



Multiple Overlapping Deprivation Analysis on Stunting



among children under 5 years, Lao PDR



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Centre for Development Policy Research

Ministry of Planning and Investment

Lao PDR

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List of Acronyms

CDR	Centre for Development Policy Research
CRC	Convention on the Rights of the Child
ECD	Early Childhood Development
ECE	Early Childhood Education
EU	European Union
LDC	Least Developed Country
LSB	Lao Statistics Bureau
LSIS	Lao Social Indicator Survey
MPI	Ministry of Planning and Investment
MODA	Multiple Overlapping Deprivation Analysis
MOH	Ministry of Health
NIER	National Institute of Economic Research
NIPN	National Information Platform for Nutrition
WHO	World Health Organization
SDGs	Sustainable Development Goals
SPRI	Social Policy Research Institute
SUN	Scaling Up Nutrition
UNICEF	United Nation Children's Fund
WASH	Water Sanitation and Hygiene

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Foreword

It has been over 4 years since the international community unanimously agreed on the Sustainable Development Goals (SDGs). For millions of children, the extent to which the world delivers on the SDGs promise will determine the course of their lives – shaping the future of the planet they will inherit, affecting their chances of surviving in their early years, growing and thriving physically, learning and developing their minds to their full potential, and participating actively in their communities and the wider world.

The Lao PDR has over the years prioritized nutrition as a development issue and has been active at the global stage through the Scaling Up Nutrition Movement since 2011. Through the concerted efforts of multiple stakeholders, stunting which is the result of chronic undernutrition reduced from 44 percent in 2011 to 33 percent in 2017 (LSIS). In spite of this significant progress, there exists wide disparity of levels of stunting and intensity of child deprivations across the country, with poor and rural areas most affected.

Stunting reduction is a development priority for unleashing the unlimited potential of the next generation in Lao PDR. Stunting affects the growth and development of children. This impacts on their cognitive development and ability to learn. Stunted children do not realize their full growth potential and tend to have lower income levels in adult life.

This report “*Multiple Overlapping Deprivation Analysis on Stunting among children under 5 years in Lao PDR*” is an extension of the Multiple Overlapping Deprivation Analysis (MODA) report, titled *SDGs and Children - Measuring Progress on Child Wellbeing in Lao PDR*. The analysis shows very strong positive correlation between stunting and children who are multi-dimensionally deprived in Lao PDR.

This report highlights the need for concerted effort by all stakeholders to address the multiple and overlapping determinants of stunting in Lao PDR. Supporting the ambition and commitment of local authorities through capacity building at provincial, district and village level for better planning, implementation and monitoring of initiatives to address multi-dimensional poverty among children is critical.

The success of any action implemented based on this report will depend on convergent inter-sectoral planning and coordination while ensuring effectiveness and efficiency of budget spending for social sectors to achieve results at scale focusing on most deprived children.



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1. Introduction

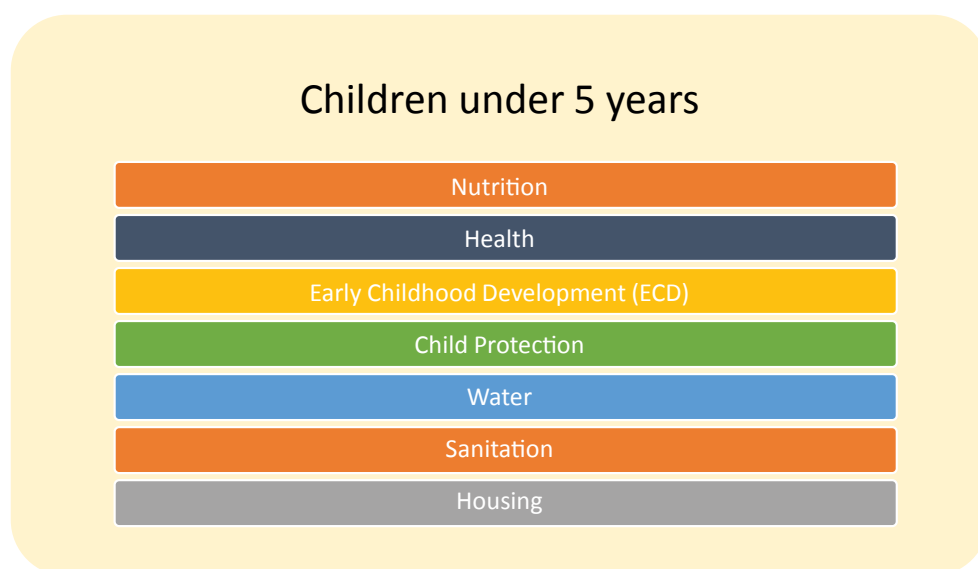
This report, *"Multiple Overlapping Deprivation Analysis (MODA) on Stunting among children under 5 years in Lao PDR"*, is an addendum to the 2018 MODA report, "Measuring Progress on Child Wellbeing in Lao PDR", which uses the Lao Social Indicator Survey (LSIS II) dataset collected in 2017, to present the current situation of unmet needs and rights of children in Lao PDR. With this study, Lao PDR continues to be an international pioneer in prioritizing an understanding of the situation of its children through evidence-based, child-sensitive analysis. These actions reflect Lao PDR's commitment to the international Sustainable Development agenda as well as the national poverty reduction agenda, both components of national ambitions for graduation from 'Least Developed Country' (LDC) status by 2024.

The current analysis uses the UNICEF Multiple Overlapping Deprivation Analysis toolbox to describe and unpack the situation of multidimensional child poverty in Lao PDR, with a focus on nutritional status and stunting among children under 5 years, with sensitivity to children's lifecycle and contextualized needs and rights.

The analysis is based on a sample of 11,812 children under the age of 5 years in Lao PDR.

Indicators and dimensions

Following the general MODA methodology, all the indicators and dimensions of this study were selected using the Convention on the Rights of the Child (CRC) as a main framework (United Nations, 1989). Further decisions on age groups, dimensions, indicators and thresholds were guided by a discussion of a technical working group on MODA composed of partners from the Centre for Development Policy Research, National Institute for Economic Research (NIER), line ministries and UNICEF sector specialists.

Table 1 List of dimensions using the Lao Social Indicator Survey II**Table 2 Dimensions, indicators, and age groups of the multidimensional poverty analysis using LSIS II**

Dimension	Indicator	
		Children under 5 years
Nutrition	Underweight	x
	Exclusive breastfeeding (0-5 months)	x
	Early initiation of breastfeeding	x
	Minimum acceptable diet (infant and young child feeding)	x
Health	Skilled birth attendant	x
	DPT3 immunisation	x
	Measles vaccine	x
	Antenatal health care	x
	Postnatal health care	x
Child protection	Negligence (child left alone)	x
	Physical discipline of child in the household (2-14 years)	x
	Birth registration	x
Water	Unimproved source of drinking water	x
	Treatment of drinking water	x

Sanitation	Handwashing	x
	Unimproved toilet & open defecation	x
	Safe disposal of child faeces	x
Housing	Overcrowding	x
	Material of roof and floor	x
	Use of solid fuels	x
Early childhood development	Early childhood education (ECE)	x
	Books in the household	x
	Developmentally on track in literacy-numeracy domain of Early Childhood Development Index	x
	Adult-child interaction	x

Analytical approach

The study starts with a **single deprivation analysis**, or a single sector analysis, measuring the headcount deprivation rates for each indicator and dimension. The percentage of children deprived in each dimension, and in each indicator, has been calculated to give a first insight into which deprivations are particularly important for children of the different age groups. In accordance with the union approach¹, a child is identified as deprived in a dimension if he/she is deprived in at least one of the indicators constituting the dimension. All the indicators included in a dimension are equally weighted, as the choice of more than one indicator to inform one dimension is done such that indicators complement each other in the identification of different equally important aspects of the child's deprivation in that dimension. Thus, the selection of the indicators was done on the basis that they all partly explain the realization (or not) of the child's rights.

For the **multidimensional deprivation analysis**, or multidimensional poverty analysis, the number of dimensional deprivations are accumulated per child using implicit equal weighting. Each dimension represents an aspect of children's rights and it is given the same value and importance as the rest of the dimensions. A "deprivation threshold" (k) or cut off defines when a child is considered as multidimensionally deprived or not. This is usually stated as ($0 < k \leq d$). For example, if $k=2$, a child with at least two deprivations will be identified as multidimensionally poor. In Laos, a deprivation threshold of $k=3$ is used for the analysis of multidimensional poverty.

¹ MODA uses the union approach when combining indicators into dimensions to identify children deprived in any of the selected indicators. This approach implies that every child who is deprived in at least one indicator of a given dimension will be considered as deprived in said dimension. This approach is not sensitive, at this stage, to the severity of deprivation because it implies equal weight of indicators making deprivation in a dimension to be independent of the number of indicators a child is deprived in (De Neubourg et al, 2012).

The multidimensional deprivation analysis contains the following elements:

- 1) **Distribution of the number of deprivations children experience:** the deprivations per child are counted to give an overview of the distribution of all deprivations among the different age groups and according to different background characteristics (i.e. profiling variables). The deprivation count enables in-depth analysis of multidimensional deprivation;
- 2) **Multidimensional deprivation indices:** This is calculated to provide different summary statistics:
 - I. The headcount ratio (H), to look at the incidence of multiple deprivation in the various dimensions with regards to a specified cut-off point;²
 - II. The average intensity (A), to look at the number of deprivations a deprived child experiences as a percentage of all possible deprivations; and
 - III. The adjusted deprivation headcount (M_o), to capture both the incidence and intensity of deprivation;
- 3) **Deprivation overlap analysis:** This looks at the different combinations of deprivations that are experienced simultaneously and number of children suffering from these deprivations at the same time. Data from the Lao Social Indicator Survey, 2017 was used for the deprivation overlap analysis.

² Indices have been calculated using the Alkire and Foster (2011) methodology.



2. Results

Single sector analysis: Nutrition and Health

Children under 5 years in Lao PDR generally experience high levels of deprivations, ranging from 33.0% of children deprived in the water dimension, to 93.9% of children deprived in the Early Childhood Development (ECD) dimension (Figure 2).

More than half of children under age 6 months are not exclusively breastfed, and more than two thirds of children under age 24 months are not meeting the minimum diet standards in terms of meal frequency, quality and diversity. Almost half of children of the reference population were not put to breast (early initiation of breastfeeding) within one hour after birth. At the dimension level, this leads to around half (51.6%) of children under 5 years being deprived in the Nutrition dimension (Figure 2).

Around half to two-thirds of children did not receive DPT or measles vaccines, had mothers who did not seek postnatal care, and live in household with unobserved water and soap at the place of handwashing (or no place of handwashing). Most children under age 24 months are living in households where child faeces are inappropriately disposed of (78.1%), and this high deprivation rate drives the high rate of deprivation at the Sanitation dimension level for children under 5 years (Figure 1).

Figure 1 Deprivation headcount ratio (%) by each indicator at the National level for children under 5 years

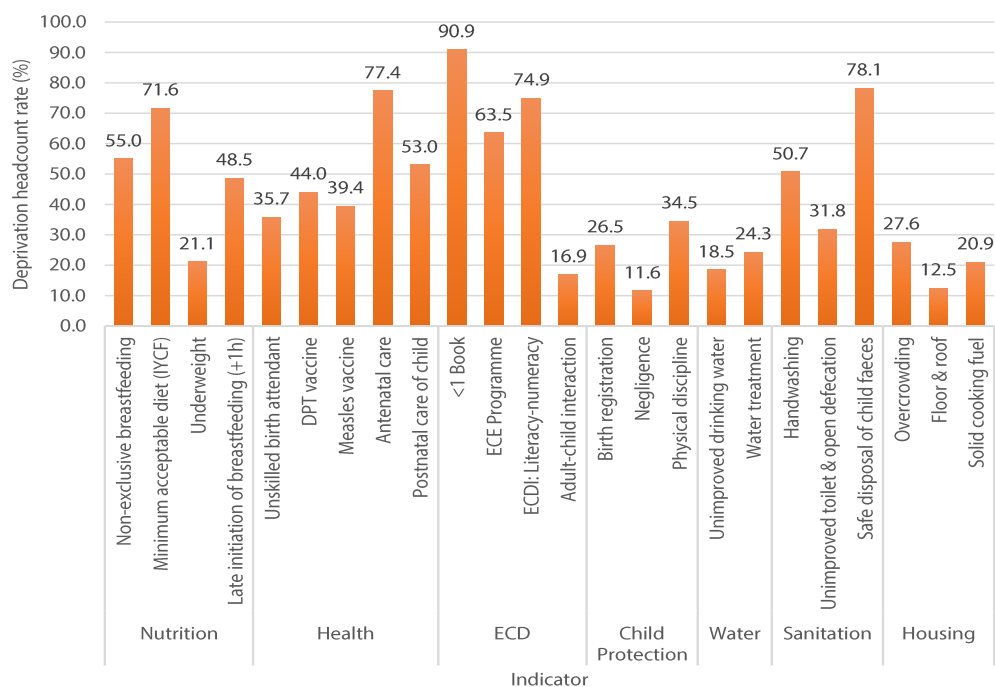
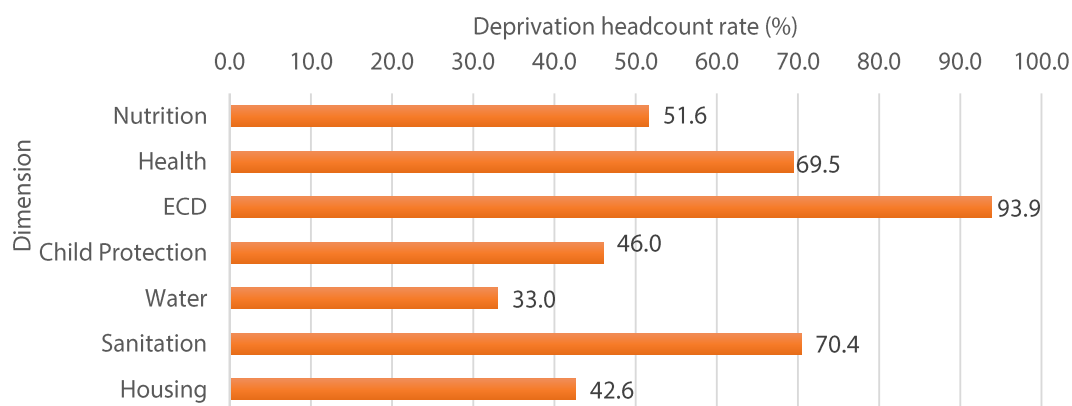
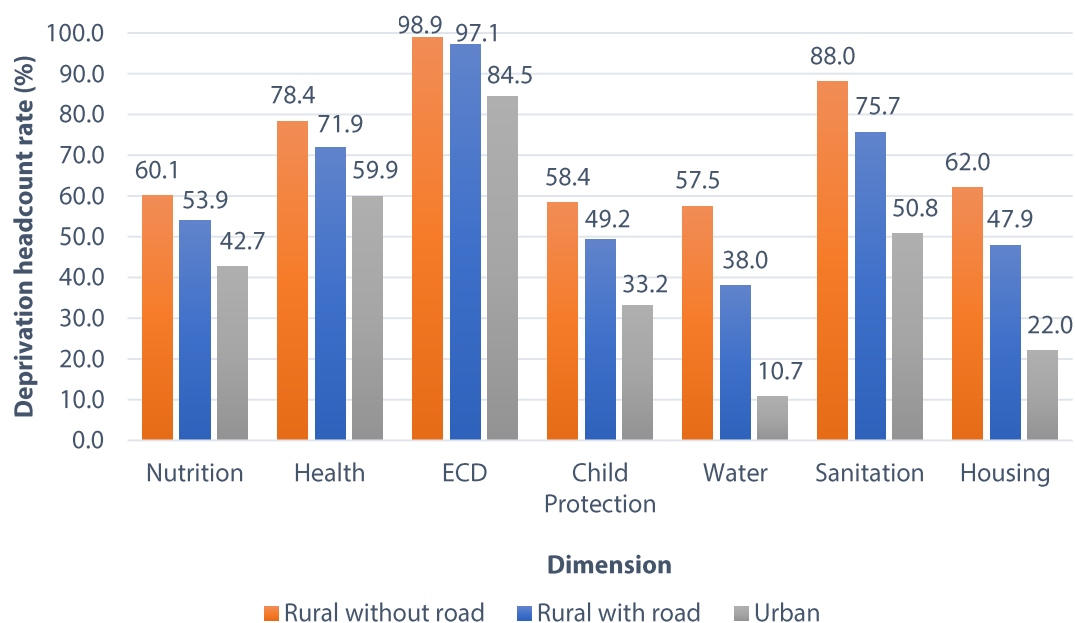


Figure 2 Deprivation headcount ratio (%) by dimension among children under 5 years in Lao PDR

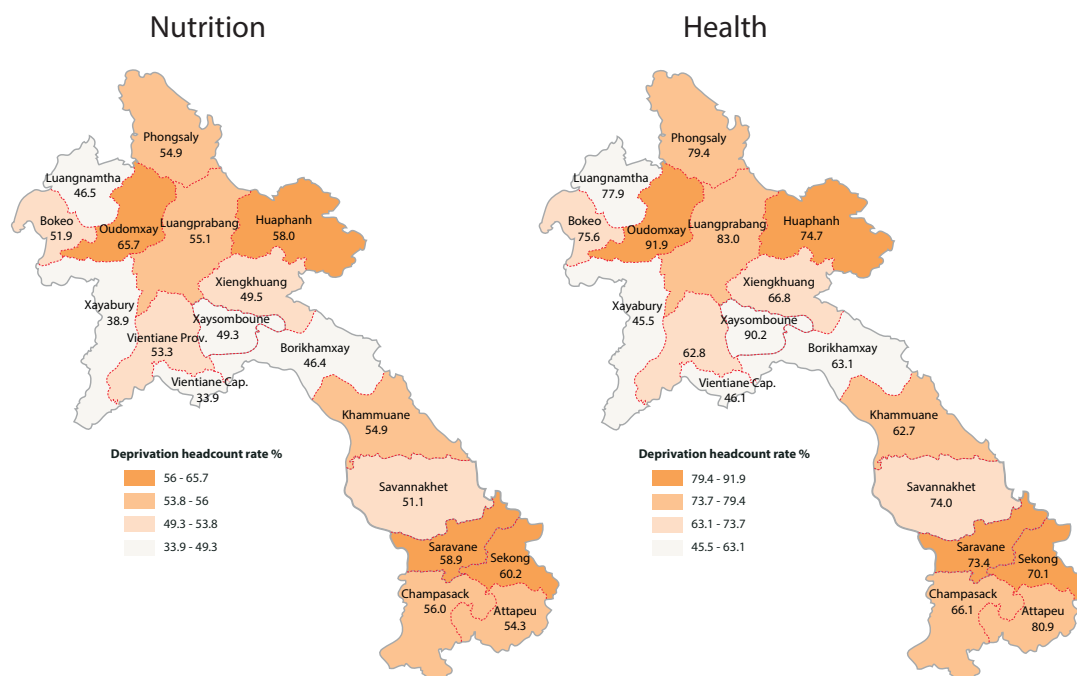
Geographical characteristics

Wide disparity is observed when comparing the deprivation headcount rates of children in each dimension across geographical location. Figure 3 shows that children living in rural areas, especially those without a road, tend to experience the highest levels of deprivation in all dimensions, while the lowest rates of deprivation are found among children living in urban areas. The largest differences between these two groups of children are visible in the water, sanitation and housing dimensions.

Figure 3 Deprivation headcount ratio (%) among children under 5 years by dimension and area of residence

At the provincial level, Figure 4 shows that deprivation headcount rates in each dimension are consistently lowest in Vientiane Capital. The worst performing provinces in the health dimension are the provinces in the north and south of the country, including Oudomxay (91.9% deprived), Xaysomboune (90.2% deprived), Luangprabang (83%), and Attapeu (80.9%). For the nutrition dimension, the provinces surrounding Vientiane Capital are the best performers with the lowest deprivation rates, which include Xaysomboune (49.3%), Borikhamxay (46.4%), and Xayabury (38.9%) in addition to Luangnamtha (46.5%) in the northern region.

Figure 4 Deprivation headcount rate (%) among children under 5 years by geographic location



Multidimensional poverty analysis: Nutrition, Health and Sanitation

Most children under 5 years in Lao PDR are multidimensionally deprived. Figure 5-Figure 7 show the three-way overlap between children deprived in nutrition, health and sanitation. This is further analysed by geographical location, thus those living in rural areas without road, rural areas with road and urban areas. From the analysis, children living in rural areas suffer twice the rate of overlapping deprivation in all three dimensions (32.3-39.0 per cent) compared to those living in urban areas (17.7 per cent). This means that most children living in rural areas who are deprived in either nutrition, health or sanitation will most likely be deprived additionally in at least 1 or 2 of these dimensions. This higher level of vulnerability suggests that policies to address these issues should be more coordinated across sectors in rural areas.

Figure 5 Three-way overlap between deprivation in nutrition, health and sanitation, in rural areas without road among children under 5 years

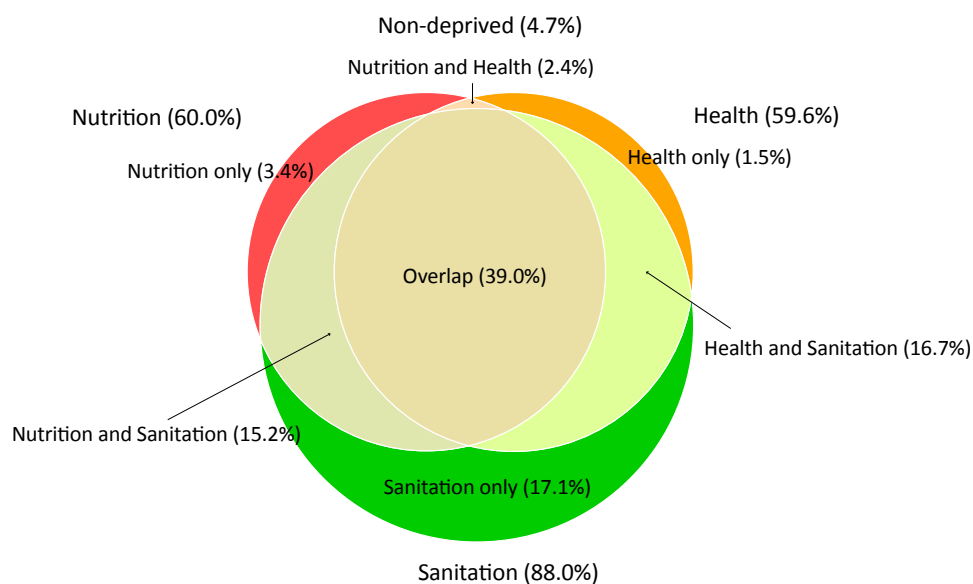


Figure 6 Three-way overlap between deprivation in nutrition, health and sanitation, in rural areas with road (under 5 years)

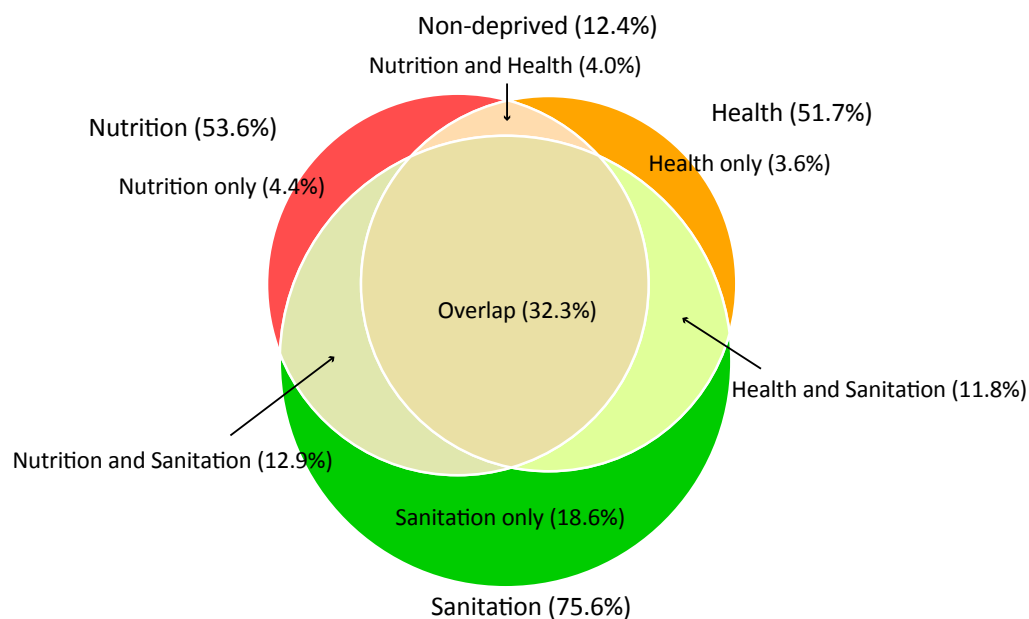
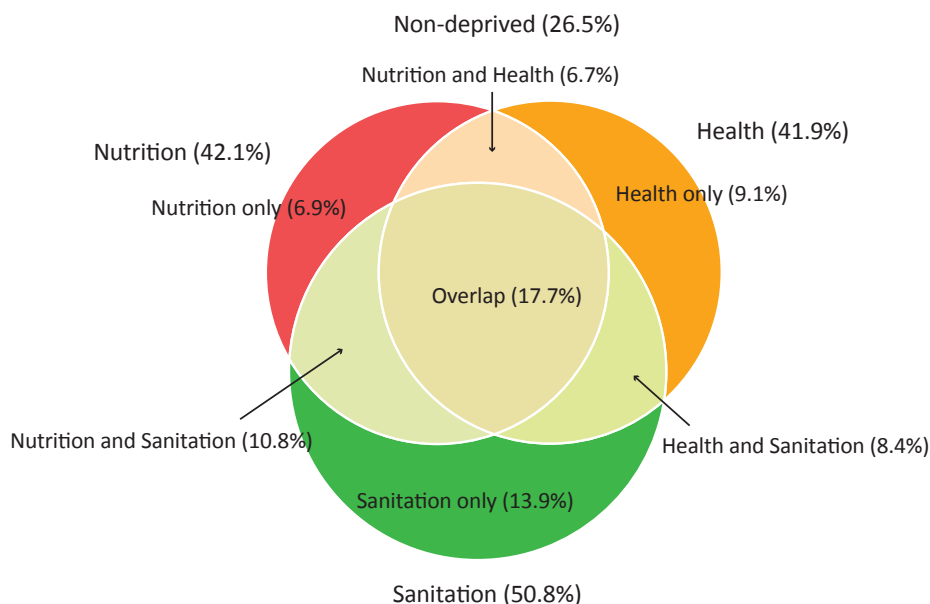


Figure 7 Three-way overlap between deprivation in nutrition, health and sanitation, in urban areas among children under 5 years



Stunting and multidimensional deprivations

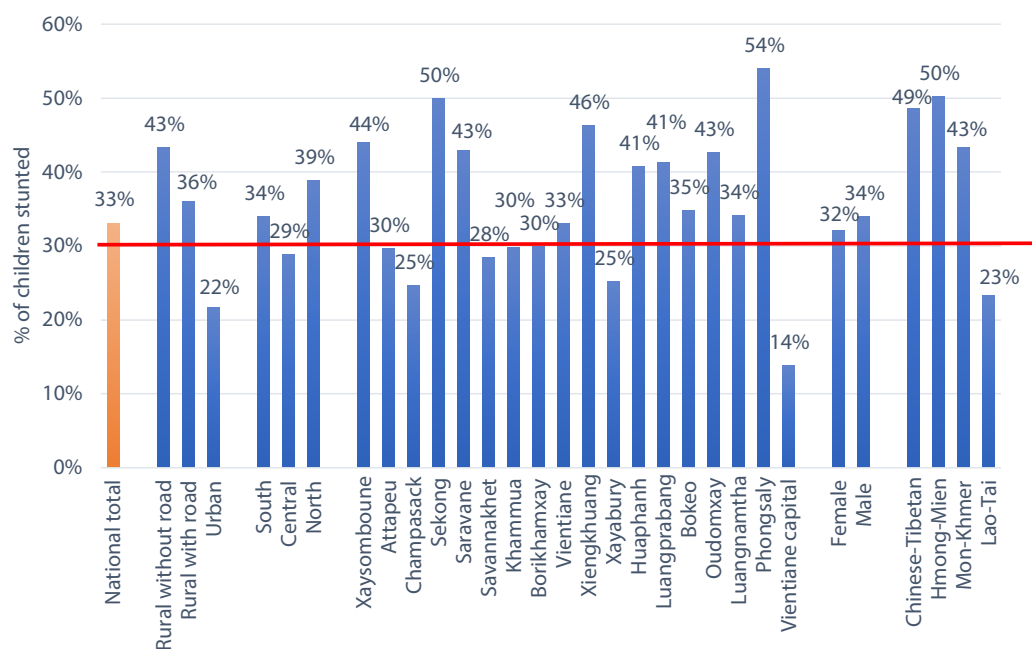
This National Multiple Overlapping Deprivation Analysis (N-MODA) uses 4 nutrition indicators that measure feeding practises among children: exclusive breastfeeding for children under the age of 6 months, early initiation of breastfeeding (0-5 months), infant and young child feeding practices (6-23 months) and underweight (0-59 months) as an indication of malnutrition.

However, considering the relatively high prevalence of stunting in the country and the high priority accorded to stunting reduction by key stakeholders, a thorough analysis was carried out on stunting and Multiple Overlapping Deprivations in Lao PDR. According to WHO, *Stunting* is the impaired growth and development that children experience from poor nutrition, repeated infection, and inadequate psychosocial stimulation. Also reduced access to health care and WASH contributes greatly to stunting. Children are *defined* as *stunted* if their height-for-age is more than two standard deviations below the WHO Child Growth Standards median. Stunting is commonly used as an indicator for chronic undernutrition. The cross-sectoral nature of the determinants of stunting warrants a separate and in-depth understanding of the relationship between stunting and incidence of multidimensional poverty in Lao PDR.

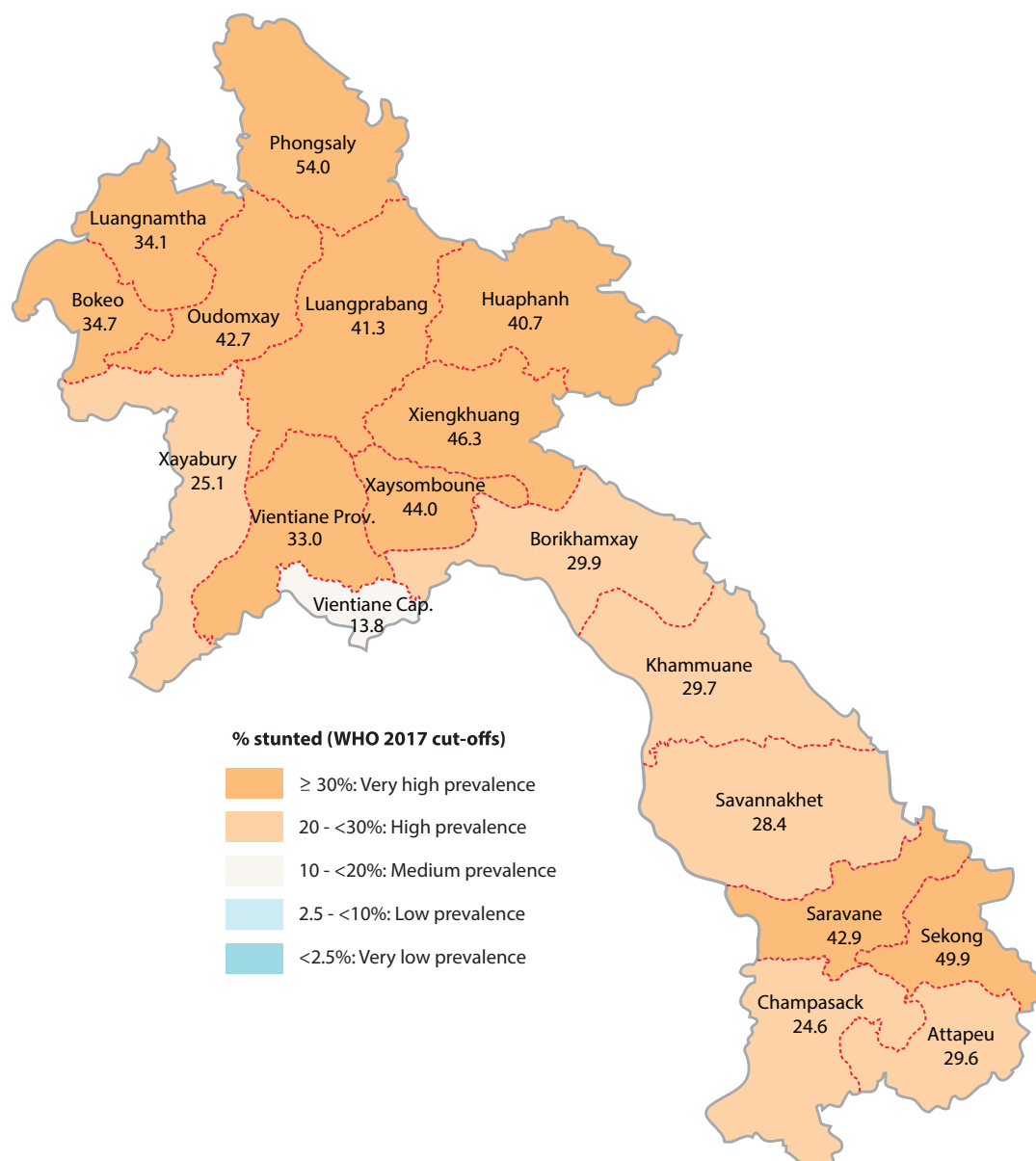
Stunting remains a developmental challenge in Lao PDR. In the entirety of the country, 33 per cent of the children younger than 5 years are stunted. There exists wide disparity of stunting across provinces. For example, Vientiane Capital has the lowest prevalence of 14 per cent, while Phongsaly has the highest prevalence of 54%. Based on the new WHO/UNICEF anthropometric classification (2017), 11 out of 18 provinces have prevalence above 30% and this is classified as “seriously high” or “critical”. Figure 9 below illustrates the geographical distribution of stunting in the country.

Equity analysis shows significant differences between urban areas (22 per cent) and rural areas with road (36 per cent) and rural areas without road (43 per cent). Further analysis shows that, children living with a Lao-Tai household head have a lower rate of stunting (23 per cent) as compared to children living with household heads of other ethnic groups, where 43-50% of children are stunted.

Figure 8 Stunting incidence among children under the age of 5 years



* (---) = WHO threshold for “seriously high” or “critical” levels of stunting (30%, WHO, 2017)

Figure 9 Prevalence of stunting among children under 5 years in Lao PDR, by province

1 in every 3 children (33 per cent) under 5 years in Lao PDR is stunted. This has severe implications for both the physical and cognitive development of children in the country. Stunted children tend to experience a higher rate of deprivation than non-stunted children, although both groups of children are highly exposed to multiple dimensions of poverty. Figure 10 illustrates that children in Lao PDR suffer from multiple and overlapping deprivations. However, the rate of deprivation is significantly higher among stunted children.

In the nutrition dimension, 66.0% of stunted children are deprived. Nearly three in four stunted children are deprived in the sanitation dimension (77.3%), compared to 67.0% among non-stunted children.

Figure 10 Deprivation headcount rate (%) among children under 5 years by deprivation

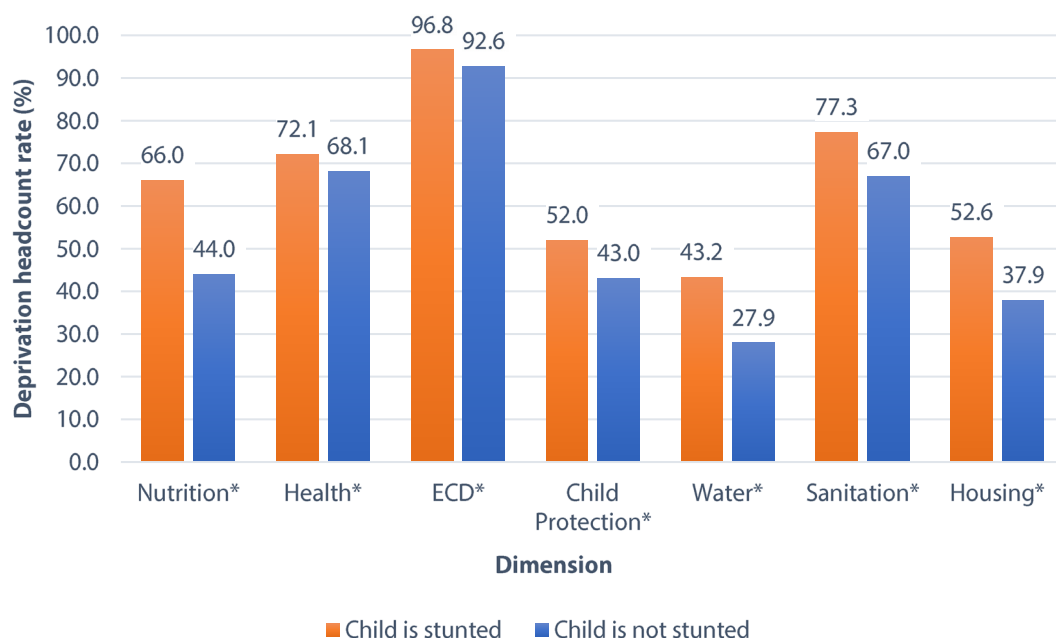
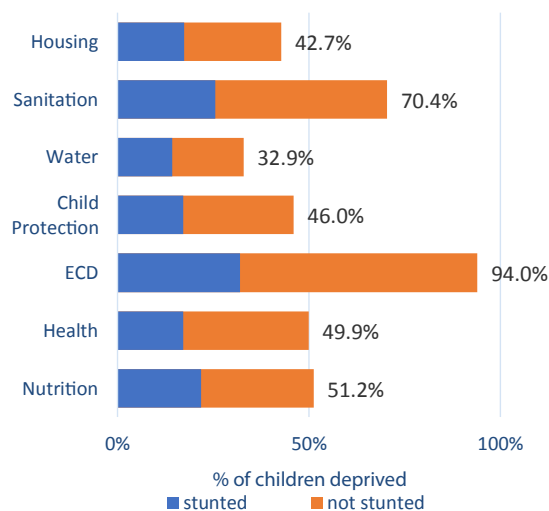


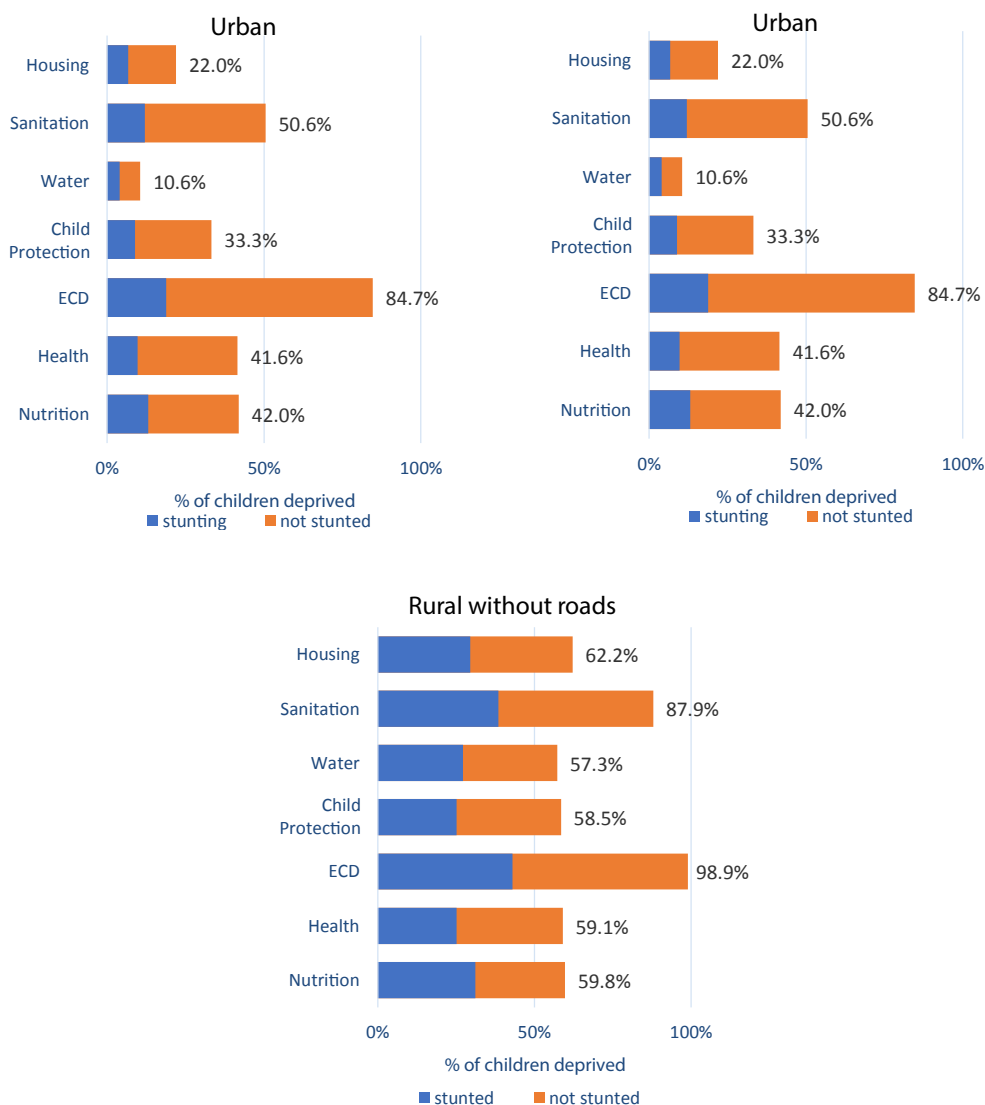
Figure 11 shows the distribution of deprivation among stunted and non-stunted children. 14.3 per cent out of the 32.9 per cent of children deprived in water are stunted.

Figure 11 Composition of dimensional deprivations by stunted and non-stunted children, for all children under 5



Both stunting and deprivation rates are remarkably lower for children living in urban areas compared to children living in rural areas with or without access to roads. Figure 12 demonstrates the slightly positive relationship between stunting and dimensional deprivations, meaning higher levels of stunting are usually associated with higher levels of deprivations, for almost all dimensions.

Figure 12 Composition of dimensional deprivations by stunted and non-stunted children, for children under 5 years by area of residence



This relationship becomes even clearer when the level of deprivations (for $k=3$) is plotted against the incidence of stunting on the regional level. In the upper right-hand corner of the graph we find the regions with very high deprivation levels and very high stunting levels while regions that combine relatively low levels of deprivations with a relatively modest (but still high) levels of stunting are found in the lower left-hand part of the graph (Figure 13). It is remarkable that there exists an almost linear relationship between levels of deprivation and stunting, meaning, that the higher proportion of children that are multidimensionally deprived (and not only in nutrition) in a region, the higher percentage of children that are stunted in that same region. Figure 14 shows the same figure, with the bubbles representing the position of each province weighted by the size of the population of children under 5 years in each province.

Figure 13 Relationship between multidimensional deprivation ($K=3$) and stunting, for all children under 5 by province

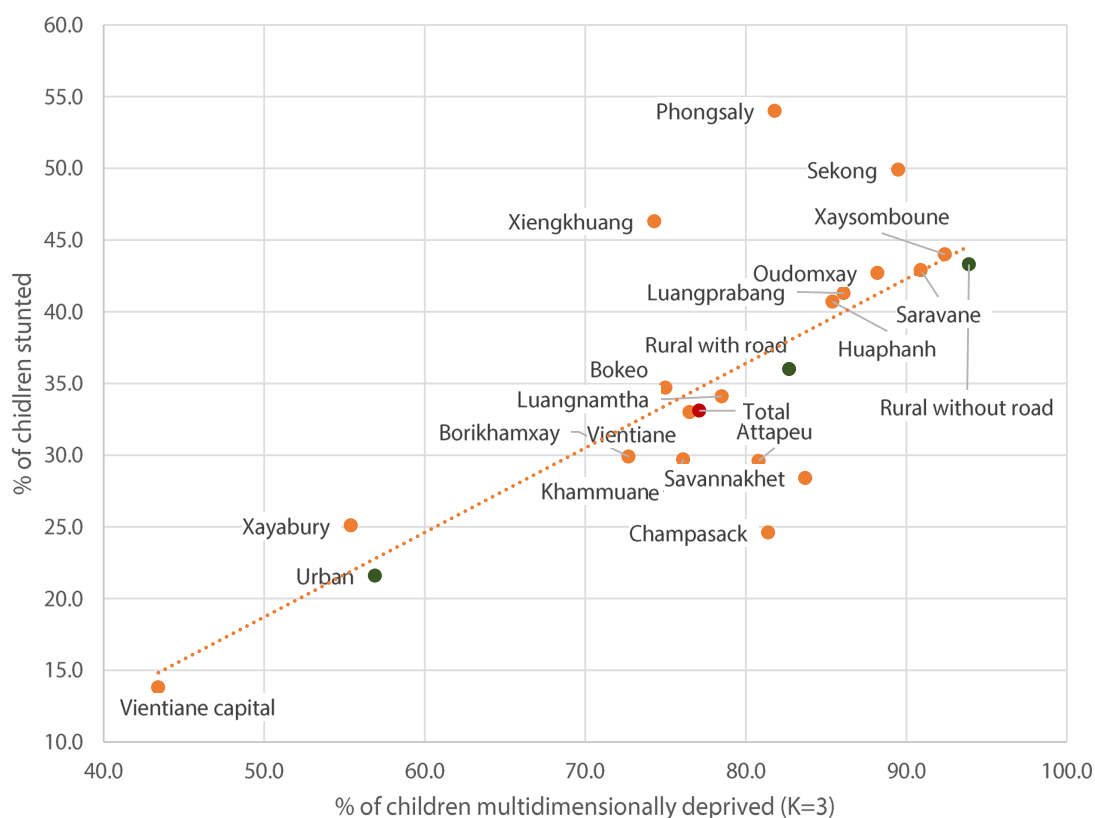
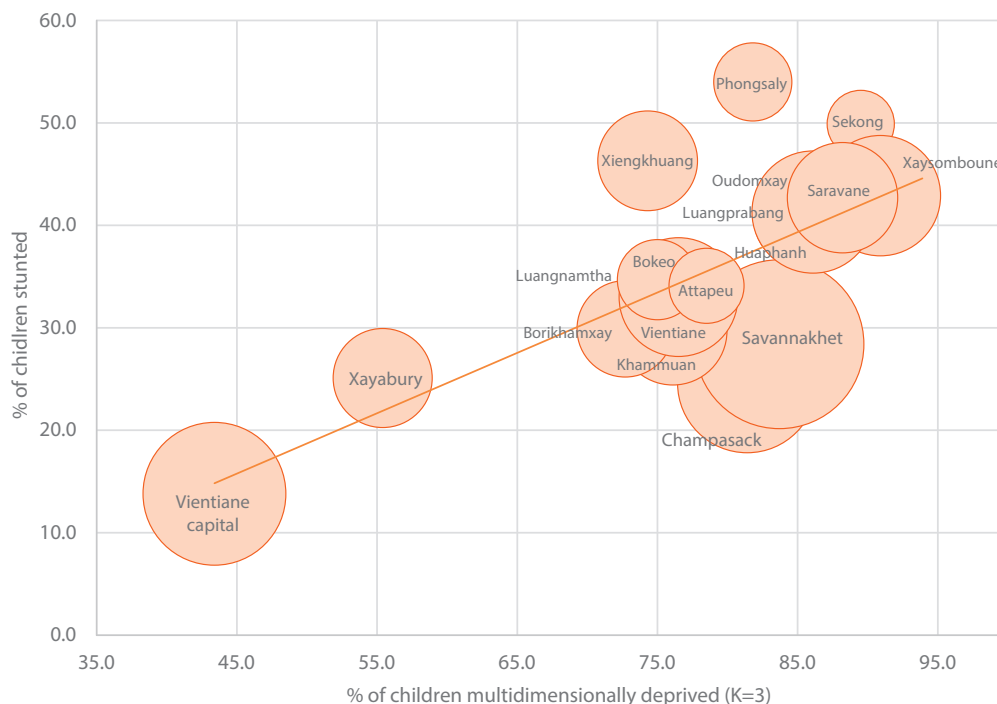


Figure 14 Relation between multidimensional deprivation (K=3) and stunting, for children under 5 by province weighted by the size of child population of each province



The huge degree of overlap between stunting and multidimensional deprivation (for K=3) is further illustrated by Figure 15, depicting that at the national level, 32.0 per cent of the children are multidimensionally deprived and stunted and only 1.0 per cent suffer from stunting while not being multidimensionally deprived.

Figure 15 Overlap between multidimensional deprivation (K=3) and stunting at national level

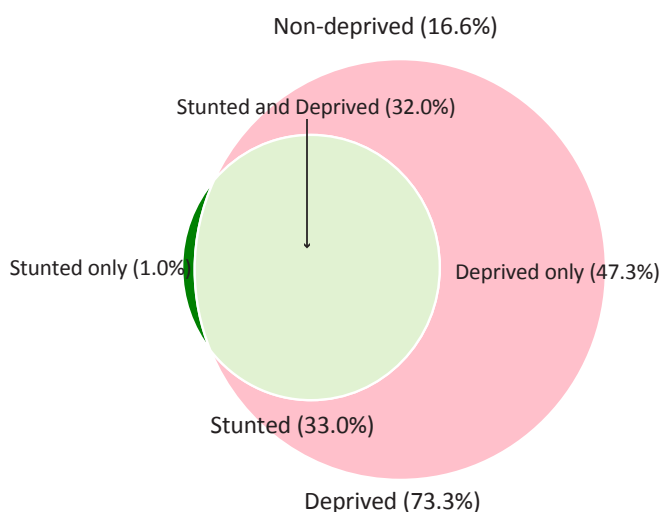


Figure 16 and Figure 17 compare the extent of the overlap of deprivation in nutrition, sanitation and housing between children who are stunted and those who are not stunted. Stunted children are twice as likely to be deprived in all three dimensions (31.8%) compared to non stunted children (17.1%), making them much more vulnerable and requiring immediate and cross sectoral interventions to alleviate their deprivation.

Figure 16 Three-way overlap between deprivation in nutrition, sanitation and housing, among non-stunted children (Under 5 years)

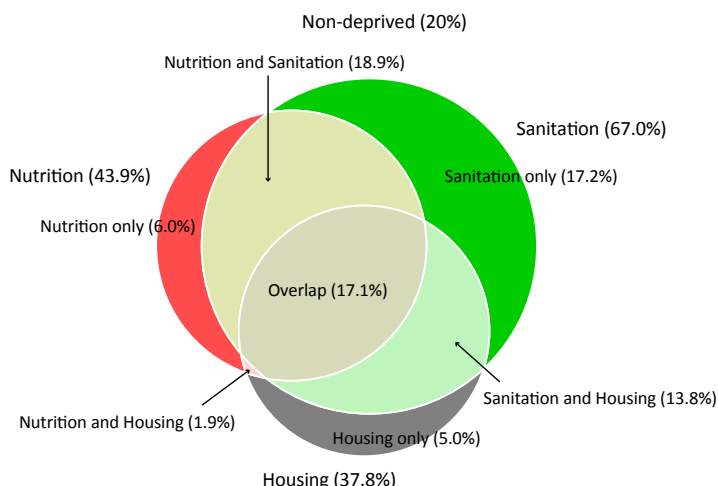


Figure 17 Three-way overlap between deprivation in nutrition, sanitation and housing, among stunted children among children under 5 years

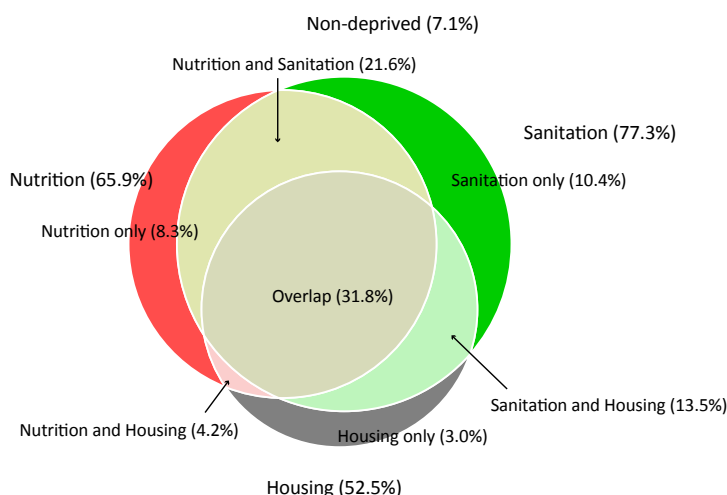
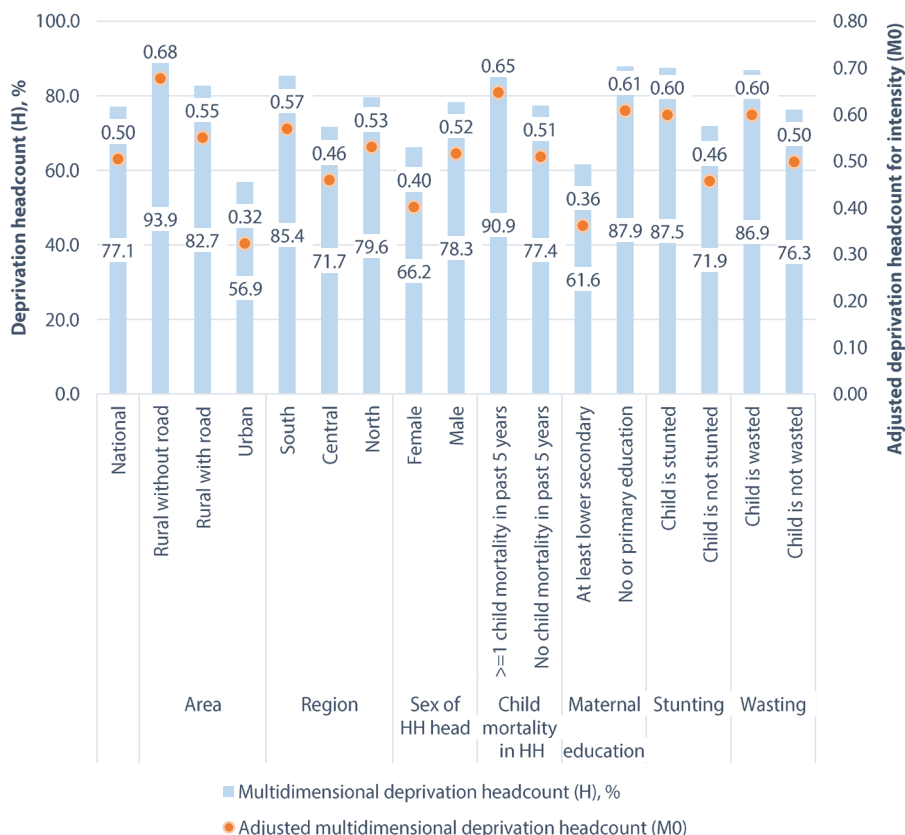


Figure 18 shows that in terms of both the proportion of children considered multidimensionally poor, as well as the level of their deprivation intensity, children who are stunted, and children who are wasted are among the worst performing sub-groups of children.

Figure 18 Multidimensional deprivation headcount (H%) and deprivation headcount index adjusted for intensity (M0), by various characteristics, for children under 5 years deprived in at least three dimensions (k=3)³



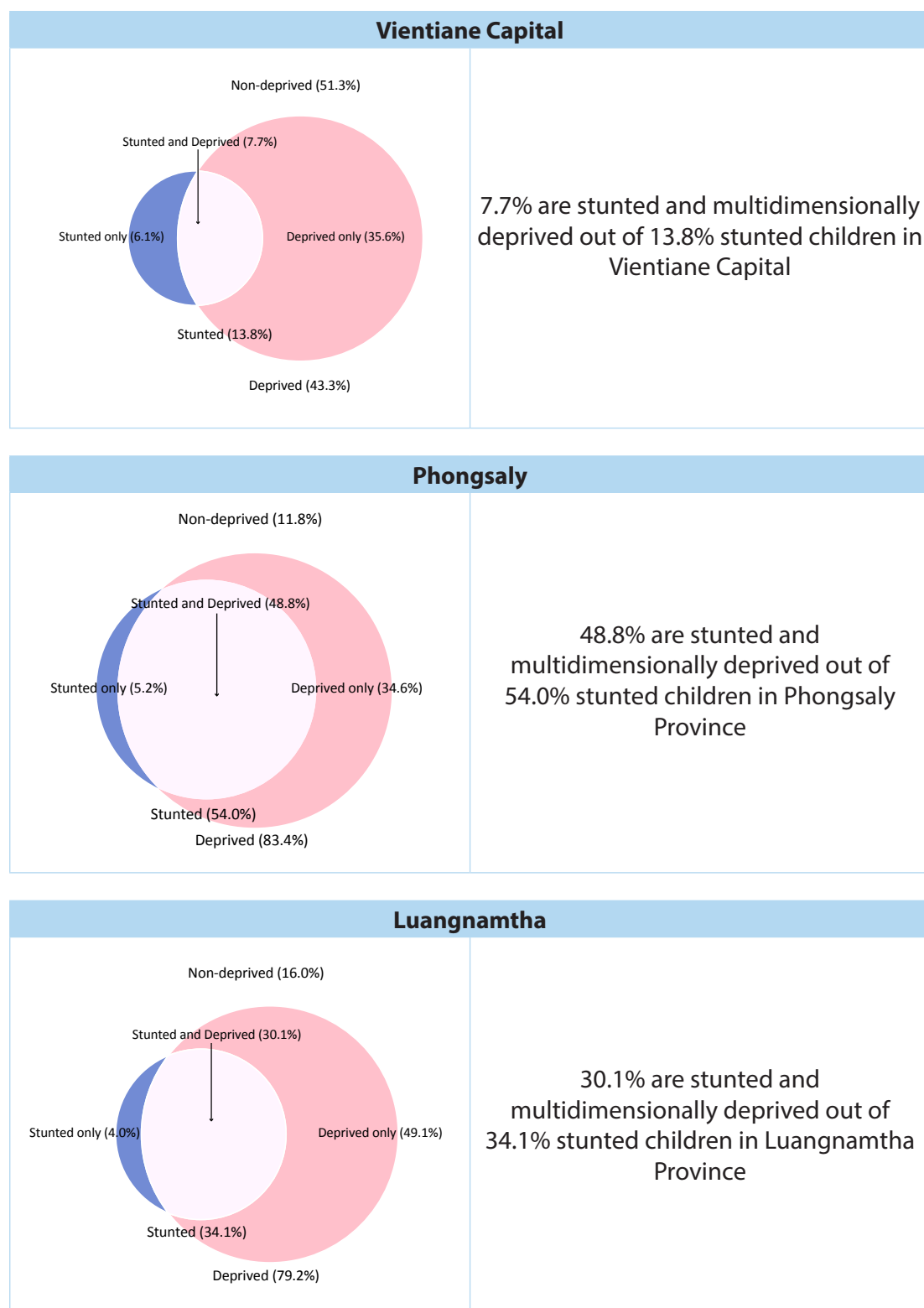
The following figure shows the extent of overlap between children under 5 years who are stunted, and children who are deprived in at least three dimensions, for all provinces in Lao PDR. The relationship between stunting and multidimensional poverty becomes clearer in this case – virtually all children who are stunted are also multidimensionally poor, even in those provinces with the lowest rates of child stunting. This suggests that multi-sectoral interventions, that are coherent and comprehensive in addressing children’s nutrition-specific and nutrition-sensitive needs, targeting the reduction of children’s multidimensional poverty, will be most effective in reducing stunting in Lao PDR.

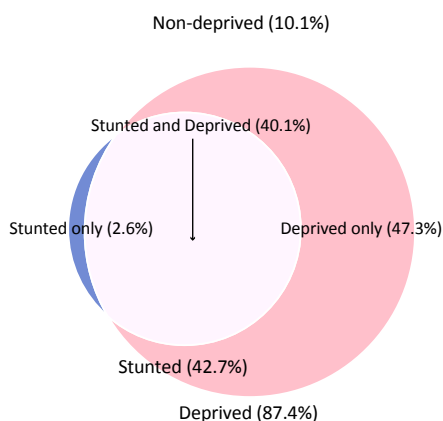
This analysis is further reinforced by another secondary analysis of LSIS II data⁴ which indicates high association between stunting, maternal and household factors. Maternal age, birth size, feeding practices and household socio-economic status are closely associated with stunting among children less than 2 years in Lao PDR. These deprivations are exacerbated by basic and structural inequities at the community or population levels as identified by the multiple and overlapping deprivation analysis.

³ This shows the estimates of the deprivation headcount rate (H), average intensity among the deprived (A) and the multidimensional deprivation headcount rate adjusted for deprivation intensity (M0), at all possible thresholds, k.

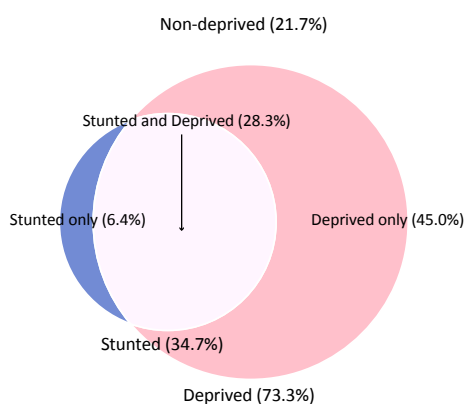
⁴ Predictors of stunting in children under two years of age in Lao PDR: An analysis of the 2017 Social Indicator Survey.

Figure 19 *Overlap between children who are stunted and those who are deprived in at least three dimensions, by province*

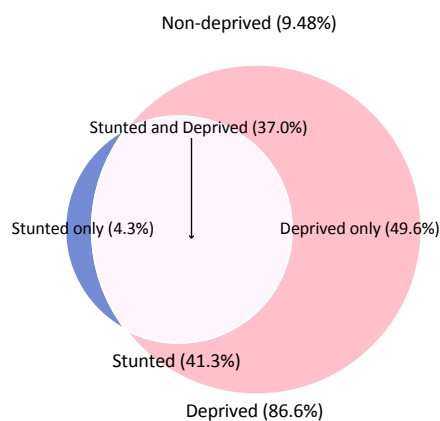


Oudomxay

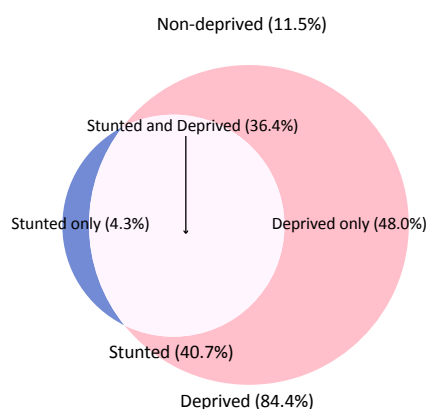
40.1% are stunted and multidimensionally deprived out of 42.7% stunted children in Oudomxay Province

Bokeo

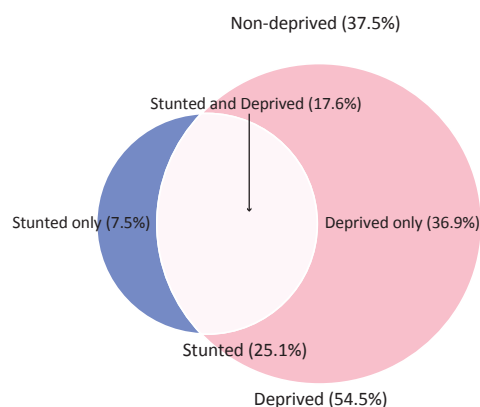
28.3% are stunted and multidimensionally deprived out of 34.7% stunted children in Bokeo Province

Luangprabang

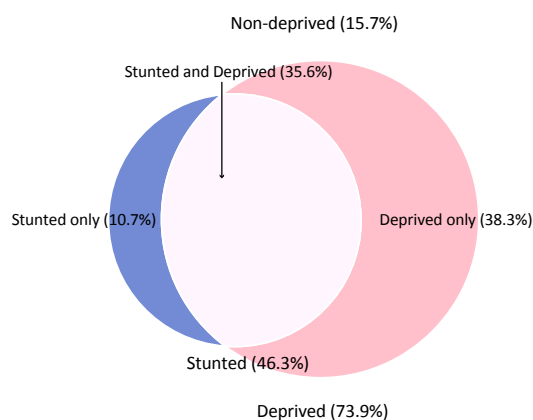
37.0% are stunted and multidimensionally deprived out of 41.3% stunted children in Luangprabang Province

Huaphanh

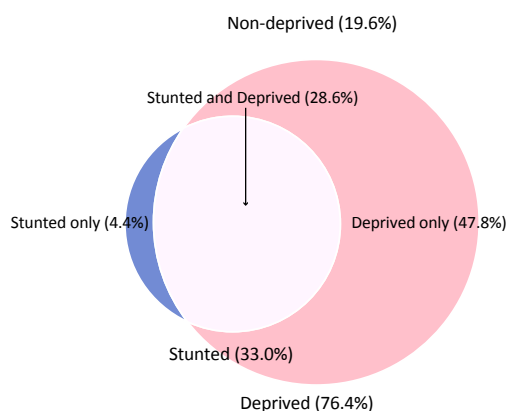
36.4% are stunted and multidimensionally deprived out of 40.7% stunted children in Huaphanh Province

Xayabury

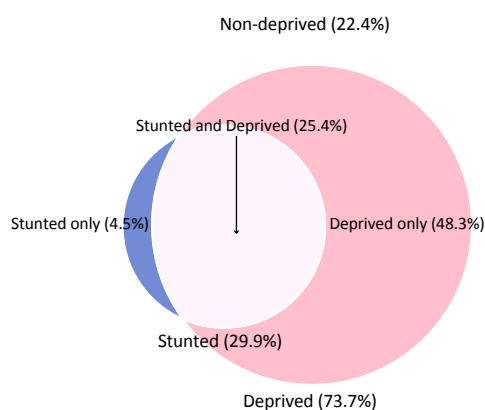
17.6% are stunted and multidimensionally deprived out of 25.1% stunted children in Xayabury Province

Xiengkhuang

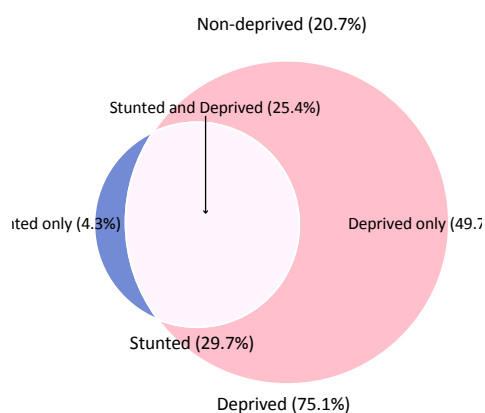
35.6% are stunted and multidimensionally deprived out of 46.3% stunted children in Xiengkhuang Province

Vientiane province

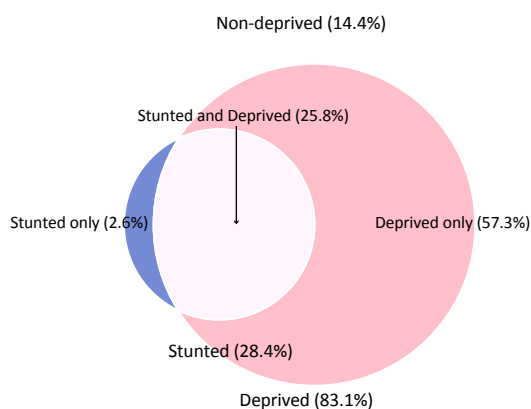
28.6% are stunted and multidimensionally deprived out of 33.0% stunted children in Vientiane Province

Borikhamxay

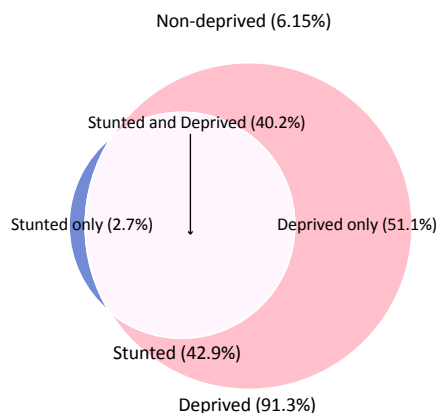
25.4% are stunted and multidimensionally deprived out of 29.9% stunted children in Borikhamxay Province

Khammuane

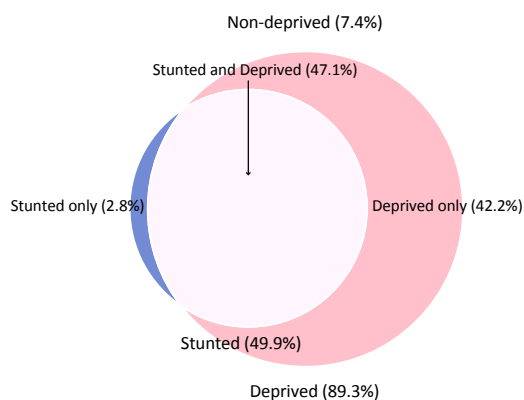
25.4% are stunted and multidimensionally deprived out of 29.7% stunted children in Khammuane Province

Savannakhet

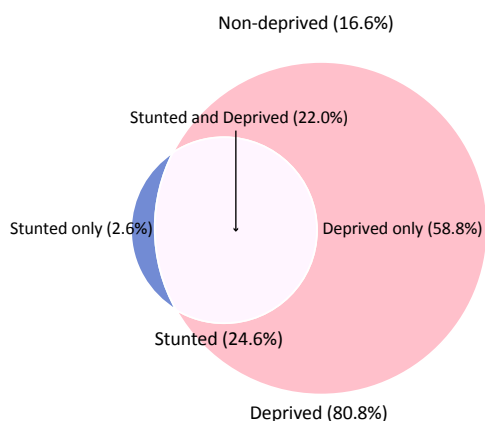
25.8% are stunted and multidimensionally deprived out of 28.4% stunted children in Savannakhet Province

Saravane

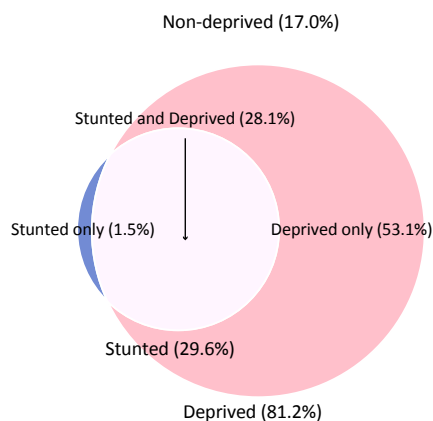
40.2% are stunted and multidimensionally deprived out of 42.9% stunted children in Attapeau Province

Sekong

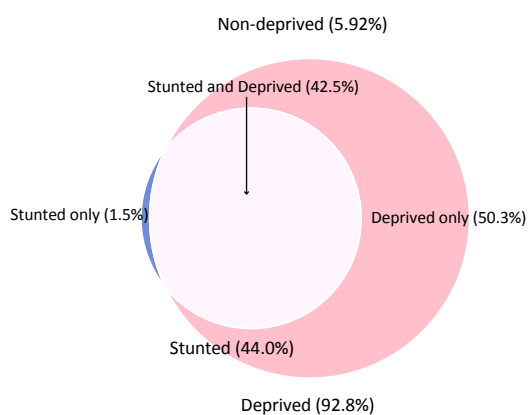
47.1% are stunted and multidimensionally deprived out of 49.9% stunted children in Sekong Province

Champasack

22.0% are stunted and multidimensionally deprived out of 24.6% stunted children in Champasack Province

Attapeu

28.1% are stunted and multidimensionally deprived out of 29.6% stunted children in Attapeu Province

Xaysomboune

42.5% are stunted and multidimensionally deprived out of 44.0% stunted children in Xaysomboune Province



3. Conclusions and policy recommendations

a. Nutrition is a priority concern in Lao PDR

The majority of children under age five years in Lao PDR have nutrition-related deprivations: more than half of infants under age six months are not exclusively breastfed, and close to three out of four infants under age two years are not fed sufficiently in the right frequency and diverse diets. These high rates of nutrition-related deprivation are pervasive throughout the country. The unfavourable combination of insufficiently nutritious diets, non-exclusive breastfeeding of infants, and high burden of exposure to disease and infections due to poor sanitation and drinking water, has dire consequences on the cognitive and physical development of children. One symptom and consequence of these unfavourable conditions is the high rate of stunting nation-wide. 11/18 have critical levels of stunting above the WHO recommended thresholds.

The continuous prioritization of nutrition with complementary public-sector financing and policies are essential for the implementation of evidence based and high impact nutrition interventions across the country.

b. Stunting in Lao PDR is both a symptom and cause of inequities

One in three children in Lao PDR is stunted. In some provinces, more than half of children under 5 years (Sekong, Phongsaly) are stunted. In others, although relatively fewer than one in three children are stunted, the absolute number of children who are stunted is particularly high (Savvanakhet). Stunting causes severe and irreversible setbacks to both physical and cognitive development in young children, affecting their capacity to learn and optimal physical development. Childhood stunting has been linked to lower levels of educational achievement and lower productivity in later life. Closing the resource gaps between stunted and non-stunted children in Lao PDR is thus extremely important, not only because of the social inequities that lie at the root of these gaps, but also to secure the prospect for sustainable economic growth in the country. The loss of human capital due to stunting and malnutrition endangers prospects for economic growth and human development, resulting in a lost opportunity for taking advantage of a generation that could meaningfully contribute to the well-being and growth of Lao PDR.

Government and development partners may consider reviewing existing nutrition policies and strategies to ensure that it addresses the key health and nutrition deprivations facing children in Lao PDR. Structural issues that contribute to stunting such as inadequate/lack of sanitation facilities, housing etc require broader attention by duty bearers.

c. Nutrition-related deprivations and stunting are highly associated with multidimensional poverty

It is an urgent imperative to align policy initiatives and devise the most effective policy interventions, to resolve nutrition and health-related issues in young children, at the earliest possible state of life. Policy interventions should be designed specifically to close the deprivation gap between the stunted and the non-stunted children. The analysis presented in this report indicates that stunting is associated with deprivations in multitude dimensions among children under 5 years. At both the national and provincial levels, virtually every child who is stunted is also deprived in three or more deprivations of well-being, even in the provinces with the lowest stunting rates. This high correlation between stunting and multidimensional poverty in Lao PDR suggests that reducing stunting will be achieved with the reduction of multidimensional poverty. As such, it will require multisectoral interventions with an emphasis on both nutrition-specific and nutrition-sensitive interventions. Nutritional intake, access to and uptake of essential health services, access to safe drinking water and improved sanitation, are conditions that need to be implemented comprehensively to prevent childhood stunting and child morbidity. These policy actions, implemented in combination through cross-sectoral coordination, are not only more effective to achieve these aims, but are also likely to be more cost-effective due to economics of scale.

A combined multisectoral approach to programming backed by good data will be most effective in addressing the multiple and overlapping deprivations facing children. At the core is an effective joint planning, budgeting and continuous monitoring of results at all levels.

d. Geography and social profiles matter

Certain areas and provinces in Lao PDR bear a higher burden of stunted children than others. Children in remote, rural areas, such as rural areas without access to a road, have a much higher probability of being nutritionally-deprived and stunted than children living in urban areas. Furthermore, stunting levels in provinces such as Sekong, Phongsaly, and Xiengkhuang are particularly high. Stunting is also highest among children living with a household head of Chinese-Tibetan and Hmong-Mien ethnicity. Any policy interventions designed to close the gap between stunted and non-stunted children need to be sensitive to geographic and social disparities.

The combined policy initiatives in the nutrition, health and WASH sectors (relating to deprivations in water, sanitation and hygiene), should be prioritized in the most affected, or multidimensionally poor provinces. Effective programmes implementation, coordination, and cross-sectoral interventions in the most deprived provinces requires efficient provincial planning processes that is backed by data. There is also the need to support system

strengthening efforts through capacity building of government staff at sub national level to carry out results-based planning, budgeting, coordination and monitoring. It also requires improved intersectoral coordination and sustained monitoring and evaluation systems to implement the most cost-effective interventions. A few provinces could be selected for modelling of this concept; both deprived and better performing provinces could be identified for a pilot with key provincial-specific performance indicators to monitor the utilization of resources to improve child nutrition. Better performing provinces can serve as a useful example for others.

e. Further research on underlying mechanisms is necessary

The analysis presented in this report supports the design of policy actions that are coherent with sub-national and multisectoral planning processes. There remains, however, a need to better understand and unpack the mechanisms that underlie the high rates of nutrition-related issues including stunting, in Lao PDR. To guide policy design, additional analyses on the determinants of stunting and nutrition-related deprivation, within the context of multidimensional poverty, would support the identification of the combination of deprivations which, if reduced, would have the largest impact on reducing stunting. Further causal analyses using available survey data statistical modelling, would also support this. Some mechanisms, however, cannot be fully identified from survey data only – more in-depth and small-scale qualitative research is necessary to understand the bottlenecks that impede improvements in stunting rates and nutrition-related deprivation in the country. Behavioural and attitude-related barriers are important to be identified and studied in more detail to support the design of policies and programming to improve children’s nutritional status. Finally, there is a need to improve our understanding on the long-term consequences of stunting in order to see what kind of policy actions are needed to counteract the damage done to the children who are already stunted, and their potential for catch-up growth at older ages, in order to provide them with the opportunities of a fulfilling life and give them the opportunity to meaningfully contribute to the sustainable development goals of Lao PDR.

