where mothers are working, making consistent practices around food preparation and feeding difficult to adhere to. For example, traditionally, ground rice, meat and vegetables are pre-masticated and given to infants. This practice is more common where grandmothers are caring for very young infants, where mothers have had to return to the field soon after birth. This practice has been challenged, as reported by **Village Health workers,** where preparation of a porridge with rice, meat and vegetables has been suggested as an alternative. However, many grandmothers report that time is a problem, where other domestic duties such as cooking for the family are required and find pre-chewing rice/meat easier, and quicker.

#### Key findings (in consideration of KAP, ethnicity and location)

Attitudes towards improved food hygiene and feeding practices for children under 2 years of age tend to be positive, those interviewed citing improved health, less sickness as benefits. Adequate infrastructure and household facilities (water, storage for food), time available for cleaning, pervasiveness of traditional practices such as provision of premasticated food all pose difficulties in achieving improved food hygiene and feeding practices for children under 2.

### Household and Environmental Cleanliness

#### Data and evidence from the field

As with objective one levels of cleanliness vary between village and ethnicities. Cleanliness, like many of the other parameters discussed, is dependent on infrastructure (latrines, running water), animal management practices, household cleaning strategies, location, finances, knowledge and understanding of the importance of hygiene practices.

Access to adequate water all year round was routinely identified as a major barrier for handwashing, kitchen cleanliness and toilet use, and this has consequences for general environmental cleanliness. Lack of readily available potable water has disproportionately affected ethnic groups in remote locations. It was found through household observations that ethnic groups such as Lao Bit and Akha have poorer levels of household cleanliness than have other ethnic groups in the same villages. Traditional houses of Akha, Lao Bit and Hmong ethnic people are simply built and use cheaper materials. Living, sleeping and cooking areas occupy the same space. The majority of these, especially the Hmong homes, are built from rammed earth, also occupied by chickens, ducks and piglets.

Financial position, women’s time spent working outside the home and the influence of drug addiction all affect household cleanliness. The poorest families observed, those where woman work the longest hours (and are also responsible for house cleaning) and those with drug addicted family members (found to be more prevalent in Lao Bit and Akha HHs) were also found to have lower levels of general cleanliness.

There still exist some traditional views that affect cleanliness for example for many ethnic group households it is taboo to wash away smoke dust from fireplaces in the home. Perceptions around children feces being less ‘contagious’ are affecting environmental cleanliness, as are practices to keep animals close to houses because of their value.

#### Key findings (in consideration of KAP, ethnicity and location)

#### Attitudes towards household and environmental cleanliness are generally positive and strategies understood by most. Limitations in infrastructure (running water, latrines, household structures), time taken to maintain a clean environment, attitudes to and practices around childhood feces and animal management are all barriers to achieving improved environmental cleanliness.

### Spotlight on Pregnancy, Birth and Breastfeeding: Beliefs and norms that could affect feeding practices, nutrition and overall health of children and mothers.

#### Data and evidence from the field

Child and maternal health as well as feeding practices of young children are ultimately affected by a complex interplay of traditional and modern ideas/practices about health and nutrition, access, location, finance, language, food availability, food cost and value, purchasing power and agency. This current research identified many existing belief systems and norms that play into the current situation for women and children in relation to health and nutrition.

Beliefs and norms about pregnancy, birth and breastfeeding are influenced by both traditional as well as modern medical knowledge (for example women understand and do use pregnancy test kits, are using birth control pills but often simultaneously adhere to traditional food taboos during pregnancy).

There was extensive variation found in practices between ethnic groups. Tai Dam and Phouan women consult their mothers about pregnancy practices. If they are found to be pregnant, women will first inform their husbands, and then talk to their mother and sisters about practicalities such as the food that she can/cannot eat. Food taboos are still common (although reported to be reducing). It was found in **positive deviant (breast feeding)** interviews that older Tai Dam women advise mothers not to eat beef, spicy and sweet food, and preserved vegetables. When the baby is young, they also avoid spicy food for fear of the hot taste being transmitted to breastmilk. Other food taboos mentioned were pickles, sour foods, frog, eel, bananas that ripen on the tree (believed to cause birth defects). Mothers should eat pumpkin, chicken, fish, pork, Chinese broccoli, spinach and wildlife meat. In Phosy (50% Lao, 50% Khmu) food taboos are less practiced.

For Tai Dam women too much rest during pregnancy is considered to be bad, for fear of a big baby and a difficult birth. If a woman is not sick during the pregnancy period, then she will work until the last month. Meanwhile, Khmu, Hmong and Lao Bit women have no rest during pregnancy, working right up until giving birth. Mothers-in-law and grandmothers-in-law assist Khmu women after the birth and often take on the role of caregiver for the infant as mothers are expected to return to work as early as one month after birth, making continuation of breastfeeding also difficult. Food taboos for the first month mean intake is limited to rice and chicken (if it can be afforded), and hot water to drink.

Akha and Lao Bit ethnic women have only a short time after giving birth before returning to work in the field, if not they may be seen as “lazy” by the community. The traditional practice of ‘Nang Kam’ whereby the new mother will sit on a chair/bed (differs among ethnicities) with hot charcoal underneath, drinking hot water, and having hot showers is still common among Tai Dam ethnic groups. If she does not have her mother or a female relative in the same village, she needs to clean all the birth clothes and materials herself as it is taboo for men to clean clothes that might have blood on them. FGDs reported that men would take over harder laboring work from women during their pregnancy, and after giving birth, sometimes asking parents and relatives to help. In poor families or where the husband is not working, women work as normal (an example was given from Houayxang where a woman worked in the field in the morning and gave birth at home in the afternoon).

Lanten ethnic women will only eat rice and salt after giving birth, then later dry food, and then pork and duck with no fat can be eaten. They will often give birth at home as they are not able to afford transport to the health centre.

Introduction of solids and complementary feeding practices are again varied across ethnicities. Tai Deng mothers start feeding their babies at 6 months of age with rice, eggs, meat, fish, frogs, birds, field mice and squirrels.

Khmu men reported that beside breast milk, they also give commercial baby rice cereal from the market to babies, from the first day after birth, especially if the mother’s breast milk has not come. Hmong grandparents will give infants rice and fish while the mother works, returning to feed them with breast milk in the evening. Lao Bit will leave the baby with the grandparents from 2 months of age. Grandparents will give pre-masticated rice until the baby is 4 months, then later give fish with rice.

The practice of giving pre-masticated rice is still dominant with some ethnic groups such as Khmu and Lao Bit. FGDs with fathers also confirmed this practice, explaining that if it is chewed by elders perceived as intelligent, this intelligence can be passed on.

All mothers across all villages recognized the health benefits of breastfeeding for babies, however rarely citing maternal benefits: FGD participants suggested healthier and smarter babies, improved health, and less illness for babies were benefits. Despite this reported knowledge and understanding, breastfeeding practices varied considerably between different ethnicities. This is largely related to household’s requirements for the mother to return to work. Most Tai Dam and Phuan mothers can have 3 months off from work in the fields, and then return to only half a day until the baby is 6-months old. Medium income Tai Dam families allow young mothers to remain working on housework or weaving at home for a year. Tai Deng can breastfeed up to 6 months, following doctors’ advice. Previously women did not breastfeed up to 6 months, but instead returned to work, pounding rice, collecting wood and water. Now men work more to help so they have time to breastfeed (and the tok-tok – 2-wheel hand tractor - is used to carry wood).

There has been an increase in the uptake of ANC and birth services. **Photo voice** discussions found that more women go for ANC and birth at the health clinic compared to 10 years ago. The free service for ante and post-natal care services has been a motivation and is seen as a trusted source of information.

The **Village authorities** considered that the Village health volunteers, and Lao Women’s Union village representatives are key committee members responsible for mother and child health care. The VHV in both Kohing and Muangpeu villages receive 65,000 kip/month (from a project) for implementing MCH activities; informing women to get ANC and to take their children for vaccinations. The village LWU are expected to organize monthly meetings with members (women) and collect a monthly fee. The LWU is responsible for women and their behavior (good mother, good wife, good citizenship, and for creating small income generation activities).

From the **Mother/ Father focus groups** in Round One (Xiengkhouang and Houaphan) it was noted that all 4 ethnic groups (Khmu, Hmong, Phouan, Tai Dam) have a similar approach to marriage and subsequent living arrangements. Normally the oldest son of the family will stay with his parents. The younger brothers will stay with their parents for 1-3 years before moving to live in their own house (within the same village). Married women have to move to live at their husband’s house, resulting in a strong influence exerted on young mothers by their mothers-in-law. The mother-in-law is involved in daily food preparation, cleaning the house, health care of pregnant women and support in raising the babies.

As was discussed under objective one around food preparation, feeding complementary food (pre-masticated ground rice) to babies very early (where mothers return to the field for example at 1 month), is a practice which has been challenged previously by health staff across the nation (suggesting porridge instead), but persists due to perceived barriers of time taken to prepare some meals. In traditional Hmong society, it is not culturally acceptable for women and girls to join with men and boys for meals, although currently some younger couples do not follow this practice.

#### Other existing views and practices about food affect the nutritional intake of children (as well as adults). Protein is seldom eaten in large amounts due to costs and access, sometimes reared but usually sold, variety of vegetables is limited due to cost, availability and knowledge of importance for the diet. Breastmilk alternatives are often given in the form of soymilk (often sweetened), or sweetened condensed milk, and by wealthier households occasionally formula. These patterns are discussed in more detail at objective 3, but it is worth noting that many positive deviants interviewed who were adhering to a more balanced protein and vegetable rich way of eating (for mothers and children). They said they were doing so because their doctor had advised them to. Medical staff do appear to have a strong voice of authority on the matters of food and nutrition.

As will be discussed in further detail in objective 3, existing patriarchal norms mean that women must seek permission from men before making purchases, including healthcare and most food items. Where women are earning money off farm, they may have slightly increased agency in purchasing decisions.

#### Key findings (in consideration of KAP, ethnicity and location)

There exists a combination of both modern and traditional norms and beliefs about child and maternal health and nutrition. Health service and ANC are promoted by the authorities, provided as a free service, and uptake of these services is increasing. Mothers-in-law have a significant influence over young married women regarding food preparation and hygiene practices. Grandmothers also have influence regarding cooking and managing pregnancy (although maternal grandmothers often support the mother in the month after birthing). Mothers and infants’ health could be compromised because of the push for woman to work right through pregnancy. The perception is that staying at home and not working will result in a larger baby which is more difficult to birth. Also, post-birth many mothers are receiving limited nutrition (rice and salt for 1 to 4 weeks), compromising their own health status, likely affecting breastmilk supply and the nutrition being transferred to the infant. Feeding practices in general are high in carbohydrates and low in necessary protein and micronutrients. Traditional food taboos and practices are being successfully challenged by health authorities in areas where there is more access to modern healthcare.

### Spotlight on Gender: Beliefs and norms that could affect WASH

#### Data and evidence from the field

It was consistently found that cleaning and hygiene are the responsibility of women, including washing and cleaning of the baby, cleaning the house, and cleaning the toilet. Meanwhile, men are responsible for building: installing water systems, toilets and kitchens. Female headed households find it challenging to have water connections and well-constructed toilets as a result of this gender norm (presumably lacking time and construction skills) these norms were repeatedly found in focus group discussions with mothers and fathers.

It is noted from **village authority discussions** that the 4 villages surveyed in round one have established a water use committee and that there are no women on the committees. Meanwhile, a village hygiene committee is led by the village Lao Women’s Union (LWU) and the VHV. The Hmong ethnic group has few women in village committees (none in the water committee) citing communication and time and availability as barriers to inclusion.

It was explained that In the Hmong culture women have full responsibility for tasks related to hygiene (cleaning the house, collecting water (which takes time if there is no direct water supply) and washing clothes). It was explained that men cannot do these tasks.

Traditionally, non-Lao/Tai women appear to work longer hours (domestically and employment) than women from other main ethnic groups even within the same village. Where time was given as a barrier to ideal WASH practices, it is evident that women who are expected to work long hours may be disadvantaged.

#### Key findings (in consideration of KAP, ethnicity and location)

WASH-related gender roles dictate that men are responsible for infrastructure so that women can perform the daily tasks for managing hygiene (fetching water, cleaning clothes, floors, toilets, food preparation, washing children). Non-Lao/tai women appear to carry a heavier burden of hours worked inside and outside the home, and they are therefore time-poor, which works against challenging some gender-based WASH behaviors.

## Objective 3 – Household Earning and Expenditure, Financial Literacy, Patterns of Food Consumption and Healthcare.

### Household Earning and Expenditure – Who makes decisions and how is money spent (including women’s income)

#### Data and evidence from the field

In all villages, men earned considerably more cash than women. A patriarchal society persists generally giving more power to men to make decisions on how money is spent, however there is usually consultation between husband and wife on large purchases. Women are increasingly earning cash off-farm (for example through weaving or selling small animals) which is improving their capacity to make small scale decisions on spending. Large purchases must always still be made with consent of the husband (but equally men must consult with women for very large purchases).

It was repeatedly reported that women (in most villages) usually hold the daily cash as they are better at managing it (for example in Naboua, Moklahang, Houayxang), but sometimes very large amounts of money are held by the men. In fact, many women earn small amounts of cash from small animal raising, weaving, bamboo collections, mushrooms etc. FGD with mothers living in their in-laws’ house from Houayxang village noted that the husband’s parents will hold the money, and give small amounts to them as they need.

**Mothers’ and Fathers’ focus groups -** Many Tai Dam and Phuan women earn at least 200,000 kip a month from weaving (and sometimes up to 500,000 Kip/month) but women’s time spent working in the rice fields reduces this capacity for earning. Across all villages it appears that if women earn small amounts of money off-farm they can choose how to spend this money – which is usually on cooking ingredients, I.e. salt, MSG, oil, eggs, 2-minute noodles, as well as soap, detergent or supplies for children such as powdered milk or nappies. They may also spend this money to re-invest in their off-farm activities. There were far fewer women earning money-off farm, and for those who were, they had much less or no agency in how their money was spent. In Houayxang, there were only 5 women earning their own income, most reporting they lacked trading skills to earn money. In general women were reported to be much less influential in villages where they were not earning income.

**Mother/ Father focus groups** confirmed that women in Muangpeu and Phosy do have the autonomy to make small-scale independent decisions around food and this includes food purchased at markets such as new clothes for children, complementary foods, milk bottles and milk products and fruits – but this is was less the case for Hmong and Khmu ethnicities in these villages.

In Houayxang husbands and wives will discuss what is needed, the wife then gives the money to the husband who goes to town (women don’t usually ride motorbikes in this village). Purchase of small items (cigarettes, phone cards) don’t require discussion.

In Kohing (Khmu) and Pa-Aen (Hmong) men go to market and go less often than women. Hmong women will request that their husbands take them to market before the start of Hmong New Year to buy new clothes for children and food for visitors during the festival period. A Hmong mother explained low literacy and poor confidence to participate in society means they are more reliant on men than other ethnic groups. They must rely on male family members to translate with officials and to travel, as most are unable to speak Lao, and many are unable to ride motorbikes. Decisions around household expenditure are made more commonly by husbands in this group. Woman may hold a small amount of cash, mainly from selling pigs and chicken and may make small purchases (only up to about 50,000 Kip) without her husband’s consent.

**Mother/ Father focus groups** (Houaphan/ Xiengkhouang) discussed that market access related to distance, season and need. For example, Muangpeu is 48km from the district market and there is no public transportation. On average, a mother (with her family) will travel to the district once a month (including visiting family), selling a weaving product, and to sell and buy weaving materials. All mothers confirmed they need the husband to take them because they cannot ride a motorbike for long distances, and it is not safe to go without their husband. Meanwhile, in Muangpeu there are 5 shops and one petrol station.

In Phosy the nearest market (Napa) is 7 km away. Women go there by motorbike to sell weaving products on average twice a month in the planting/cropping seasons, and weekly from July to September (between planting and harvesting season) as they spend most of their time weaving in this period. They can go to these markets close to home without their husband. If they go to the district town market, it is 22km away and they will travel with their husband for this longer distance. For Kohing the nearest market is also 7 km from village. Most women said they go to market once a month with their husband because (unlike Phosy) they do not have products to sell.

**Mothers FDG (Phongsaly/ Oudomxay)** noted that forest products are the main income for many families (bamboo shoots, galangal root, wild vegetables, orchid flowers, wild pigs, squirrels). They also sell livestock. Normally the prices will be set by men who go to the market 2-3 times/month. Middlemen will also come to their villages to buy the products.

Most **grandmothers** are not empowered to travel to the market and buy foods. They would however encourage the mother to purchase and eat the foods perceived to give the baby enough breastmilk. Grandmothers do not like the idea of feeding babies with commercial complementary foods and milk powder because it’s seen as expensive and unnecessary.

Food consumption patterns are ultimately driven by existing perceptions on how money should be spent. It is generally agreed that food should come from subsistence practices and not purchased (with a few exceptions – eggs (where they do not have their own chickens), noodles, MSG, oil etc.). Thus, what is grown by the household or can be foraged in nearby forests or waterways makes up the dietary intake of most households. This is predominantly rice, with small quantities of protein (from fish, eels, frogs, rats, squirrels, insects, eggs) and small quantities of fruits and vegetables grown by the household or foraged. The few items reportedly purchased specifically for children included: baby rice cereal, eggs, instant noodles, sweets, snacks, and milk substitutes (soya milk, sweet condensed milk, and formula).

**FGDs with Fathers** found that in general, the male head of family will make important financial decisions for example on what to farm (with varying degrees of input from women and other family members across villages). In round two, mothers in Naboua and Moklahang villages reported decisions on spending money on crop planting or livestock rearing are made by husbands (with influence from his parents, and only minimal input from wives). However, it was also reported that in Moklahang village that if husbands were considered weak and unable to lead the family, the wives would take over this role. Women had more power in decision making in Houayxang villages, where it was reported husbands and wives would discuss together what to plant and what animals to raise. A **Khmu grandmother** explained in a focus group discussion that grandmothers do not have a role in financial decision making in the son’s family, but they do influence the earning practices of daughters-in-law (i.e. when to return to work, what type of work to be engaged in).

Borrowing of money for medium to large scale purchases is again the decision of men. At village level both women and men need their spouse’s signature for loans. Naboua provides a good example of the variety of lending schemes available for larger purchases. There is a micro-finance agency 15 km from the village, which lends at 30% interest per year. This is generally used for healthcare, agriculture and to finance weddings. There is also a member savings group, which will loan between 500,000 and 1,000,000 kip with interest of 3% per month. There is also a village saving scheme where anyone (including women) can borrow for health care purposes, and a village development fund (15% interest per annum for livestock raising).

#### Key findings (in consideration of KAP, ethnicity and location)

Men have higher cash earning capacity than women. A patriarchal societal structure persists; however, women do make small scale purchasing decisions, are considered better at managing money, and are sometimes seen as stronger trade negotiators. Across all villages, women must seek approval from men for larger purchases (say over 100,00kip), conversely men must also seek approval for large purchases (over 500,000kip). Men are generally the ones who will borrow money from lending providers, apart from small-scale village savings scheme loans for healthcare. Women have varying degrees of autonomy in decision making around household expenditure. Where women are earning their own money their decision-making power on expenditure is increasing with the two notable exceptions: (1) Hmong women who continue to have little power, and (2) Akha women with drug addicted family members who have little say in how their money is spent. Market access relates to distance, season and need. Women can travel alone to close markets (e.g. 7km) but travel with their husband (for safety and to ride the motorbike) for further markets (e.g. 22km an upwards). Women in Muangpeu and Phosy are more likely to have the autonomy to make purchases at markets. However, consultation with husbands would still be required for large purchases. Food consumptions patterns are dictated by subsistence practices, not purchasing practices. Across all villages purchases of expensive food (e.g. meat) require approval from men. Grandmothers may have influence over when their daughters in law return to work, but not influence household expenditure, they may themselves continue working if there are not younger family members able to do so.

### Sources of Household Information

#### Data and evidence from the field

Sources of information are varied and differ between villages and ethnic groups. Family members (particularly parents, grandparents) are still dominant sources of information on topics such as raising children, however their advice is complied with more in some villages than others. The voice of healthcare professionals/programs on matters relating to health of children including hygiene and nutrition is having more impact in villages such as Meungpeu and Phosy. TV, smartphones (including social media), and radio are also sources of information.

It was found during **Village Authority discussions** that women under 45 years in Meungpeu are likely to have a smartphone, and access Facebook and use WhatsApp for communication. In Namkhouang about 20 young people, mainly males aged 12-25 years old, have a smart phone, (however the signal in the village is very limited). In Houayxang YouTube and Facebook access has increased in the under 30 age group. In **Namkhouang** no married women over 20 years of age has a mobile phone. None of the Pa-Aen FGD participants owned a smart phone, although young people may access social media elsewhere.

**Mother/Father focus group** discussions reveal that Tai Dam and Phuan women receive information from Thai and Vietnamese TV (not Lao TV generally). There is no Lao or Thai Radio frequency available. Tai Dam and Phuan households in all villages have a TV and small satellite dish. In Pa-Aen although Thai TV channels are accessible most women do not have time to watch, however men may watch sports or music programs. In Namkhouang village authorities note that about 20 households have a TV with access to Thai news, however they cannot understand Thai language. In Houayxang people watch Lao Star TV channel, and children often watch Thai dramas. In Naboua many children prefer to watch Thai TV channels, not Lao channels. For young, middle income Tai dam and Phuan mothers, Thai-TV advertisements have a big influence on consumer practices.

Non-Hmong/Khmu villages are receiving information from Vietnamese TV and advertisements, social media and the internet. For Hmong/Khmu ethnic groups, there is minimal ownership of smart phones, and less time for watching TV.

Across many villages the village authority receives monthly information about developments through the government party members, LWU, and health staff. Meetings are held with heads of households with the purpose of disseminating policy information or instruction. In Naboua the chief will get information from the district government offices and inform the village via the PA system.

Agricultural knowledge is passed down from older family members. New farming and animal husbandry techniques are learned from agriculture staff when they come to villages to give vaccinations to animals (although in Namkhouang the language barrier has limited this). In Houayxang a Chinese company came to advise on how to grow Tua-ber (type of bean) and how to use fertilizer and herbicides (and buy these from them).

Family members still provide a dominant source of information for many and this is sometimes a strong voice in the face of other opinions such as medical or healthcare professionals. FGD discussions revealed that women in Pa-Aen are still likely to take advice around giving birth, raising children, and feeding practices from their mother in law despite different information given from doctors (i.e. medical advice is no solid food before 6 months, but common practice is to feed solids earlier as per family advice).

Despite the authority of family member advice, healthcare professionals are still seen as influential in many villages. In Kohing it was explained that health staff are a source of specific health information (especially regarding ANC, dietary advice and immunizations) as are friends and relatives living in big towns. However, decisions on treatment of sick children require consultation with all family members.

**The Health clinic** in Pa-Aen (Hmong village) displayed a lot of posters about breastfeeding, nutrition, and vaccination. However, these were in Lao text so inaccessible for non-Lao speakers or illiterate individuals. **Village health workers** in Muangpeu confirmed they provide education on dietary management strategies for malnourished children in the village. They also report that most people are aware of/have knowledge on the best hygiene practices and food preparation, as well as importance of breastfeeding till 6 months, but these are not always complied with. Health Clinic staff recommended that in areas with high Hmong/Khmu populations each clinic should have staff able to speak these languages.

#### Key findings (in consideration of KAP, ethnicity and location)

#### Thai and Vietnamese TV, social media (Facebook, WhatsApp) and the internet (in non-Hmong/Khmu communities) is providing information and influencing decisions. Health staff/nurses and doctors provide information pertaining to antenatal care, dietary and feeding practices and immunizations. However, this is sometimes ignored in the face of strong family voices of authority (e.g. mothers-in-law and grandmothers in law). Written material/posters at health clinics has limited accessibility – thus not reaching non-Lao speakers or illiterate individuals. Village leaders are also a source of valued information in many villages. Barriers to information access identified in Hmong/Khmu communities include women’s access/time to watch TV, lack of internet access, language and illiteracy. It was found across all villages that younger generations tended to have increased access to internet/social media.

### Health-Seeking Behaviors and Barriers to Optimal Use of Healthcare Services.

#### Data and evidence from the field

Health seeking behaviours in all villages are influenced by location, cost, time, individual knowledge and opinions of family members. Everywhere a combination of traditional and modern healthcare is being utilised.

Modern health literacy levels are generally low but do vary across villages. Illnesses such as diarrhoea are often only recognized as occurring in the warmer wet season months (April-June), coughs and colds in the transition to cooler weather. These views were echoed by health staff, for example In Pa Aen the Health Clinic staff defined diarrhea as 3-4 runny stools/ day which could affect the weight of infants and considered diarrhoea to be a season specific condition (occurring in the wet season). Data from the health clinic showing cases where under-two's with diarrhea were admitted to the clinic and where under-two and under-fives are prescribed/sold medicine to take home, does not show a correlation with the wet season although there was a recent peak of cases in April 2019 (see Annex 6). There were respondents across all villages in round one (Xiengkhouang and Houaphan) that suggested other causes of diarrhoea such as drinking un-boiled water, especially when in the fields, eating sour fruits, and overly spicy food. In Namkhouang poor hygiene, eating unclean food, not washing hands, long fingernails and playing on the ground were identified as causes. They also identified that children get ill more frequently when starting to crawl and stand independently. Tai Deng women from Naboua village said although they use soap when washing hands, children still get diarrhoea when the season changes (rainy season).

In round two where villages were generally poorer, more remote, and had higher proportions of poorer ethnic groups, there was a much poorer understanding of the causes of illness such as diarrhoea. **Father FGD** interviewees in Phongsaly/ Oudomxay explained that they do not have a clear understanding of causes of diarrhoea (although reasons given included changing weather, not using a toilet, mouthing things from the floor, and not washing hands, eating raw or under-cooked food, and food that flies land on). FGD with mothers revealed similar findings, some even reporting not knowing what diarrhoea is.

Decisions regarding treatment of illness are largely affected by seriousness of illness, age of sick person, location/transport, available time, the opinions of family members and cost. Many still use traditional medicine such as herbal or plant-based remedies (often first) and, if not getting better, then modern medicine. Non-Lao/tai Ethnic groups tend to use traditional medicines more, resisting hospitals. This was confirmed by hospital staff who reported that when these ethnic groups do present to hospital, they are usually sicker than others. Children who become sick are generally taken to available medical care (usually by mothers) sooner than adults, as most understand they get sicker, quicker.Adults meanwhile will wait for 1-2 days before deciding to seek medical care at the health clinic, judging first the extent that they need health care, not wanting to spend time/money if they might recover on their own.

Village authority discussionsacross all villagesin round one (Xiengkhouang and Houaphan) noted that babies that are ill will be treated immediately at the health clinic (each village interviewed in Houaphan/ Xiengkhouang had a health clinic and there was no waiting/delay because children <5 and pregnant women receive free treatment). Common reasons to take a child to the clinic included cough, cold and fever.In round two no villages had a healthcare centre so people need to travel to nearby towns to seek medical care. **The photo voice activity** led to discussions about how families manage children when they are ill. It was explained that people took children to the nearest health clinic as needed and this might be quite often. For example, a 10-month old baby from Pa-Aen had diarrhoea every month for the previous six months and the parents took the baby to the clinic each time, as soon as possible (if they were in the field then there might be a one- or two-day delay).

Men from Moklahang and Namkhouang reported that when children are sick, they go to see the village health volunteer. If the VHV cannot treat the symptoms, they refer them to the health center or district hospital. Meanwhile, fathers from Naboua and Houayxang villages reported they would buy medicine from the shop and sometimes ask the traditional healers to perform a ceremony. If no improvement was found, then they will take the child to the district hospital. Women in these villages cannot take the babies or children alone because they cannot ride motorbikes and do not speak Lao language well.

Common traditional medicines were reported to be used by Tai Dam and Lao Phuan women such as Indigo leaves to treat high fevers, crushing leaves into small pieces and adding cold water before putting it on the babies’ hands and feet. Rashes are sometimes treated with boiled water which has had tree bark soaked in it. Most houses keep basic medicines at home (paracetamol, antibiotics (which are freely available without prescription), and stomach relief pills). In Houayxang there was a village medical box (with limited stock at the time of survey) from which villagers can buy medicine for common illnesses. **A Village Health Volunteer** noted people go to the VHV to get pain killers and ORS, as there is a drug revolving fund.

Advice from family is important in decision making around healthcare. A **village health worker** interviewed in Muangpeu revealed that grandparents have influence in how financial decisions are made in the domain of healthcare – decisions around how to care for a sick child for example, whether traditional versus hospital care is chosen will be made in consultation with the whole family. Women **FGDs** from Naboua and Houayxang villages said that they would first seek advice from parents when their children are sick. Women from Moklahang will talk to their husbands about their children’s illnesses before going to the parents, who may advise them to buy medicine, and if there is no improvement, to take children to the hospital or health centre.

For more serious conditions, such as injuries caused by motor-bike accidents, broken legs and so on, hospitals such as Oudomxay Provincial, Mai District hospital or hospitals across the border in Vietnam may be used. However, these come with increased cost for treatment and travel. Some conditions/illnesses are treated through other traditional methods, for example a baby crying without obvious pain is thought to be caused by ghosts and treated with a ceremony.

Access and uptake of preventative care was again mixed, but included practices such as growth monitoring, vaccinations, education/advice, and ANC. In Houayxang health staff members visit once a month to give nutrition information, child vaccinations and encourage women to attend ANC. In Moklahang the village authority explained that every month the health center staff attend the village and provide vaccinations, advice on hygiene (including handwashing, sanitation and latrine use), breastfeeding, and maternal and child nutrition information. A similar situation exists in Naboua where health center staff visit the village to provide the above services as well as birth control pills. There, CARE also provides a 3-monthly theatre show on delivery, handwashing, and brushing teeth.

The **photo voice** activity confirmed the use of child growth monitoring charts. The charts that were observed showed acceptable height for age, although having an updated chart in the house implied these are children that are being taken to see the VHV and clinic regularly, so perhaps less vulnerable.

In Houayxang village, it was estimated that 85% of pregnant women go for ANC /post-natal care at the district hospital. Similarly, in Naboua, people go directly to the district hospital for ANC, delivery and health care (in preference to the health clinic).

Most fathers said that they like their wives to go for ANC and delivery at the health centre or a district hospital (although in Moklahang the health centre is preferred as hospital staff are not polite). There is no charge for hospital maternity services; however other costs include transport and living expenses when staying overnight. There are still some women, such as Lao Bit women, who give birth at home due to financial barriers or because they report no difficulty with birth.

The **village authorities** explained that women of Tai Dam and Phuan ethnic groups visited health clinics for ANC between 4-8 times. Meanwhile, women of Khmu and Hmong ethnic groups visit less (attributed to agriculture workload, a maximum of 4 visits). It was suggested that if more stable weaving work/markets were established then pregnant women could work from home and therefore have time to access the health services. Home births are still common, with discussion suggesting that mothers could not remember the appointment schedule that nurses wrote on their pregnancy record book (as previously mentioned the discussion groups suggested that each health center should have one female Khmu nurse and one Hmong nurse or midwife to address this).

Advice around breastfeeding and the introduction of solids provided by healthcare professionals is sometimes challenged by existing traditional practices. Very few babies are breastfed to 6 months exclusively (likely 4 months at best). Whilst it appears mothers of babies would prefer to stay home with the baby to continue breastfeeding, financial pressure requiring them to be working in the field means they often cannot. Sometime babies can go with the mothers to the field if there is someone else to hold the baby whilst she works. However, early cessation of breastfeeding appears closely related to the need of mothers to return to work.

Financial, geographic, language and time barriers were raised by many respondents when discussing health seeking behaviour. In round two villages, there were no local clinics and travel to health services out of town was required. In Namkhouang it was found that access was difficult as most women do not ride a motorbike and cannot talk in Lao Language when they reach the clinic. If husbands are required to take wives for transport and to interpret, then work/labor time/income is lost. Services were known by households to be free, but it was explained that the transport allowance has now stopped. Conversely it was reported that because the road from Houayxang to the district health center was in good condition, it was utilized more than by other villages.

**Health clinic staff** in Pa-Aen noted that barriers to accessing the health clinic include walking distances (from surrounding villages) and cost (5,000Kip per visit) although, the latter is not a barrier for infants/pregnant women as there is no charge for them.

Travel and treatment to most hospitals costs around 500,000-1,000,000 kip, but only 200,000 kip for health centres. If families have no money, they may be able to get treatment on credit from the health center worker (as they will know them personally) but cannot owe money to a hospital. It was noted that poor families will receive care at a reduced price in some hospitals (if bringing their family book). Money is also required to give birth at the health centre (around 500,000 kip). If there is no money, they will choose to give birth at home. If the mother attended ANC, they will receive 300,000 kip under a care arrangement, however many doubt that they will see this money.

**Village Health Workers** in Muangpeu report that finance is not considered a key barrier for pregnant women and mothers of children under five (as services have been free since 2017). However, medical care at a large hospital for example in Vietnam would require 2-5 million kip and approval of all family members. All women said they do not have to pay health centre fees if their baby gets sick when they give birth. Indeed, some mothers have received cash incentives to attend the clinic, or home-packs after birthing (with nappies).

**Mother/ Father focus groups in round one (Xiengkhouang and Houaphan)** reported that the time required to travel to and attend the health clinic was considered the most challenging barrier to access the health clinic service. The domestic and work schedules of women between 5.00am and 9.00pm each day allow for little flexibility. For example, in **Phosy** and **Meungpeu**, women start weaving from 4.00 am, prepare breakfast at 5.00am, feed animals, give milk to children, and prepare food and drinking water to take to the field (from 6.00am to 5.00pm) in the upland fields. This leaves little opportunity to visit the health centre, particularly as it is only staffed during the daytime. For some, the distance from their village to the village that has a health clinic can be more than 10 kilometers adding to the time and travel burden.

Language and culture for Khmu and Hmong women can be a barrier. In round 2, Hmong and Akha women particularly said they do not fully understand what health staff may have advised during their visit to the health facility. One woman explained that she did not go alone to the health clinic, worrying that they will not understand the nurse (speaking Lao) so it was better to go with her husband. Another reason given for husbands attending was that they may not allow other people to examine their family members without them being present.

#### Key findings (in consideration of KAP, ethnicity and location)

People’s understandings of health, and treatment, utilize a mix of modern and traditional approaches. The discussions show that those villages that have a health centre see the clinic as a priority service in health seeking behavior. Free care for under-fives and pregnant women supports this. The VHV is consulted for minor ailments and to access the drug revolving fund. Traditional healers and traditional medicine are a continuing element of health seeking behavior. Ethnic groups such as Hmong and Akha tend to use modern medicine for severe or emergency health situations.

The time needed to attend the health clinic (including visit time, travel time/distance) is the main barrier to accessing services, with high workloads for agricultural work in distant upland fields underlying the daily pressure on time use. Language and cultural issues (particularly for Hmong and Khmu ethnic groups) are a barrier to women attending on their own and so reducing the opportunity to access the service. Quality of service was not mentioned in discussions and may be an area for future research.

Cost of travel for treatment is a barrier for many, and disproportionately affects those living in villages within a health clinic or which are situated further from clinics and hospitals.

Healthcare of children is generally viewed as more immediate/urgent where illness occurs. Some preventative healthcare measures such as growth monitoring, vaccinations, education and ANC visits are being utilised, but not equally across locations.

Doctors, nurses and other healthcare professionals may be voices of authority in relation to spending on healthcare/importance of spending on adequate food especially for pregnant/lactating mothers and small children.

### Bank Accounts and cell phones

**Mother/Father focus group** participants in all 4 villages in round one (Xiengkhouang and Houaphan) explained that few households have bank accounts because the banks are located at the district centre, and many consider that they do not have enough cash to save at banks.

**Village authority discussions in round one (Xiengkhouang and Houaphan)** showed an estimated range of 10%-30% across the 4 villages of households with a bank account at the district town. This is driven byfamilies that have children that work or study in Vientiane (needed for transferring cash), and occasionally where people are dealing with weaving traders (e.g. 2 women in Muangpeu) or maize traders. None of the married women in Kohing and Pa-Aen have a bank account.

In round one (Xiengkhouang and Houaphan) where households were found to be wealthier, it was found that many young mothers have a cell phone. Six out of 10 of mothers in Tai Dam and Phuan ethnic groups have a smart phone with internet connection. Many Khmu and Hmong women have a cell phone, but nobody connects to the internet.

There were much lower levels of phone ownership (especially for women) in round 2. For example, there were found to be no women in Namkhouang over the age of 20 years with a smart phone. Phone signals are also poorer in these more remote areas, lessening the functionality and usefulness of smartphones in particular.

#### Key findings (in consideration of KAP, ethnicity and location)

Bank accounts are held by 10-30% of households, primarily to manage money flows between them and children based in Vientiane, or relatives living overseas. Very few women interviewed had bank accounts, the exception being some traders. Government officials/ police/ military always have bank accounts. Many women in wealthier areas have access to a phone, but Akha, Khmu and Hmong women have lower levels of ownerships and were not connected to the internet, these differences seem to be related to finance, literacy and remoteness.

### Spotlight on Gender: Impact of Women’s work outside the home on caregiver activities, role of other caregivers.

The effect of women’s work on caregiver activities varies across the villages. Hmong and Khmu women are required to return to work in the field just 1 month after the birth of the baby, meaning babies are usually left with grandmothers. This reduces capacity for exclusive breastfeeding, therefore powdered milk or soymilk is often being given, or rice cereal or pre-masticated rice to fill hungry stomachs may be used. However, there is also a practice of sharing of breastfeeding duties between some lactating mothers.

**A Focus Group discussion** with Khmu women in Phosy confirmed that mothers have to return to work early and that their view is that Phuan ethnic women were often allowed to rest for a lot longer after the birth of their baby. **FGD** with mothers confirmed that for Phuan and Tai Dam woman, mothers remain at home to breastfeed until 4-6 months of age, however the grandmother is still involved as a primary caregiver. Older children across all villages sometimes play a role as caregiver for younger children. The type of employment a husband was engaged in was linked to women’s capacity to stay at home and perform caregiver activities – where husbands were civil servants (and earning a higher than average income), women stay home longer than in farming families where women must return to farming duties due to financial pressure.

Food preparation and feeding practices are affected by women’s non-domestic working roles. For Khmu woman who are back to work early and leave their babies with grandmothers – babies are often fed a combination of rice, meat/fish that is pre-chewed by the grandmother. **Village Health Worker Interviews** spoke about the practice of pre-chewing food for babies and that this has been challenged by some health programs, encouraging cooking of a porridge instead. However, this is seen as too time-consuming by many grandmothers, who are also responsible for other domestic duties such as cooking for the family and cleaning, and thus continue to pre-masticate food. A few mothers do prepare infant food and milk to give to grandmothers, including the hand expressing of breastmilk into bottles.

If a couple is not living with their parents, or if the parents are still working, sometimes a baby will come to the field with them. **Upland Field Observations** in Pa-Aen revealed that the mother carried the baby to the field, after which the baby spent most of the morning on the lap of the grandfather and was then passed around regularly between grandmother, grandfather, mother and father while they took turns to work. The mother mostly had the baby when he needed breastfeeding. The father had him on his back for about 2 hours in the afternoon while he cut wood from the slash and burn into piles for transport to the village.

**Mother/ Father focus groups** note that women start working early in the morning at 5.00am and finish work at 9.00pm (and includes cooking, cleaning, weeding, feeding animals, caring for children, fetching water). A woman who is also doing weaving may start from 4.00am and work until 10.00pm.

As noted in the summaries above, grandmothers are usually the primary daytime caregiver once the mother returns to agricultural work (this is typically from 2 weeks up to 6 months). If the grandmother is still working, then babies are often taken to the field. Here the baby is often passed around within the family to share caring and working tasks.

**The Mother/ Father focus groups across all 8 villages** said thatthe mother is always a primary care giver when a baby gets sick. Mothers prefer to go to health clinics with their husbands to assist when talking to doctors and making decisions about further treatment. For more common complaints such as a coughs and colds, women from Tai dam and Phouan ethnic groups will take their babies to the health clinic without their husband. Sometimes grandmothers may be involved in taking a baby for vaccinations at the village hall if the vaccination team come to visit and the parents are working in the fields. **Grandmothers** explained that they are caregivers staying with the baby in the daytime when mothers return to work. They also confirmed that if the baby is sick the grandmother will want the mother to stay at home as the baby can be breastfed/ provided with milk.

#### Key findings (in consideration of KAP, ethnicity and location)

Women are responsible for most caregiver activities. If a mother has to return to work shortly after birth as is the case for Hmong and Khmu women, the grandmother will take on the primary caregiver role. Time spent with mother after birth typically ranges from 2 weeks (Khmu and Hmong ethnic groups) up to 6 months (and occasionally 9 months) for wives in wealthier Phouan/Tai Dam families before mothers return to work. Grandmothers are more often the main caregivers even where mothers may stay home to breastfeed and prepare complementary foods for the baby.

When women return to work early, breastfeeding is often interrupted – relying instead on formula, soya milk or another mother’s breastmilk. Introduction of solids before 6 months is also more likely where mothers return to work sooner. For Hmong and Khmu ethnic groups, where grandmothers are primary caregivers, this usually means babies are fed baby rice cereal or pre-masticated food – this may be just rice from as young as 1 month or rice, meat and vegetable mixture from 4-6 months of age. In Phuan and Tai dam ethnic groups women are more likely to stay at home until 4-6 months, continue breastfeeding longer and prepare porridge/soups, but grandmothers often still have the primary caregiver role. Mothers are always responsible for caring for sick children.

### Spotlight on Gender: Empowering women in decision making – opinions of using cash for dietary diversity and accessing healthcare for children.

Patriarchal gender relations limit women’s level of empowerment to make financial decisions. However, women’s increasing capacity to earn cash off-farm (independently from their husband) may be challenging this in small ways. For Hmong and Akha women, their level of agency, even in small decisions, is still very limited.

**Mother/ Father focus groups (Houaphan/ Xiengkhouang)** note that Tai Dam and Phuan women may have more control over money than women from other villages, and that they are earning an income.

It was found during **Village Authority discussions** that married women do not own land, nor is their name on any documents relating to land or taxes. Men usually make the decisions relating to buying new land, and for requesting bank loans. Wives are usually witness and if not signing as witness her husband will not get approval. Khmu women reported capacity for borrowing money for corn farming/buying cattle for example under their own name from Vietnamese money lenders, but still require the husband to be guarantor.

Mothers in Namkhouang note that the land title is usually in the parent’s name and will be passed down to their sons, daughters will not have legal rights to the land. Conversely, it was confirmed in FGDs with men in Houayxang and Naboua land titles could be in both husband and wife's names if they have their own land and are not living with his parents. When a woman is married, she will live with her husband and his family. If there is a divorce or the husband dies the wife will return to her parent’s home (even if there are children). Her only assets are her clothes. It was often reported that when a wife marries, parents-in-law have a strong role in decision making for the household, but after about 5-6 years of being married the wife will have more of a say in household decisions with her husband.

In general, across all Houaphan/ Xiengkhouang villages, women (compared with women in the other two provinces) were considered better at negotiating with traders. Hmong women on the other hand cannot communicate directly with traders but will try to convince their husbands to seek the price they want from traders. Women are generally seen as better at saving/managing money but consent for purchases over 100,000 kip (50,000kip in some instances) always require the approval of the husband. It is common for women to hold the cash for the family but not have the power to spend it as she wishes without the husband’s consent.

For Akha ethnic group in Namkhouang, husbands dictate when women will work in the field, manage income, hold cash and make purchasing decisions. Akha women marry (some as early as 13-14 years of age) according to their parent’s instruction, and often do not attend school beyond elementary classes It was noted in cases where the husband has gambling or drug issues, women will not see any income from their production, and are unable to trade livestock themselves for fear of problems with the husband (for acting without permission). The interviewee estimated that for Akha only 50% of women would be able to negotiate with their husband about the use of money from her production. The Deputy LWU explained that they would not let husbands keep money that was provided for women to use for their children (a comment in response to questions about social protection transfers).

Tai Dam and Phuan mothers are earning money off-farm for weaving, selling small animals and vegetables, and raising silkworms. This amount ranges from 100,000 kip and occasionally up to about 500,000 kip/month. This amount of cash income seems to correlate with the amount of cash that women are allowed to spend without their husbands’ consent.

**Mother/ Father focus group** discussions noted that in all villages, families do not usually spend money on daily foods (relying on their subsistence production). People save money for children’s education, medical expenses and events such as the new year ceremony, funerals and marriages. Women from Tai Dam and Phuan ethnic groups can spend money to invest in weaving, buying their clothes, children’s clothes and food without consultation with their husbands, but need to inform the husband if spending on an item is more than 100,000Kip (11.50 USD). Women from Khmu and Hmong groups explained that they can spend money to buy cooking ingredients, sweets for children, washing powder and soap to a value of 5,000 –50,000 kip (up to 5.75 USD). To spend money on most food they must consult with their husband. Men reported not liking women spending money on makeup, face cosmetics or clothes.

In **Village Health Worker** interviews in Muangpeu it was reported that decisions on healthcare can only be made with consultation of the husband, and usually parents-in-law. Although some positive deviant respondents across villages reported a child could be taken to the health clinic without their husbands’ approval (perhaps because there is no cost), a visit to hospital required the husband’s approval.

As women earn more cash off-farm through weaving, selling small animals, silkworm farming, or selling vegetables they have more capacity to make small purchasing decisions. However, currently cash spent solely by women is rarely used to increase dietary diversity. Most people rely on subsistence farming – utilizing fruits, vegetables, meat and fish grown/raised in or near their own home, therefore cash is rarely used for the purchase of daily foods. Spending and food consumption patterns do vary between ethnic groups. Children under 2 are mainly fed rice with very small amounts of protein or vegetables/fruits. Eggs and instant noodles are commonly bought for children under 2 years. Meat purchases are often only made once a week (but need the husband’s consent as they are expensive). Where attitudes towards health and importance of adequate and diverse food is recognized – consumptions patterns are shifting slowly, however this is more to do with changes in what is grown, caught, gathered rather than how cash is spent.

**Village authority** discussions found that increased income earned by women from off-farm activities might enable women to negotiate to spend more time at home with their children. It was noted that women who had previously been Village Health Volunteers had no longer continued the role once married and with children. In Muangpeu, an example was given of a female VHV who was trained for some time, but then married and moved to her husband’s district. It was also noted that women do not have time to fully participate in the VHV activities, and that husbands are often unhappy with their involvement as it is perceived to affect women’s domestic roles.

**Mother/Father focus groups** observedsimilar attitudes- that culturally a married woman is pre-eminently a housewife, she moves in with the husband’s family and is expected to attend to domestic duties such as food preparation and caring for children and family health. Men are responsible for earning and holding larger amounts of cash, making decisions around spending, hunting and building. However, women are often responsible for managing smaller amounts of money and are involved in decisions around how that money is spent, including purchasing of some food such as vegetables, cooking ingredients, and candy for children. Meanwhile, men are still responsible for purchasing fish and meat. It was suggested in FGDs than women seek approval from husbands for purchases above 100,000kip, but men will usually discuss purchases above 500,000 kip with women.

Tai dam and Phuan women have more influence than Khmu and Hmong women in household management. They often have a household level income generating weaving activity (with a clear market) and this gives women greater opportunity to discuss income generation activities, food and child health.

**A positive deviant interview in Pa-Aen** found some conventions challenged. Here aHmong couple, both college graduates from Vientiane are living in the village - the husband, a primary school teacher, and the wife running a small shop which sells snacks at the school. This couple lives in their own house, separately from the husband’s parent’s house but on the same land. The mother-in-law has suggested the woman work in the fields out of school hours, but she has refused, and her husband has supported this. Other women in the village joke that she is lazy. This case seems to demonstrate that people exposed to education and external experiences are better placed to challenge norms and enable women’s decision making.

Moklahang village authority estimates there are 5-6 women in the village who can make their own buying decisions. They suggest that if a project promotes women making financial decisions this will strengthen their role in the community overall. He gave the example of the village headman’s daughter-in-law, who has been a Village Health Volunteer and now has led them to improve cleanliness in the village (demonstrating women’s increasing influence on other villagers). In Naboua a project has already encouraged a transformation of women’s roles (which has improved their confidence for example to speak up at meetings).

In Houayxang the village chief thinks that if a project provides money to women to use for their children they would be able to go the market themselves, especially for women under 40, but that both men and women would need to be trained to strengthen decision making about spending money on food and not wasting money.

#### Key findings (in consideration of KAP, ethnicity and location)

The persistent patriarchal culture ensures many decisions are made by men. However financial decision making is more complex – men will consult with women on large purchases (but make small-medium purchases independently) and women’s independent financial decision making is limited to small purchases for basic ingredients and household supplies. Increased off-farm income by women is helping to change this. However, for Hmong and Akha women in particular, there appears less empowerment even for small decisions – this appears in part to be correlated with earning capacity.

Community leaders describe a patriarchal culture where men are leaders and women are housewives. However, within the community it appears that women’s capacity for making decisions around diet diversity and healthcare is possible, but often limited by the financial contribution that they are making. So small decisions about purchasing of vegetables or food for children, or in some instances even to attend a health clinic can be made individually, but larger purchases i.e. to buy meat or fish or attend a hospital require a husband’s approval. Spending and consumption patterns do vary between ethnic groups. Traditional food restrictions still exist but are less entrenched. Levels of education and experience outside the village may mean some individuals are better placed to challenge existing social norms such as empowering women to make more independent decisions.

In general, the groups consider that food should be provided through subsistence, and therefore money earned is for health, ceremonies and emergencies. The small amount of money that women earn independently is not adequate for making substantial changes to dietary diversity or improved health access. Comments show that social and familial structure is patriarchal - men consider money, assets, and work requiring strength to be their domain, whilst food (using subsistence food items) and family health is a woman’s responsibility.

## Objective 4: Influential Figures in the Village

*To identify potential influential figures at the village level who could influence households’ decision-making patterns for improved nutrition, and health seeking behavior and diet variety.*

### People of influence

*(The following is a summary of key findings regarding figures of influence (most of the related discussion is included in the preceding chapters).*

Mothers-in-law and grandmothers-in-law have a strong influence on feeding the baby (practices, types of food), and birthing (father is not allowed to be in the room while the mother is giving birth)

Doctors/nurses/and other health professionals are seen as influential on matters of healthcare including importance of nutrition.

Mother respondents often referred to VHV and community facilitators (as influencers)

The father in law (for a family sharing a house with the husband’s parents) is the household leader and has influence on livelihood activities.

The mother in law would lead on housework, childcare and strongly influence the daughter in laws work expectations.

The grandfather and grandmother (owners of the house) hold household power/influence. They are respected and have influence by championing traditional beliefs (including food).Grandmothers consider themselves to be the main people to advise the mother on pregnancy, birthing and childcare.

The Lao Women’s Union village representative has influence on mothers in the village (if a strong personality)

In cases where more than one son has his family sharing the parent’s house, the older daughter in law would have influence, and advise her sister in law during her first pregnancy.

The oldest man in the village carried high levels of respect and influence.

In Mok La Hang the Public security authority is responsible to inspect (but not penalise) each household for cleanliness, garbage and animal feces.

In Naboua, the village committee announce health messages over the public address system, and mobilise people for village cleaning activities (LWU and village youth lead this).

**Summary**

The heads of households have strong influence over families regarding livelihoods, expenditure (including food and healthcare) and market access, this is especially true for Khmu and Hmong communities. Mothers in law, and to a lesser extent, grandmothers in law, influence decisions around caring for children and food consumption patterns (sourced through subsistence means).

Health professionals (and also VHVs) have some influence on health seeking behavior (including hygiene) and nutrition. The village leadership has influence over village level decisions – where the members of the village authority are primarily male.

# RANAS (Risks, Attitudes, Norms, Abilities and Self-regulation)

## RANAS observations from Houaphan/ Xiengkhouang village surveys (Round 1)

In Houaphan/ Xiengkhouang (round1), questions on WaSH and Nutrition-related RANAS were built into the village authorities FGD, village health volunteer and health center staff interviews. Further findings related to the RANAS framework have been extracted from father, mother, and grandmother FGDs and individual interviews. This considered a range of Risks, attitudes, Norms, Abilities and Self-regulation in the area of health concerns relating to WaSH and Nutrition.

It was found that **incidence of diarrhea** has reduced compared to 10-15 years ago. People reported that coughs and colds are the main health concerns among children, while diarrheal disease is now ranked number 2 or 3. In general, people have a basic knowledge of potential causes of diarrhoea. People usually explained that germs from unhygienic and ‘unclean’ food and dirty hands entering the mouth are the main causes of diarrhoea in children. However, some merely consider diarrhea to be a seasonal disease occurring during the hot or rainy season. Respondents routinely reported that when children have diarrhoea, it will make children sick and lead to weight loss. In interviews, people recognized if not treated, that at its worst children can lose their lives through diarrheal disease. Some interviewees also linked unhygienic practices to coughs and colds, as well as other diseases. There is a positive attitude towards reducing incidence of diarrhea.

People **wash their hands** at trigger points (after toileting, before eating), but rarely with soap as this is seen as requiring more water which is often scarce. Normally soap is associated with having a bath and soap in Lao language is called “sa buu aab nam – bathing soap.” Therefore, soap is being kept in the bathroom/toilet area, not close to key exposure points where people should wash their hands.

People understand the importance of having a **toilet**, although not every household has one. Many say that with some project support, they would be able to build toilets. However, other interviews have shown that the lack of water is also one of the main reasons not to build or use a toilet (with willingness to build if year-round water availability improved, and material support was provided).

In **houses without toilets** (and for those not yet toilet-trained) children defecate on the ground and around the house and feces is then thrown over the fence or into a rubbish pit. Adults will go further away from the house to defecate. Most people interviewed think that child feces presents a lower risk of pathogen transmission than adult feces (‘less contagious’). For this reason, they are more comfortable allowing children to defecate around the house and not into the toilet. People wash the soiled pants and clothes of children underneath a tap or where they are washing their clothes, fecal matter flowing into the drainage ditch.

It has been shown that people still have strong **traditional beliefs**, for example that feeding breast milk to the baby immediately after coming back from working in the field or working in the heat could cause the baby to have diarrhoea. So, mothers will not breastfeed immediately after returning from the field, discarding some milk before feeding the baby. Some people in the better off villages have access to and drink bottled (filtered) water (e.g. 50% in Muangpeu; 5 households in Kohing). The bottled water looks clear and clean and costs only 5,000 kips per 20 liters. These families are willing to pay for filtered water, but some poorer families fetch water from a communal tap and boil it. When people are working in the field, people will drink water from streams nearby, not every family would boil it first.

It was observed that pregnant women and mothers of young babies are engaged in spraying herbicide in upland farms (babies also exposed to this through proximity to the field).

A table of RANAS observations from the Houaphan/ Xiengkhouang survey can be found in Annex 2.

## RANAS - Behavioral factors (psychosocial and contextual factors that might influence the target behavior)

As noted in the introduction, following round-1 observations and analysis (above) 3 key behaviours were selected for the focus of Social and Behavior Change Communication (SBCC) and therefore, further review using RANAS tools in Phongsaly/ Oudomxay of the formative research.

|  |  |
| --- | --- |
| *Behaviour 1:*  | **Hand Washing with Soap** before feeding or giving food to children (0-2 years of age) |
| *Behaviour 2:*  | Controlling ‘**Mouthing**’ of children under 2 years: the caretaker controls (prevents, forbids) the baby when (from) it is picking up food from the floor and puts it into the mouth  |
| *Behaviour 3:*  | **Exclusive breastfeeding** for the first 6 months, includes; expressing/pumping of breast milk and storing it, and potential use of a wet-nurse. |

The tables below summarises the key interviewee responses of each behaviour in relation to Risks, Attitudes, Norms, Abilities and Self-regulation.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | ***Risk Factors*** |  |  |  |
|  | ***Core question*** | **Hand Washing with Soap** | **Mouthing** | **Exclusive breastfeeding** |
| **1** | *What do you think about how you can get the disease?* | How do you think a child (0-2 years of age) gets diarrhoea? | * Eating un-clean food not washing hands before feeding the child,
* Mother/child eating spicy food/fruit
* Eating food that flies have landed on
* Changing weather
* Hot seasons
* Hot breast milk
* Touching cat
* *50% of respondents could not identify a cause of diarrhoea*
 | How do you think a child (0-2 years of age) gets diarrhoea? | * Eating un-clean food not washing hands before feeding the child,
* Mother/child eating spicy food/fruit
* Drink un-boiled water
* Eating food that has dropped on the ground
* Seasonal diseases
* Hot weather
* Using condensed milk as substitute for breast milk
* *50% of respondents could not identify a cause of diarrhoea*
 | What are the benefits of exclusive breastfeeding for the first 6 months to the child’s health? | * Help growth (and not thin)
* Make baby strong
* babies get sick less easily
* Makes the child clever
* *Most respondents considered breastfeeding to have positive benefits*

.  |
| **2** | *What are the consequences of getting diarrhea?*  | What are the consequences of getting diarrhoea?  | * Makes children weak/fatigued
* No appetite
* If no treatment the child may die.
 | What are the consequences of getting diarrhoea?  | * Makes children weak, thin
* Cannot eat – no appetite, Makes children pale
* Can lead to death if not treated.
* Some recognise that consequences can be addressed with medicine/ medical treatment
 | What would be the consequences to a child if not able to exclusively breastfeed for the first 6 months? | * The child would not be strong (all respondents)
* The child will get sick easily
* Tummy ache
* diarrhea
* Cough and cold.
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| --- | --- | --- | --- | --- |
|  | ***Attitudes*** |  |  |  |
|  | ***Core question*** | **Hand Washing with Soap** | **Mouthing** | **Exclusive breastfeeding** |
| **3** | *What do you think which are the advantages and which are the disadvantages of the behavior?* | ​What do you think are advantages and disadvantages of hand washing with soap before feeding a child? | * Prevent diseases
* Make people healthy
* Soap smell on hands (disadvantage).
 | ​What do you think are advantages and disadvantages of preventing a child picking up or touching food on the floor and put into mouth? | * Make the child healthier
 | ​ What do you think are advantages and disadvantages of exclusive breastfeeding for the first 6 months? | Advantage - ‘Is good’ (all respondents)(disadvantage – 2 respondents)- less income as cannot go out to work  |
| **4** | *Do you have any positive or negative feelings regarding the behavior?* | How do you feel (positive or negative) about hand washing with soap before feeding a child?  | * Positive toward hand washing with soap before feeding children (all respondents)
* Soap smell is negative (1 respondent)
* Proud (for preventing disease) (1 respondent)
 | How do you feel (positive or negative) about preventing a child picking up or touching food on the floor and put into mouth? | * Positive (all respondents)
 | How do you feel (positive or negative) about exclusive breastfeeding for the first 6 months?  | * Positive (all respondents)
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| --- | --- | --- | --- | --- |
|  | ***Norms*** |  |  |  |
|  | ***Core question*** | **Hand Washing with Soap** | **Mouthing** | **Exclusive breastfeeding** |
| **5** | Do you know whether others perform the behavior? | Do others wash hands before breast-feeding | * Mainly wash hands and breasts without soap.
* If mother’s hand does not appear dirty it won’t be washed
 | Do others prevent babies from mouthing objects | No | Do others carry out exclusive breastfeeding to 6 months | Laoloum and Tai Dam mainly do; Akha and Hmong give sticky rice, condensed milk etc. |
| **6** | What do others think about the behavior? | What do other people think about washing hands with soap before feeding/ giving food to a child? | * They would wash hands before feeding a child (mainly with water) (most respondents)
* Don’t know what other people think about this (2 respondents)
 | What do other people think about a child picking up food on the floor and putting it into their mouth?  | * Do not know what other people think (3 respondents)
* Other people may think it is normal (3 respondents)
 | What do other people think about exclusive breastfeeding for the first 6 months?  | * Is good for the child and many people have practiced it (all respondents)
* Is good but cannot be done (1 respondent)
 |
| **7** | *What do leaders in your community think about the behavior?* | What do your community leaders think about hand washing with soap? | * Village authorities never talked about hand washing with soap (many respondents)
* Village leaders talked about it but they cannot do it (1 respondent)
* Village heads talk about washing hands with soap before feeding children (2 respondents)
* Some project staff came to talk about it but is not practical (1 respondent)
 | What do care givers do to prevent a child picking up food on the floor and putting into their mouth? | * Keep house and children play areas clean and tell others to do the same (most respondents)
* Grandmother will mostly carry the child on her back (1 respondent)
* Do nothing (baby is with 8-year-old daughter) (1 respondent).
 | What do other mothers with young babies do about exclusive breastfeeding for the first 6 months? | * Others have been doing it.
* Many of them cannot do it (2 respondents)
 |
| **8** | *What do you personally think about the behavior?* | What do you personally think about hand washing with soap before feeding a child?  | * Good, clean hands can prevent diseases (most respondents)
* Wash hands with water not soap is practiced
* If hands are not dirty, they don’t wash them.
* Normally wash hands with soap before feeding children (3 respondents)
* Husband does not do it (1 respondent)
* Never wash hands with soap before feeding her child (2 respondents). No one has come and told her about it.
* Only using soap when come back from the field or getting rid of fatty/food fatty and odour after cooking.
* Good, but no money to buy soap
 | What do you personally think about a child picking up food on the floor and putting into their mouth? | * Not good
* It might make cause diarrhoea, illness, or get parasites.
* If it is not dirty, wash and give it to the child
 | What do you personally think about exclusive breastfeeding for the first 6 months?  | * Every interviewee said it is good to exclusively breastfeed for the first 6 months.
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|  | ***Abilities*** |  |  |  |
|  | ***Core question*** | **Hand Washing with Soap** | **Mouthing** | **Exclusive breastfeeding** |
| *9* | *Do you know how to perform the behavior?* | Do you know how to wash your hands before feeding a child? How? | * Most practice hand washing before feeding children.
* Some use soap.
* Learned about washing hands with soap from village meeting and project staff (2)
* Do in the morning after waking up. But not during the day (1)
* Learned about hand washing from parents (2).
* Washing hands with soap by rubbing them 2-3 rounds, morning and afternoon (1)
* No one talked to them about it (1)
* Washing with water is already clean (1)
 | Do you know how to prevent a child picking up food on the floor and putting it into their mouth? How? | * Keep the house and play areas clean
* Stop the child putting things into the mouth
* Don’t let the child go out of the house
* Let grandmother look after - she can take care better.
* Don’t know how grandmother would do this
* Carry the babies on the back
* Put the child into the walker
* Let sister to look after the baby when busy
 | Do you know how to exclusive breastfeeding for the first 6 months? How? | * Breastfeed every time the baby wanted it, take the baby to the field
* Pump-out the breast milk for the baby.
* Not go to the field for a year, just worked around the house.
* Eat meat, eggs, beans in order to help mother be able to breastfeed
 |
| *10* | *What could make you stop the behavior once you have started performing it?* | What could make you stop hand washing with soap before feeding a child once you have started doing it? | * The smell of soap on hands
* Being in the field
* If in a hurry
* When taking the child out to play
* If give a snack to the child when he suddenly cries

*(Cost not mentioned – but implied in previous answers)* | What could make you stop to prevent a child picking up food on the floor and putting it into their mouth? | * When have to leave the children with others.
* When visiting neighbours (and take the child)
* Coming back from the field tired and letting the children play on the ground.
 | What could make you stop exclusive breastfeeding? | * When the breast milk stops coming.
* Might not able to breastfeed when sick (2)
 |
| *11* | *Can you think of something that would help you start performing the behavior again?* | Can you think of something that would help you to re-start hand washing with soap before feeding a child once you have stopped? | * Water available close by
* Project support for soap or dish washer liquid,
* Water and soap available in the field hut
* Motivation for self-improvement
* seeing others have clean children
 | Can you think of something that would help you to re-start preventing a child picking up food on the floor and putting it into their mouth? | * wanting to have healthy strong children.
 | Can you think of something that would prevent you from returning to exclusive breastfeeding? | * Most can not provide an answer
* If sick (1)
* If go somewhere without the baby (1)
 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | ***Self regulation*** |  |  |  |
|  | ***Core question*** | **Hand Washing with Soap** | **Mouthing** | **Exclusive breastfeeding** |
| *12* | *Do you see any barriers to perform the behavior?* | What are the barriers preventing you from washing your hands with soap before feeding a child? | * Availability of water
* No tap into the house children cry for food and they need to be fed quickly
* Insufficient water (need more to wash soap out)
* Not cost (Soap itself is not expensive, 2,000 – 3,000 kips) (1 respondent).
* Belief that washing with water only makes hands sufficiently clean
 | What are the barriers for you not to prevent a child picking up or touching food on the floor and put into mouth? | * Is difficult to prevent a child picking up things from the floor and put into the mouth (6 of respondents).
* Cannot be with the child all the time.
* Have to leave the child with grandparents, relatives, or older child.
 | What are the barriers for you to exclusive breastfeeding for the first 6 months? | * If insufficient breast milk for the baby.
* There is no one to help when they have to go work in the field.
 |
| *13* | *When during your daily activities do you perform the behavior?* | When during your daily activities do you wash your hands before feeding a child?  | * Before feeding children
* After coming back from the field
* After feeding animals.
* After going to latrine
* After washing children
* Before preparing meals, especially meats (1)
* Before eating (1)
 | When during your daily activities do you prevent a child picking up food on the floor and putting into their mouth? | * If a thing drops onto the floor, then pick it up and give to the baby
* (Question is a little misunderstood – with answers similar to ‘barriers’ (Q12))
 | NA | NA |
| *14* | *Can you think of anything that might help you to perform the behavior?* | Can you think of anything that might help you to wash your hands with soap before feeding a child? What? | * Needs to remind ourselves all the time
* Need to remind grandmother.
* Need to have soap available both at home and in the field.
* Have water in her house
* When see other children clean, would like son to be clean as well (1)
 | Can you think of anything that might help you to prevent a child picking up food on the floor and putting into their mouth? | * Clean the area
* Leave the child with grandparent or sister when going to the field,
* Inform caregiver to pay good attention carry them on their backs
* Talk to husband to do this
* Find clean toys for the child to play with.
* Don’t know (2)
 | Can you think of anything that might help you to exclusive breastfeeding for the first 6 months? What? | * Ask grandparents to help look after the babies
* Husbands could help out.
* Stay home to look after the baby.
* If breast milk not coming, she will ask husband to go buy formula to feed the baby (1). (– demonstrates misunderstanding of breastfeeding)
 |
| *15* | *Do you have any ideas about how to overcome these barriers?* | How would you overcome these barriers of not washing hands with soap before feeding a child?  | * Put baby on back and go wash her hands.
 | How would you overcome these barriers of that stop you from preventing a child picking up food on the floor and putting into their mouth? | * keep the place clean
* don’t put the infant on the dirt floor
* advice caregivers to pay more attention to prevent this behaviour.
* don’t know what to do (2).
 | How would you overcome these barriers for exclusive breastfeeding for the first 6 months?  | * need someone to come with them when they need to work in the field.
 |
| *16* | *How do you or others perform the behavior (frequency, timings)?* | How do you or others wash hands before feeding a child (frequency, timings)? | * Before feeding their children.
* At home, but not in the field because no soap and water
 | What do you and others do to prevent a child picking up food on the floor and putting into their mouth? | * Keep the place clean
* Not leave anything dirty lying around
* Not play on the ground
* Grandmother could pay close attention to the children.
* Do nothing just let the child be on the ground.
* Husband did not help because he smoked.
 | How do you or others ensure that can exclusive breastfeeding a child (frequency, timings)? | * Breastfeed the babies when they want feeding
* Pump out breast milk (1)
* Let the baby have other mother’s breast milk while she is away (1)
* Feed the baby just before going out
 |
| *17* | *Under which circumstances is it likely that you forget to perform the behavior?* | ​In what circumstances might you forget to wash your hands with soap before feeding a child? | * Child may cry and need for attention.
 | In what circumstances might you forget to prevent an infant picking up food on the floor and putting into their mouth?? | * When working
* When cleaning around the house when leaving the children with relatives.
* When talking to friends. when she is taking the child to the field, and leave him at the hut
 | NA | NA |
| *18* | *Do you intend to perform the behavior (more frequently)? If yes, why? If no, why?* | Do you intend to wash your hands with soap before feeding a child? Why and why not?  | * Everyone has good intention to do this
* May not do, as never done before/ not know the benefit
* May forget when the child cries and need attention
* May not do if no water and no soap at the field
 | Do you intend to prevent your child picking up food on the floor and putting into their mouth? | * Everyone said they want to prevent this behaviour
* will not let child live and eat unhygienically (1)
 | Do you intend to exclusively breastfeed for the first 6 months? Why and why not?  | * Everyone has good intention to exclusively breastfeed their babies the first 6 months in order to have healthy babies.
 |
| *19* | *To whom would you like to listen to what he/she has to say about the behavior?* | To whom would you like to listen to about hand washing with soap before feeding a child?  | * Health staff
* village leaders (needs translation)
* Information in video, printed material, on television (2) (Hmong respondents)
 | To whom would you like to listen to about preventing a child picking up food on the floor and putting into their mouth? | * Health staff (all respondents
* (translate it to their ethnic language, so women can understand).
* Video
* Using pictures would
* Project staff
 | To whom would you like to listen to about exclusive breastfeeding for the first 6 months? | * Health staff (most)
* Project staff
* people who have experience.
* Parents (2).
* TV or radio. But it needs to be in Hmong language.
 |

**ANNEXES**

# Annex 1. Summary of the RANAS methodology

The Risks, Attitudes, Norms, Abilities, and Self-regulation (RANAS) approach to systematic behavior change is an established method for designing and evaluating behavior change strategies that target and change the factors influencing a specific behavior in a specific population. In brief, it is an easily applied method for measuring behavioral factors, assessing their influence on behavior, designing tailored strategies that change behavior, and measuring the effectiveness of these. It was originally developed to change behavior in the water, sanitation and hygiene (WASH) sector in developing countries.

The RANAS approach to systematic behavior change involves four Phases. First, identify potential behavioral factors; second, measure the behavioral factors identified and determine those steering the behavior; third, select corresponding behavior change techniques (BCTs) and develop appropriate behavior change strategies; and fourth, implement and evaluate the behavior change strategies.

***Phase 1:*** *Identify potential behavioral factors.*

* The exact behavior to be changed and the specific population group to be targeted are defined; - who exactly should change which behavior.
* Collect information on behavioral factors (psychosocial and contextual factors that might influence the target behavior) (can use short qualitative interviews with various stakeholders)
* Potential psychosocial and contextual factors are allocated to the RANAS psychosocial factors summarized in the RANAS model of behavior change. (By using the RANAS model to classify and organize the potential psychosocial and contextual factors no important behavioral factors are neglected).

***Phase 2:*** *Measure the behavioral factors and determine those steering the behavior*

* Develop a questionnaire to measure the behavior and the potential behavioral factors and a protocol to conduct observations of the target behavior. (Template tools have been designed for questionnaires and observation protocols, and these have to be adapted to the local conditions).
* A doer/non-doer analysis is conducted to identify the behavioral factors steering the target behavior. (This means that the responses of people who do the behavior (doers) are compared to the responses of those who do not (non-doers); a large difference in the responses between doers and non-doers shows that the behavioral factor in question critically steers the behavior and thus can be addressed through behavior change techniques (BCTs).

***Phase 3:*** *Select BCTs and develop appropriate behavior change strategies*

* The BCTs that are thought to change the critical behavioral factors specified in Phase 2 are selected for application in behavior change strategies.
* A catalog lists which BCTs are thought to change which psychosocial factor, based on evidence from environmental and health psychology. The BCTs have to be adapted to the local context and combined with suitable communication channels, (together form a behavior change strategy).

***Phase 4:*** *Implement and evaluate the behavior change strategies*

* The strategies are evaluated with a before-after control (BAC) trial. (Behavior/ factors are measured with a questionnaire and with observations both before (Phase 2) and after (Phase 4) implementing the strategies. Further, a control group has to be formed and measured.
* The differences in behavior scores and in behavioral factor scores before and after the strategies’ implementation are calculated and compared to those of the control group.
* The strategies can be refined if needed. Otherwise, they can be applied directly at larger scales.

The formative research on *WASH, child health and nutrition* in four northern provinces in Laos will apply Phase 1 only of this approach to comply with the ToR requirement of qualitative research.

Many of the behaviors that are mentioned in the TOR are relating to everyday activities which, to a large extent, are habitual. The model is also interesting in that it emphasizes that diversity in behaviors in each community should be expected i.e. there will be individuals, households or parts of communities that maintain healthy WASH and nutrition practices in spite of low access to water and sanitation technology – the so-called positive deviants. The strengths of comparing the positive deviances to norm-based practices are well recognized in the field of nutrition. The research attempt to identify the assets and resources in the ethnically diverse communities that are already available and the promoted behaviors of handwashing, toilet use etc. and assess to what extent they are accepted/not accepted in the community at large.

* The first part of Phase 1 of RANAS has been broadly presented in the ToR. This includes ‘defining the target behavior’, e.g. baby WASH; describing all the components of the target behavior; Selecting the target population group, e.g. rural ethnic communities, especially women and under-fives). This may require further verification and refinement.

*Note that Phase 2 (questionnaire (quantitative) to measure the behavior, provide a baseline against which to measure future change, a doer/non-doer analysis to identify factors that should be tackled by interventions) Phase 3 (tools that can suggest behavioral change techniques) and Phase 4 (implementation of behavior change techniques) are all beyond the scope of the ToR).*



# Annex 2 Summary of RANAS Information – Houaphan/ Xiengkhouang survey (Round 1)

|  |
| --- |
| **Summary of RANAS information** |
| **Related to** | **Risks** | **Attitudes** | **Norms** | **Abilities** | **Self-regulation** |
|  | ***Risk of Fecal Oral disease transmission (identified by/in communities) leading to illness and diarrhea comes from…*** | ***Attitudes and behavior of surveyed communities towards managing U2 illness include…*** | ***Normal practices/ situations in relation to the risks and attitudes include…*** | ***Ways that people have ability/ confidence to manage risks Fecal Oral disease transmission leading to illness and diarrhea include…*** | ***People’s attempts to plan and self-monitor a behavior and to manage FOTR include…*** |
| Water related | **Risks** Poor hygiene (lack of cleanliness)  | **Attitudes** Diarrhea is one of the more common diseases among children.Boiled water is considered clean water | **Norms** Boiling water. Drinking filtered water (if it can be afforded).When in the field, people drink water from clear streams (in the case that they cannot boil it). | **Abilities** People drink boiled or bottled water (5,000 kips per bottle) if available, especially at home.Some families can boil water to take to drink when in the field | **Self-regulation** People that have a shelter/house in the field can dig wells or fetch water from a stream, then boil it before drinking. |
| Hand washing related | **Risks** Dirty hands entering/ touching the mouth (caregiver to baby, or baby’s own hands) | **Attitudes** Washing hands with soap uses lots of water and time.Diarrhea makes children thin, weak, unable to eat, undernourished | **Norms** Most people do not wash hands with soap.Soap is used for bathing.If touching feces then will use soap for handwashing. | **Abilities** Possibility of using soap after using the toilet but will depend on the situation.  | **Self-regulation** Wash hands before and after eating |
| Baby hygiene | **Risks** Babies playing on dirty floor.  | **Attitudes** Grandparents observed to leave babies on the floor (so attitude is this is not a problem/ concern). | **Norms** Washing soiled clothing in streams, - places that are also used for bathingReplacing wet baby pants with dry but unclean pants |  |  |
| Breast feeding related | **Risks** Warm breast milk  | **Attitudes** mother breast milk if spoiled can cause diarrhea in children (so not breastfeed on return from the field as mother will be warm from the exertion)).(Some health staff advice squeezing breast milk out after coming back from the field before feeding baby, as will cause baby stomachache) | **Norms** Majority of mothers are not able exclusive breastfeed for 6 months.Normally can exclusively breast-feeding for first 3-4 months.While the mother is in the field, the baby will eat chewed-rice and milk formula (at home provided by grandmothers or other caregivers) | **Abilities** some mothers can stay at home with their baby till 5-6 months before going to work. |  |
| Food hygiene related | **Risks** Eating unclean food.Flies (landing on fecal matter and then on food/infants directly) |  | **Norms** Normally people are not washing hands before preparing food, but they use the opportunity while doing dishes and rinsing vegetable as hand washing. |  | \*  |
| Environment related | **Risks** Germs is in the air and in food (which enter through mouth) |  **Attitudes** Diarrhea is often considered seasonal disease (hot/ wet season) |  | **Abilities**Families to not normally take young babies (<1 years) to the field |  |
| Sanitation related | **Risks** Not using a toilet.Open defecation. | **Attitudes** Children feces are considered to be a lower FOTR risk (less contagious) than adult feces. | **Norms** Young children (and some adults) defecate around the house (esp. house with no toilet) |  | **Self-regulation** need project support for toilet seat and running waterneed 2,000,000 kips to build a toiletPeople noted they lack skills for young infant toilet training (age 1-2 yrs) |
|  |  |  |  |  |  |
| Nutrition related |  | **Attitudes** Husband leads decision making thinking on spending money | **Norms** Pregnant women have to keep working to prevent baby growing too big as it will be difficult to deliver. Grandmothers influence how women eat during and after pregnancy; and how to feed infants | \*  | **Self-regulation** Possibility of people to grow and eat local vegetables, hunt, and raise chicken for meat |
| Health service/ pregnancy related | **Risks**  |  | **Norms** It is very difficult for people who live in further away village and here the road condition is poor to access the health clinic.Normally mother rest and stay with their baby at home for 20-45 days after birth. If resting more than that people will say the mother is lazy | **Abilities** Women received information on how to look after baby from health staff, village authorities, LWU, friends and TV.Willingness to pay around 150,000 - 200,000 kips for ultrasound test once pregnant. Regular ANC visit to HC | **Self-regulation** People receiving news and information from Lao star TV, radio and through internet – YouTube.Free treatment and services for mother and children under 5.Willingness to attend health information when health staff visit villages and give health talks.More people utilize HC, due to regular visits and encouragement of health and government staff. |
| Finance related |  |  |  | **Abilities** Women can decide to spend money on clothes, nappies and small value items. Monthly growth monitoring visit from health staff. | **Self-regulation** |

# Annex 3 Methods for Data collection in each village

|  |  |  |
| --- | --- | --- |
| **Data collection methods** | **Tool** | **Participants** |
| 1. Community demographics: collect demographic data on population, farming systems, water sources, other projects, productive land areas | Structured questionnaire and checklistVillage Chief Key Informant interview | Village head/ Village Authority,  |
| 2. Discussion followed the four objectives of the research (given in the TOR) with questions under each heading: Basic Health and Hygiene of infants (0-2 yrs. old); Barriers and determinants; Finance and expenditure (decisions); Influential figures (over household decision making patterns). Women and Men’s Roles in Household Production Systems; Access to and Control of Resources and Services (in part) were added after the pilot.  | FGD  | Village Authority |
| 3. Village Health Volunteer - discussion followed the four objectives of the research (given in the TOR) but without the positive deviant section. | KII | VHV |
| 4. Community observation walk: Walk through to see structure of village, including water sources, sanitation, distance to fields, vegetable garden, shops, drug vendors, sources for faecal-oral transmission; observations about wealth, observations about services, and observations of infants 0-2 years; identification of positive deviants and public space for meetings. | Checklist including photo | Village Health Worker or agriculture focal point or other member from the village team |
| 5. Household Observations - Oral Transmission Points; Location when crawling/ when on the ground and not held; Infant Faeces Disposal; Hand washing – Caregiver/ Infant | Structured observation checklist of environment for 0-2-year olds and their siblings | householders |
| 6. Field observations outside of households: Systematic observations of hotspots of contamination for young children in the home and in the community | Selection principles for the number of households Checklist of hotspots and behaviors to observe (including count measures)Checklist to assure that at least one mother/child in each of the following stages are observed in each province, delivery* the first weeks of life,
* the onset of complementary feeding, and
* starting to crawl or walk
 | Round 1: three villages x 1 householdRound 2: one village – 1 household |
| 7. “Photovoice”: caregivers are requested to document specific parts of a normal day with a 0-24-month-old child through photography. The following day an interview is conducted with the caregiver on the pictures taken and what they signify | Selection principles for the households invited to the “photovoice” data collectionInstructions for caregivers. Prepare handheld devices for caregivers to use. Consent forms.Interview guide for follow-up interview | Round 1: 4-5 households altogether |
| 8. Focus group discussion with heads of households - mothers and fathers of 0-24 months old’s - Women and Men’s Roles in Household Production Systems; Farming/livestock/trade during pregnancy or after recent child birth; Access to and control of resources and services; Income benefits and market access; Pregnancy and birth-related preferences and understanding of decisions that imply spending household resources | Discussion guide | Sample should include parents living in small and larger households; and parents with more than 1 child. |
| 9. Semi-structured interview with paternal grandmothers who take care of grandchildren - Objective 1: Basic Health and Hygiene of infants (0-2 yrs. old); and Objective 4. Influential figures (over HH decision making patterns). | Interview guide | Paternal and maternal grandmothers |
| 10. “Positive deviant” households: Interview with women engaged in trade or other types of businesses generating cash/households with improved toilets/ handwashing practices with soap for children [[12]](#footnote-13) | Interview guide | Mother entrepreneurs |
| 11. “Positive deviant” households: interview with women who have breastfed exclusively up to 6 months with a child less than 12 months.  | Interview guide | Breastfeeding mothers |
| 12. Visit the nearest Health Center – interview with nurse doing outreach to the selected villages | Interview guide | Outreach nurses |

# Annex 4. Village profiles

1. **Kohing**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Location/date** |  |  | **Ethnic Group (pop’n)** | ***HH*** | ***Fam.*** | ***F*** | ***M*** | ***Ttl*** | ***# pregnant***  |  ***<2*** | ***#<5*** |
| Date | May 19 |  | Khmu | 126 | 135 | 350 | 385 | 735 | 6 | 17 | 73 |
| Village: | **Kohing** |  |  |  |  |  |  |  |  |  |  |
| District: | Houamuang |  |  |  |  |  |  |  |  |  |  |
| Province:  | Houaphan |  |  |  |  |  |  |  |  |  |  |
| Village est | 1991 |  |  |  |  |  |  |  |  |  |  |
| Religion | Animist |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
| **Vulnerable Groups** |  | **Groups** | **Group Head** | **Members** |  | **Vulnerable Groups** |
| # FHH | 5 |  |  | *Fem* | *Male* | *Group* | *FHH* |  | # Poor HH | 6 |
| # HH with landless | 0 |  | Water Supply Group | 0 | 2 | (Total) |  5 |  | # landless HH | 0 |
| # Poor HH | 6 |  | Village saving group:  | 1 | 4 | 20 | ND |  | # HH with PWD | 8 |
| # pregnant | 6 |  |  Mother/ Nutrition group | 2 | 2 | 0 | 0 |  |  |  |  |
| # HH with disability | 8 |  | Village VHV/Facilitator | 2 | 2 | 0 | 0 |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| **Farming (Ha/#)** |  | **Diarrhoea** |  | **Household assets** |  |  |  |
| Total upland area | 1,985 |  | *Cases of diarrhoea (2017/18)* |  | Truck |  |  |  |  |
| Total lowland area | 33.8 |  | Child 0 to 2 years | ND |  | Small truck  |  |  |  |  |
| Total garden | Na |  | Child 2 -5 Year  | ND |  | Car | 8 |  |  |  |
| Total grazing land | 833 |  | *deaths from diarrhoea 2017/18)* |  | Motorbike | 200 |  |  |  |
| Total cattle | 250 |  | Child 0 to 2 years | 1 |  | Toktok | 7 |  |  |  |
| Total Goat | 300 |  | Child 2 -5 Year  | 0 |  | Small rice mill | 90 |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Facilities** | **Y/ N** | **Comments** | **Dist** |
| Village Access Road | Y | All year round and good condition  | 60  |
| Schools (nearby) | Y | 2 schools, one pre-school and primary school |  |
| Domestic water supply |  | Gravity fed system (Nam Lin)  |  |
| Dispensary/Health Clinic | N | They went to Soplao health center  | 7 |
| Markets (nearby, distance) | Y | Namneun - Soplao Market  | 7 |
| HH with grid electricity | Y | 80HH connected to electrical grid |  |
| Gathering/ meeting places | Y |  |  |
| # small shops | Y | 10 & 1 petrol station |  |
| Temple ("Wat") | N |  |  |
| Telephone (landline): | Y |  |  |
|  Mobile cell site coverage | Y | UNITEL & LTC – internet coverage |  |
| Water and Sanitary facilities |
| Village Public Toilet: | Y | 8 (total) |  |
| Toilets at school | Y | 6 Public toilets (at school) but only 1 has water / operable |  |
| Toilets at meeting hall  | N |  |  |
| Toilets at: market (PRF funded) | Y | 2 toilets with one bathroom (fee 2,000 kip) |  |
| Main water sources |  | GFS, 6km from village  | 6 |
| Availability of water  |  | Not enough |  |
| # HHs with water to the house: |  | 30 HHs |  |
| Number HHs with latrines: |  | 76 HHs  |  |
| Type of latrines |  | Soak pit  |  |

1. **Meungpeu**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Location/ date** |  |  | **Ethnic Group (pop’n)** | ***HH*** | ***Fam.*** | ***F*** | ***M*** | ***Ttl*** | ***# pregnant***  | ***<2*** | ***#<5*** |
| Date | May 19 |  | Tai dam (Buddhist) | 116 | 150 | 318 | 365 | 687 | 17 | 49 |  |
| Village: | Meungpeu |  | Khmu (Animist) | 7 | 7 | 14 | 15 | 29 | 7 |  |  |
| District: | Sone |  | Hmong (animist) | 2 | 2 | 4 | 4 | 8 | 1 |  |  |
| Province:  | Houaphan |  |  |  |  |  |  |  |  |  |  |
| Village est | 1403 |  |  |  |  |  |  |  |  |  |  |
| Religion | Animist/ Buddhist |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
| **Vulnerable Groups** |  | **Groups** | **Group Head** | **Members** |  | **Vulnerable Groups** |
| # FHH | ND |  |  | *Fem* | *Male* | *Group* | *FHH* |  | # Poor HH |  |
| # HH with landless | 0 |  | Water Supply Group | 0 | 8 | 724 | 336 |  | # landless HH |  |
| # Poor HH | 12 (7 Khmu) |  | Village saving group:  |  0 |  7 |  60 |  0 |  | # HH with PWD |  |
| # pregnant | 5 |  |  Mother/ Nutrition group |  2 |  3 |  29 |  29 |  |  |  |  |
| # HH with disability | 5 |  | Village VHV/Facilitator | 2 | 1 | 0 | 0 |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| **Farming (Ha/#)** |  | **Diarrhoea** |  | **Household assets** |  |  |  |
| Total upland area | 25 |  | *Cases of diarrhoea (2017/18)* |  | Truck |  |  |  |  |
| Total lowland area | 39 |  | Child 0 to 2 years | 39 |  | Small truck  | 5 |  |  |  |
| Total garden | 3 |  | Child 2 -5 Year  | 14 |  | Car | 2 |  |  |  |
| Total grazing land | 190 |  | *deaths from diarrhoea 017/18)* |  | Motorbike | 127 |  |  |  |
| Total cattle | 258 |  | Child 0 to 2 years | 0 |  | Toktok | 45 |  |  |  |
| Total Goat |   |  | Child 2 -5 Year  | 0 |  |  rice mill |  |  |  |  |

|  |  |  |
| --- | --- | --- |
| **Facilities** | **Y/ N** | **Comments** |
| Village Access Road |  Y |  All year round  |
| Schools (nearby) |  Y |  Good condition |
| Domestic water supply |  Y |  GFW not enough in April and heavy rain and landslides often block pipes  |
| Dispensary/Health Clinic |  Y |  3 nurses with 3 beds for patients to overnight |
| Markets (nearby, distance, size, types) |  N |   |
| HH with grid electricity |  Y |   |
| Gathering/ meeting places | Y | Kumban office and meeting room |
| # small shops | Y | 5 shops selling and one petrol station |
| Temple ("Wat") |  N |   |
| Telephone (landline): |  N |   |
|  Mobile cell site coverage |  Y |  LTC, ETL, UNITEL |
| Village Public Toilet: |  |  |
| Toilets at school | Y | Primary school and lower secondary school |
| Toilets at meeting hall  | Y | 1 toilet at village office |
| Toilets at: Health Clinic | Y | 2 toilets  |
| Main water sources |  | Gravity flow |
| Availability of water  |  | All year but not much in April |
| # HHs with water source: |  | 125 HHs |
| Number HHs with latrines: |  | 125HHs |
| Type of latrines |  | Pour flush to Soak pit, 2 HHs with dry pit latrines  |

1. **Pa-Aen**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Location/date** |  |  | **Ethnic Group (pop’n)** | ***HH*** | ***Fam.*** | ***F*** | ***M*** | ***Ttl*** |
| Date | May 19 |  |  Hmong |  117 | 145 |  387 | 399 | 786 |
| Village: | **Pa**-Aen |  |  |  |  |  |  |  |
| District: | Nonghaet |  |  |  |  |  |  |  |
| Province:  | Xiengkhouang |  |  |  |  |  |  |  |
| Village established | 1973 |  |  |  |  |  |  |  |
| Religion | Animist |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| **Vulnerable Groups** |  |  | **Groups** | **Group Head** | **Members** |  |
| # Female Headed HHs | 5 |  |  | *Fem* | *Male* | *Total* | Fem |  |
| # HH with landless | 0 |  | Water Supply Group | 0 | 2 | 7 | 0 |  |
| # Poor HH | 4 |  | Village saving group:  | 0 | 1 | 30 | 0 |  |
| # pregnant | 13 |  |  Mother/ Nutrition group | 0 | 0 | 0 | 0 |  |
| # HH with disability | 8 |  | Village VHV/Facilitator | 2 | 0 | 2 | 2 |  |
| # children 0-2 years | 38 |  |  |  |  |  |  |  |
| # Children U5 years | 74 |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| **Farming (Ha/#)** |  | **Diarrhoea** |  | **Household assets** |
| Total upland area | 117 |  | *Cases of diarrhoea (2017/18)* |  | Truck |  |
| Total lowland area | 5 |  | Child 0 to 2 years |  |  | Small truck  | 30 |
| Total garden | 2 |  | Child 2 -5 Year  |  |  | Car | 16 |
| Total grazing land | 9,000 |  | *No. deaths from diarrhoea 2017/18)* |  | Motorbike | 140 |
| Total cattle | 1,235 |  | Child 0 to 2 years |  |  | Toktok | 14 |
| Total Goat |  |  | Child 2 -5 Year  |  |  | Small rice mill |  |
| Total pig | 260 |  |  |  |  |  |  |

|  |  |  |
| --- | --- | --- |
| **Facilities** | **Y/ N** | **Comments** |
| Village Access Road |  Y |  All year round but not in good condition |
| Schools (nearby) |  Y |  2 schools and Good condition |
| Domestic water supply | N | They use piped water (Nam Lin)  |
| Dispensary/Health Clinic | Y |  1 health center with 3 staffs |
| Post office | N |   |
| Markets (nearby, distance, size, types) | N | Far from the village |
| HH with grid electricity | Y |  90 HH that have their own electricity meter |
| Gathering/ meeting places | Y | Village office  |
| # small shops | Y | 8 shops  |
| Temple ("Wat") | N |   |
| Telephone (landline): | N |   |
|  Mobile cell site coverage | Y |  LTC, UNITEL |
| Village Public Toilet: |  | There are 9 Public toilets (incl. school, meeting hall, health clinic) |
| Toilets at school |  |  |
| Toilets at meeting hall  |  |  |
| Toilets at: Health Clinic |  |  |
|  |  |  |
| Main water sources |  | Gravity flow |
| Availability of water  |  | Available only 8 months |
| # HHs with water source: |  | 0 HHs |
| Number HHs with latrines: |  | 95% of all HHs |
| Type of latrines |  | Soak pit  |

1. **Phosy**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Location/date** |  |  | **Ethnic Group (pop’n)** | ***HH*** | ***Fam.*** | ***F*** | ***M*** | ***Ttl*** |
|  |  |  |  |  |  |  |  |  |
| Date | May 19 |  |  Laoloum | 97 | 108 | 194 | 273 | 567 |
| Village: | **Phosy** |  |  Khmu | 57 | 78 | 206 | 206 | 412 |
| District: | Kham |  |  |  |  |  |  |  |
| Province:  | Xiengkhouang |  |  |  |  |  |  |  |
| Village established | ND |  |  |  |  |  |  |  |
| Religion | Buddhist/ Animist |  | Total | 154 | 186 | 400 | 479 | 979 |
|  |  |  |  |  |  |  |  |  |
| **Vulnerable Groups** |  |  | **Groups** | **Group Head** | **Members** |  |
| # Female Headed HHs | 1 |  |  | *Fem* | *Male* | *Total* | Fem |  |
| # HH with landless | 0 |  | Water Supply Group |  |  | 53 |  |  |
| # Poor HH | 6 |  | Village saving group:  |  |  |  |  |  |
| # pregnant | 7 |  |  Mother/ Nutrition group |  |  |  |  |  |
| # HH with disability | 6 |  | Village VHV/Facilitator |  | 3 |  |  |  |
| # children 0-2 years | 41 |  |  |  |  |  |  |  |
| # Children U5 years | ND |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| **Farming (Ha/#)** |  | **Diarrhoea** |  | **Household assets** |
| Total upland area | 2,901 |  | *Cases of diarrhoea (2017/18)* |  | Truck | 3 |
| Total lowland area | **66** |  | Child 0 to 2 years | 0 |  | Small truck  | 5 |
| Total garden |  |  | Child 2 -5 Year  | 0 |  | Car | 8 |
| Total grazing land | 35 |  | *No. deaths from diarrhoea 2017/18)* |  | Motorbike | 320 |
| Total cattle | 315 |  | Child 0 to 2 years | 0 |  | Toktok | 80 |
| Total Goat |  |  | Child 2 -5 Year  | 0 |  | Small rice mill |  |
| Total pigs | 150 |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| **Facilities** | **Y/ N** | **Comments** |
| Village Access Road |  Y | Dirt road, not good condition in the raining season |
| Schools (nearby) |  Y | Two schools, the primary at Soppok village; secondary at Sopmar village |
| Domestic water supply | N |  |
| Dispensary/Health Clinic | Y | Sopmar health center at Viengxay kumban |
| Post office | N |  |
| Markets (nearby, distance, size, types) | Y | Nayong market at Narpa kumban |
| HH with grid electricity | Y | All HH |
| Gathering/ meeting places | N | plan to build the village office and meeting room at the old primary school |
| # small shops | N |  |
| Temple ("Wat") | N |  |
| Telephone (landline): | N |  |
|  Mobile cell site coverage | Y | Unitel, LTC, ETL, but Unitel is better |
| Village Public Toilet: |  |  |
| Toilets at school |  |  |
| Toilets at meeting hall  |  |  |
| Toilets at: Health Clinic |  |  |
|  |  |  |
| Main water sources |  | Muddy river with electric pumping system and gravity system |
| Availability of water  |  | All year  |
| # HHs with water source: |  | 129 HH with unprotected water well, 29 HH with gfw |
| Number HHs with latrines: |  | Soak pit 145HH, Pit latrine 13HH, no latrine 4HH |
| Type of latrines |  |  |

1. **Houayxang**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Location/date** |  |  | **Ethnic Group (pop’n)** | ***HH*** | ***Fam.*** | ***F*** | ***M*** | ***Ttl*** | ***# pregnant***  | ***<2*** | ***<5*** |
| Date | 23/07/19 |  |  Hmong | 105 | 126 | 375 |  | 767 |   |  |  |
| Village: | Houayxang |  |  Khmu | 45 | 53 | 120 |  | 259 | 8 |  |  |
| District: | Namo |  | Lanten | 19 | 25 | 67 |  | 122 | 2 |  |  |
| Province:  | Oudomxay |  | **(Total)** | 169 | 204 | 562 |  | 1448 |  |  |  |
| Village established | 1920 |  | Est data: Khmu (yr. 1996), Lanten (yr 1920), Hmong (around yr 1997) |
| Religion | Animist + 18 Christian |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
| **Vulnerable Groups** |  |  | **Groups** | **Group Head** | **Members** |  |
| # FHH | 6 |  |  | *Fem* | *Male* | *Group* | *FHH* |  |  |
| # HH landless | 4 |  |  Water Supply Group |  | 3 | all pop’n |  |  |  |  |
| # Poor HH | 38 |  | Village saving group | 1 | 2 | all pop’n |  |  |  |  |
| # pregnant | 10 |  |  Mother/ Nut group | 1 | 3 | all pop’n |  |  |  |  |  |
| # HH with PWD | 4 |  |  |  |  |  |  |  |  |  |  |
| U2 |  |  |  |  |  |  |  |  |  |  |  |
| # Children U5 |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| **Farming (Ha/#)** |  | **Diarrhoea** |  | **Household assets** |  |  |  |
| Total upland area | 74 |  | *Cases of diarrhoea (2017/18)* |  | Truck | 5 |  |  |  |
| Total lowland  | 70 |  | Child 0 to 2 years | 0 |  | Small truck  | 7 |  |  |  |
| Total garden |  |  | Child 2 -5 Year  | 0 |  | Car |  |  |  |  |
| Total grazing land | 12 |  | *deaths from diarrhoea 17/18)* |  | Motorbike | 163 |  |  |  |
| Total cattle |  |  | Child 0 to 2 years | 0 |  | Toktok | 38 |  |  |  |
| Total Goat |  |  | Child 2 -5 Year  | 2 |  | rice mill |  |  |  |  |
| Other\_\_\_\_\_\_\_ |  |  |  |  |  |  |  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Facilities** | **Yn** | **Comments** | **Dist** |
| Village Access Road | Y |  Asphalt road 12km, Laterite road 3Km  | 15 |
| Schools (nearby) | Y | New school, well-maintained, fenced, does not allow animals inside. Located in Sakhu tribe cluster, Lanten children who are about 1.5km away from school felt far away, do not want to go to school. |  |
| Domestic water supply | Y | Gravity-fed water, convenient, available throughout year, has stream flowing through the village. |  |
| Dispensary/Health Clinic | N | Go to use at Namo District. | 16 |
| Markets | N | Namo District. | 15 |
| HH with grid electricity | Y | There is electricity in every household (16 households do not have a meter) |  |
| Gathering/ meeting places | N | Under construction, use village chief house or a primary school if necessary |  |
| # small shops | Y | There are 5 grocery stores, sold sweets. |  |
| Temple ("Wat") | N |   |  |
| Telephone (landline): | N |   |  |
|  Mobile cell site coverage | Y | Unitel phone number signal is better than any other network signal. |  |
| Water and Sanitary facilities |
| Village Public Toilet: | N |  |  |
| Toilets at school | N |  |  |
| Toilets at meeting hall  | N |  |  |
| Toilets at: market  | N |  |  |
| Main water sources | Y | GFS connected from the top of mountain has one big tank of 34 m3 which is separately connected to each village cluster. There are streams which are clear during the dry season. Most of them use the GFS. |  |
| Availability of water  |  | Before there was water all year long, this year there was a shortage of water in April – May. |  |
| # HHs with water to the house: |  | Saw one house with water supply system and other houses had connections from standpipes to storage facilities in the home, many houses have large covered cement basins in the toilet for storing water |  |
| Number HHs with latrines: | Y | 78 households used flushing toilets, the toilets are clean, being connected to a water supply and having a toilet brush. |  |

1. **Moklahang**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Location/date** |  |  | **Ethnic Group (pop’n)** | ***HH*** | ***Fam.*** | ***F*** | ***M*** | ***Ttl*** | ***# pregnant***  | ***<2*** | ***<5*** |
| Date | 23-07-2019 |  | Khmu | 64 | 87 | 193 | 178 | 371 | 4 |  |  |
| Village: | MokLahang |  |  |  |  |  |  |  |  |  |  |
| District: | Lar |  |  |  |  |  |  |  |  |  |  |
| Province:  | Oudomxai |  |  |  |  |  |  |  |  |  |  |
| Village established | 15/03/2013 |  |  |  |  |  |  |  |  |  |  |
| Religion | Animist |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
| **Vulnerable Groups** |  |  | **Groups** | **Group head** | **Members** |  |
| # Female Headed HHs | 6 |  |  | *Fem* | *Male* | *Group* | *# Fem Head HHs* |  |  |
| # HH with landless | 0 |  | Water Supply Group | 0 | 1 | 3 |  |  |  |
| # Poor HH | 21 |  | Village saving group | 1 | 3 | 22 |  |  |  |
| # pregnant | 4 |  | Mother/Nutrition group |  |  |  |  |  |  |
| # HH with disability | 2 |  | Village VHV/Facilitator | 2 | 1 |  |  |  |  |
| # children 0-2 years | 14 |  |  |  |  |  |  |  |  |  |  |
| # Children U5 years | 24 |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| **Farming (Ha/#)** |  | **Diarrhoea** |  | **HH assets** |  |  |  |
| Total upland area | 228/75 |  | *Cases of diarrhoea (2017/18)* |  | Truck | 2 |  |  |  |
| Total lowland area | 2 |  | Child 0 to 2 years | 10 |  | Small truck  |  |  |  |  |
| Total garden | 20 |  | Child 2 -5 Year  | 11 |  | Car |  |  |  |  |
| Total grazing land | 120 |  | *#deaths from diarrhea 2017/18)* |  | Motorbike | 30 |  |  |  |
| Total cattle |  |  | Child 0 to 2 years | 0 |  | Toktok | 1 |  |  |  |
| Total Goat |  |  | Child 2 -5 Year  | 0 |  | Small rice mill |  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Facilities** | **Y/ N** | **Comments** | **Distance** |
| Village Access Road | Y | Can be accessed throughout the year | 35 |
| Schools (nearby) | Y | There are only Primary school in the village |  |
| Domestic water supply | N |  |  |
| Dispensary/Health Clinic | N | At Ahno village | 9 |
| Markets (nearby, distance, size, types) | N | Go to district market | 35 |
| HH with grid electricity | N |  |  |
| Gathering/ meeting places | N | Use school for village meeting |  |
| # small shops | Y | There is only 1 shop in the village |  |
| Temple ("Wat") | N |  |  |
| Telephone (landline): | N |  |  |
|  Mobile cell site coverage | Y | There are Unitel, ETL, but signal of internet l but unstable. |  |
| Water and Sanitary facilities |
| Village Public Toilet: | N |  |  |
| Toilets at school | Y | 2 toilets |  |
| Toilets at meeting hall  | N |  |  |
| Toilets at: Agricultural market  | N |  |  |
| Main water sources |  | Main water sources are gravity water system |  |
| Availability of water  |  | The water had Dehydration during months 3-6 |  |
| # HHs with water to the house: |  | There are 3 households had water source |  |
| Number HHs with latrines: |  | There are 56 households had latrines |  |
| Type of latrines |  | All type of latrines is soak pit toilet |  |

1. **Namkhouang**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Location/date** |  |  | **Ethnic Group (pop’n)** | ***HH*** | ***Fam.*** | ***F*** | ***M*** | ***Ttl*** | ***# pregnant***  | ***<2*** | ***<5*** |
| Date | 26/07/19 |  | Akha | 68 | 83 | 178 | 237 | 415 | 7 |  |  |
| Village: | Namkhouang |  |  |  |  |  |  |  |  |  |  |
| District: | Bountai |  |  |  |  |  |  |  |  |  |  |
| Province:  | Phongsaly |  |  |  |  |  |  |  |  |  |  |
| Village established | 5/01/2008  |  | 3km move |  |  |  |  |  |  |  |  |
| Religion | Animist |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
| **Vulnerable Groups** |  |  | **Groups** | **Group Head** | **Members** |  |
| FHH | 1 |  |  | *Fem* | *Male* | *Group* | *# FHH* |  |  |
| # HH landless | 0 |  | Water Supply Group |  | 1 |  |  |  |  |  |
| # Poor HH | 61 |  |  |  |  |  |  |  |  |  |
| # pregnant | 7 |  |  |  |  |  |  |  |  |  |  |
| # HH with disability | 3 |  |  |  |  |  |  |  |  |  |  |
| # children 0-2 years | 31 |  |  |  |  |  |  |  |  |  |  |
| # Children U5 years |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| **Farming (Ha/#)** |  | **Diarrhoea** |  | **Household assets** |  |  |  |
| Total upland area | 663/64  |  | *Cases of diarrhoea (2017/18)* |  | Truck |  |  |  |  |
| Total lowland area | 10 |  | Child 0 to 2 years | N/A |  | Small truck  |  |  |  |  |
| Total garden |  |  | Child 2 -5 Year  | N/A |  | Car |  |  |  |  |
| Total grazing land | 360 |  | *deaths from diarrhoea 2017/18)* |  | Motorbike | 46 |  |  |  |
| Total cattle |  |  | Child 0 to 2 years | 4 |  | Toktok | 4 |  |  |  |
| Total Goat |  |  | Child 2 -5 Year  |  |  | Small rice mill |  |  |  |  |
| Other\_\_\_\_\_\_\_ |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Facilities** | **Y/ N** | **Comments** | **Dist** |
| Village Access Road | Y | 15 km is dirt and high hill road, from Jun -Nov difficult access.  | 33 |
| Schools (nearby) | Y | 1 complete primary school and pre-school  |  |
| Domestic water supply | N |  |  |
| Dispensary/HC | N | Snomai Health Center | 18 |
| Markets  | N | Bountai district market | 33 |
| HH with grid electricity | N | 56HHs/68HHs have bought solar panel  |  |
| meeting places | N | Village Chief’s house and school |  |
| # small shops | N | 2 shops including 1 shop at Village’s Chief  |  |
| Temple ("Wat") | Y |  |  |
| Telephone (landline): | N |  |  |
| Mobile coverage | Y | UNITEL but not very strong signal |  |
| Water and Sanitary facilities |
| Village Public Toilet: | N |  |  |
| Toilets at school | N |  |  |
| Toilets at meeting hall  | N |  |  |
| Toilets at: market  | N |  |  |
| Main water sources | Y | Community built the water system by themselves. They bought the pipe and connected to a stream and made 3 standpipes but 2 are broken. |  |
| Availability of water  |  | Water shortage from March to June  |  |
| # HHs with water to the house: |  | 0 |  |
| Number HHs with latrines: | Y  | 2 (Deputy headman and a teacher’s house) |  |
| Type of latrines |  | soak pit latrine  |  |

1. **Naboua**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Location/date** |  |  | **Ethnic Group (pop’n)** | ***HH*** | ***Fam.*** | ***F*** | ***M*** | ***Ttl*** | ***# pregnant***  | ***<2*** | ***<5*** |
| Date | July 2019 |  |   Taidaeng | 37 | 48 | 90 |  | 189 | 2 |  |  |
| Village: | Naboua |  |  Lao - bit | 28 | 29 | 59 |  | 123 | 0 |  |  |
| District: | Mai |  | Akha | 24 |  |  |  |  |  |  |  |
| Province:  | Phongsaly |  |  |  |  |  |  |  |  |  |  |
| Village established | 20/02/2000 |  |  |  |  |  |  |  |  |  |  |
| Religion |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
| **Vulnerable Groups** |  |  | **Groups** | **Group Head** | **Members** |  |  |  |
| FHH | 64 |  |  | *Fem* | *Male* | *Group* | *FHH* |  |  |  |  |
| # HH landless | 0 |  | Water Supply Group |  | 2 |  |  |  |  |  |  |
| # Poor HH | 27 |  | Village saving group |  | 6 |  |  |  |  |  |  |
| # pregnant | 2 |  |  Mother/ Nut group | 2 | 1 |  |  |  |  |  |  |
| # HH with PWD | 2 |  | Village VHV/ | 2 | 3 |  |  |  |  |  |  |
| # children 0-2  | 8 |  |  |  |  |  |  |  |  |  |  |
| # Children U5  | 7 |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| **Farming (Ha/#)** |  | **Diarrhoea** |  | **Household assets** |  |  |  |
| Total upland area |  15 |  | *Cases of diarrhoea (2017/18)* |  | Truck |  |  |  |  |
| Total lowland area |  14 |  | Child 0 to 2 years |  |  | Small truck  | 2 |  |  |  |
| Total garden |   |  | Child 2 -5 Year  |  |  | Car |  |  |  |  |
| Total grazing land | 50 |  | *deaths from diarrhoea 2017/18)* |  | Motorbike | 39 |  |  |  |
| Total cattle |  |  | Child 0 to 2 years |  |  | Toktok | 25 |  |  |  |
| Total Goat |  |  | Child 2 -5 Year  |  |  | Small rice mill |  |  |  |  |
| Other\_\_\_\_\_\_\_ |  |  |  |  |  |  |  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Facilities** | **Y/ N** | **Comments** | **Distance** |
| Village Access Road | Y | Unpaved road, good condition | about 30 Km |
| Schools (nearby) | Y | New building school, locked, 2 sets of toilets   |  |
| Domestic water supply | Y | 15 taps, water available   |  |
| Dispensary/Health Clinic | N |  prefer to go to the district hospital 30 km away. |  |
| Markets (nearby, distance, size, types) | N | Go to the district |  |
| HH with grid electricity | Y | All households have grid electricity |  |
| Gathering/ meeting places | Y | Used for meeting  |  |
| # small shops | Y | Sell candy, detergent, soap, rice + gasoline for motorbike |  |
| Temple ("Wat") | N |   |  |
| Telephone (landline): |  |   |  |
|  Mobile cell site coverage | Y |  Use Unitel signal only  |  |
| Water and Sanitary facilities |
| Village Public Toilet: | N |  |  |
| Toilets at school | Y | 2 buildings with 5 toilet rooms, during data collection the rooms were locked because the school closed  |  |
| Toilets at meeting hall  |  |  |  |
| Toilets at: market |  |  |  |
| Main water sources |  | 3 water sources from stream nearby. Total of 21 tap stands in 3 sub-communities. The gravity water is from Boua stream, the small river flows through the village |  |
| Availability of water  |  | The water flows throughout the year |  |
| # HHs with water to the house: |  |  |  |
| Number HHs with latrines: | Y |  Every Tai Deng (37 HHs) HH has a toilet with enough water while Bit and Akha have less |  |
| Type of latrines |  | Flush toilet, no toilet, go to the forest |  |

# Annex 6. Additional Public Health related findings

|  |  |  |  |
| --- | --- | --- | --- |
| **#** | **Area of PH** | **Tool/ or source** | **Finding** |
| 1 | Herbicide spraying | FGDs | \* **high chance of contamination with herbicide** (weed killer) as it is widely used by farmers. Pregnant woman and young mother are exempted from spraying. But it was noted that they still stay around in the field during spraying. |
| 2 | Respiratory risks | HH observation | **Pa-Aen**: Hmong houses have no windows. There is a lot of smoke in the room from the wood burning fires to boil water/food – presents considerable health risk. |
| 3 | Available of water | Individual and FGD Interviews | A main reason of HH not having toilets and/or not using toilets is lack of water or not having water available all year round. The Poverty Reduction Fund is active in many villages and provides toilet seats and some other materials, but it was not available to all HHs. People mentioned that it would be an encourage them to build toilets if they received the support from the project. |
| 4 | Not eating enough protein  | HH Obs and photo voice | It was observed that some of the families ate little or no protein in their meals. This would be of one of many reasons contributing to malnourishment of children.  |

Diarrhea data from **Pa-Aen** health clinic



# Annex 7 Terms of reference (excerpt)

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**Background**

Lao PDR’s rapid economic growth over the past decade has not translated into proportional gains in poverty reduction. The pace of poverty reduction was modest compared to some of its neighbours and was coupled with increased inequality[[13]](#footnote-14), as evidenced by regional disparities, and a growing rural-urban divide. Poverty is significantly higher in rural areas, which account for about 70 percent of the population, and particularly among the highland regions of the country.

**(……)**

In recognition of the multi-factorial nature of childhood undernutrition, the Government of Lao’s National Nutrition Strategy 2025 and Plan of Action 2016-20 has set a target to reduce stunting from current levels to 25 percent by 2025, by focusing on the principle of multi-sectoral nutrition prioritization and convergence in all villages of targeted vulnerable districts. The Action Plan consists of 22 key interventions which combine “nutrition-specific” interventions (those which address undernutrition directly) with “nutrition-sensitive” interventions (which operate primarily outside of the health sector, including water supply, sanitation and hygiene) to address the underlying determinants of undernutrition.

*The World Bank is supporting multi-sector convergence that is aligned with the National Nutrition Strategy and Action Plan.* The World Bank’s Country Partnership Framework (CPF) FY 17-21 (Report No. 110813-LA), approved in March 2017, recognizes that chronic malnutrition in children is a human development area that continues to lag in Lao PDR. The World Bank’s Multi-Sector Nutrition Engagement Framework for Lao PDR spans multiple sectors, including agriculture, social protection, health, water supply and sanitation, and education. Nutrition-sensitive and nutrition specific interventions in these sectors in Lao PDR are expected to coordinate in the following ways: (i) geographic convergence of nutrition-specific and nutrition-sensitive interventions in the same communities to the same households, (ii) use of a common Nutrition Social Behavioural Change and Communication Strategy and Action plan and tools to ensure consistency in messaging and approach, (iii) leveraging each other’s delivery platforms, for example pre-established community structures; and (iv) combined monitoring and evaluation framework.

Currently, the World Bank has supported multi-sector convergence between the water supply and sanitation, and nutrition sectors, under the Health Governance and Nutrition Development Project (HGNDP) and the Poverty Reduction Fund II. The addition of two new projects would strengthen the convergence approach through additional nutrition-sensitive interventions to help improve water supply and sanitation and reduce poverty and vulnerability.

The newly-proposed Water Supply and Sanitation Project will specifically contribute to the nutrition-sensitive goals of interrupted faecal-oral routes of transmission among infants and young children 0-24 months through the following actions:

1. Promote village-wide use of improved sanitation facilities (ODF)
2. Promote proper waste disposal, including septage management and safe disposal of child and animal faeces
3. Enhance water quality monitoring at water supply system level and promote hand-washing facilities as part of water supply and sanitation interventions
4. Promote household level treatment of water before use, for example chlorination or boiling
5. Promote hand-washing with soap for all household members at critical times, i.e. before preparation of food, before feeding of infant/young child, after cleaning of floors, after use of latrine.

In parallel, the proposed Reducing Rural Poverty and Malnutrition Project will consist of a nutrition-sensitive cash transfer program for poor and nutritionally vulnerable pregnant women and children ages 0-2. Cash transfers will coincide with SBCC delivery in selected areas and will seek, to the extent possible given limited supply, to increase demand for health and nutrition services and to improve diet diversity.

**Formative research**

The World Bank is seeking a Firm/Consortium to conduct a formative research in 4 provinces of Lao PDR – Xiengkhouang, Houaphan, Phongsaly and Oudomxay, covering various ethnic minority and majority population groups residing in rural small-towns and villages. The time-frame for the research is between January – August 2019.

*Objectives and scope*

The main purpose of this research is to provide insight to the design of an effective and scalable Social and Behaviour Change Communications (SBCC) strategy and related interventions to support the World Bank’s multi-sectoral engagement in general, and the water and sanitation and social protection projects, in particular. The formative research will especially focus on concepts around “Baby WASH”[[14]](#footnote-15) and household consumption/behavioral patterns. It will inform the design of tailored strategies to change behavior among the target audience and tools to measure the effectiveness of these strategies.

Thus, the objectives of the formative research are:

1. To identify the dominant faecal-oral pathways of disease transmission prevalent in the household setting
2. To gain an understanding of caregivers, child, and other household member barriers and understanding of health risks, positive and negative attitudes, social norms, ability or how-to-do and self-regulation[[15]](#footnote-16) to handwashing, toilet usage (including for disposal of child faeces), food hygiene, and household/village environmental cleanliness.
3. To observe and document attitudes and preferences relating to household behaviors in terms of expenditure and savings, financial literacy, use of cash, food consumption patterns and selections, relative importance of barriers to access, i.e. affordability versus availability, and the perceived importance of the health, nutrition, and diet of pregnant women and children in the household. This will focus on heads of household (male and female) and will specifically explore the role of females (mothers and grandmothers in particular) in the household and their agency in financial and other decision making, particularly regarding household expenditure decisions on food and healthcare.
4. To identify potential influential figures at the village level who could influence households’ decision-making patterns for improved nutrition, and health seeking behaviour and diet variety.

Specifically, the scope of the formative research covers – what are the dominant fecal-oral pathways of pathogen transmission, prevalent behaviours, what are the main risk factors, attitudes, norms, ability and self-regulation associated with the behaviours, and who/what are the main influencers. The key questions to consider include, but are not limited to, the following (indicative):

1. In the household risk factors, attitudes, norms, ability and self-regulation regarding:
	1. *WASH*
2. Handwashing with or without soap by members, including infant and child handwashing – after using the toilet, after cleaning child faeces, before preparing food, before eating or feeding children
3. Toilet usage for infants and children: age of potty training
4. Disposal of child faeces: whether in toilet, and, if not, through what method and where
5. Food preparation and storage, including practices related to water/drinking water use (focusing on food given to children under 2 years)
6. Household cleaning
	1. *Household spending on nutrition and use of cash*
7. Who takes decisions regarding household expenditure and savings, particularly expenditures on food and healthcare? How informed are they? Who do they take advice from and who can potentially influence their decisions?
8. Where does the household get information from? Local leaders/TV/radio/social media? None of the above? Others?
9. What is the opinion of the community leaders and overall community on empowering women for decision making on use of cash for diet diversity and utilization of health and nutrition services for their children?
10. What are the biggest barriers for access to healthcare, if any? Distance/quality/financial/language/any combination? What is the role of the community in reducing those barriers? Do families tend to pool resources for going to health centers? Or to finance health providers to come to the community?
11. How empowered are females to make financial decisions for the household and to act on those decisions? And what could contribute to their empowerment?
12. Does the mother/female caretaker have a say in how her income earnings are spent? And in what way are the overall household income earnings spent? How much goes toward diet diversity and access to health?
13. Does the mother/female caretaker have a bank account or cell phone? How empowered are females to have a bank account in their name?
14. How often does the family go to market, and what determines the frequency? Distance and time/financial considerations/other factors?
15. Who goes to the market? Does the person going have autonomy on the type of food purchases? Preferences for monetary/non-monetary incentives for seeking healthcare services
16. Suggested messages
17. In the community: risk factors, attitudes, norms, ability and self-regulation regarding:
18. Toilet use, open defecation practices
19. Adolescent girls and their parents: menstrual hygiene practices, available facilities, and its facilitation by toilet usage
20. Environmental cleanliness and hygiene of community / village
21. Health-seeking (preventive and treatment) behaviour among adults, and belief systems governing the same.
22. Gender: beliefs and norms that could potentially affect WASH
23. Gender: beliefs and norms that could affect infant and young child feeding practices as well as maternal health, both ante- and post-natal

*Methodology*

The methodology may employ a mixed method design (qualitative and quantitative) that will include multiple approaches (literature review on norms and beliefs, barrier analysis, focus group discussions, individual interviews, and observation study) to examine practices, beliefs, attitudes, knowledge, including traditional knowledge and social norms as well as perceived barriers and facilitators/motivators for optimal nutrition and WASH practices within the target groups. The consultant is expected to incorporate innovative research methodologies to ensure objectivity. [[16]](#footnote-17) The research protocol should strictly adhere to ethics, human rights’ principles and adopt a gender-sensitive approach.

*Deliverables and time frame*

The Firm/Consortium is expected to develop work plans, research protocol, data collection instruments and consent forms and discussion guides and questionnaires, duly translated into the local languages, or converted to a pictorial format (in the case of local dialects which have no script). High-resolution photographs and video of a few research sessions should also be collected. An indicative list of the deliverables and their corresponding timelines are given below:

1. *Identifying lead researchers and carrying out literature review and producing inception report (within 4 weeks of signing of contract):*
* Identifying lead researchers with the requisite skills and experience; Review available literature for target population groups in the 4 provinces with special focus on gender, nutrition, WASH and Baby WASH, using the RANAS model as a guide
* Identify gaps in information based on the literature review.
* Develop and present the inception report, showing research questions, methodology, and tentative work plan, along with profile of researchers, in Word and PPT format.
1. *Development and finalisation of research protocol and discussion and observation guides, and other data collection instruments, finalisation of field research team*
* Sharing the research protocol, including sampling design and methods for the diverse audiences and population groups, along with the data collection instruments, with the World Bank, and incorporating and finalising the same based on comments received
* Translation of data collection instruments into dialects or pictorial format
* Orientation of researchers on the above and piloting the same in 2 villages
* Finalisation of data collection schedule
1. *Data-collection and quality checking*
2. *Data analysis and preparation of draft report, sharing of same with World Bank, and finalising after receiving comments*

# Annex 8 Literature and References

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1. Khmu, Hmong, Tai Dam, Tai Deng, Phuan, Akha, Lanten and Lao Bit [↑](#footnote-ref-2)
2. 4th Population and Housing Census (PHC) 2015 [↑](#footnote-ref-3)
3. The Laos Food and Nutrition Security Survey (FNSS) Baseline Report (2016) [↑](#footnote-ref-4)
4. Nutrition-specific interventions are those that address the immediate determinants of nutrition (for example food fortification, malnutrition and micronutrient deficiency treatment, encouraging exclusive breastfeeding to 6 months). Nutrition-sensitive interventions are those that address the underlying causes of undernutrition (these may include programs such as those in agriculture, water and sanitation, education and healthcare for example, which may ultimately affect nutrition outcomes). [↑](#footnote-ref-5)
5. Ensuring children survive and thrive through effective integrated action, Briefing for decision-makers from the BabyWASH Coalition (World Vision). [↑](#footnote-ref-6)
6. Stakeholder engagement assessment and framework for the lao PDR: Water supply and sanitation for health project, World Bank [↑](#footnote-ref-7)
7. https://www.spsl.la/ [↑](#footnote-ref-8)
8. Risks, Attitudes, Norms, Abilities, and Self-regulation [↑](#footnote-ref-9)
9. Note that in Kohing the field observation activity was not possible because no-one takes babies to the field [↑](#footnote-ref-10)
10. In Muangpeu there were no subjects identified (mother with U2) traveling to the field. [↑](#footnote-ref-11)
11. Mouthing is defined as contact of an object with the mouth of an infant with the exclusion of eating and drinking, therefore food and breasts were excluded from this analysis. [↑](#footnote-ref-12)
12. ‘Positive deviants might also include: HHs with children under 2 where HH is considered to have good nutrition/healthy baby; HHs with good wash facilities (e.g. pour flush latrine; HH water supply, e.g. small bore with pump, or HH connection to GFS); HHs with women who have initiative or decision-making roles (e.g. manages own small shop or business; Leads a community activity (e.g. saving scheme); Leads a women’s groups); Women known for negotiating with traders (when selling agriculture or livestock); Women with greater exposure to wider information (incl. internet) (incl. women with children under 2 that has completed secondary education; women with children under 2 that are bilingual/literate in a predominantly ethnic community. [↑](#footnote-ref-13)
13. The Gini coefficient experienced a rapid increased in the past decade. While it increased slightly in the 90s from 34.31 to 34.66, the latest data report a drastic increase from 2010 to 2012 to 37.9. [↑](#footnote-ref-14)
14. Baby WASH is an approach that is designed to protect babies in their first 3 years of life from exposure to fecal contamination caused by poor Water Supply, Sanitation and Hygiene (see: Ngure et al. 2014) [↑](#footnote-ref-15)
15. RANAS behavioural factors [↑](#footnote-ref-16)
16. Examples of innovative research methods include sticker diaries, repertory grids and deep dives. Firms may also consider the use of human-centered design (HCD) during the formative research to iterate and test early concepts and tactics. [↑](#footnote-ref-17)