August 2022

Qualitative assessment on the determinants of malnutrition in Lao PDR

Focus on Phongsaly, Houaphanh, Bokeo and Saravane Provinces

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ABBREVIATIONS

ANC	Antenatal Care
CU5	Children under five years
DAFO	District Agriculture and Forestry Office
DAU	Data Analysis Unit
DEO	District Education and Sports Office
DHO	District Health Office
DPI	District Planning and Investment
DRI	Development Research Institute
DSA	Daily Subsistence Allowance
EIBF	Early Initiation of Breastfeeding
EU	European Union
ENUFF	Enhancing Nutrition of Upland Farming Families
FCDO	Foreign, Commonwealth & Development Office
FGDs	Focus Group Discussions
FP	Family Planning
GDP	Gross Domestic Product
GM	Growth Monitoring
GoL	Government of Lao PDR
HANSA	Health and Nutrition Services Access Project
HC	Health Centre
HSRS	Health Sector Reform Strategy
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome
IFAD	International Fund for Agricultural Development
IOS	Integrated Outreach Services
ISAM	Infant Severe Acute Malnutrition
IYCF	Infant and Young Child Feeding
KIIs	Key Informant Interviews
Lao PDR	Lao People's Democratic Republic
LASES	Lao Academy of Social and Economic Sciences
LECS	Lao Expenditure and Consumption Survey
LSIS	Lao Social Indicator Survey
MAF	Ministry of Agriculture and Forestry
MCH	Maternal and Child Health
MNCH	Maternal, New-born and Child Health
MOES	Ministry of Education and Sports
MOH	Ministry of Health

MPI	Ministry of Planning and Investment
MUAC	Mid-Upper Arm Circumference
NHI	National Health Insurance
NIPN	National Information Platforms for Nutrition
NNC	National Nutrition Committee
NNP	National Nutrition Policy
NNS	National Nutrition Strategy
NNSPA	National Nutrition Strategy and Nutrition Plan of Action
NPAN	National Plan of Action for Nutrition
NTPC	Nam Theun 2 Power Company
NSEDP	National Socio-Economic Development Plan
PAFO	Provincial Agriculture and Forestry Office
PAU	Policy Analysis Unit
PESS	Provincial Education and Sports Service
PHC	Primary Health Care
PHO	Provincial Health Office
PNC	Postnatal care
PPI	Provincial Planning and Investment
RMNCAH	Reproductive, Maternal, New-born, Child, and Adolescent Health
RUTF	Ready to Use Therapeutic Food
SBA	Skilled Birth Attendant
SBCC	Social Behaviour Change Communication
SDG	Sustainable Development Goals
SPRI	Socio-Economic Policy Research Institute
SNV	Netherlands Development Organisation
SUN	Scaling Up Nutrition
UNICEF	United Nations Children's Fund
USD	United States dollar
VAD	Vitamin A Deficiency
VHC	Village Health Committees
VHV	Village Health Volunteers
WASH	Water, Sanitation and Hygiene
WB	World Bank
WFP	World Food Programme
WHO	World Health Organization

EXECUTIVE SUMMARY

The high prevalence of malnutrition remains a significant challenge in Lao PDR. Despite impressive gains in economic growth over the past decade, Lao PDR still has one of the highest rates of chronic malnutrition in Southeast Asia. Malnutrition threatens lives and national socio-economic development and is associated with reduced school enrolment. It poses a challenge to the attainment of education targets, and malnutrition has an impact on development and economic growth.

Financing of the nutrition sector in Lao PDR has been challenged for a long time by the low level of investment in the sector. Since 2011 there has been a significant increase in the government budget for health and nutrition, rising from 11 USD per capita to 71 USD per capita in 2019 or approximately 2.8% of GDP (2018) per capita.[1] However, the Lao nutrition sector is still highly underfunded and relies on high financial support from development partners and projects focusing on nutrition interventions in key sectors. Limited financial resources exist at all levels, from the national to the community level.

The purpose of the assessment is to assess the nutrition situation and identify factors hindering nutrition services in respect of both the delivery supply and the demand at the community level in four selected provinces. The findings of the assessment will provide recommendations on factors the Government of Lao PDR should focus on to improve the delivery and access to nutrition services as well as to ensure the quality of nutrition service provision at the community level. The assessment is based on a literature review and field visits to selected districts and villages in Bokeo, Houaphanh, Phongsaly and Saravane Provinces. The findings are to a great extent similar and reinforce each other. The following findings were made:

Factors hindering the delivery of nutrition services include:

- Inadequate competency of health staff in providing nutrition services at all levels.
- Limited staff at health centres and frequent rotation of staff.
- Limited financial resources for the provision of nutrition services, including transportation costs.
- Limited access to remote rural areas without road access – some only having seasonal accessibility.
- Limited provision of supplies and nutrition commodities, including unstandardized and inconsistent IOS, insufficient medical supplies and food supplements, and insufficiency of growth monitoring tools.
- Language barriers - health centre staff do not speak the local dialect.
- Insufficient nutrition education and awareness-raising activities in communities.
- Unavailability of communities due to workload in the fields.

Factors hindering demand for nutrition services in communities include:

- Limited education and lack of nutrition knowledge in the communities.
- Ethno-linguistic barriers – some communities do not understand the Lao language.
- The tradition of early marriage and early pregnancy.
- The practice of food taboos and food restrictions during and after pregnancy.
- The workload in fields.
- Poverty.

The assessment suggests the following recommendations to address determinants of malnutrition and factors hindering nutrition services supply and demand for nutrition services at the community level:

1 World Bank, 2020a

- **Recommendation 1:** Investments in human resources. There is a great need to invest in human resources to improve the nutritional situation in Lao PDR. There is a need to strengthen the skills and confidence among health staff in providing nutrition and growth promotion counselling. The capacity of trainers should be strengthened - both at central and sub-national levels - to roll out nutrition counselling training at all levels with regular supervision and monitoring of health staff and counselling skills.

- **Recommendation 2:** Investment in health centre staff to improve knowledge and skills. More staff should be allocated to health centres to provide the best assistance and nutrition advice to all communities in the catchment area. Staff should also reflect on the ethnicity of the catchment area and be able to speak the local dialect, and reduce language barriers with ethnic minorities living in the area.

- **Recommendation 3:** Increase financial resources. A sufficient budget must be provided for nutrition services supply to meet the minimum requirement in remote rural areas. This way, health centre staff can reach and provide nutrition services to communities far from the health centre. In addition, allocating a sufficient budget will make it possible for staff to provide nutrition counselling (e.g., cooking classes and awareness-raising activities on nutritious food for women, caretakers, etc.) and stay longer in villages.

- **Recommendation 4:** Awareness-raising campaigns and the use of communication channels to improve knowledge of nutrition. Campaigns should target mothers and other caretakers in the household directly with a focus on appropriate feeding practices for infants and young children. In addition, more focus should be put on awareness-raising campaigns specifically targeting adolescent girls to prevent early marriage and early pregnancy, as evidence shows that early pregnancy increases the risks of children being stunted.

- **Recommendation 5:** There is a need to develop more nutrition education at the community level through awareness-raising activities and educate families on the importance of the first 1000-day window of opportunity and what the family can do to provide appropriate feeding and care practices for infants and young children, as well as for pregnant and lactating mothers. Nutrition education on nutritious food and diverse food consumption should focus on food available in the local area, such as non-timber forest products harvested sustainably.

- **Recommendation 6:** To carry out more SBCC activities in the villages through visual SBCC activities on nutrition, IOS, ANC and PNC etc. This will contribute to improved knowledge and understanding of nutrition. In addition, it is recommended to focus on developing and translating communication materials to local dialects and using visual tools to reach ethnic communities when they do not understand the Lao language or are illiterate.

- **Recommendation 7:** Routine monitoring system to be further strengthened. Computerized and user-friendly routine monitoring systems should be made available for the health centre staff to collect, analyse, and produce good-quality data and evidence regularly to track progress as well as to support the requirements of the national health information system.

- **Recommendation 8:** Utilizing multi-sectoral approaches in the implementation of nutrition activities. It is recommended to collaborate better with stakeholders involved in nutrition activities and not only for the health sector to implement SBCC and awareness-raising activities. Instead, collaboration with the other key sectors can help to strengthen the link to the other sectors, e.g., between nutrition and agriculture or nutrition and education.

1. INTRODUCTION

1.1 NIPN IN LAO PDR

The National Information Platforms for Nutrition (NIPN) is an international initiative of the European Commission with support from the Foreign, Commonwealth & Development Office (FCDO) of the UK Government and the Bill and Melinda Gates Foundation. This initiative is an integral part of the Government's nutrition programme, which is implemented jointly by the EU Delegation and UNICEF in their Partnership for Improved Nutrition in Lao PDR in support of the National Nutrition Strategy 2016-2025.

NIPN aims to build institutional capacities at the national and sub-national levels to manage and analyse information and data from all sectors to track progress and inform nutrition policies and strategies.

1.2 RATIONALE OF ASSESSMENT

Despite impressive gains in economic growth over the past decades and improvements in nutrition, Lao PDR has one of the highest rates of chronic malnutrition in Southeast Asia.[2] In addition, available evidence indicates high disparities in malnutrition among the provinces in Lao PDR. Undernutrition threatens lives and national socio-economic development; it is associated with cognitive impairment and reduced school enrolment, which poses a challenge to attaining education targets, and impacts development and overall economic growth.[3]

Malnutrition leads to enormous economic and human costs in Lao PDR. Nearly 2 million Lao citizens, mainly women and children, suffer from some form of malnutrition – and, therefore, cannot achieve their fullest development potential, which has adverse effects on the overall human capital of the country. An estimated 481 million USD or 2.66% of GDP is lost due to malnutrition annually.[4] Therefore, prioritizing efforts in the most affected provinces can improve the country's nutrition situation with positive effects on health outcomes and the national economy.

Lao PDR has prioritized nutrition as a development issue and has been active on the global stage through the Scaling Up Nutrition Movement (SUN) since 2011. The first National Nutrition Strategy and Plan of Action (2010-2015) was the first multi-sectoral framework that addressed under-nutrition holistically. The National Nutrition Strategy (2016-2025) aims to strengthen the multi-sectoral approach to nutrition and, more explicitly, defines the interventions, approaches, and institutional arrangements for achieving a more comprehensive action using a multi-sectoral convergent approach. In addition, a multi-sectoral National Nutrition Committee (NNC) exists and continues to guide nutrition programming in the country.

The Government of Lao PDR (GoL) has included health and nutrition as one of its priority strategies in the 9th National Socio-Economic Development Plan (NSEDP). In addition, the GoL recently developed a new National Plan of Action on Nutrition (2021-2025) to guide the programming and prioritization of actions to improve the nutrition situation in the country. However, the utilization of health and nutrition services remains low, which is one of the problems of the reproductive health services for mothers, new-born, children, and adolescent health services (RMNCAH) at the community level.[5] Over the years, there has been increased funding from key development partners such as the European Union, World Bank, United Nations, and USAID, among others. However, country stakeholders are concerned that the nutrition results are inconsistent with the investments so far.

2 Ministry of Health, 2016a

3 Ibid

4 NIPN, 2021

5 Lao Statistics Bureau, 2012

UNICEF has been supporting the GoL for several years to address the high prevalence of malnutrition among various population groups. Programmes cover both national and sub-national levels with high-impact and evidence-based interventions. However, despite the development partners' investment in nutrition, some provinces have an alarming prevalence of malnutrition. More evidence is needed to gain better knowledge and understand which factors are hindering the use. and demand for nutrition services; nutrition services provision, as well as identify what mechanisms/actions can contribute to the reduction of malnutrition and how best to do so.

This qualitative assessment investigated the determinants of malnutrition in four selected provinces assisted by the EU/UNICEF in Lao PDR: Phongsaly, Houaphanh, Bokeo and Saravane Provinces.

The qualitative assessment had the following objectives:

- To understand the factors contributing to the high prevalence of malnutrition in the selected provinces,
- To assess the availability and delivery of nutrition services in the provinces,
- To evaluate the nutrition-seeking behaviour of community members,
- To identify opportunities to improve the nutrition situation in each province.

1.3 METHODOLOGY

1.3.1 DATA COLLECTION

This assessment explored mixed data collection methods to access rich data from existing literature and key nutrition stakeholders in the country. Data were collected at the national, sub-national (provinces and districts), and community levels.

- A literature review was carried out to seek global arguments and evidence on investment in nutrition. The purpose of the literature review was also to analyse existing data in Lao PDR for comparison and support the findings collected at the three different levels.

- Key informant interviews were conducted with persons involved in designing and implementing nutrition interventions at the national, provincial and district levels to gain their insights and perspective on the implementation of NPAN (2016-2020). Forty-eight (48) KIIs were conducted in the four provinces.

- Focus group discussions (FGDs): Discussions were held with health staff at the provincial Health Office (PHO), District Health Office (DHO) and health centres. Village authorities (village chief, village health committees (VHCs)/village health volunteers (VHVs) and community members (pregnant and lactating women/caretakers and adolescents) were also interviewed. The FGDs assessed community members' nutrition knowledge, awareness, and nutrition-seeking behaviour, for example, before, during, and after pregnancy. Each FGDs group consisted of four to six participants.

Ninety-two FGDs were conducted in the four provinces. Details are listed in the table on the following page:

Table 1: Type of interviews conducted in each province *

KIIs in each province	FGDs in each province
Provincial level: Director of PPI Director of PAFO Director of PESS Director of PHO	**Provincial level**: PHO team (Maternal and Child Health (MCH), nutrition, health education, WASH, Statistics)
District level: Director of DPI Director of DAFO Director of DEO Director of DHO	**District level**: DHO team (MCH, nutrition, health education, WASH, statistics)
	Health centre level: Health centre staff
	Community level: ◆ Village Health Committees ◆ Pregnant women ◆ Lactating mothers/caretakers – father, grandparents, family members ◆ Adolescent girls

** There are four villages, four health centres and two districts per province.*

For further details, see annexe 1 for a complete list of people interviewed.

1.3.2 ANALYTICAL FRAMEWORK

The analytical framework applied to this assessment is based on selected determinants of supply and demand factors that could help explain the high prevalence of malnutrition in the selected provinces. The assessment investigated human resources, nutrition policies/strategies/plans/coordination, supplies and equipment, and access to nutrition services for the supply domain. For the demand side, the assessment investigated health/nutrition-seeking behaviour, awareness of nutrition services and barriers to accessing health and nutrition services.

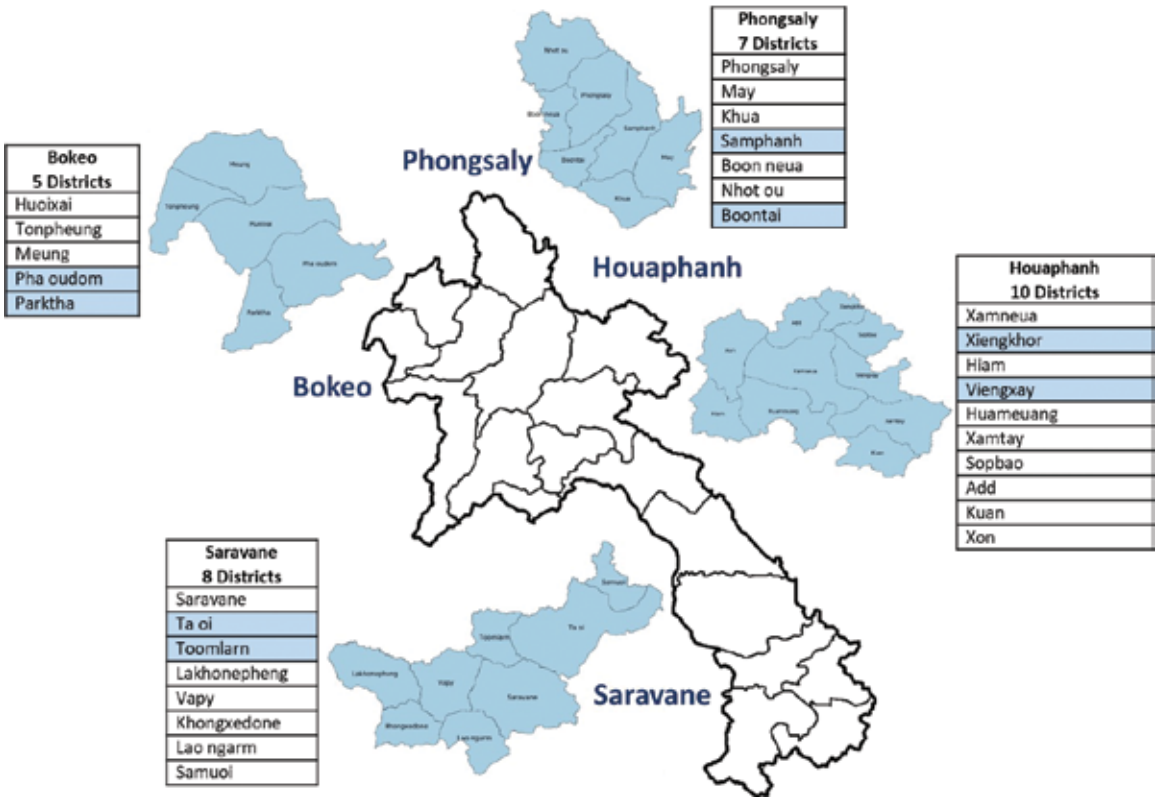
Table 2: Analytical framework

Category	Domain	Sub-topic example
Supply	Human resources	◆ Dedicated health staff for nutrition programming at all levels ◆ Staff are assigned to nutrition activities ◆ Adequately trained staff to offer nutrition services ◆ Education and knowledge regarding nutrition provision ◆ Nutrition-sensitive agriculture and food security
	Nutrition Policies/ strategies/ plans/ coordination	◆ Awareness of NNP, NPAN, NNSPA/RMNCAH strategy and related policy documents as well as nutrition interventions ◆ Nutrition coordination mechanisms ◆ Nutrition knowledge/awareness raising to reduce the risk of malnutrition ◆ Nutrition-sensitive agriculture and food security ◆ Nutrition education in schools PESS and DEO ◆ SBCC implementation / awareness ◆ Monitoring system and reporting mechanism
	Supplies and equipment	◆ Minimum quantity of equipment required for services, e.g., weighing scales, height boards ◆ An adequate supply of nutrition commodities all year round, e.g., Vitamin A, deworming tabs, RUTF and others at service delivery sites ◆ An adequate supply of job aids, posters, programme manuals and guidelines, and registration/data collection forms at service delivery sites ◆ Stock-out of essential commodities during the year ◆ Nutrition supplies delivered promptly ◆ SBCC implementation / communication ◆ Adequate supply for monitoring and evaluation system
	Access to nutrition services	◆ Number of health facilities in the provinces—differentiate by types — tertiary, secondary, primary, community ◆ Number of communities/villages health facilities serve ◆ Communities served by IOS (comprehensive and non-comprehensive) - frequency ◆ Nutrition services available at all health facilities, SBCC implementation/ communication
Demand	Health/nutrition nutrition-seeking	◆ The preferred source of health/nutrition services ◆ Services mostly accessible ◆ The decision to access health/nutrition services ◆ Nutrition-sensitive agriculture
	Awareness of nutrition services	◆ Knowledge of nutrition services and access to information on, e.g., breastfeeding, Infant and Young Feeding (IYCF) counselling, iron/folate supplementation, and ISAM treatment. ◆ SBCC implementation/communication ◆ Nutrition-sensitive agriculture ◆ Nutrition education/knowledge ◆ SBCC demand
	Barriers to accessing health and nutrition services	◆ Conditions that are treated at home ◆ Access to nutrition services ◆ Factors informing the choice of health/nutrition services ◆ Access to health and nutrition services at the household level.

1.3.3 SELECTION OF PROVINCES, DISTRICTS, HEALTH CENTRES AND VILLAGES

This qualitative assessment focused on four provinces assisted by the EU/UNICEF. These include Bokeo, Houaphanh, Phongsaly, and Saravane Provinces. Two districts were selected by the Provincial Health Departments for data collection in each of the four provinces.

Figure 1: Selected provinces and districts



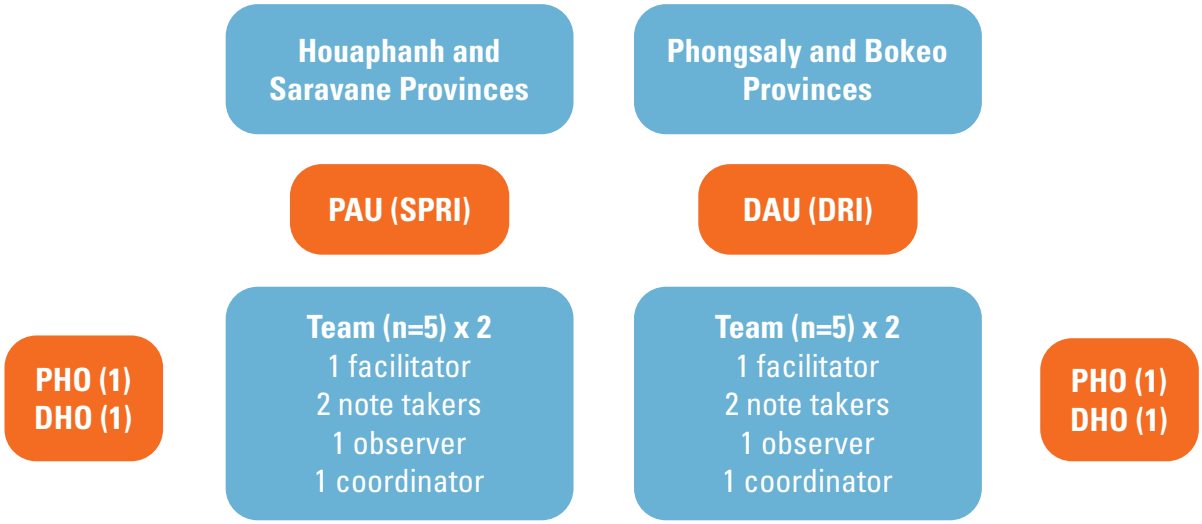
The District Health Office selected two health centres and two villages in each district. The selection was based on a mix of indicators, including poverty (poor versus non-poor), ethnicity, health and nutrition indicators, geographic access, and presence and non-presence of development partner support. In addition, two rural villages were selected in each district based on access to health centres: one rural village with less than five km to a health centre and one with more than five km to the nearest health centre.

Figure 2: Selected health centres and villages (red dots) in each of the four provinces

1.3.4 DATA COLLECTION AND TEAM COMPOSITION IN THE FIELD

Two teams carried out field visits to the four selected provinces and sites. Mixed teams were drawn from the DAU (Data Analysis Unit)- Development Research Institute (DRI) and PAU (Policy Analysis Unit)- Socio-Economic Policy Research Institute (SPRI), with ten people allocated per team. Each team was split into two groups of five people. They comprised one facilitator, two note takers, one observer and one coordinator. In addition, one PHO and one DHO coordinator joined each team. Field visits took place from December 2021 to February 2022. See also annexe 2 for a complete list of data collection teams.

Figure 3: Team composition



1.4 LIMITATIONS

The assessment is also limited to nutrition service delivery and demand at the community level. Also, conclusions and recommendations are based on findings and evidence from Bokeo, Houaphanh, Phongsaly, and Saravane Provinces.

2. NUTRITION FOR GROWTH AND DEVELOPMENT

2.1 WHY INVEST IN NUTRITION

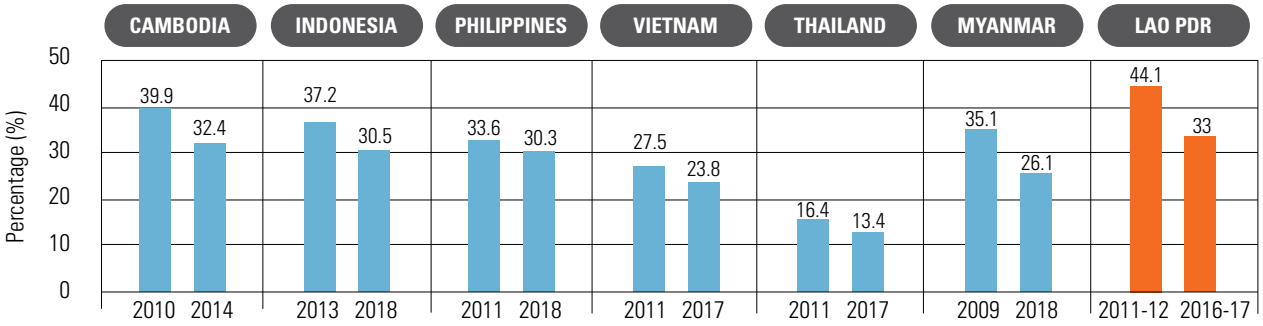
Poverty, food insecurity, and malnutrition are linked to individuals' poor health and cognitive development and hold nations back from economic, social, and political development. Malnutrition slows economic growth and perpetuates poverty through direct losses in productivity from poor physical status, indirect losses from poor cognitive function and deficits in schooling, and losses owing to increased health care costs.[6, 7]

Recent data shows that nearly one-third of the world's population (2.37 billion) did not have access to adequate food in 2020. This is an increase of almost 320 million people in just one year, mainly caused by the COVID-19 pandemic. In the State of Food Security and Nutrition in the World Report (2021), it was estimated that 22% (149.2 million) of children under five years of age were affected by stunting, and 6.7% (45.4 million) were suffering from wasting. At the same time, the number of children under five years overweight and obese is rising. In 2020, 5.7% (38.9 million) were overweight – whereas 5.4% were obese in 2000. The burden of undernutrition is unevenly distributed, with those in low-income countries, pregnant women and children being most affected. The World Bank estimates that 36 countries carry about 90% of the global burden of child undernutrition, and nutrition investments are inadequate in many of these countries.[8,9,10]

Most children suffering from malnutrition live in Africa and Asia. Nearly 75% of the world's stunted children live in two regions: 37% in Central and Southern Asia and 37% in Sub-Saharan Africa. In addition, 1 in 2 children suffer from deficiencies in essential micronutrients – and at least 2 in 3 children are not fed the minimum diet they need to grow healthy.[11]

Since 2000 the proportion of children under five years globally suffering from stunted growth has been reduced by one-third. This also includes the ASEAN region, where malnutrition has improved with stunting decreasing since 2009. Whilst the prevalence of malnutrition is decreasing, Asia still has the highest number of wasted children; in Southern Asia, the prevalence was 14.1%, and in Southeast Asia, the prevalence was 8.2% in 2020.[12,13,14]

Graph 1: Prevalence of Stunting in Southeast Asia



Source: Chaparro C., et al (2014)

6 Busse et al, 2020
7 World Bank, 2019a
8 FAO, 2021
9 World Bank, 2013
10 UNICEF, 2021
11 World Health Organization, 2021
12 Ibid.
13 World Bank, 2021a
14 UNICEF, 2021

In the Lancet Series on Maternal and Child Undernutrition (2008), the Copenhagen Consensus (2008), and the World Bank's 2006 document (Repositioning Nutrition as Central to Development), it was shown that there is a small window of opportunity to improve nutrition outcomes and to prevent irreversible losses to human capital in countries. This window of opportunity is the first 1000 days of a child's life: from conception to the child's second birthday. It is the most critical period for brain development and offers the best opportunity for human capital development. Interventions implemented during this period can potentially reduce undernutrition-related mortality and morbidity by 25%. Exposure to risks and adversities during the first two years can disrupt cognitive, emotional, and physical development and keep children from reaching their full potential. Studies and research from other countries making progress in reducing stunting show that these countries have addressed childhood stunting by coordinating a series of policies and programmes focusing on the first 1,000 days of life and addressing all three levels of causes: immediate, underlying, and basic causes of malnutrition.[15,16]

Chronic malnutrition in early childhood will not only affect educational performance but also affect the cognitive ability as an adult and economic productivity in adulthood. A case study from rural Zimbabwe showed that stunting in pre-school-aged children correlates with lower human capital potential in adulthood.[17] Furthermore, evidence shows an association between linear growth failure at two years and work status (working, unemployed, or informal work), whereas stunting at two years of age was more closely associated with unemployment or informal work. If a mother enters her pregnancy with poor nutrition, she is more likely to give birth to a low-birthweight or stunted infant.[18,19]

Figure 4: Why invest in nutrition

As illustrated in figure 4, the importance and link between investment in nutrition and having well-nourished children are that:

- When you have well-nourished and healthy newborn babies who receive proper nutrition will develop strong bodies and minds.
- These children become adolescents who can learn and get good grades in school.
- With this education, these adolescents will grow to become young adults who can find work and achieve a decent living.
- They will establish families and contribute to the community, being able to emerge out of poverty.

15 World Bank, 2019b
16 The World Bank, 2019a
17 Kristina Reinhardt and Jessica Fanzo, 2014
18 Ibid
19 Journal of Water, Sanitation and Hygiene for Development, 2019

- Their communities will be lifted out of poverty and be productive and stable.

Once in place, the steps mentioned above will contribute to making the world a safer, stronger, and more resilient place to live.

2.2 NUTRITION SITUATION IN LAO PDR

Lao PDR is a land-locked country in Southeast Asia and is categorized as a lower-middle-income country by the World Bank. The population is 7.3 million, where most of the workforce is engaged in agriculture (56%). Additionally, around 70% of the population lives in rural areas and about 8% in areas with no roads.[20,21,22]

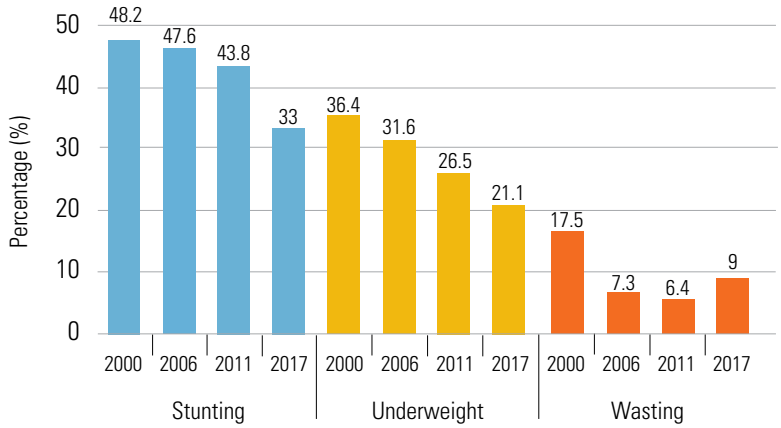
Over the past decade, Lao PDR has experienced rapid economic growth of between 6.5% and 8.3% annually. This has not, however, resulted in the same proportional reduction in poverty. The growth is mainly a result of mega projects in the natural resource sector, which has created limited employment opportunities and has not been particularly inclusive of the general population in Lao PDR.[23,24] The COVID-19 pandemic in 2020-2021 affected Lao PDR through multiple channels, including tourism, trade, investment, commodity prices and lowered remittances. As a result, in 2019, the GDP growth rate for Lao PDR was 5.5%, whereas the rate in 2020 was 0.5%, and the projected growth rate for 2022 is 4.5%.[25]

Lao PDR reduced its poverty rate from 24.6% in 2013 to 18.3% in 2019. The average GDP per capita is 2535 USD, an increase of 709 USD from 1826 USD per capita in 2013. Today approximately 9% of the population in Lao PDR lives on less than USD 1.9 per day, which is a decline from 15.6% in 2012/2013. The rate of poverty reduction has been rapid in rural areas, while urban poverty reduction has stagnated. Despite some improvement in poverty reduction, the lack of access to basic social services remains high, especially in remote and rural upland areas. Five provinces account for more than half of the poor in Lao PDR: Savannakhet (20.6%), Oudomxay (8.7%), Khammouane (8.3%), Saravane (8.0%) and Luangprabang (7.7%). Poverty is concentrated among minority ethnic groups and people with low education levels, with the Hmong-Mien ethnic group having the highest level of poverty - 38.4% compared to the national level at 18.3%.[26,27,28] Due to declining income, coupled with job losses caused by the COVID-19 pandemic, it is estimated that a total of about 170,000 people became poor in 2021.[29]

Since 2000 there has been extensive focus on reducing malnutrition in Lao PDR, which has resulted in a reduction in stunting from 48.2% to 33% in 2017 and underweight from 36.4% to 21.1% in the same period as graph 2 below illustrates. Despite the significant progress and economic growth, Lao PDR has one of the highest rates of chronic malnutrition in South-East Asia. There is still a big difference in levels of malnutrition across the country, with poor and rural areas most affected. According to LSIS 2, the percentage of wasting was 9%. From 2011-2017, on average, stunting in Lao PDR has declined by approximately 1.5% per annum, and underweight by approximately 1% per annum.[30,31,32,33]

20 World Bank, 2021c
21 Lao Statistic Bureau, 2015
22 Lao Statistic Bureau, 2018/2019
23 The Bank of Lao PDR, 2020
24 World Bank, 2020a
25 World Bank, 2021c
26 Lao Statistic Bureau, 2018/2019
27 World Bank, 2020a
28 Lao Statistic Bureau, 2017
29 World Bank, 2021c
30 Ministry of Health, 2016a
31 FAO, 2003
32 Lao Statistic Bureau, 2017
33 NIPN, 2019

Graph 2: Undernutrition rates among children under five years in Lao PDR



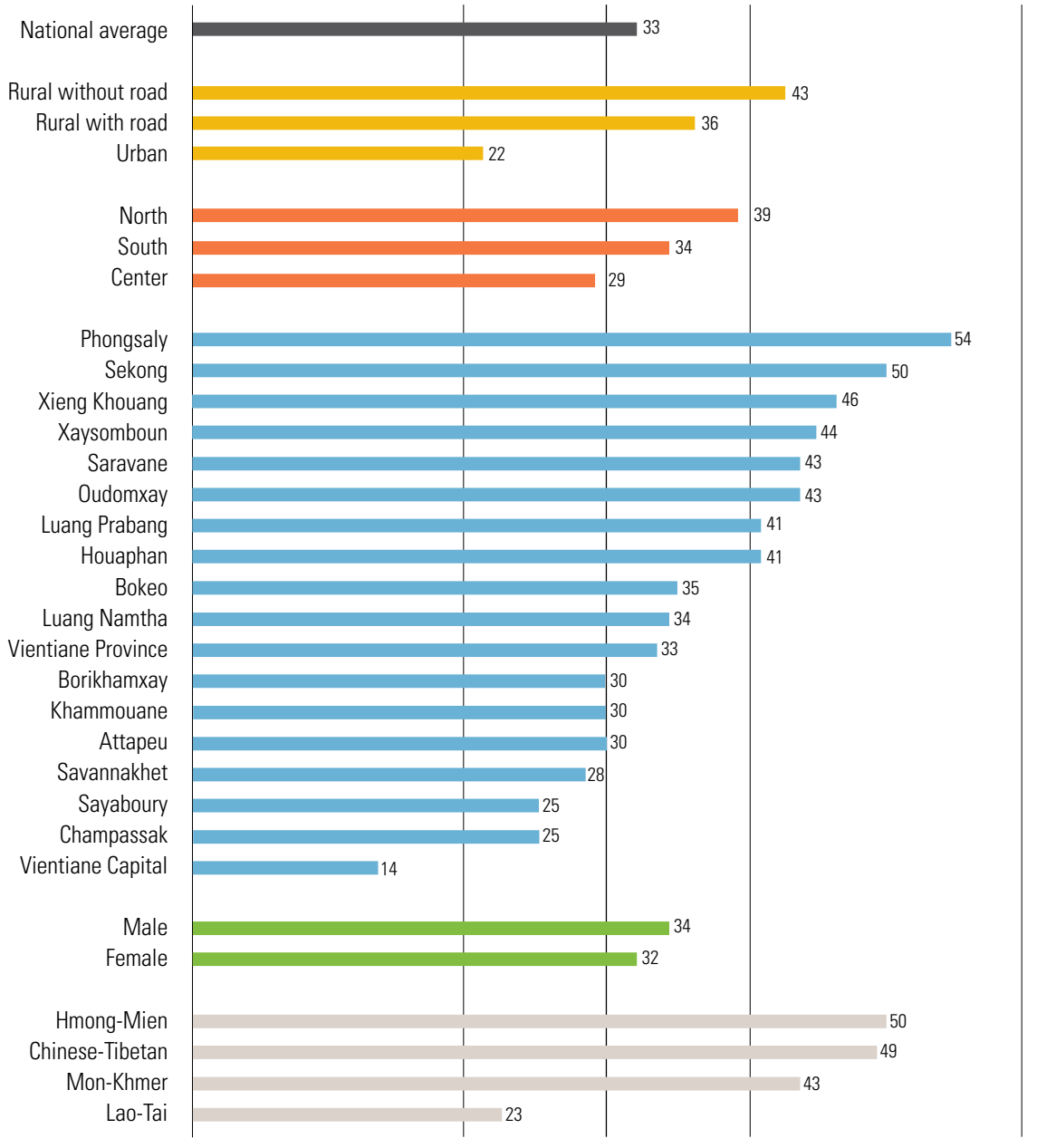
Source: MOH (2000), MICS (2006), Lao Statistic Bureau, 2011 and Lao Statistic Bureau, 2017

As illustrated in Graph 3 below, every third child in Lao PDR under five years of age is stunted, with a wide difference between the 18 provinces in the country. In 2017, Vientiane capital had the lowest prevalence of stunting (13.8%), and Phongsaly Province had the highest (54%). Also, 11 out of 18 provinces have stunting rates above 30%, which is classified as "seriously high" or "critical" according to the WHO/UNICEF anthropometric classification.[34,35,36,37]

Household income, ethnicity, and a mother's education play an important role in child nutrition. According to LSIS 2, children of the poorest households are three to four times more likely to be stunted than those in the richest households, while the same children are twice as likely to be wasted. Among the ethnic groups, stunting is two times higher among the Hmong-Mien (50%) than the Lao-Tai group (23%). Also, children of mothers with no education were three times more likely to be stunted (45%) than children of mothers with higher education (17%).

34 World Bank, 2020a
35 World Bank, 2014
36 Lao Statistic Bureau, 2017
37 UNICEF, 2019a

Graph 3: Stunting levels in Lao PDR

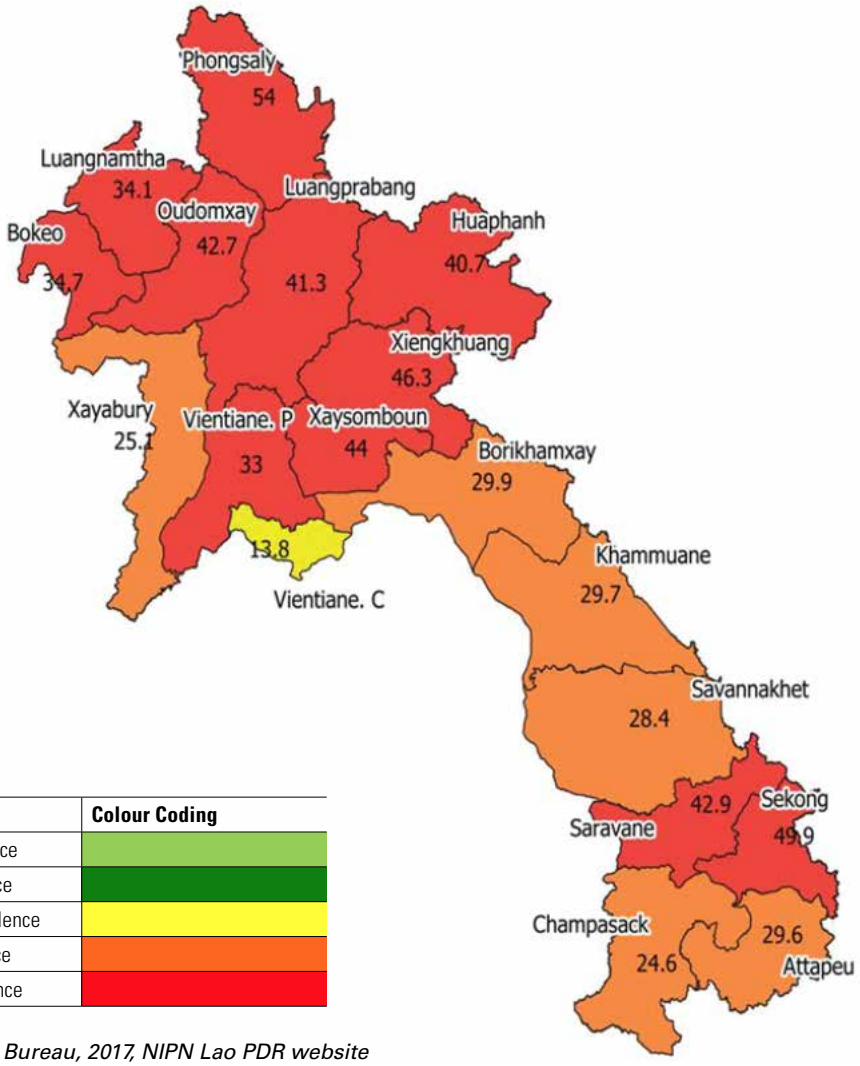


Source: UNICEF, 2019b

As illustrated in the map on the following page, stunting is more prevalent in the northern part of the country and in two provinces in the south. Children in remote, rural areas without access to a road have a much higher probability of being nutritionally deprived and stunted than those in urban areas. Stunting levels in provinces such as Sekong (50%), Phongsaly (54%), and Xiengkhouang (46%) are particularly high.[38,39,40]

38 UNICEF, 2019b
39 Ibid
40 Lao Statistics Bureau, 2017

Figure 5: Stunting rate among children under five years by province in Lao PDR



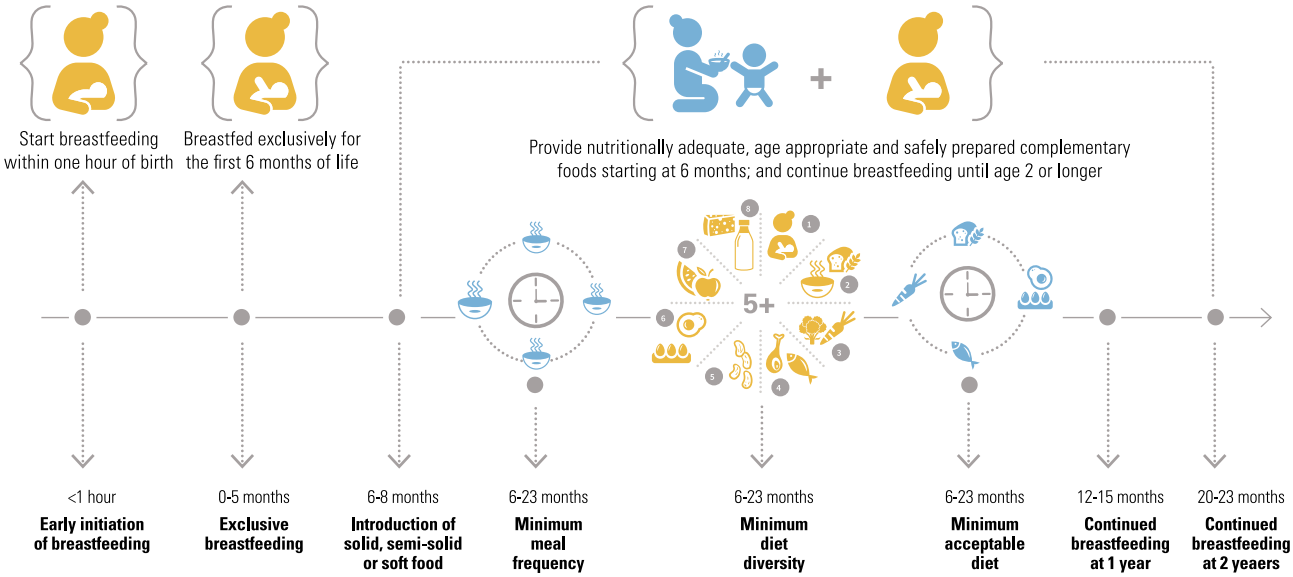
WHO Cut-Offs	Colour Coding
<25%: Very low prevalence	
2.4-<10%: Low prevalence	
10-<20%: Medium prevalence	
20-<30%: High prevalence	
>30%: Very high prevalence	

Source: Lao Statistics Bureau, 2017, NIPN Lao PDR website

Early Initiation of Breastfeeding (EIBF) in 2017 stood at 50.1%, while in 2011, the number was 39%. In terms of exclusive breastfeeding during the first six months, there has been an increase over the six years from 40.1% in 2011 to 44.9% in 2017.[41,42] Figure 6 illustrates that more than half of children under six months (55%) are not exclusively breastfed, and more than two-thirds of children under 23 months do not meet the minimum diet standards in terms of meal frequency, quality, and diversity. Low dietary diversity for children in Lao PDR also contributes to poor infant and young feeding practices.[43,44]

41 Lao Statistics Bureau, 2011
42 Lao Statistics Bureau, 2017
43 UNICEF, 2019b
44 World Bank, 2016a

Figure 6: Breastfeeding practices in Lao PDR



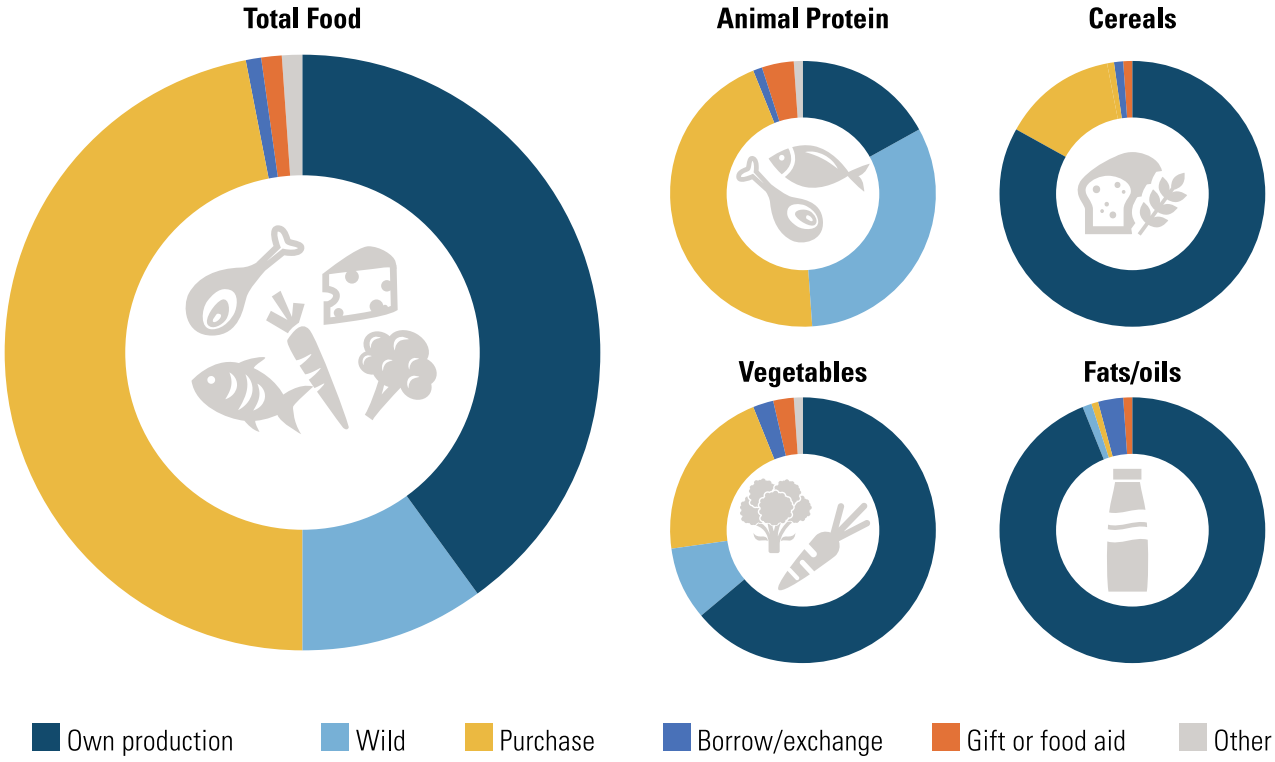
Source: Lao Statistics Bureau, 2017, UNICEF, 2019b

38% of babies born in Lao PDR are introduced to complementary foods too early (before six months), 55% of children aged six months to 2 years do not have a sufficiently diverse diet, and 31% are not fed frequently enough. Around 40% do not consume vitamin A-rich foods, whilst 46% do not consume iron-rich foods daily. 55% of children under five consume diets from less than three food groups despite the availability of diverse foods in the household.[45] Though the percentage of children aged 6-23 months receiving minimum meal frequency has increased from 43% in 2011 to 69% in 2017, only half of the children aged 6-23 months received the minimum diet diversity or the variety of foods required for optimal growth and development.[46,47]

Lack of dietary diversity and unbalanced diets are the main factors contributing to inadequate nutrient intake among children. Analysis shows that the average calorie intake per capita per day was 2,751 kcal, which is well beyond 2,400 kcal, the nationally defined minimum daily dietary energy supply per capita to meet the daily needs of an average Lao person (2012/13). Still, about 25% of households are food insecure. Many households, especially in remote areas, experience periods during the year with seasonal food insecurity, and the high prevalence of undernutrition remains a major challenge in Lao PDR. The Hmong-Mien are at higher risk for nutritional deficiencies than other ethnic groups due to a poor-quality and undiversified diet. As a result of the COVID-19 pandemic, 37% of households have reduced their food intake. As figure 7 below shows, the main food source in a Lao household is cereals (rice).[48,49,50,51]

45 World Food Programme, 2016
46 UNICEF, 2019c
47 World Food Programme, 2016
48 World Bank, 2020b
49 Ministry of Agriculture and Forestry, 2020
50 World Bank, 2021c
51 World Bank, 2016a

Figure 7: Sources of food by 7-day recall



Source: World Food Programme, 2017

There is limited information available about the dietary intake of Lao women. National data shows that only one-third (32%) of women meet a minimum dietary diversity of five or more food groups. A study conducted in 2017 in Lao PDR found that only 44% of pregnant women reached a minimum dietary diversity while 10% ate less than three meals a day.[52,53]

Micronutrient deficiency among the population remains a challenge. 44.1% of Children Under Five (CU5) years are anaemic, and 30% of pre-school children suffer from Vitamin A Deficiency (VAD). In addition, 40% of women of reproductive age are anaemic, and 48% of women develop anaemia during pregnancy.[54] Women living in rural areas without roads are more likely to be anaemic than women living in rural areas with roads (42% versus 37%). The prevalence of anaemia varies considerably by province; women in Khammouane Province are more than three times more likely to be anaemic than women in Sayaboury Province (62% versus 18%).[55] CU5 in Khammouane Province are more than twice as likely to be anaemic than children in Houaphanh Province (59% versus 24%). Approximately 25% of households do not consume adequate iodized salt.[56]

Thiamine deficiency is reportedly high among pregnant and lactating women because of the high consumption of rice and diets low in Vitamin B1. Thiamine deficiency in Laos has been associated with intrauterine growth retardation and infant mortality.[57,58]

From 2000 to 2017, Lao PDR recorded a significant decline in infant and CU5 mortality rates. The infant mortality rate decreased from 83 per 1,000 live births to 38 per 1,000 live births, while the CU5 mortality rate dropped from

52 Ministry of Agriculture and Forestry, 2020
53 UNICEF, 2019d
54 Lao Statistics Bureau, 2017
55 Ibid
56 Ibid
57 Ibid
58 Ministry of Health, 2016a

118 to 47 per 1,000 live births. 87% of under-five mortality happens in the first year of life. Similarly, the maternal mortality ratio significantly declined from 546 to 185 per 100,000 live births during the same period. The total fertility rate declined from 3.2 in 2011 to 2.7 in 2017.[59,60]

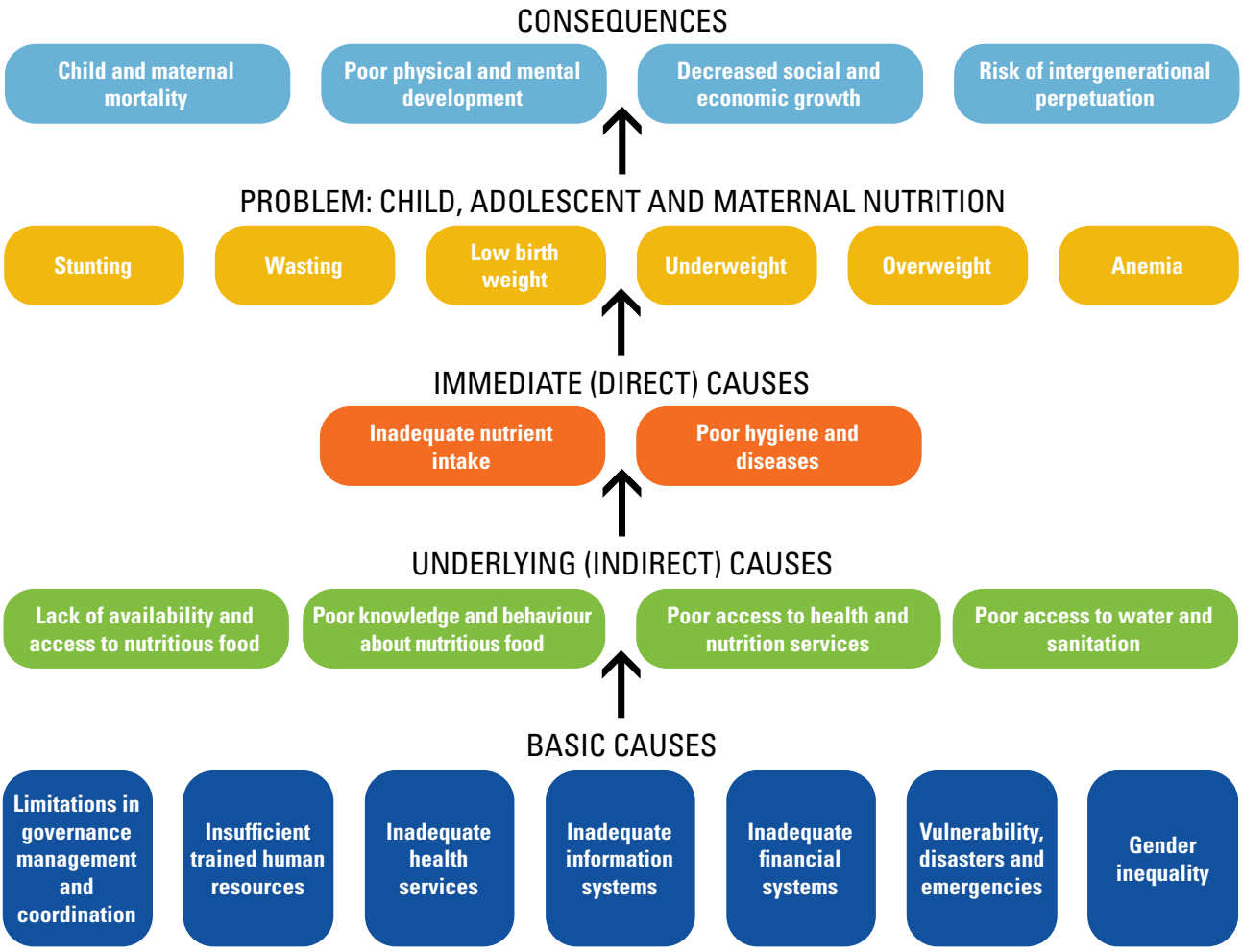
2.3 NUTRITION POLICY LANDSCAPE

The GoL endorsed its first National Nutrition Policy in 2008. This was followed by the development of the first National Nutrition Strategy (NNS) 2011–2015 and Nutrition Plan of Action (NPAN) 2011-2015, followed by the second NNS 2016–2025 and NPAN 2016-2020.

The NNS and NPAN (2011-2015) was the first multi-sectoral framework providing direction for all stakeholders involved in nutrition. They defined key nutrition interventions with clear roles and responsibilities of different sectors and stakeholders and a costed implementation plan. The updated NNS (2016–2025) and NPAN 2016-2020 aimed to strengthen the multi-sectoral approach to nutrition and explicitly defined the interventions, approaches, and institutional arrangements for achieving a more comprehensive action, using a multi-sectoral convergent approach with the primary goal to reduce chronic malnutrition to 25% by 2025. A new NPAN 2021–2025 has been developed, and implementation has started. The new NPAN (2021-2025) has 22 intervention areas with considerations on nutrition in disasters and emergencies and in the context of climate change, Social and Behavioural Change Communication (SBCC), and gender equality. One of the key targets of the NPAN 2021-2025 is to promote a more effective and better-quality coordination and cooperation across sectors and generate results leading to more effective delivery and greater impact of nutrition interventions at the national and sub-national levels. In the new NPAN, each sector, particularly education and agriculture, are expected to integrate nutrition into its own sectoral strategy and plan. Through their provincial and district nutrition committees, each province and district will develop and implement annual operational plans for nutrition based on the NPAN.[61]

59 World Bank, 2020c
60 Lao Statistics Bureau, 2017
61 Ministry of Health, 2016a

Figure 8: Conceptual framework of NPAN 2021-2025



2.4 NUTRITION SERVICES IN LAO PDR

In Lao PDR, nutrition services are carried out by health workers at health centres and district and provincial hospitals. There are approximately 1,060 health centres located around Lao PDR.[62] The health centres are the primary facilities responsible for delivering nutrition and other health services such as ANC, PNC, growth monitoring and nutrition counselling, micronutrient supplementation, immunization, and Integrated Outreach Services (IOS).

The following are the main nutrition services offered in the country:

- Promotion of exclusive breastfeeding and appropriate complementary feeding,
- Management of acute malnutrition,
- Growth monitoring,
- Micronutrient and vitamin supplementation (iron and folic acid, vitamin A, zinc, micronutrient powders etc.)
- Deworming
- Essential nutrition actions during antenatal care (ANC) and postnatal care (PNC)

Each health centre has a catchment area of approximately ten villages.

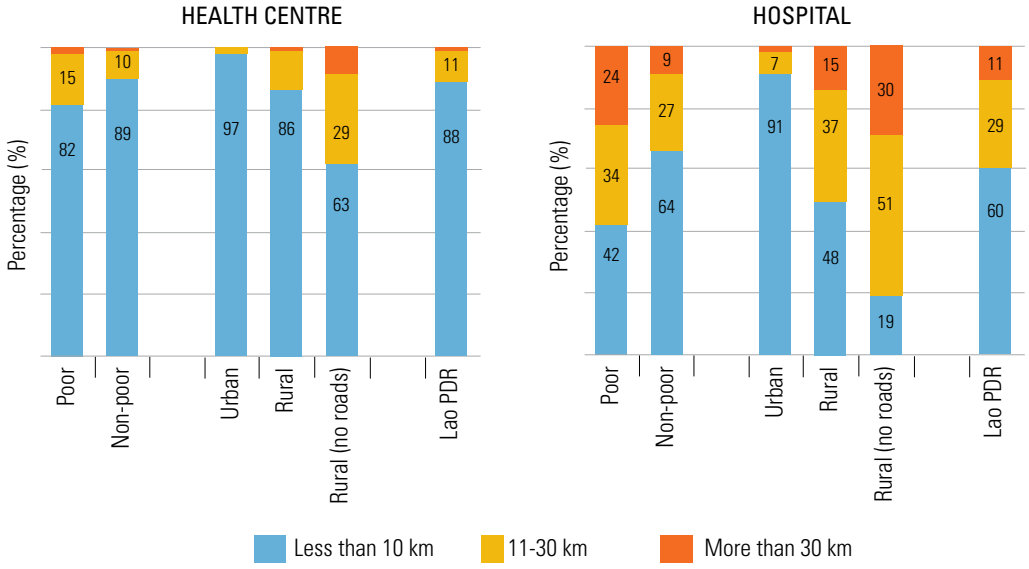
62 Ministry of Health, 2020

Villages in the catchment area of a district and health centre are classified into three zones based on the location of the villages.[63] These include:

- Fixed service delivery: Includes the provincial hospital, district hospital and health centre. Service provision at the health facility is under 5 km.
- Mobile delivery: Outreach service in villages 5-10 km from the health facility. Staff are required to travel and deliver services within the same day.
- Overnight stay delivery: service provision in villages more than 10 km away and where it is not possible to return to the hospital/HC on the same day. Villages in this category include:
  - Villages in the catchment areas of the HC are challenging to access. Travelling time to such villages is more than one hour and returning from the health facility on the same day after the completion of activities is not possible.
  - Villages with low immunization coverage or prone to outbreaks of vaccine-preventable diseases, ethnic minority villages and those that are difficult to access by road and have community mobile services below four times per year.

Graph 4 below illustrates that most households are less than 10 km from a health centre. However, only 63% of rural households without road access are less than 10 km to a health centre.

Graph 4: Access to health centres and hospitals



Source: Lao Statistics Bureau. 2018/2019

At the village level, there is at least one health volunteer, sometimes more depending on the size of the village, with limited equipment, who can assist with minor issues. During the last few years, a lot of effort has gone into improving PHC service delivery, especially MCH, by increasing the number of staff intake and deployments to health centres.[64,65] Though considerable progress has been made in improving MCH services, significant disparities exist nationwide, with the poor and geographically isolated ethnic groups having limited access to services.[66]

63 Ministry of Health, 2012
64 World Bank, 2020a
65 World Bank, 2016b
66 Somil Nagpal et al, 2019

2.4.1 FACTORS HINDERING THE DELIVERY OF NUTRITION SERVICES

The literature review and interviews at the central level found that Lao PDR faces several challenges in delivering nutrition services at the community level. These include:

Access to remote/rural villages: Many villages are located remotely with limited road access, which worsens during the rainy season. Due to the location of some villages, health centre staff cannot carry out outreach services, even though these should be done quarterly. In some cases, it is reported that health centre staff cannot conduct growth monitoring during IOS, as they cannot bring weighing scales and height boards to measure infants and children because they travel on motorbikes. This affects the growth monitoring of infants and children.[67]

Capacity and knowledge of health workforce: Health staff have limited capacity to provide basic primary health care. A workforce survey of 120 health centres showed that 44% of health centre staff had never received in-service training in areas such as ANC and PNC, essential newborn care, nutrition, and growth monitoring.[68] Health centre staff have not received appropriate training on nutrition and have very limited knowledge of nutrition. For example, health workers would give the same advice if a child was mild, moderately, or severely malnourished and tend not to recognize stunted children, especially in areas where stunting is common.[69,70]

The challenge of the limited capacity of the health workforce could be attributed to the fact that the Lao education system does not train nutrition cadres or professionals. Also, the pre-service training curriculum of health professionals offers little scope for nutrition courses.[71] Therefore, students who want to study nutrition must study in a neighbouring country such as Thailand, which has a good nutrition education programme.

67 World Bank, 2016a
68 World Bank, 2016b
69 Ibid
70 World Bank, 2016a
71 NIPN, 2020

Lack of nutrition education materials: A limitation for providing nutrition education in the villages is that health staff lacked updated behavioural change communication materials for their sessions. Health centre staff reported that they do not offer nutrition education or counselling during IOS, as they have nothing to attract villagers' attention such as posters, brochures, flipcharts, or other communication materials and to raise awareness of nutrition and food intake.[72,73]

Limited staff and staff rotation: There is a shortage of qualified staff at health centres, and there is an uneven distribution of health staff across the 18 provinces in the country. A workforce survey of 120 health centres showed that the average number of staff at health centres was four health workers (4.4 health workers in urban health centres compared with 3.8 in rural health centres), and on average, health centre staff only had six consultations per day.[74,75]

Language barriers: In some communities, health staff cannot speak the local dialect, which hampers effective communication between them and community members. An example from the Lao PDR Health Centre Workforce Survey 2016 showed that 85% of health centre workers spoke the most common language in the community (typically Lao), and only 31% spoke the second most common language.[76]

2.4.2 FACTORS HINDERING DEMAND FOR NUTRITION SERVICES

The literature review identified various factors hindering nutrition services' demand and access. These include financial, cultural, and traditional barriers, poor education and lack of knowledge, physical access, food taboos and restrictions and ethno-linguistic barriers.

Financial barriers: For the rural poor, many of whom live in remote areas, distance to health facilities is a major barrier, as some households cannot afford transportation costs to the hospital. A study from Kham District in Xiengkhouang Province showed that 71.3% of women did not use the ANC facility because they lived far away and could not afford transportation.[77]

Poor access to quality nutrition services is a persistent problem and affects women and poor households. Findings in LSIS 2 found that while 97.3% of pregnant women in the richest quintile have access to ANC, only 52% of pregnant women from the poorest quintile received ANC from a trained health professional, and over 36% of pregnant women living in rural areas without roads had not received any ANC services. In addition, 6% of pregnant women living in urban areas had no access to ANC compared to 19.5% of pregnant women living in rural areas with road access. 34% of pregnant women in rural households were assisted by a skilled birth attendant when giving birth, compared to the national average of 64%.[78]

Cost and time constraints make women return to work soon after giving birth, impacting breastfeeding and complementary feeding. Often the child will be at home with grandparents or other family members and will not be exclusively breastfed for the first six months.[79]

Ethno-linguistic barriers: While non-Lao-Tai ethnic groups in rural areas generally show a higher burden of child stunting, linguistic barriers still prevent them from benefiting fully from nutrition services. Non-Lao-Tai ethnic groups often do not benefit as much from health and nutrition education/counselling due to linguistic barriers as most of the health centre staff are of Lao-Tai origin and often do not speak other ethnic languages. For example, due to the lack

72 World Bank, 2016a
73 NIPN, 2020
74 World Bank, 2016b
75 Ministry of Health, 2016b
76 World Bank, 2016b
77 Yang Ye et al, 2010
78 Lao Statistic Bureau, 2017
79 World Food Programme, 2016

of access to formal education, many Hmong-Mien and Mon-Khmer women cannot understand Lao. And if they can understand and speak Lao, some are too shy to speak Lao.[80]

Limited nutrition knowledge: In some communities, newborn babies are traditionally fed chewed rice. This increases their chances of infection. Although most babies are breastfed, reliance on breast milk alone after six months is a problem, as the children do not get enough food for the required growth. Due to poor weaning practices and poor quality of complementary foods to meet the needs of the fast-growing infants, they may lose weight and increase their likelihood of becoming malnourished. Poor and insufficient nutrition intake in the age group from 6-24 months leaves the children permanently stunted, and this loss can never be regained, even if the child receives sufficient food after two years.[81]

Food taboos and restrictions: Women are commonly limited to a certain diet during and after pregnancy due to traditional beliefs. Some women are not allowed to eat nutritious foods during and soon after birth because of these traditional practices, severely affecting their health and lactation. In addition, many such traditional practices impact child growth and development.

Women in some ethnic groups will not give birth at a clinic due to the cultural belief that pregnancy and childbirth are natural events and do not require medical treatment. Some women will give birth on a hot bed and only drink herbal water with little food after the birth, sometimes for as long as forty days. Some communities believe that preparing for a birth is a bad omen for the birth. Others believe that colostrum is unhealthy for the newborn baby. Mothers often report that they are encouraged to restrict food intake during pregnancy so they can have smaller babies and easier deliveries. Food restrictions often continue through the delivery and breastfeeding period. All these restrictions could affect the well-being of the mother and the child.[82]

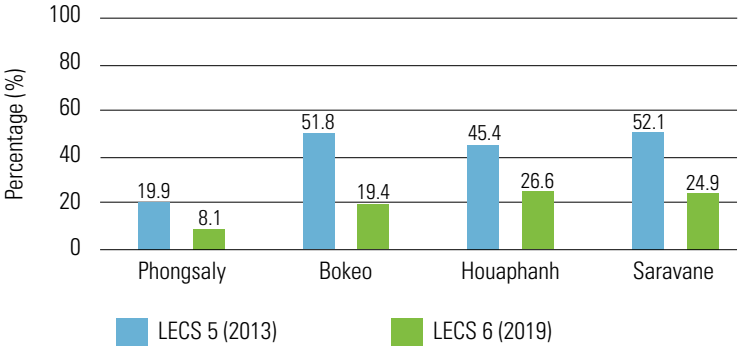
80 World Bank, 2016a
81 Davies et al, 2013
82 World Bank, 2016a

3. SUMMARY OF FINDINGS AND DISCUSSION

3.1 PROVINCIAL PROFILES

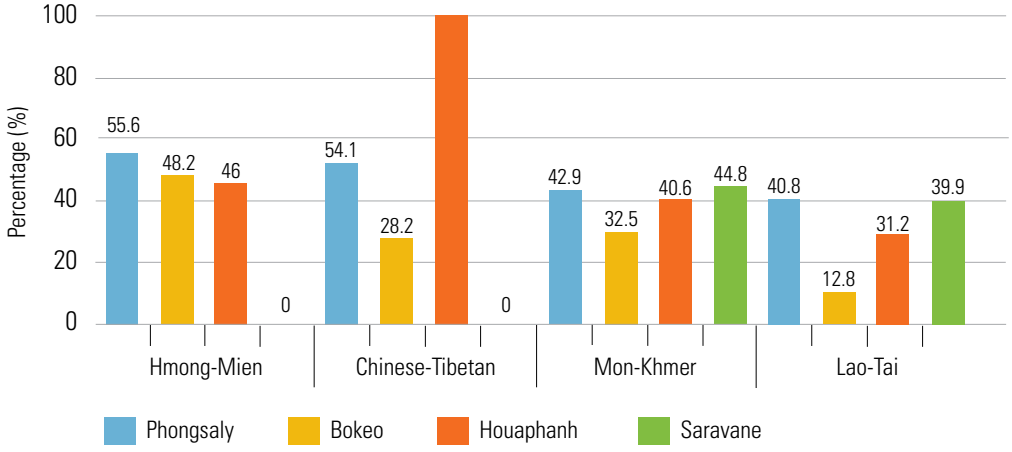
The graph below shows that the poverty rate decreased in all four provinces from 2013 to 2019. However, Bokeo Province has experienced the most significant decrease in poverty since 2013. This could be related to the economic development in the province with special economic zone and investments and increased agricultural cash crop production.[83]

Graph 5: Poverty level in the four selected provinces



Bokeo, Houaphanh, Phongsaly and Saravane Provinces represent diverse minority ethnic groups with different cultures and traditions. According to data from LSIS 2, there are differences in the nutritional profiles attributable to ethnic differences. For example, there are differences between Hmong-Mien, Chinese-Tibetan, Mon-Khmer, and Lao-Tai ethnic groups in the four selected provinces, as illustrated in graph 6 below.

Graph 6: Prevalence of stunting among children under five years by ethnicity

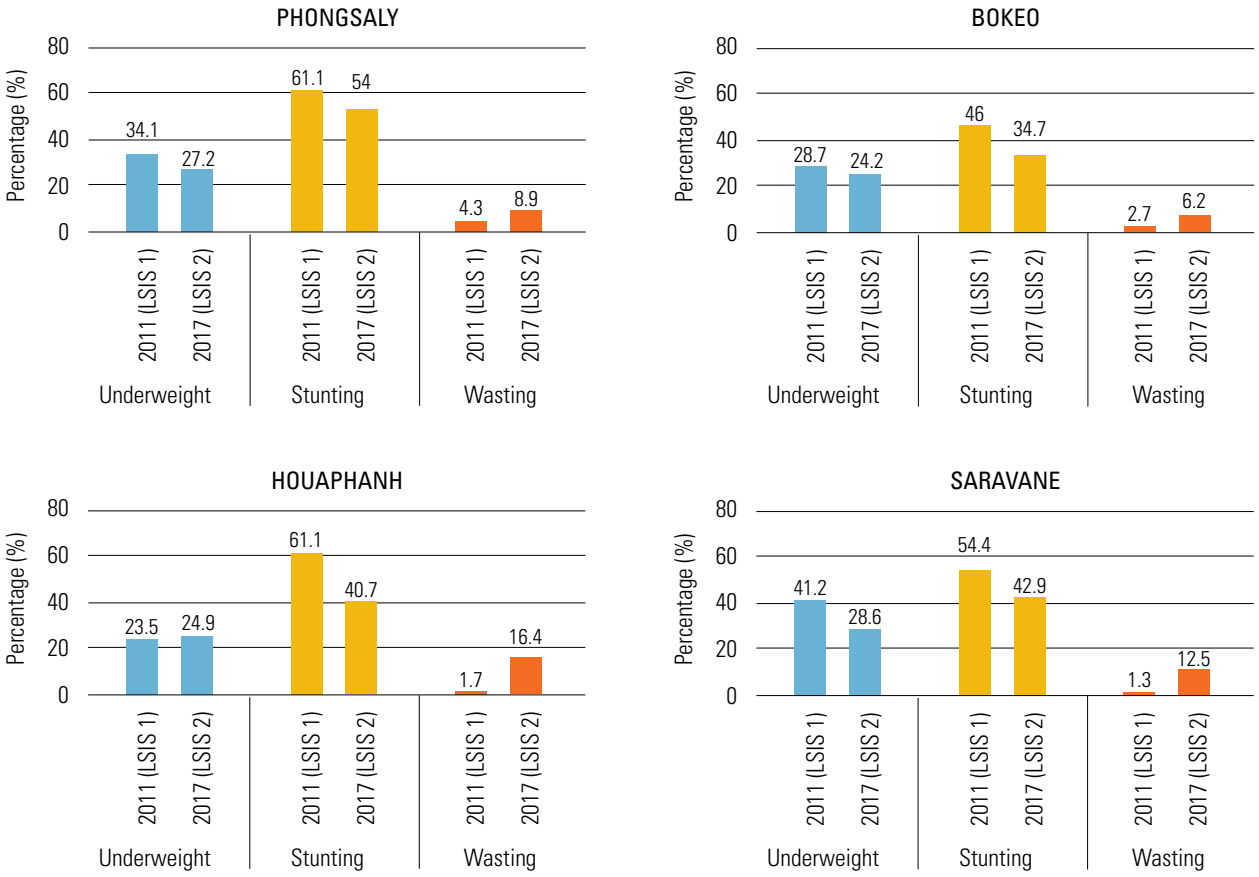


Source: Lao Statistics Bureau, 2017

Nutritional status reports of children under five years in Bokeo, Houaphanh and Phongsaly and Saravane Provinces show that Phongsaly Province has the highest stunting level compared to the other three provinces. Wasting is highest in Houaphanh Province, but all four provinces experienced an increase in wasting between 2011 and 2017. Saravane Province has the highest level of underweight.

83 World Bank, 2020d

Graph 7: Nutrition status of children under five in the four selected provinces



Source: Lao Statistics Bureau, 2012; Lao Statistics Bureau, 2017

3.1.1 FINDINGS FROM BOKEO PROVINCE

The following is the health and nutrition profile of Bokeo Province and the findings from the data collection and interviews conducted at the provincial, district, and community levels.

Table 3: Profile of Bokeo Province

Indicator	LSIS 2 (2017)	Annual Report of Provincial Health Department 2021
Underweight of CU5		15.2%
Stunting of CU5		27.8%
Wasting of CU5		8.86%
Infant mortality (per 1,000 live birth)		21/1,000 live birth
Under-five mortality (per 1.000 live birth)		24/1,000 live birth
Maternal mortality ratio (per 100,000 live birth)		131/100,000 live birth
Diarrhoea in CU5		24.9%
Anaemia in CU5	38%	
Anaemia in women of reproductive age (WRA)	37.6%	
Exclusive breastfeeding	63.1%	79.24%
Bottle-feeding	28.1%	
Minimum acceptable diet (6-23 months)	25.8%	
Received Vitamin A (children 6-59 months)	42.8%	67.60%
Received Vitamin A (children 6-11 years old)		
Received deworming 12-59 months old		99%

Iron/folic Acid Supplementation for pregnant women		78.6%
Low birth weight (<2500g)	7.3%	3.8%
Delivery by SBA (skilled birth attendant)		79.9%
Infant Immunization rate		81.9%
Access to WASH		95.05%
Access to latrine		91.1%
Health Insurance Coverage	11.4 %	100%
Model Healthy Village		91.5%

ACCESS TO NUTRITION SERVICES IN BOKEO PROVINCE

According to the health centre staff, the following type of nutrition services are provided to the communities in Pha Oudom and Parktha Districts:

- CU5 Growth monitoring
- Antenatal care (ANC)
- Vaccination
- Family planning (FP)
- Demographic information (population/birth/death)
- Postnatal care (PNC)
- Deworming
- Vitamin and micro-nutrient supplementation: Vit A and Iron/folic acid
- Home visit (high-risk monitoring)
- Referral
- Health education

A team at the health centre conducts IOS every quarter. Children are assessed for malnutrition, and parents are advised on diet, treatment, and medication. Malnourished children are provided nutrition supplements and medicines if treatment is needed.

The health centre staff carry out SBCC activities during IOS. These include information and counselling of mothers on childcare, diarrhoea and malaria prevention, and the COVID-19 pandemic. They also carry out immunization activities, ANC, PNC, and family planning services. For example, at the Mokxo Health Centre in Pha Oudom District, short videos have been produced on nutrition and childcare as part of their SBCC strategy.

All the pregnant women interviewed had received health counselling focused on reducing hard labour (e.g., fieldwork) and practising healthy behaviours contained in the Mother and Child Health (MCH) handbook. They had also received ANC 1- 6 times at the health centre during the latest pregnancy. In addition, all the lactating women interviewed had delivered their babies at the health centre with the assistance of a midwife.

In two of the four villages, the adolescent women had participated in nutrition education at school, where they were taught how to grow vegetables and prepare nutritious food. In the two other villages, women had participated in nutrition education at the community level learning about cooking different kinds of food.

The community leaders interviewed in Bokeo Province indicated easy access to the health centres and information, which helps to increase people's awareness. In addition, health staff visit the villages regularly, and follow-up assessments and vaccinations are carried out monthly at the village level.

FACTORS HINDERING THE DELIVERY OF NUTRITION SERVICES

At the health centres, education materials on food preparation, ANC, family planning, vaccination, and high-risk factors for mothers are available and used for sensitization in the villages. The education materials are available in Lao, Hmong, and Khamu languages. In some instances, staff at the health centres find it difficult to communicate with some clients due to language barriers, as most of the people living in the area are Hmong and do not understand the Lao language well.

Health centre staff find it challenging to monitor the nutritional status of children, as some parents do not keep the Mother and Child Health book for tracking health records. Another factor making it difficult to carry out IOS and monitor the nutritional status of children in the communities is that families often will go and live in the fields for long periods. They will therefore not attend IOS or other nutrition activities taking place in the community. Some parents have limited knowledge about nutrition and proper food to feed their children, whilst most families living in the areas are poor and cannot afford to buy nutritious foods for their households, which is also causing malnutrition. Additionally, power dynamics in the household impact attendance at health education sessions and the use of nutrition services. The woman will have to get permission from her husband to attend nutrition services.

The level of education and knowledge of health centre staff can also impact the quality of care given to women. Staff at the health centres have participated in different training sessions in the past, but more training is still needed to improve their skills. For example, before the COVID-19 pandemic, there was one training session per year on malnutrition, but health centre staff did not participate. Only staff at the district hospital and sub-district hospital participated. Since the COVID-19 outbreaks, there has not been any training. Furthermore, there is frequent rotation and change of staff, which has a negative impact on nutrition promotion methods.

Factors hindering health centre staff in providing nutrition services include the location of some villages. Some of the villages in the districts of Parktha and Pha Oudom are in mountainous areas that are remotely located and have limited road access. Due to the bad terrain, the health centre staff cannot conduct IOS during the rainy season. Health centres are equipped with motorbikes, which makes it difficult to transport the required equipment and supplies to the villages due to their size and weight. There are not enough weighing scales and height measurement equipment. Sometimes, the staff will split into two teams, but they only have one set of equipment available. The health centre staff also mentioned insufficient medical supplies and food supplements as barriers.

Lastly, limited vehicles and budget for operational costs hinder service delivery, especially IOS in remote villages. At times the budget is not enough, as staff need to stay overnight in remote villages, and the DSA provided does not cover the cost, which results in health centre staff not visiting villages as often as planned. According to the district health officer, implementation of communication social behaviour change was not done because the target villages for nutrition advocacy were located too far away, and the DHO did not have the budget to implement activities as planned.

FACTORS HINDERING DEMAND FOR NUTRITION SERVICES

Based on the data collected in the four villages, the overall picture is that the understanding of nutrition and basic knowledge of nutrition is poor and weak at the community level. The community leaders and the different groups of women interviewed have a low level of knowledge regarding nutrition, eating habits, IOS and health care practices. In addition, women are getting married at an early age – typically around 14 to 18- and the first pregnancy will be between 14 and 20.

Example from Bokeo

Health centre staff have seen changes and improvements through increased vaccination coverage and attendance of ANC by pregnant women. In the past, these were banned by the elderly in the communities, but the behaviour has changed due to awareness raising and focus on these interventions.

According to the community leaders in the four villages, barriers to accessing nutrition services include a limited number of staff at the health centres and insufficient medicines and supplies.

Traditional beliefs and habits coupled with the remoteness of villages inhibit access to nutrition services. In the four villages in Bokeo Province, almost half of the interviewed pregnant women practised food taboos during pregnancy. Among ethnic groups such as the Khamu and Hmong, sour, pickled and spicy foods are mostly avoided. 10 out of the 13 women interviewed practice food taboos and did not eat pickled or spicy food after delivery. Additionally, they do not eat beef or monosodium glutamate (MSG) but only use salt to season food and avoid drinking alcohol. They can eat black chicken, rice, and eggs and drink warm water. The reasons for practising food taboos are beliefs and advice from parents and the elderly. Examples are - a concern that there will be oil/fat mixed in the breast milk, which will give the child diarrhoea or a belief that if food taboos are not practised, it can cause diseases and a lack of breast milk.

In three of four villages, mothers breastfeed within the first hour after delivery until the child is 3-6 months old when complementary foods are introduced.

3.1.2 FINDINGS FROM HOUAPHANH PROVINCE

The following is the health and nutrition profile of Houaphanh Province and the findings from the data collection and interviews conducted at the provincial, district, and community levels.

Table 4: Profile of Houaphanh Province

Indicator	LSIS 2 (2017)	Annual Report of Provincial Health Department 2021
Underweight of CU5		13.48%
Stunting of CU5		20.02%
Wasting of CU5		15%
Infant mortality (per 1,000 live birth)		13/1,000 live birth
Under-five mortality (per 1.000 live birth)		15/1,000 live birth
Maternal mortality ratio (per 100,000 live birth)		102/100,000 live birth
Diarrhoea in CU5		32.4%
Anaemia in CU5	24.4%	
Anaemia in women of reproductive age (WRA)	25%	
Exclusive breastfeeding	60.4%	
Bottle-feeding	16.7%	
Minimum acceptable diet (6-23 months)	18.8%	
Received Vitamin A (children 6-59 months)		53.21%
Received Vitamin A (children 6-11 years old)		41.38%
Received deworming 12-59 months old		83.4%
Iron/folic Acid Supplementation for pregnant women		83,96%
Low birth weight (<2500g)		14.2%
Delivery by SBA (skilled birth attendant)		81%
Infant Immunization rate		95%
Access to WASH		93.3%
Access to latrine		93.9%
Health Insurance Coverage		100%
Model Healthy Village		85.4%

ACCESS TO NUTRITION SERVICES IN HOUAPHANH PROVINCE

According to the health centre staff, the following type of nutrition services are provided to the communities in Viengxay and Xiengkhor Districts, Houaphanh Province:

- CU5 Growth monitoring (GM)
- Antenatal care (ANC)
- Vaccination
- Family planning (FP)
- Demographic information (population/birth/death)
- Postnatal care (PNC)
- Deworming
- Vitamin and micro-nutrient supplementation: Vit A and Iron/folic acid

According to the interviewed community leaders in the four villages in the two districts of Viengxay and Xiengkhor in Houaphanh Province, the communities find that the nutrition situation in the villages and for CU5 is moderate to good. However, the villages are experiencing malnutrition among children due to food shortage, poverty, and poor childcare.

Example from Houaphanh

All pregnant women interviewed are satisfied with the nutrition services provided by the health centre staff, where they get advice and learn from health staff, e.g., demonstrations on how to take care of children, family planning, and preparing nutritious and diverse food, hygiene, and sanitation. This has also resulted in changed practices in villages due to improved knowledge of nutrition and health. (Pregnant women interviewed)

Every month health centre staff visit the villages and deliver nutrition services and education on food taboos and practices. In addition, they sometimes follow up on high-risk groups like malnourished children in the villages. Attendance of IOS is considered high in three of the four villages.

Two of the villages receive full provision of services at the community level, including growth monitoring of CU5, immunization, ANC, PNC, family planning, vitamin A, iron-acid folic, deworming, food supplement and health education and counselling. The preferred source of health/nutrition services is at the health centres, which are closest to the villages. None of the villages has growth monitoring equipment for CU5 - weighing scale and height measurement scale - in the villages, the equipment is brought by the health centre staff where they carry out IOS.

According to the community leaders interviewed in the four villages in Viengxay and Xiengkhor Districts, three of the villages have health education posters; all materials are available in the Lao language. These include child growth monitoring, nutrition monitoring, charting newborn children until five years of age, integrated nutrition services at the village level, healthy and intelligent children due to healthy family and food flags showing a proper dietary intake. In addition, three villages – Bao Village, Phounkang Village and Hub Village- are participating in the SNV ENUFF project, which focuses on nutrition. In the villages, there are a lot of educational materials related to nutrition activities provided by the ENUFF project. It was found that people interviewed in these villages had higher knowledge of nutrition practices compared to villagers in the fourth village visited in Houaphanh Province.

FACTORS HINDERING THE DELIVERY OF NUTRITION SERVICES IN HOUAPHANH PROVINCE

Staff at the health centres report that IOS is carried out at different frequencies in the villages – with monthly IOS and comprehensive IOS conducted quarterly. For example, the health staff at Natong Health Centre in Xiengkhor District are responsible for all five villages carrying out comprehensive IOS. Still, more attention is paid to two villages under the Model Healthy Village and Open Defecation Free Village scheme. This is because these villages have a high number of low-income families.

At the health centres, they do have weighing scales and height measurement boards, but three of the health centres mentioned these aren't enough, as they only have one weighing scale for mobile IOS and the scales are broken at one of the health centres.

Insufficient budget allocation is seen as a barrier to delivering nutrition services at the community level. For example, health centres do not have sufficient funds to carry out comprehensive IOS, which results in some villages not being visited.

The health centre staff's level of knowledge and training concerning nutrition could be higher. For example, the answer was no when asked if they were adequately trained to provide nutrition services. Furthermore, not all staff have received proper training, although they give comprehensive health services to the communities. Furthermore, some of the staff have not been trained recently, and some of the staff have only had a one-day training which covered childcare, health education on PNC, malnutrition, ANC, 1000-day window and growth monitoring of children under five years of age.

Another factor the provincial health staff mentioned is language barriers, and the staff must use an interpreter to translate messages when visiting the villages. However, it was noted that there had been a lot of improvement, and people are increasingly seeking assistance from the health centres.

FACTORS HINDERING DEMAND FOR NUTRITION SERVICES IN HOUAPHANH PROVINCE

It was found in the interviews that some families, especially young couples, do not participate in IOS events. The reasons given are due to poverty and shyness. This also relates to early marriages in two villages, with women getting married and having their first pregnancy at 15-17 years old. In Phounkang Village and Hub Village, women are getting married and having their first pregnancy at the age of 25–28 years which is considered too old to get married and pregnant.

Example from Houaphanh

Mothers and children have become healthier due to the advice from health staff on nutrition, food groups and consumption of various foods. Also, the fact that IOS is carried out in the villages is an advantage, as people do not have to travel or spend money on transportation. (Villagers interviewed).

None of the villages have growth monitoring equipment for CU5 - weighing scale and height measurement scale - within the village. Instead, the equipment is brought by the health centre staff, where they carry out community IOS. Usually, the attendance of IOS is high in the villages, but during the rainy season, attendance is lower, as families stay in their rice fields preparing for the cultivation of rice. Also, if the health centre gives short notice, people are often unavailable, and participation is low.

Pregnant women interviewed practice food taboos after delivery in three of the four villages visited in Houaphanh Province. The restrictions include no consumption of common carp (fish), reddish meat (such as pork, beef, or white buffalo meat), pumpkin leaves, uncooked food, fermented fish, pickled food, or bamboo shoots. These food items are not consumed as women are afraid of getting sick from them. They will then resume eating these particular food items six months after delivery. Due to traditions and beliefs, some villagers are not using the health centres or seek advice on nutrition and health aspects; instead, they use traditional practices.

The provincial health staff mentioned that mothers' low level of education led to limited knowledge and understanding of nutrition and food practices and was a reason why villagers were not seeking advice from the health centre staff.

EXAMPLES OF BEHAVIOUR CHANGES

In the communities, the social behaviour has changed concerning nutrition, and they are experiencing a significant improvement due to better knowledge and understanding of health, utilization of health services during ANC, delivery, improved eating habits such as eating cooked food, not practising food taboos during pregnancy, preparation of rice porridge, and improved hygiene. This has resulted in reduced child mortality, and the communities are experiencing fewer child mortality cases. The villagers are advised on healthcare, hygiene and sanitation, nutrition (cooking rice

porridge), and vegetable growing. There is awareness raising via community loudspeakers and village meetings on various topics related to health and nutrition. Three of the four villages visited are participating in the SNV - ENUFF project,[84] which focuses on nutrition and social behaviour changes by implementing various activities to increase the knowledge of nutrition and food practices. There is a clear difference in their level of knowledge regarding health and nutrition and their participation in IOS and using nutrition services compared to the people interviewed in the fourth village. The communities have experienced notifiable improvements in mother and children's health due to community IOS and improved knowledge and understanding of health and nutrition.

3.1.3 FINDINGS FROM PHONGSALY PROVINCE

The following is the health and nutrition profile of Phongsaly Province and the findings from the data collection and interviews conducted at the provincial, district, and community levels.

Table 5: Profile of Phongsaly Province

Indicator	LSIS 2 (2017)	Annual Report of Provincial Health Department 2021
Underweight of CU5		10%
Stunting of CU5		13%
Wasting of CU5		16.5%
Infant mortality (per 1,000 live birth)		7/1,000 live birth
Under-five mortality (per 1,000 live birth)		37/1,000 live birth
Maternal mortality ratio (per 100,000 live birth)		149/100,000 live birth
Diarrhoea in CU5		11%
Anaemia in CU5	58.3%	
Anaemia in women of reproductive age (WRA)	42.1%	
Exclusive breastfeeding	49.3%	
Bottle-feeding	20.5%	
Minimum acceptable diet (6-23 months)	28%	
Received Vitamin A (children 6-59 months)	29.2%	39%
Received Vitamin A (children 6-11 years old)		30%
Received deworming 12-59 months old		49.1%
Iron/folic Acid Supplementation for pregnant women		100%
Low birth weight (<2500g)	7.7%	
Delivery by SBA (skilled birth attendant)	56 %	
Infant Immunization rate		26.9%
Access to WASH		84%
Access to latrine		61%
Health Insurance Coverage	11.7 %	100%
Model Healthy Village		

84 SNV, 2017. The Enhancing Nutrition of Upland Farming Families (ENUFF) project is a multi-sectoral nutrition programme supported by the Swiss Agencyfor Development and Cooperation (SDC) and implemented by SNV with support from Agrisud International. Together with Government partners, ENUFF combines nutrition-sensitive agriculture, gender, SBCC and water, sanitation and hygiene (WASH) in one programme to improve family nutrition in remote and ethnically diverse upland farming communities. The aim of the project is to improve family nutrition in remote and ethnically diverse upland farming communities through nutrition-sensitive agriculture production, sustainable management of natural resources and enhancement of good practices in health and hygiene.

ACCESS TO NUTRITION SERVICES IN PHONGSALY PROVINCE

Staff at health centres in Phongsaly Province is raising awareness of nutrition services through implementing activities in villages, which village health committees monitor. Activities include providing advice through counselling and using posters, pictures, and communication materials when conducting IOS in villages.

According to the health centre staff, SBCC activities include exclusive breastfeeding, vaccination, ANC and PNC, birth delivery at service points, complementary supplementation, hygiene, and sanitation. In the villages, they have educational materials related to food supplementation for pregnant women and breastfeeding, nutrition, food preparation and growth monitoring. The health centres have limited education materials available in the Lao language on ANC, PNC, vaccination, child growth monitoring, early breastfeeding, nutrition, clean water, and hygiene.

Based on the interviews conducted at the community level, the knowledge of nutrition is poor to moderate for the interviewed women and community leaders in the four villages. Lactating women interviewed in the four villages in Samphanh and Boontai Districts in Phongsaly Province have all received ANC 3-6 times at the health centre during their latest pregnancy. All women had given birth at the health centre with the assistance of a midwife. All lactating women are breastfeeding and start breastfeeding within 24 hours of delivery and exclusively breastfeed until the child is six months old. When the children were 6-7 months of age, complementary foods were introduced.

All the women were satisfied with the IOS and found it convenient as they are carried out in the villages. The women used the health and nutrition services and gained increased nutrition knowledge. During IOS, the health centre staff provided micronutrient supplementation to children, pregnant women, and lactating women.

The villagers have access to the following integrated outreach services:

- Growth monitoring of CU5
- Immunization
- Antenatal care (ANC)
- Postnatal care (PNC)
- Family planning
- Vitamin A
- Iron-Acid folic
- Deworming
- Food supplement
- Wash and Sanitation
- Health education
- Counselling
- Demographic information/birth/death
- Home visits (Following up of high risk)
- Referral cases

Once a month, a cooking demonstration was organized by village health facilitators. Participants are taught how to prepare nutritious foods using rice, vegetable oil, salt, meat, and vegetables. The food supplementation training is supported by the agriculture for nutrition project (IFAD and WFP), HANSA project (WB) and a government project.

The women interviewed indicated that they could access nutrition services regularly. The women said they received good advice, services, and valuable nutrition information from the health staff. They have also learnt about nutrition during pregnancy and after delivery from sessions at school, with health centre staff, and in the community. This includes not practising food taboos during pregnancy and after delivery. The women have also learnt about eating nutritious foods such as fruits, meat, and vegetables - both for the mother and the child.

Staff at the health centres find that most people in the four villages cooperate and actively participate in IOS. There is equipment in each of the villages, which makes it comfortable to carry out IOS, as there is no need to carry equipment from the health centres to the villages.

FACTORS HINDERING THE DELIVERY OF NUTRITION SERVICES IN PHONGSALY PROVINCE

Despite cooperation by villagers, health centre staff find that the community ownership is not strong enough and uptake of nutrition services is low. Additionally, language barriers make it challenging to communicate with some villagers, as the health centre staff do not speak the local ethnic language.

Health centre staff find it challenging to carry out IOS, some villages are hard to reach due to the road conditions and distance to the villages, and roads can only be accessed during the dry season. As a result, IOS cannot be carried out as planned, and monitoring is not systematic. It was also found that lack of vehicles and limited budget affect the implementation of IOS. In some instances, the medicine supply at health centres is inadequate and, in some periods, not available.

Health centre staff find it difficult working in some villages, e.g., the facility where the IOS is carried out is small, weighing scales and height measurement are not working properly, making it difficult for staff to carry out their work. It was also mentioned that staff do not carry out the measures correctly, which clearly impacts the data recorded for children and women, giving a wrong picture of the situation.

There is limited staff at the health centres, and often one person is responsible for many tasks. In addition, staff face obstacles when reporting to DHO and other stakeholders, as many nutrition projects require data entry, but currently, there is only one computer at the health centre, which delays reporting.

FACTORS HINDERING DEMAND FOR NUTRITION SERVICES IN PHONGSALY PROVINCE

In two out of four villages, women mentioned the practice of traditional beliefs and food taboos. They do not practice food restrictions during pregnancy, but after delivery, if the mother is weak, some food restrictions will be practised, such as not consuming food with strong smells or animal products. Women interviewed in Nanam village do not practice food taboos, as they were concerned that the mother and child will be malnourished.

Most women benefitted from SBCC, focusing on nutrition, pregnant women, lactating mothers, children under five years old, and how to take care of their health. The main sources of information were from health centre staff, village facilitators, village leaders and staff of various nutrition projects.

3.1.4 FINDINGS FROM SARAVANE PROVINCE

The following is the health and nutrition profile of Saravane Province and the findings from the data collection and interviews conducted at the provincial, district, and community levels.

Table 6: Profile of Saravane Province

Indicator	LSIS 2 (2017)	Annual Report of Provincial Health Department 2021
Underweight of CU5		9.3%
Stunting of CU5		12.7%
Wasting of CU5		9.9%
Infant mortality (per 1,000 live birth)		21/1,000 live birth
Under-five mortality (per 1,000 live birth)		23/1,000 live birth
Maternal mortality ratio (per 100,000 live birth)		47/100,000 live birth
Diarrhoea in CU5		23.7%
Anaemia in CU5	49.8%	
Anaemia in women of reproductive age (WRA)	50.2%	
Exclusive breastfeeding	63.9%	
Bottle-feeding	25.0%	
Minimum acceptable diet (6-23 months)	21.4%	
Received Vitamin A (children 6-59 months) - 6-11 months old - 12-59 months old	32%	 79.5% 91.5%
Received Vitamin A (children 6-11 years old)		
Received deworming 12-59 months old		91.5%
Iron/folic Acid Supplementation for pregnant women		
Low birth weight (<2500g)	11.7%	
Delivery by SBA (skilled birth attendant)	80%	81%
Infant Immunization rate		85.5%
Access to WASH		92.9%
Access to latrine		65%
Health Insurance Coverage	5.5%	100%
Model Healthy Village		59.8%

ACCESS TO NUTRITION SERVICES IN SARAVANE PROVINCE

According to the interviewed community leaders in the four villages in the two districts of Ta Oy and Toomlarn in Saravane Province, the nutrition situation in the villages is poor to moderate by the community leaders. The villages are experiencing malnutrition among children due to food shortage, poverty, inadequate childcare, limited food consumption, and limited consumption of diverse foods.

All villages interviewed in Saravane Province can receive the service provision as listed below:

- Growth monitoring of CU5
- Immunization
- Antenatal care (ANC)
- Postnatal care (PNC)
- Family planning
- Vitamin A
- Iron-Acid folic
- Deworming
- Food supplement
- Health education
- Counselling
- Demographic information/birth/death

- Home visits (Following up of high risk)
- Referral cases

The preferred source of health/nutrition services is at the health centres, which are located close to the villages. None of the villages have growth monitoring equipment for CU5 - weighing scale and height measurement scale - in the villages, the equipment is brought by the health centre staff when they visit the communities to carry out IOS due to proximity. Comprehensive IOS is carried out quarterly.

In the four villages visited, health education materials on breastfeeding, COVID-19 - stress management, the relationship between nutrition and hygiene in children with chronic malnutrition, prevention, and protection from infectious skin diseases from cattle to buffalo and steps of health check-ups/examination were available and in the Lao language. In addition, at the health centres, there were education materials on growth monitoring, the 1000-day window and IYCF – all the materials are available in the Lao language only. The interviewed pregnant women in Saravane Province found that the availability of staff at the health centre is good and good advice is given concerning healthcare and good nutrition for both mother and children. It also helps that the health centre staff were indigenes and could speak the local language.

Women interviewed stated that they access health and nutrition services at the health centre as it is convenient and different services are provided, e.g., family planning, nutrition advice, IYCF, personal hygiene and handwashing. They highlighted the importance of delivery at the health facility where staff are available to assist.

In Saravane Province, pregnant and lactating women were aware of SBCC activities, which the health centre staff has introduced. The focus has been on healthy and hygienic food, family planning, handwashing, agricultural production, and home gardening to supply food diversity. The women also seek information on nutrition from health centre staff during IOS, from television, posters, and leaflets on proper nutrition for the health of mothers and children, food groups, and hygiene.

Health staff at the health centres conduct various SBCC activities awareness regarding health education sessions. These include encouraging pregnant women to use and attend ANC at the health facility, promoting exclusive breastfeeding in the first six months, effects of early infant feeding, not practising food taboos, nutrition advice and cooking demonstrations. However, staff at one health centre interviewed were not aware of any SBCC strategy.

When community leaders were asked about the advantages of nutrition service provision, the following aspects were mentioned: The people living in the communities want to participate and collaborate with the health centre staff and improve their situation and gain more knowledge. The health facility is nearby, and health staff is available. Through the nutrition service provision and access to community IOS and advice given by the health centre staff, it is found that the community has gained better knowledge and understanding of health and nutrition, and some improvements have been made in the communities.

FACTORS HINDERING THE DELIVERY OF NUTRITION SERVICES IN SARAVANE PROVINCE

Staff at the health centres noted that it could be challenging to conduct IOS and comprehensive IOS in the villages, as people were unavailable when health staff came to the villages. Some people were always away working in the fields, particularly during the rainy season though they were notified in advance by the health centre. At the same time, health centre staff are experiencing various difficulties when they carry out IOS. These include limited budget, limited staff and rotation of staff, lack of materials, medical supplies and equipment and some villages are located far away with limited access. According to the health centre staff, most communities use the health centres, but those living in remote areas do not want to travel to the health centre for nutrition services or to give birth. Women will instead deliver at home with the assistance of a traditional birth attendant. Women will not travel due to bad road conditions, lack of transportation and limited financial resources.

Health centre staff would like to receive more training, as they are only generally trained on malnutrition, such as malnutrition assessments - calculation of underweight, wasting, stunting, Mid-Upper Arm Circumference (MUAC) and infant severe acute malnutrition (ISAM). Despite these limitations, the staff are dedicated, well-performing, complete their tasks, and support each other when carrying out IOS and vaccination schemes.

FACTORS HINDERING DEMAND FOR NUTRITION SERVICES IN SARAVANE PROVINCE

Several factors hinder the demand for nutrition services in the communities. These include people living far away with limited access to transportation. Some do not also prioritize their health due to limited knowledge of nutrition services and why participation in these activities is important. It was found that there is low participation of adults/parents in cooking events and inadequate collaboration with parents, which leads to poor knowledge and information.

It was found that pregnant women were not accessing nutrition services and receiving ANC for different reasons, including being shy and afraid of receiving ANC from the health centre staff, cost of treatment and medicine, and distance to health facilities. Also, there is limited accessibility during the rainy season. So instead, they follow traditional practices during pregnancy and after delivery.

The pregnant and lactating women in Saravane Province who have been interviewed are not practising food restrictions and taboos during pregnancy. After delivery, however, the women will practice food restrictions such as avoiding eating spicy and sour food items, beef, buffalo, pork, or raw food. Food allowed is chicken porridge, fish, and banana flowers.

Another reason communities are not using the health centre facility is because of limited staff, and staff are not adequately trained and could not provide proper advice.

In Saravane Province, three-quarters of the interviewed pregnant women have participated in nutrition education as part of the school lunch program and cooking lessons, where they learnt about cooking and awareness raising on nutritious food and the importance of consuming nutritious food during pregnancy and after delivery. Some of the interviewed women have changed their practices due to improved nutrition knowledge, whereas some women are aware of a proper diet. Still, they must eat what is available, which is not always the most nutritious food, especially during pregnancy. As mentioned by the Ta oi DHO, the living conditions in remote areas remain poor and limited. The concern is the availability and sufficiency of food, rather than concern about nutritious food. The most impoverished families are experiencing a shortage of food, and they only have adequate food for two months of the year.

EXAMPLES OF BEHAVIOUR CHANGES

In the four villages interviewed in Saravane Province, various SBCC activities are carried out at the community level, including advice on hygiene, nutrition and eating habits, health check-ups, health-seeking behaviour, ANC, vaccination, growth monitoring and deworming, advice on family planning, advice on iron supplementation for women above 12 years of age to prevent anaemia and advice on child malnutrition. However, it was also mentioned that people are only introduced to nutrition theory, but there are no practices/demonstrations.

Some aspects of social behaviour have changed in relation to nutrition knowledge such as during pregnancy, there is less practice of food taboos and women have improved their eating habits, women are reducing the workload and limiting hard work, women are consuming cooked food and use clean drinking water, and they are seeking assistance from the health centre staff.

According to Saravane Provincial Planning and Investment Department (PPI), they can see a lot of improvements after SBCC implementation and awareness-raising interventions. People in rural and remote areas have a better understanding of nutrition, particularly on basic health care, consumption of nutritious food, access to health services, education, and awareness of agriculture production for nutrition. However, as noted by staff at the PAFO, the implementation of nutrition programmes takes time. It also requires a change in practices and behaviour through awareness-raising activities and practices for people to gain knowledge of nutrition, eating habits, food diversity and consumption of good quality and nutritious food.

3.2 OPPORTUNITIES TO IMPROVE THE NUTRITION SITUATION

The table below the types of nutrition services available and provided by health centres in the eight districts visited for data collection.

Table 7: Types of nutrition services in selected districts in four selected provinces

Type of nutrition services provided in the selected districts by province	Phongsaly	Bokeo	Houaphanh	Saravane
Demographic information (population/birth/death)	✓	✓	✓	✓
Antenatal care (ANC)	✓	✓	✓	✓
Postnatal care (PNC)	✓	✓	✓	✓
Family planning (FP)	✓	✓	✓	✓
Immunization	✓	✓	✓	✓
Vitamin and micro-nutrient supplementation: Vit A and Iron/folic acid	✓	✓	✓	✓
Deworming	✓	✓	✓	✓
Growth monitoring of CU5	✓	✓	✓	✓
Health education	✓	✓	✓	✓
Counselling	✓			✓
Home visits (Following up of high risk)	✓	✓		✓
WASH and Sanitation	✓			✓
Food supplementation	✓			✓
Referral cases	✓	✓	✓	✓

The eight health centres provide the same services apart from Bokeo and Houaphanh Provinces with 3 – 4 activities that are not provided. As presented above, various factors hinder nutrition services supply and nutrition services demand in the four provinces selected for this assessment. Many factors are similar and can be applied to other provinces in Lao PDR.

Different suggestions and inputs were provided by the interviewed people at the provincial, district, and community levels to address these factors and improve the nutrition situation.

In Bokeo Province, the respondents see various ways to improve nutrition. Community leaders highlighted the need to improve the health centres and allocate more staff to the health centres. Women and community leaders interviewed also expressed a need for more training of health centre staff to improve their knowledge and skills, which will put them in a better position to provide the best assistance and advice to the communities.

There is a need for more nutrition education in the four villages through awareness-raising activities and demonstrations on food consumption during pregnancy and after delivery, how to feed an infant and the introduction of complementary food. A suggestion was made to provide budgets for implementing nutrition activities in remote and rural areas.

Another suggestion is to carry out more SBCC activities in the villages and to make more use of visual SBCC activities on nutrition, IOS etc., such as short movies and posters, as some people living in the area do not understand the Lao language. Instead, they will be able to watch videos and visually understand the content and this way, the nutrition situation can also be improved.

In Houaphanh Province, women interviewed would also like more health staff allocated to the health centres and more visits to the villages. It is also suggested to situate health centres in the villages to ease access to the health centres.

At the health centres, a recommendation was made to have more staff appointed and staff skills improved through more education and training on nutrition to be better qualified for their tasks and the nutrition advice they provide. In addition, to provide better nutrition services to communities, health centres recommended that in the future, both PHO and DHO should ensure that health facilities are equipped with the required items such as weighing scales, height measurement boards and education materials for enhanced service delivery.

It was recommended to enhance awareness campaigns and to have health and nutrition education materials in the communities on childcare, exclusive breastfeeding, nutritious food consumption, and a focus on nutrition during the first 1,000 days, with a specific focus aimed at ethnic groups and practices. In addition, in the communities, they would like more regular cooking demonstrations and learn more about nutrition and nutritious food.

To improve the nutrition services supply in Phongsaly Province, it was recommended to provide more nutrition education materials to all the villages, especially to mothers and children.

For the health staff to be able to report and monitor children every month, computers and related equipment should be procured to support data entry since various nutrition projects implemented in the districts require the input of data and DHIS2 data entry. Currently, there is only one computer at the health centre, which makes it difficult to report on time.

Funds are insufficient to implement nutrition interventions and to carry out IOS monthly and comprehensive IOS every third month. Therefore, more funds should be allocated to carry out proper monitoring and supervision in communities.

In Saravane Province, the nutrition situation can be improved by increasing the access to nutrition services at the community level, having frequent support from government staff through more village visits by health centre staff, and more support in awareness-raising activities more training on nutrition. In Donexath Village, Toomlarn District in Saravane Province, the community leaders suggest having a closer health centre, as the accessibility is difficult during the rainy season. The pregnant women interviewed in Saravane Province recommend allocating more health staff and improving access to the health centre during the rainy season.

There is a need to improve the human resources in different sectors working with nutrition interventions. For example, health centre staff need to receive more training and refresher training to strengthen the capacity and expertise at the health centres. This also includes having more staff at the health centres.

In the eight visited health centres, the health/nutrition seeking behaviour – SBCC activities carried out include:

- Information sharing and counselling mothers on childcare
- Exclusive breastfeeding
- Diarrhoea
- Vaccination
- Malaria
- WASH
- COVID-19
- Immunization activities
- ANC, PNC, safe delivery, and nutrition
- Inform and educate mothers and women of reproductive age on family planning.

4. CONCLUSION AND RECOMMENDATIONS

4.1 CONCLUSION

Findings from the literature review and the field visits to Bokeo, Houaphanh, Phongsaly and Saravane Provinces are to a great extent similar and reinforce each other. The conclusion and recommendations will therefore be a combination of the findings in the four provinces.

The assessment found that there is a need to invest in human resources and improve nutrition knowledge to provide proper nutrition education and counselling at the community level. The Lao education system does not offer a specific education degree in nutrition, and only limited courses are offered. This directly impacts the staff's capacity to deliver nutrition services; they mostly learn on the job. Often health staff at the district and health centre level do not have specific training in nutrition. Due to this limitation, health staff cannot provide appropriate advice and recommendations about nutrition and growth promotion, which is needed at the community level.

Financing of the nutrition sector in Lao PDR has been challenged for a long time by the low level of investment. Since 2011 there has been a significant increase in the government budget on health - rising from 11 USD per capita in 2011 to 71 USD per capita in 2019, or approximately 2.8% of GDP (2018) is spent per capita.[85] However, the Lao health sector is still highly underfunded, with high reliance on financial support from development partners and development projects focusing on nutrition interventions in key sectors. Limited financial resources exist at all levels, from national to community level. As mentioned by health centre staff, a factor hindering the delivery of nutrition services is limited resources to cover transportation costs and daily living allowances when conducting monthly or quarterly visits to remote communities. As a result, health staff are limited in providing nutrition commodities in communities.

The literature review and field visit found that non-Lao-Tai ethnic groups often do not benefit as much from nutrition education/counselling due to linguistic barriers, as most health staff speak the Lao language, but they often do not speak the ethnic languages in the community. Many women in remote areas do not understand the Lao language and will therefore miss nutrition education and other information provided by health centre staff. Some women in the communities find it unnecessary to attend ANC or to give birth at a clinic if the woman feels healthy and has not experienced any discomfort during pregnancy. Some women also find it embarrassing to attend ANC services.

A factor hindering nutrition services demand is that women are not seeking nutrition advice and counselling due to limited nutrition knowledge of why and how nutrition services can help them and their children. It is clear from the interviews conducted at the community level that women who have participated in different development project activities with a focus on nutrition have improved their knowledge of food practices and eating habits during and after pregnancy and reduced practice of food taboos. Evidence shows that mothers who have received child nutrition education and advice are significantly more likely to apply this newly gained knowledge, e.g., to stop practising food taboos during or after delivery.

Summing up, the following factors hindering the delivery of nutrition services have been identified:

- Inadequate competency of health staff in providing nutrition services at all levels.
- Limited staff at health centres and frequent rotation of staff.
- Limited financial resources for the provision of nutrition services, including transportation costs.
- Limited access to remote rural areas without road access – some only having seasonal accessibility.
- Limited provision of supplies and nutrition commodities, including unstandardized and inconsistent IOS, insufficient medical supplies and food supplements, and insufficiency of growth monitoring tools.

85 World Bank, 2020a

- Language barriers - health centre staff do not speak the local dialect.
- Insufficient nutrition education and awareness-raising activities in communities.
- Unavailability of communities due to workload in the fields.

Looking at the demand side, the following factors hindering demand for nutrition services in communities have been identified:

- Limited education and lack of nutrition knowledge in the communities.
- Ethno-linguistic barriers – some communities do not understand the Lao language.
- The tradition of early marriage and early pregnancy.
- The practice of food taboos and food restrictions during and after pregnancy.
- The workload in fields.
- Poverty.

4.2 RECOMMENDATIONS

Based on the findings in the literature review, key informant interviews, and focus group discussions in Bokeo, Houaphanh, Phongsaly and Saravane Provinces, the assessment suggests the following recommendations to address determinants of malnutrition and the factors hindering nutrition services supply and demand for nutrition services at the community level:

- **Recommendation 1: Investments in human resources.** There is a great need to invest in human resources to improve the nutritional situation in Lao PDR. There is a need to strengthen the skills and confidence among health staff in providing nutrition and growth promotion counselling. The capacity of trainers should be strengthened - both at central and sub-national levels - to roll out nutrition counselling training at all levels with regular supervision and monitoring of health staff and counselling skills.

- **Recommendation 2: Investment in health centre staff to improve knowledge and skills.** More staff should be allocated to health centres to provide the best assistance and nutrition advice to all communities in the catchment area. Staff should also reflect on the ethnicity of the catchment area and be able to speak the local dialect, and reduce language barriers with ethnic minorities living in the area.

- **Recommendation 3: Increase financial resources.** A sufficient budget must be provided for nutrition services supply to meet the minimum requirement in remote rural areas. This way, health centre staff can reach and provide nutrition services to communities far from the health centre. In addition, allocating a sufficient budget will make it possible for staff to provide nutrition counselling (e.g., cooking classes and awareness-raising activities on nutritious food for women, caretakers, etc.) and stay longer in villages.

- **Recommendation 4: Awareness-raising campaigns and the use of communication channels to improve knowledge of nutrition.** Campaigns should target mothers and other caretakers in the household directly with a focus on appropriate feeding practices for infants and young children. In addition, more focus should be put on awareness-raising campaigns specifically targeting adolescent girls to prevent early marriage and early pregnancy, as evidence shows that early pregnancy increases the risks of children being stunted.

- **Recommendation 5: There is a need to develop more nutrition education at the community level** through awareness-raising activities and educate families on the importance of the first 1000-day window of opportunity and what the family can do to provide appropriate feeding and care practices for infants and young children, as well as for pregnant and lactating mothers. Nutrition education on nutritious food and diverse food consumption should focus on food available in the local area, such as non-timber forest products harvested sustainably.

- **Recommendation 6: To carry out more SBCC activities in the villages through visual SBCC activities on nutrition, IOS, ANC and PNC etc.** This will contribute to improved knowledge and understanding of nutrition. In addition, it is recommended to focus on developing and translating communication materials to local dialects and using visual tools to reach ethnic communities when they do not understand the Lao language or are illiterate.

- **Recommendation 7: Routine monitoring system to be further strengthened.** Computerized and user-friendly routine monitoring systems should be made available for the health centre staff to collect, analyse, and produce good-quality data and evidence regularly to track progress as well as to support the requirements of the national health information system.

- **Recommendation 8: Utilizing multi-sectoral approaches in the implementation of nutrition activities.** It is recommended to collaborate better with stakeholders involved in nutrition activities and not only for the health sector to implement SBCC and awareness-raising activities. Instead, collaboration with the other key sectors can help to strengthen the link to the other sectors, e.g., between nutrition and agriculture or nutrition and education.

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ANNEXE 1 – LIST OF PARTICIPANTS

a. KIIs for the Planning and Investment Sector at the provincial and district Levels

Province	District	Location	Name_English	Gender	Position
Phongsaly		Phongsaly PPI	Mr. Thanva Malaysin	M	Deputy Director of Phongsaly PPI
	Boontai	Boontai DPI	Ms. Khampieng Thongphoud	F	Chief of Boontai DPI
	Samphanh	Samphanh DPI	Mr. Bounpheng Yordvongsa	M	Chief of Samphanh DPI
Bokeo		Bokeo PPI	Mr. Sisouk Khounvithong	M	Deputy Director of Bokeo PPI
	Parktha	Parktha DPI	Mr. Bounmy Chanthavong	M	Chief of Parktha DPI
	Pha Oudom	Pha Oudom DPI	Mr. Bounthone	M	Chief of Pha Oudom DPI
Houaphanh		Houaphanh PPI	Mr. Kongthong Khamvongxay	M	Chief of International Cooperation Section, Houaphanh PPI
	Viengxay	Viengxay DPI	Mr. Vongxay Khamphengmixay	M	Head of Viengxay DPI
	Xiengkhor	Xiengkhor DPI	Ms. Nouanthong Phomvikhiene	F	Deputy Head of Xiengkhor DPI
Saravane		Saravane PPI	Mr. Khamphone Manivansengsouk	M	Deputy Director of Saravane PPI
	Ta oi	Ta oi DPI	Mr. Chanthy Sihathep	M	Head of Ta oi DPI
	Toomlarn	Toomlarn DPI	Mr. Somneuk Keobounmy	M	Head of Toomlarn DPI

b. KIIs for the Agriculture and Forestry Sector at the provincial and district Levels

Province	District	Location	Name_English	Gender	Position
Phongsaly		Phongsaly PAFO	Mr. Visan Vongnakhone	M	Deputy Director of PAFO
	Boontai	Boontai DAFO	Mr. Phongsavath Chittavong	M	Chief of Unit, Boontai DAFO
	Samphanh	Samphanh DAFO	Mr. Sisanga Tunpadith	M	Deputy Head of Samphanh DAFO
Bokeo		Bokeo PAFO	Mr. Sibounheaung Phanthoulack	M	Director of Bokeo PAFO
	Parktha	Parktha DAFO	Ms. Thipphachan Chanthalath	F	Deputy Chief of Parktha DAFO
	Pha Oudom	Pha Oudom DAFO	Mr. Siphaeng Pheunsavanh	M	Deputy Chief of Pha Oudom DAFO
Houaphanh		Houaphanh PAFO	Mr. Bounphone Bounphachanh	M	Chief of Planning and Finance Section
	Viengxay	Viengxay DAFO	Mr. Somxay Phommachanh	M	Deputy Head of Viengxay DAFO
	Xiengkhor	Xiengkhor DAFO	Ms. Anong Phengmixay	F	Deputy Head of Xiengkhor DAFO
Saravane		Saravane PAFO	Ms. Khamphiene Phanthabouly	F	Deputy Director of Saravane PAFO
	Ta oi	Ta oi DAFO	Mr. Kayalath Latsaboud	M	Deputy Head of Ta oi DAFO
	Toomlarn	Toomlarn DAFO	Mr. Keo-oudone Phouangpanya	M	Deputy Head of Toomlarn DAFO

c. KIIs for the Education and Sports Sector at the provincial and district Levels

Province	District	Location	Name_English	Gender	Position
Phongsaly		Phongsaly PESS	Mr. Phonexay Larchanphet	M	Deputy Director of Phongsaly PESS
	Boontai	Boontai DEO	Mr. Xiengphone	M	Deputy Chief of Boontai DEO
	Samphanh	Samphanh DEO	Mr. Air Yinthavong	M	Deputy Chief of Samphanh DEO
Bokeo		Bokeo PESS	Mr. Somxay Sasavath	M	Deputy Director of Bokeo PESS
	Parktha	Parktha DEO	Mr. Khamin Sonesavanh	M	Deputy Chief of Parktha DEO
	Pha Oudom	Pha Oudom DEO	Mr. Sisouphanh Ounpathoum	M	Deputy Chief of Pha Oudom DEO
Houaphanh		Houaphanh PESS	Mr. Monesing Phetviengsy	M	Deputy Director of Houaphanh PESS
	Viengxay	Viengxay DEO	Mr. Phoukham Inthavong	M	Head of Viengxay DEO
	Xiengkhor	Xiengkhor DEO	Mr. Maithone Bounmai	M	Acting Head of Xiengkhor DEO
Saravane		Saravane PESS	Mr. Khampheuang Inthisone	M	Deputy Director of Saravane PESS
	Ta oi	Ta oi DEO	Ms. Thongsay Keovilaysak	F	Deputy Head of Ta oi DEO
	Toomlarn	Toomlarn DEO	Mr. Boualy Lalouangkeo	M	Deputy Head of Toomlarn DEO

d. KIIs for the Health Sector at the provincial and district Levels

Province	District	Location	Name_English	Gender	Position
Phongsaly		Phongsaly PHO	Mr. Phonexay Toulaphan	M	Deputy Director of Phongsaly PHO
	Boontai	Boontai DHO	Mr. Somlith Xayachit	M	Deputy Chief of Boontai DHO
	Samphanh	Samphanh DHO	Mr. Khamla Kosada	M	Deputy Chief of Samphanh DHO
Bokeo		Bokeo PHO	Dr. Souphen Panyada	M	Deputy Director of Bokeo PHO
	Parktha	Parktha DHO	Ms. Manisalin Chandipith	F	Deputy Chief Parktha DHO
	Pha Oudom	Pha Oudom DHO	Mr. Songkeo Silipanya	M	Deputy Chief Pha Oudom DHO
Houaphanh		Houaphanh PHO	Dr. Vilaphone Phomvongsy	M	Director of Houaphanh PHO
	Viengxay	Viengxay DHO	Dr. Thatsaphone Thevamid	M	Head of Viengxay DHO
	Xiengkhor	Xiengkhor DHO	Mr. Siphone Savanthong	M	Deputy Head of Xiengkhor DHO
Saravane		Saravane PHO	Mr. Khamkhay Khamsingsavath	M	Deputy Director of Saravane PHO
	Ta oi	Ta oi DHO	Ms. Vilaphanh Keomek	F	Head of Ta oi DHO
	Toomlarn	Toomlarn DHO	Mr. Souksavanh Chanthamoui	M	Head of Toomlarn DHO

e. FGDs for the Health Sector at the provincial and district Levels

Province	District	Location	Name_English	Gender	Position
Phongsaly		Phongsaly PHO	Dr. Phonexai Toulaphan	M	Deputy Director of Phongsaly POH
	Boontai	Boontai DHO	Ms. Visavanh	F	Technical staff
	Samphanh	Samphanh DHO	Mr. Khamla Kosada	M	Deputy Head of Samphanh DOH
			Ms. Many	F	Technical staff
			Ms. Siphone	F	Technical staff
Bokeo		Bokeo PHO	Ms. Veophet	F	Deputy Chief of Section, Bokeo PHO
			Ms. Phouangphet	F	Technical staff
			Mr. Somsouk Sithong	M	Technical staff
			Mr. Somxay Yodchanya	M	Technical staff
			Ms. Buachanh Vixaiphanh	F	Technical staff
	Parktha	Parktha DHO	Mr. Keo Ayaevisai	M	Head of Unit, Parktha DHO
	Pha Oudom	Pha Oudom DHO	Ms. Phavy Phommasak	F	Technical staff
Houaphanh		Houaphanh PHO	Dr. Kiengthong	F	Technical staff
			Ms. Lounthong	F	Technical staff
			Ms. Phuangsone	F	Technical staff
			Ms. Khindavone	F	Technical staff
	Viengxay	Viengxay DHO	Ms. Vonechay Nammanininh	F	Chief of Health Promotion Unit, Viengxay DHO
			Ms. Oudom Phanthavong	F	Technical staff
			Mr. Boualoy Laochou	M	Technical staff
			Mr. Vongxay Sorinxay	M	Technical staff
			Ms. Phinh Vongvisay	F	Chief of Administrative Unit
	Xiengkhor	Xiengkhor DHO	Ms. Vongphiene	F	Acting Chief of Health Promotion Unit
			Ms. Ed Phengsiphay	F	Technical staff, MCH and Nutrition
			Mr. Sounilack Phounphithong	M	Technical staff, Planning and Statistics Unit
			Mr. Vinkham Xaybounheuang	M	Technical staff, Health Promotion Unit
			Mr. Somnith Vivanthong	M	Volunteer, Health Education, Health Promotion Unit

Saravane		Saravane PHO	Mr. Bounnhang Chanthaphomma	M	Technical staff
			Mr. Phouva	M	Technical staff
			Ms. Bounnhing Ladbounheuang	F	Technical staff
			Ms. Pavina Phouangchampa	F	Technical staff
			Mr. Phonesavanh Khamphoumy	M	Technical staff
	Ta oi	Ta oi DHO	Ms. Sonevilay	F	Technical staff
			Mr. Oley	M	Technical staff
			Mr. Bounsouane Silikhom	M	Technical staff
			Ms. Viengxay	F	Technical staff
	Toomlarn	Toomlarn DHO	Ms. Phouvineg Keosinheng	F	Technical staff
			Ms. Hanpha Inthasone	F	Deputy Chief of Health Education Unit
			Ms. Vilaivanh Sangouansy	F	Deputy Chief of Health Insurance Unit
			Mr. Kila Nanthida	M	Deputy Chief of Cabinet Unit

f. FGDs for Health Centre Level, Health Sector

Province	District	Health centre	Name_English	Gender	Position
Phongsaly	Boontai	Nanam	Mr. Lien Keopasueth	M	Head of Nanam HC
			Mr. Nong Xayyamod	M	Technician
		Samphanxay	Ms. Manee	F	Technician
			Ms. Sone	F	Head of Samphanxay HC
			Mr. Khamphet	M	Technician
	Samphanh	Axer	Ms. Xay	F	Head of HC
		Laoleo	Ms. Chansy	F	Head of HC
Bokeo	Parktha	Kaengphak	Ms. Deuanpheng	F	Technician
			Mr. Touyear Mor	M	Technician
			Ms. Khaenkham	F	Deputy head of Kaengphak HC
		Hartsa	Mr. Khen Duangsavanh	M	Head of Hartsa HC
			Ms. Thiem Phanyalai	F	Technician
	Pha Oudom	Viengphatthana	Ms. Phai	F	Technician
			Ms. Dailao	F	Technician
		Mokxo	Mr. Bounthiem	M	Head of Mokxo HC
			Ms. Phimpha	F	Technician

Houaphanh	Viengxay	Khetphoune	Mr. Neum Vixaychanh	M	Deputy Head of Khetphoune HC
			Mr. Kaysy Nhordmixay	M	Technician
			Ms. Air Keonavong	F	Technician
		Kangkhong	Mr. Khendaeng Inthavong	M	Technician
			Ms. Korm Maniphone	F	Technician
			Ms. Daeng Sonedala	F	Volunteer
	Xiengkhor	Natong	Mr. Veune Xayviengkham	M	Technician
			Ms. Airsone Sengthongsy	F	Technician
			Mr. Sonechit Phouangkhounkham	M	Technician
			Ms. Livanh Lorvixay	F	Technician, Volunteer
			Ms. Thongsy Norsengthiene	F	Technician, Volunteer
		Soppoung	Dr. Onesy	M	Chief of Soppoung HC
			Ms. Ouangkham	F	Technician
Saravane	Ta oi	Photang	Mr. Phetsamay Thapsombat	M	Chief of Photang HC
			Ms. Khampasong Lindasone	F	Deputy Chief of Health Centre
			Mr. Oua Xayasune	M	Technician (volunteer)
		Pajudone	Mr. Lamphanh	M	Chief of Pajudone HC
			Mr. Inxy	M	Technician
			Mr. Thonsamay	M	Technician
	Toomlarn	Tayor	Mr. Sengmany Xayaphoum	M	Head of Tayor HC
			Ms. Phongsay Phanthalaseng	F	Deputy Head of Health Centre
			Ms. Kongthavy Thanouphane	F	Technician
		Nadou HC	Mr. Tee Khounladasa	M	Technician
			Ms. Kham Leudethmoune	F	Technician

g. FGDs with the Community Leaders

Province	District	Health centre	Village	Name_English	Gender	Position
Phongsaly	Boontai	Nanam	Nanam	Mr. Khamphaeng	M	Village Headman
				Mr. Achi	M	Village Health Facilitator
				Ms. Mimi	F	Village Health Facilitator
		Samphanxay	Saeninluang	Ms. Phone	F	Village Health Facilitator
				Mr. Sisamai	M	Village Health Facilitator
				Ms. Say	F	Village Health Facilitator
	Samphanh	Axer	Axer	Mr. Lupha Laoma	M	Deputy Village Headman
				Mr. Luer Laoma	M	Village Health Facilitator
				Mr. Xeukear Laoli	M	Deputy Village Headman
		Laoleo	Laoleo	Mr. Somsanith Laotha	M	Village Health Committee
				Mr. Louxa Laova	M	Deputy Village Headman
				Mr. Kia Laoleo	M	Deputy Village Headman
Bokeo	Parktha	Kaengphak	Kaengphak	Mr. Sakdee chanphasouk	M	Deputy Village Headman
				Mr. Maiton	M	Village Lao Front (LFNC)
				Mr. Maipan	M	Village Lao Front (LFNC)
				Mr. Onkeo khamphavong	M	Village Lao Front (LFNC)
		Hartsa	Hartsa	Mr. Singchai Duangphachanh	M	Deputy Village Headman
				Mr. Liphan Saengouthid	M	Village IC
				Ms. Buaphan Dithavong	F	Village LWU
				Ms. La Duangsavadee	F	Village LWU
				Ms. chanthanome Duangsavanh	F	Village Lao Front (LFNC)
	Pha Oudom	Viengphatthana	Viengphatthana	Mr. Boun Dava	M	Village Headman
				Ms. Onchanh Maniphone	F	Deputy Village Headman
				Ms. Bua Thor	F	Village Health Volunteer
		Mokxo	Mokxo	Mr. Vilaiysan Xaiyapheng	M	Village Headman
				Mr. Pong	M	Deputy Village Headman

Houaphanh	Viengxay	Khetphoune	Phounkang	Mr. Thonglone	M	Deputy Village Headman
				Ms. Milavanh	F	Village Health Volunteer
				Mr. Sengdavanh	M	Village Health Committee
		Kangkhong	Kangpabong	Mr. Phonethong	M	Deputy Village Headman and Village Health Volunteer
				Mr. Bounma Lorthongsane	M	Village Lao Front (LFNC)
	Xiengkhor	Natong	Bao	Mr. Phonesouk Phommixay	M	Deputy Village Headman
				Ms. Chone Xaybounheuane	F	Village Health Volunteer
				Mr. Inthong	M	Village Tax
				Mr. Sivone Phomla	M	Village Security
				Ms. Inh Phetxaysomphanh	F	Village LWU
				Mr. Khamphone Phetxaysomboun	M	Village Headman
		Soppoung	Hub	Mr. Phansy	M	Village Health Committee
				Mr. Inh Thammaxay	M	Village Security
				Mr. Phonta	M	Village Health Committee
				Ms. Nid	F	Village Health Volunteer
				Ms. Nay	F	Village LWU
Saravane	Ta oi	Photang	Doubhai	Mr. Douang	M	Deputy Village Headman
				Mr. Khamsay	M	Deputy Village Headman
				Mr. Amkor	M	Village Lao Front (LFNC)
				Mr. Ngeud	M	Village Health Volunteer
				Mr. Amngen	M	Village Lao Front (LFNC)
				Mr. Chouymat	M	Elderly Group
				Mr. Chouyor	M	Elderly Group
				Mr. Ampengphanh	M	Elderly Group
				Mr. Amlay	M	Elderly Group
		Pajudone	Lavangtai	Mr. Jouaydeuat	M	Village Headman
				Mr. Amnot	M	Village Health Volunteer
	Toomlarn	Tayor	Houaylay	Mr. Nouphone Louangseng	M	Village Headman
				Mr. Oat Phimmasone	M	Village Health Volunteer
		Nadou	Donexath	Mr. Phouvong	M	Village Headman
				Mr. Sivanthong	M	Deputy Chief of Lao Front (LFNC)
				Mr. Sivilay	M	Village Lao Front (LFNC)
					M	Village Health Volunteer

h. FGDs with Pregnant Women

Province	District	Health centre	Village	Name_English	Ethnic	Education level	Occupation	Religion
Phongsaly	Boontai	Nanam	Nanam	Ms. Jorpher	Loma	No schooling	Housewife	Animism
				Ms. Sy Xayatham	Loma	Secondary school Y3	Housewife	Animism
				Ms. Abou	Loma	Secondary school Y1	Housewife	Animism
		Samphanxay	Saeninluang	Ms. Mali	Phounoi	Primary school Y5	Housewife	Buddhism
				Ms. Sup	Phounoi	Primary school Y5	Housewife	Buddhism
				Ms. Phoud	Phounoi	Primary school Y5	Housewife	Buddhism
	Samphanh	Axer	Axer	Ms. Yapia	Akha	No schooling	Farmer	Animism
				Ms. Manivanh	Akha	Secondary school Y1	Farmer	Animism
				Ms. Teepher	Akha	No schooling	Farmer	Animism
				Ms. Phidxa	Akha	No schooling	Farmer	Animism
				Ms. Jipia	Akha	No schooling	Farmer	Animism
		Laoleo	Laoleo	Ms. Chanh	Akha	Secondary School Y7	Farmer	Animism
				Ms. Jaeyer	Akha	No schooling	Farmer	Animism
				Ms. Yupia	Akha	Secondary school Y2	Farmer	Animism
				Ms. Niwja	Akha	Primary school Y4	Farmer	Animism
				Ms. Tuyer	Akha	Primary school Y5	Farmer	Animism
Bokeo	Parktha	Kaengphak	Kaengphak	Ms. Hormla Kunlavong	Leu	Secondary school Y7	Housewife	Buddhism
		Hartsa	Hartsa	Ms. Ben Nilae	Kamu	Primary school (P4)	Farmer	Animism
				Ms. Chai	Hmong	Secondary school Y2	Farmer	Christianity
				Ms. Tao Taowa	Hmong	Secondary school Y6	Farmer	Animism
	Pha Oudom	Viengphatthana	Viengphatthana	Ms. Vieng vilay	Kamu	Secondary school Y7	Farmer	Animism
				Ms. Lai	Kamu	Primary school Y5	Farmer	Animism
				Ms. Leu	Kamu	Primary school Y5	Farmer	Animism
				Ms. Namta Pakuher	Hmong	Primary school Y5	Farmer	Animism
				Ms. Nouwa	Hmong	Secondary school Y6	Farmer	Animism
		Mokxo	Mokxo	Ms. Nouy Saenchaleaun	Kamu	Vocational/College	Housewife	Animism
				Ms. Si Xaiyatham	Kamu	Secondary school Y6	Housewife	Animism
				Ms. Vieng Phonemany	Kamu	Secondary school Y6	Housewife	Animism
				Ms. Sa Vilaytern	Kamu	Secondary school Y4	Housewife	Animism

Houaphanh	Viengxay	Khetphoune	Phounkang	Ms. Vonexay	Taideng	Secondary School Y3	Farmer	Ghost/spirit
				Ms. Xaythong	Taideng	No schooling	Farmer	Ghost/spirit
		Kangkhong	Kangpabong	Ms. Xed	Khamu	Primary School Y5	Farmer	Ghost/spirit
	Xiengkhor	Natong	Bao	Ms. Win	Lao Loum	Primary School Y5	Farmer	Buddhism
		Soppoung	Hub	Ms. Sin	Taideng	Secondary School Y7	Farmer	Ghost/spirit
Saravane	Ta oi	Photang	Doubhai	Ms. Binh	Katang	No schooling	Farmer	Ghost/spirit
		Pajudone	Lavangtai	Ms. Thouk	Ta oi	No schooling	Farmer	Ghost/spirit
				Ms. Keo	Ta oi	No schooling	Farmer	Ghost/spirit
				Ms. Axin	Ta oi	No schooling	Farmer	Ghost/spirit
	Toomlarn	Tayor	Houaylay	Ms. Dee	Katang	Primary School Y5	Farmer	Ghost/spirit
				Ms. Khaymouk	Katang	Secondary School Y3	Farmer	Ghost/spirit
				Ms. Phat	Katang	No schooling	Farmer	Ghost/spirit
				Ms. Lay	Katang	Primary School	Farmer	Ghost/spirit
				Ms. Kanto	Katang	Primary School	Farmer	Ghost/spirit
				Ms. Oud	Katang	No schooling	Farmer	Ghost/spirit
		Nadou	Donexath	Ms. Nang	Katang	No schooling	Farmer	Ghost/spirit
				Ms. Honh	Katang	No schooling	Farmer	Ghost/spirit
				Ms. Sou	Katang	No schooling	Farmer	Ghost/spirit
				Ms. Heuang	Katang	No schooling	Farmer	Ghost/spirit
				Ms. Ek	Katang	No schooling	Farmer	Ghost/spirit

i. FGDs with Lactating Mothers and Care takers-fathers-grandparents-family members

Province	District	Health centre	Village	Name_English	Ethnic	Education level	Occupation	Religion
Phongsaly	Boontai	Nanam	Nanam	Ms. Seu	Loma	Primary School Y3	Housewife	Animism
				Ms. Cheuper	Loma	No schooling	Housewife	Animism
				Ms. Mider	Loma	No schooling	Housewife	Animism
				Ms. Phaeng	Loma	No schooling	Housewife	Animism
		Samphanxay	Saeninluang	Ms. Keomany	Phounoi	Primary School Y2	Housewife	Buddhism
				Ms. Souk	Phounoi	Primary School Y5	Housewife	Buddhism
	Samphanh	Axer	Axer	Ms. Joy	Taidam	Higher Diploma	Teacher	Animism
				Ms. Kouyner	Loma	No schooling	Farmer	Animism
				Ms. Jaypia	Loma	No schooling	Farmer	Animism
				Ms. Sayer	Loma	No schooling	Farmer	Animism
		Laoleo	Laoleo	Ms. Pher	Loma	Primary School Y3	Farmer	Animism
				Ms. Luxer	Loma	Primary School Y4	Farmer	Animism
				Ms. Erner	Loma	Primary School Y5	Farmer	Animism
				Ms. Ner	Loma	Primary School Y4	Farmer	Animism
				Ms. Naxay	Loma	Primary School Y5	Farmer	Animism
Bokeo	Parktha	Kaengphak	Kaengphak	Ms. Dam	Lao Loum	Primary School Y2	Farmer	Buddhism
				Ms. Mork	Lao Loum	Primary School Y3	Farmer	Buddhism
				Ms. Thida	Lao Loum	Primary School Y4	Farmer	Buddhism
				Ms. Kaen	Lao Loum	Primary School Y5	Farmer	Buddhism
		Hartsa	Hartsa	Ms. Phone	Lao Loum	Secondary School Y3	Farmer	Buddhism
				Ms. Phaivanh	Lao Loum	Secondary School Y6	Farmer	Buddhism
				Ms. Wanyen	Lao Loum	Secondary School Y3	Farmer	Buddhism
				Ms. Kiem	Lao Loum	Secondary School Y5	Farmer	Buddhism
				Ms. Lar	Lao Loum	Secondary School Y3	Farmer	Buddhism
	Pha Oudom	Viengphatthana	Viengphatthana	Ms. None	Kamu	Secondary School Y7	Farmer	Buddhism
				Ms. Yim	Kamu	Secondary School Y4	Farmer	Buddhism
				Ms. Fouy	Kamu	Secondary School Y4	Farmer	Buddhism
		Mokxo	Mokxo	Ms. Tuk	Kamu	Secondary School Y3	Farmer	Animism
				Ms. Tieng	Kamu	Primary School Y2	Farmer	Animism
				Ms. Tongye	Hmong	No schooling	Farmer	Animism
				Ms. Thoa	Kamu	Secondary School Y3	Farmer	Animism
				Ms. Yao	Hmong	Secondary School Y1	Farmer	Animism

Houaphanh	Viengxay	Khetphoune	Phounkang	Ms. Phet	Taideng	Primary School Y5	Farmer	Ghost/spirit
				Ms. Am	Taideng	Primary School Y5	Farmer, broom maker	Ghost/spirit
				Ms. Im	Taideng	Primary School Y3	Farmer	Ghost/spirit
				Ms. Phouangseng	Taideng	Primary School Y5	Farmer	Ghost/spirit
				Mr. Khamkeo	Taideng	Secondary School Y3	Farmer	Ghost/spirit
				Ms. Neth	Taideng	Secondary School Y5	Farmer, weaving	Ghost/spirit
				Ms. Phone	Taideng	Primary School Y4	Farmer	Ghost/spirit
				Ms Lair	Taideng	Primary School Y3	Farmer, weaving	Ghost/spirit
				Ms. Anh	Taideng	Secondary School Y3	Farmer	Ghost/spirit
				Ms. Maiphone	Taideng	Secondary School Y3	Farmer	Ghost/spirit
				Ms. Hieng	Taideng	Primary School Y4	Farmer	Ghost/spirit
				Ms. Oy	Taideng	Secondary School Y1	Farmer	Ghost/spirit
				Ms. Thipphaphone	Taideng	Secondary School Y6	Farmer	Ghost/spirit
		Kangkhong	Kangpabong	Ms. Phouangseng	Khamu	Primary School Y3	Farmer	Ghost/spirit
				Ms. Phouane	Taideng	Secondary School Y5	Farmer	Ghost/spirit
				Ms. Lieng	Khamu	Primary School Y3	Farmer	Ghost/spirit
	Xiengkhor	Natong	Bao	Ms. Phou	Lao loum	Secondary School Y7	Teacher	Buddhism
				Ms. Phone	Lao loum	Secondary School Y5	Farmer	Buddhism
		Soppoung	Hub	Ms. Touk	Lao loum	Secondary School Y3	Farmer, fish retailer	Buddhism
				Ms. Ngair	Taideng	Primary School Y1	Farmer, vegetable retailer	Ghost/spirit
				Ms. Fick	Lao loum	Secondary School Y4	Farmer, grocery	Buddhism
				Ms. Kim	Taideng	Secondary School Y1	Farmer, raising buffalo for selling	Ghost/spirit

Saravane	Ta oi	Photang	Doubhai	Mr. Yao	Katang	No schooling	Farmer and grow cassava	Ghost/spirit
				Ms. Ting	Katang	No schooling	Farmer and grow cassava	Ghost/spirit
				Ms. Phay	Katang	No schooling	Farmer and grow cassava	Ghost/spirit
				Ms. Xong	Katang	No schooling	Farmer and grow cassava	Ghost/spirit
				Ms. Yafanh	Katang	No schooling	Farmer and grow cassava	Ghost/spirit
				Ms. Nim	Katang	No schooling	Farmer and grow cassava	Ghost/spirit
				Mr Papanh	Katang	Vocational	Farmer and grow cassava	Ghost/spirit
				Mr. Lay	Katang	Primary School Y3	Farmer and grow cassava	Ghost/spirit
		Pajudone	Lavangtai	Ms. Keuth	Ta oi	No schooling	Farmer	Ghost/spirit
				Ms. Xouay	Ta oi	Primary School Y2	Farmer	Ghost/spirit
				Ms. Lem	Ta oi	No schooling	Farmer	Ghost/spirit
				Ms. Meun	Ta oi	No schooling	Farmer	Ghost/spirit
				Ms. Non	Ta oi	No schooling	Farmer	Ghost/spirit
	Toomlarn	Tayor	Houaylay	Ms. Orm	Katang	No schooling	Housewife	Ghost/spirit
				Mr. Dam	Katang	No schooling	Farmer and grow cassava	Ghost/spirit
		Nadou	Donexath	Ms. Saothane	Tamlane	No schooling	Farmer	Ghost/spirit
				Ms. Jew	Tamlane	No schooling	Farmer	Ghost/spirit
				Ms. Ko	Tamlane	No schooling	Farmer	Ghost/spirit
					Tamlane	No schooling	Farmer	Ghost/spirit

j. FGDs with Adolescent Girls

Province	District	Health centre	Village	Name_English	Ethnic	Education level	Occupation	Religion
Phongsaly	Boontai	Nanam	Nanam	Ms. Abou	Oma	Secondary School Y2	Student	Animism
				Ms. Mimi	Oma	Secondary School Y1	Student	Animism
				Ms. Livan	Oma	Secondary School Y7	Student	Animism
		Samphanxay	Saeninluang	Ms. Phonesouk	Phounoi	NA	Student	Buddhism
				Ms. Ket	Phounoi	NA	Student	Buddhism
				Ms. Soukphani	Phounoi	NA	Student	Buddhism
	Samphanh	Axer	Axer	Ms. Mily Laoja	Akha-Loma	Secondary School Y6	Student	Animism
				Ms. Laiyer Laoja	Akha-Loma	Secondary School Y5	Student	Animism
				Ms. Louyyier Laoja	Akha-Loma	Secondary School Y6	Student	Animism
				Ms. Onephet Laoja	Akha-Loma	Secondary School Y4	Student	Animism
				Ms. Chater Laoja	Akha-Loma	Secondary School Y3	Student	Animism
		Laoleo	Laoleo	Ms. Chaner LaoKoh	Loma	Primary School Y4	Unemployed	Animism
				Ms. Teeye Laoleo	Loma	Secondary School Y2	Student	Animism
				Ms. Khoner Laoleo	Loma	Secondary School Y3	Student	Animism
				Ms. Teepher	Loma	No schooling	Unemployed	Animism
Bokeo	Parktha	Kaengpak	Kaengpak	Ms. Amphone Sonethavy	Lao	Secondary School Y7	Student	Buddhism
				Ms. Siamphai Khamphavong	Lao	Secondary School Y7	Student	Buddhism
				Ms. Buayai Kietisouk	Lao	Secondary School Y7	Student	Buddhism
				Ms. Jambo Khamphavong	Lao	Secondary School Y7	Student	Buddhism
				Ms. Siao Khamphavong	Lao	Secondary School Y7	Student	Buddhism
		Hartsa	Hartsa	Ms. Alisone Keovongdeaun	Lao	Secondary School Y7	Student	Buddhism
				Ms. Maen Lamanivong	Lao	Secondary School Y7	Student	Buddhism
				Ms. Davanh Dalaseang	Lao	Secondary School Y7	Student	Buddhism
	Pha Oudom	Viengphathana	Viengphathana	Ms. Kom	Khamu	Secondary School Y2	Farmer	Animism
				Ms. Nun	Khamu	Secondary School Y2	Farmer	Animism
				Ms. Phou	Khamu	Secondary School Y2	Farmer	Animism
				Ms. Lip	Khamu	Secondary School Y2	Farmer	Animism
		Mokxo	Mokxo	Ms. Xeaury	Khamu	Secondary School Y4	Student	Animism

Houaphanh	Viengxay	Khetphoune	Phounkang	Ms. Moukdavanh	Taideng	Secondary School Y7	Student	Ghost/spirit
				Ms. Manivanh	Taideng	Secondary School Y5	Student	Ghost/spirit
				Ms. Saothong	Taideng	Secondary School Y6	Student	Ghost/spirit
				Ms. Nithina	Taideng	Secondary School Y5	Student	Ghost/spirit
		Kangkhong	Kangpabong	Ms. Mai	Keummu	Secondary School Y7	Student	Ghost/spirit
				Ms. Keo	Keummu	Secondary School Y2	Farmer	Ghost/spirit
	Xiengkhor	Natong	Bao	Ms. Nou Douangmisouk	Lao loum	Secondary School Y7	Student	Buddhism
				Ms. La Maliphone	Keummu	Secondary School Y7	Student	Ghost/spirit
				Ms. Sengthong Keobounxay	Lao loum	Secondary School Y6	Student	Buddhism
				Ms. Chieng Ounthong	Keummu	Secondary School Y7	Student	Ghost/spirit
		Soppoung	Hub	Ms. Palita	Lao-Tai	Secondary School Y7	Student	Buddhism
				Ms. Thoumma	Keummu	Secondary School Y6	Student	Buddhism
				Ms. Wing	Taideng	Secondary School Y7	Student	Ghost/spirit
				Ms. Inh	Taideng	Secondary School Y6	Student	Ghost/spirit
Saravane	Ta oi	Photang	Doubhai	Ms. Penh	Ta oi	Primary School Y2	Farmer	Ghost/spirit
				Ms. Kror	Ta oi	No schooling	Farmer	Ghost/spirit
				Ms. Chay	Ta oi	Primary School Y5	Farmer	Ghost/spirit
				Ms. Samay	Ta oi	No schooling	Farmer	Ghost/spirit
				Ms. Vy	Ta oi	Primary School Y5	Farmer	Ghost/spirit
				Ms. Chay	Ta oi	Primary School Y3	Farmer	Ghost/spirit
				Ms. Veth	Ta oi	Primary School Y3	Farmer	Ghost/spirit
				Ms. Seng	Ta oi	Primary School Y2	Farmer	Ghost/spirit
				Ms. Wane	Ta oi	No schooling	Farmer	Ghost/spirit
				Ms. Vanh	Ta oi	Primary School Y3	Farmer	Ghost/spirit
		Pajudone	Lavangtai	Ms. Xieng	Ta oi	Primary School Y5	Farmer	Ghost/spirit
	Toomlarn	Tayor	Houaylay	Ms. Vanh	Katang	No schooling	Farmer	Ghost/spirit
				Ms. Phout	Katang	Primary School Y4	Farmer	Ghost/spirit
				Ms Phom	Katang	No schooling	Farmer	Ghost/spirit
				Ms Cheung	Katang	Primary School Y5	Farmer	Ghost/spirit
		Nadou	Donexath	Ms. Yaen	Katang	No schooling	Farmer	Ghost/spirit
				Ms. Momsy	Katang	No schooling	Farmer	Ghost/spirit
				Ms. Oui	Katang	No schooling	Farmer	Ghost/spirit
				Ms Chansamouth	Katang	Secondary School Y1	Farmer	Ghost/spirit
				Ms. Khay	Katang	Primary School Y5	Farmer	Ghost/spirit
				Ms Dorkmay	Katang	No schooling	Farmer	Ghost/spirit

ANNEXE 2 – LIST OF DATA COLLECTION TEAMS

Name English	Gender	Position	Organization	Ministry
NIPN PAU team: SPRI/LASES, MOES, MAF, MOH and NA				
Ms. Khamphuthong Vichitlasy	F	Head of Social Development Policy Research Division	Socio-Economic and Policy Research Institute (SPRI)	Lao Academy of Social and Economic Sciences (LASES)
Mr. Khamnang Khounpakdee	M	Deputy Head of Social Development Policy Research Division		
Ms. Loun Thipphasone	F	Deputy Head of Social Development Policy Research Division		
Ms. Soulita Soukmonty	F	Deputy Head of Natural Resources Economic and Environmental Policy Research Division		
Mr. Phoutchinda Phompanya	M	Technical Officer, Social Development Policy Research Division		
Ms. Mali Sengkhamyong	F	Technical Officer, Green Growth Promotion and Policy Research Division		
Ms. Manisavanh Xongvilay	F	Technical Officer, Natural Resources Economic and Environmental Policy Research Division		
Ms. Amphouvone Thongmanilay	F	Technical Officer, Social Development Policy Research Division		
Mr. Soutthalak Prasith	M	Technical Officer, Economic Development Policy Research Division		
Mr. Phoumixay Thipkhamphanh	M	Technical Officer, Natural Resources Economic and Environmental Policy Research Division		
Mr. Thanongchit Phanthaba	M	Deputy Head of Promoting School Lunch and Nutrition Education Sector	Inclusive Education Centre	Ministry of Education and Sports
Ms. Sengkeo Chittavong	F	Deputy Director of Centre for Agricultural Statistics	Department of Planning and Cooperation	Ministry of Agriculture and Forestry
Ms. Souvanxay Keungdala	F	Deputy-Chief of Education and Sport Division	Department of Culture	National Assembly
Dr. Souksavanh Sysamay	M	Technical Officer, Child Health Promotion Section	Centre of Maternal and Child Health	Ministry of Health

NIPN DAU team: DRI, MPI				
Mr. Viengkhone Bouaphachanh	M	Head of Social and Poverty Policy Research Division	Development Research Institute (DRI)	Ministry of Planning and Investment
Mr. Sonlakay Phetyothin	M	Head of General Affairs and Information Division		
Mr. Phoudthachanh Tonpheng	M	Deputy Head of Social and Poverty Policy Research Division		
Mr. Vongphachan Xayalath	M	Deputy Head of Social and Poverty Policy Research Division		
Mrs. Bouasavanh Mahaphanh	F	Deputy Head of General Affairs and Information Division		
Mr. Khampasird Keovongsoudthi	M	Technical Officer, Social and Poverty Policy Research Division		
Mr. Somsai Phongvenxay	M	Technical Officer, Social and Poverty Policy Research Division		
Mr. Kilakone Siphonexay	M	Technical Officer, General Affairs and Information Division		
Mr. Ouphachay Thongsamouth	M	National Consultant, Data Analysis Unit		
Ms. Soulita Vansilalom	F	National Consultant, Data Analysis Unit		

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