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Laos, Factor 11: Malnutrition

Malnutrition in Laos

Laos—“Peace, independence, democracy, unity, and prosperity” is the motto this landlocked country in Southeast Asia goes by. But despite great reductions in poverty in recent years, making it one of the fastest progressing countries in terms of human development, Laos still remains among the poorest countries in Southeast Asia. Poverty is especially common in rural upland areas due to isolation and often poor farming conditions. Ethnic minorities are frequently hit the hardest.

With 61.4% of the population living in rural areas, an agricultural life is not uncommon in Laos, also known as Lao People’s Democratic Republic (PDR). In the lowlands, rice farming is the dominant economic activity. Glutinous rice is the staple dish, sometimes accompanied by a vegetable or meat dish. Rural families supplement their diet with fruit, livestock, or fish. According to a World Food Programme report, “Rice dominates the diet with an average daily intake of 491 grams per person accounting for 77 percent daily energy needs. At the same time, intake of fat and protein is strikingly low” (*Food and Nutrition Security* 4). Fortunately, food production is usually enough to provide subsistence for families.

The average household size in rural areas is about six people, with some rural areas as large as eight members per household. Families are typically “nuclear families,” but may also include extended family like grandparents, aunts or uncles. In rural areas there is usually more than one family that manage a farm together (Nanthavong 9). Labor is generally divided between men and women, with men working in the fields, hunting, or fishing, and women managing the household, taking care of children, and gardening—although women also make up more than half of the farming labor in Laos (“Laos at a Glance”).

Only 28.95% of the rural population has a primary education; furthermore, only 7% has a secondary education through high school level. National literacy rates for men are higher than for women—83% as compared to only 63%, with an average of 73%. Literacy drops significantly in rural areas. In fact, the female literacy rate in rural areas without road access is only 41%, with males being 68% (Nanthavong 14). Health care access has been greatly expanded; however, the single-payer Laotian health care system still faces many struggles. For instance, only 4% of the GDP is dedicated to health care, and just 12.5% of the population has social health protection coverage. Furthermore, a lack of infrastructure and competent staff holds back the system (*WHO Country Cooperation* vii). Adequate access to health care facilities in Laos means that 93% of the population can reach a health care facility within a 90 minute walk, but fees to users cause delays, and facilities are often understaffed and have unskilled workers (*Success Factors* 20).

The total number of farming households in Laos is 1,021,000 as of 2011. The average farm area is 2.4 hectares, with 22% of farms less than 1 hectare, 32% 1–2 hectares, and 46% more than 2 hectares. The vast majority (92%) of the rice grown is glutinous; rice in general is the primary crop in Laos. Various vegetables, cassava, sugar cane, mango, banana, and rubber are also grown (*Lao Census* ix). Many farm households also have some livestock such as cattle, buffaloes, pigs, chickens, and ducks. Just 30% of farm households grow produce primarily for sale, although most sell some produce.

There are many barriers facing Lao farmers as far as improving agricultural productivity. Access to improved or high-quality seed varieties, poor land and water quality, lack of farm management skills, the conversion of farmland to non-agricultural use, and general poverty are all significant barriers. 62% of Lao people live near or below the international poverty line. A lack of technology in equipment also

impedes productivity; e.g., only 4% of farm households had used a water pump in 2011, and just 2% owned one. This number has not changed since 1989 (*Lao Census x*). Climate change, bringing with it both flooding and drought, has also seriously affected farmers. The very nature of subsistence farming is a barrier to earning a living wage. Most farmers in Laos are farming primarily to feed themselves—although 71% sell some produce for profit, this is likely to not be enough for a living wage. Access to food markets is impeded by poor rural infrastructure, such as a lack of roads, and a lack of cellphones and other technology impairs farmers' ability to get information about market pricing (Fullbrook 17). Additionally, only 40% of rural households in Laos have electricity (Akkhavong et al. 5).

There are also many barriers to getting proper nutrition. In much of rural Laos, the diet itself can cause problems—sometimes farmers do not have enough rice, and the diet is often lacking in variety needed for proper nutrition. Other factors are involved as well, including a high rate of diseases such as malaria, pneumonia, diarrhea, and tuberculosis. People with diseases have a harder time maintaining nutrition. Furthermore, the optimal use of breastfeeding is still not a cultural norm in rural Laos (Kounnavong 68).

Malnutrition is the factor I will examine, as it significantly diminishes food security in Laos. One study looking at rural provinces in Laos describes the situation as follows:

Our findings indicate that the nutritional situation in the remote areas of Lao PDR was very severe, even worse than it had been perceived. Food insecurity was extremely serious, especially in Kalum where about half the study households had rice only for 3 months or less per year. The dietary data also proved their diets were very poor in both quantity and quality. It is therefore plausible that the persistent food shortage, mainly due to poverty and geographical constraints, was at the root of high prevalence of stunting among study children (Miyoshi et al. 888–889).

Malnutrition is measured by looking at childhood growth rates: “Growth assessment is the single measurement that best defines the health and nutritional status of children, because disturbances in health and nutrition, regardless of their etiology, invariably affect child growth” (de Onis 1). Malnutrition rates in Lao PDR have been and continue to be high, despite improvements in recent years. In the early 1990s, for example, 40% of children under five were underweight, but by 2012 this had declined to 27%. Still, 44% of children were stunted in 2012, compared to 54% in the early 1990s, and this rate has remained almost the same since 2000 (*Success Factors* 13). Many nutrient deficiencies are common in the Lao population. About 2/3 of children under two, and 1/3 of women at reproductive age are anemic. Iodine deficiency is common even though most families use iodized salt. Vitamin A deficiency is also common, present in 1/3 of children under five (Chaparro et al. 1). This can cause blindness and increase the risk of infectious disease; it is the foremost cause of preventable blindness in children (“Vitamin A Deficiency”). Despite the fact that specific areas are improving, such as declines in stunting and underweight pre-schoolers, the numbers in rural ethnic areas are still high. For instance, stunting may reach as high as 61% of children under 5 in some upland ethnic areas, which is higher than the national average was in the 1990s (Chaparro et al. 1).

An undernourished population is likely to suffer many long-term effects. A *Lancet* study examined data from five developing countries, showing the consequences of undernutrition. Permanent damage is caused by a lack of growth in young children and fetuses, such as reduced adult height and damage to the brain. This can lead to poor motor and cognitive development, often limiting learning potential. Poor performance in school and lower body mass and height can cause lower adult income, perpetuating poverty across generations. Children born with low height and weight might have a higher chance of bone fractures. There is also evidence that parents who were undernourished in childhood are more prone to have children with a low birth weight (Victor et al. 340–357).

Improving malnutrition statistics for children would benefit Lao productivity. Currently UNICEF

statistics show “Childhood-malnutrition-related productivity losses in the adult population account for an estimated 3 percent loss in Lao's GDP, or \$197 million annually” (“As Lao Prospers...”). Also, improving nutrition will go hand in hand with improving women’s status since recommended solutions involve increasing the education of women and giving them more control over work schedules and diets pre- and post-partum: “Reducing the traditional workloads of women in the household and fields would give them more access to time and support for the care of newborns,” explains Glenn Bond, director of CARE – Laos, a non-profit aid group. “Women currently don't have much say in the burden of the workload. Improving household health requires women to have more decision-making power” (qtd. in “As Lao Prospers”).

There are several major issues that will affect the factor of malnutrition in Laos, for instance, climate volatility and crop failures. According to the Food and Agriculture Organization, crop pests damaged the food security of 32 percent of households in 2012. Road-blocking landslides due to heavy rains impacted 20 percent (“As Lao Prospers”). Access to clean drinking water is also a challenge. Despite abundant water resources in Laos, contaminated water often leads to illnesses such as diarrhea, a leading cause of childhood under-nutrition and death. Many rural Laotians have poor or no sanitation facilities (“Water and Sanitation”).

Numerous elements contribute to malnutrition in Laos. Among these are poverty; infectious diseases; inadequate sanitation facilities; inadequate breastfeeding, and post-partum restrictive diets. As mentioned earlier, a diet consisting almost entirely of glutinous rice with little protein is also a contributor. Diseases such as malaria can also contribute to malnutrition. For instance, a study on the impact of malaria on youths in the Khammouane province of Laos noted that infection by *Plasmodium falciparum* greatly increased the prevalence of wasting (from 4% to 17%). On the other hand, *P. vivax* infection did not have this effect (Takakura et al. 265).

Reducing malnutrition in Laos will take multiple approaches to address the multiple aspects of the problem. One of the more interesting proposals is to encourage farming insects for human consumption. Insect eating is a traditional practice in Laos, with many different species being eaten. This is important because in many countries the taboo around entomophagy makes people unwilling to accept this idea, despite its many practical benefits. Insects are collected seasonally from forests in the country, certain species being more common at a particular time of year. It appears that nearly all (96.8%) of Laotians eat insects; however the majority do this infrequently, with a smaller part of the population consuming them very often. Less insects are being eaten now than in the past, due to lower availability and changing social conditions. Insect farming does not have an established tradition in the country, but it provides a more reliable and abundant food source than wild collection (Barennes, Phimmasane, and Rajaonarivo 1–3).

Entomophagy can be very beneficial to improving food security in the developing world. As a protein source, they can be grown in smaller spaces and with less waste than conventional livestock, which is both an economic and environmental advantage. Reproduction rates for insects are much higher, as well. Insects provide more energy for the amount spent on their raising than do traditional livestock, a quality which is called efficiency of conversion of ingested food (ECI), making them an efficient, compact choice. For example, the house cricket *Acheta domesticus* has an ECI with double the efficiency of pigs and chickens, and four times that of steer. Insects are more environmentally friendly as well, for they do not need to be fed grains and drink less water than conventional livestock. They produce far fewer greenhouse gases for each kilogram of meat than do traditional livestock (Gahukar 129–131). Also, in times of hardship when food is in low supply, insects can be harvested readily to provide an emergency food source. Insects are high in protein as well as vitamins and minerals. For example, 100 grams of crickets contains 134 calories, 12.9 grams of protein, 76 milligrams of calcium, and 9.5 milligrams of iron (Hanboosong and Durst 29). Mealworms provide similar concentrations of omega-3 fatty acids to fish (Barennes, Phimmasane, and Rajaonarivo 3).

There have been several successful insect farms in Laos. A farmer in Don Deng village, Chanthabouly, Vientiane, started a cricket farm after going through training. He feeds the crickets with chicken feed and gives them water with damp tissues. He produces 26 kilograms of crickets a day, which he sells for 50,000 kip (6.16 USD) per kilogram, earning him about \$160 per day (Hanboosong and Durst 36). In a more remote village, Ban Hatviangkham, sixteen women were given training by Veterinarians Without Borders to set up and run cricket farms at their houses. At the end of the project, all said they would be willing to expand their farms, and all of their households showed improvement in diet and food security (Weigel 13).

Generally there is a lack of research into how insect agriculture could be done on a mass scale. If the practice is to improve food security significantly, safety and hygiene regulations will need to be introduced where currently there may be none. This process has fortunately already begun in Laos with the Laos Technical Cooperation Project between the government and the FAO, which introduced standards in insect farming which were based on international food standards (“Bugs in the System”).

Given the successes of these projects and the potential for insect farming to provide a reliable source of food for Laos, it is wise for the Lao government and other institutions like universities, their extensions, and international aid groups to provide training and incentives that encourage people to take up this task. In the cases of the two successes mentioned above, university faculty funded by the FAO until 2013 and the aid organization Veterinarians Without Borders provided training. Multinational corporations or foundations might also get involved, such as when the Gates Foundation gave the company “All Things Bugs” \$100,000 grant to develop insect products to reduce malnutrition in children (Dossey). Some investors have put money into small farms in developing countries; Syngenta recently invested \$500 million in small African farms.

A successful example of large-scale insect farming can be seen in Thailand, where over 20,000 insect farms have been registered. This development has come about recently, in about the last twenty years, due to a combination of high demand, innovation, and university research. Laos would do well to draw inspiration from Thailand’s success. In Thailand, insect-eating is practiced not just among the poor, but across all of society. Marketing campaigns could increase this demand further. Sometimes it is difficult for farmers to get loans for insect farms, as lenders may not see the benefits of this. Some have suggested that more involvement from international groups to raise awareness of the potential of insect farming is needed (Hanboosong, Jamjanya, and Durst iv, 46–47).

In Laos, as in much of the rest of the world, poverty, poor rural infrastructure, disease, and many of other factors intersect to create a dismal situation for a vast number of people. Malnutrition leaves children stunted and continually affects them throughout their lives, damaging their brains, reducing social mobility and keeping the poor poor. Not only is there a broad lack of a sufficient amount of food, there is often a lack of food quality—protein and micronutrient deficiencies being common. New problems will stand in the way of food security as the population grows and climate change worsens. Improving food security of the Lao poor must be done in a way that will continue to work in the future as the world changes.

Insect agriculture, while perhaps initially sounding like a novelty, is a very promising solution because it provides a ready source of protein and micronutrients that will already fit in with the Lao culture, and because of its space efficiency and low impact on the environment. Encouraging farmers to grow insects will allow them to better feed themselves and make a profit. In this way, the rural poor will be able to improve their own conditions. Local knowledge of edible insects will be important in deciding which insects to grow, which will allow insect farming to better fit in with varying cultures. Insect conservation

should be encouraged—hopefully in farming insects, collection of wild species that may occasionally put undue pressure on ecosystems will be alleviated. The techniques learned in Laos could be applied to other countries as well to improve worldwide food security. In the coming decades, sustainable practices like this will be essential as the needs of a growing population clash with the desire to protect nature.

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