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2024 FAO/WFP CROP AND FOOD SECURITY
ASSESSMENT MISSION (CFSAM) TO THE
LAO PEOPLE'S DEMOCRATIC REPUBLIC

April 2025

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ABBREVIATIONS

AFRDP	Agriculture, Forestry and Rural Development Plan
AFSIS	ASEAN Food Security Information system
APTERR	ASEAN Plus Three Emergency Rice Reserve
ASEAN	Association of Southeast Asian Nations
CDMC	Central Disaster Management Committee
CFSAM	Crop and Food Security Assessment Mission
COVID-19	<i>Coronavirus Disease 2019</i>
D&L	Damage and loss
DAEC	Department of Agriculture Extension and Cooperatives
DAFO	District Agriculture and Forestry Office
DALaM	Department of Agriculture Land Management
DAP	diammonium phosphate
DDMC	District Disaster Management Committee
DHM	Department of Hydrology and Meteorology
DLF	Department of Livestock and Fisheries
DoA	Department of Agriculture
DoF	Department of Forestry
DoI	Department of Irrigation
DoPC	Department of Planning and Cooperation
DRM	Disaster Risk Management
DSW	Department of Social Welfare
FAO	Food and Agriculture Organization of the United Nations
GAP	Good Agriculture Practices
GDP	gross domestic product
GIEWS	Global Information and Early Warning System on Food and Agriculture (of FAO)
ha	hectare
IRRI	International Rice Research Institute
kg	kilogramme
LAK	Lao kip
LDB	Lao Development Bank
LSB	Lao Statistics Bureau
LTA	Long Term Average
LWU	Lao Women Union
MAF	Ministry of Agriculture and Forestry
masl	metres above sea level
MIC	Ministry of Industry and Commerce
MLSW	Ministry of Labour and Social Welfare
MoF	Ministry of Finance
MoNRE	Ministry of Natural Resources and Environment

MPI	Ministry of Planning and Investment
MRC	Mekong River Commission
mVAM	Mobile Vulnerability Analysis and Mapping (of WFP)
NAFRI	National Agriculture and Forestry Research Institute
NDVI	Normalized Difference Vegetation Index
NGOs	Non-Governmental Organizations
NRERI	National Resources and Environment Research Institute
PAFO	Provincial Agriculture and Forestry Office
PDMC	Provincial Disaster Management Committee
UNDP	United Nation Development Programme
USD	United States dollar
UXO	Unexploded ordinance
VIIRS	Visible Infrared Imaging Radiometer Suite
WB	World Bank
WFP	World Food Programme
WUGs	Water User Groups

HIGHLIGHTS

- Multiple flood and landslide events of small to medium scale affected more than 35 000 farmers in 2024. Most events were triggered by tropical storms and cyclones (Prapiroon, Yagi, Sulik and Trami) between June and October 2024.
- Irrigation infrastructure sustained significant damage by floods, with a total of 368 irrigation schemes affected. Without rehabilitation, over 15 700 hectares of cropland will remain unirrigated during the 2025 main cropping season, expected to start in June 2025.
- Paddy, sweet maize and cassava plantings in 2024 were estimated to be above the five-year averages, driven by high prices at sowing time. Elevated food prices have contributed to an increase in the cultivation of both food and cash crops.
- Inadequate access to critical agricultural inputs, including fertilizers, improved certified seeds and mechanization, combined with weather shocks, have resulted in low yields of key food staples in 2024.
- Paddy production in 2024 is estimated at 3.8 million tonnes, about 3 percent above the previous five-year average (2019–2023). An expansion in plantings outweighed lower yields. However, heavy rainfall in September and October 2024 disrupted harvesting operations and led to increased post-harvest losses.
- Sweet maize production is estimated at 170 000 tonnes, 2 percent above the past five-year average. Maize grain production, primarily used as livestock feed and for export, is estimated at 443 000 tonnes, 15 percent below the last five-year average, as farmers



increasingly shifted to cultivating cassava. Cassava production rapidly increased in recent years and is estimated at 6.8 million tonnes in 2024, almost 60 percent above the last five-year average.

- Livestock production is estimated to have increased in 2024, supported by favourable pasture conditions, minimal flood-related losses, the absence of pests or disease outbreaks and growing demand for livestock products.
- Cereal import needs in the 2024/25 marketing year (September/August) are estimated at 40 000 tonnes of rice, mainly to supply supermarkets with high-quality fragrant rice from Thailand. Cereal exports in 2024/25 are forecast at an above-average level of 305 000 tonnes, driven by expectation of large sales of maize. Nearly all cassava production is expected to be exported, primarily to China (mainland).
- Despite a slightly above-average production of key food staples, acute food insecurity has increased moderately in 2024. This primarily reflects the impact of persistently high inflation rates, as market purchases are the main source

of food for more than 50 percent of households. Additionally, typhoons and related flooding have aggravated conditions in the affected areas.

- An estimated 1.12 million people were assessed to be facing acute food insecurity (representing 11 percent of all households) in late 2024, including 77 000 people facing severe acute food insecurity. This compares to 9 percent of households in 2023. Acute food insecurity is expected to worsen with the approaching of the lean season, peaking in September 2025.
- Acute food insecurity continues to affect certain communities and areas more severely than others, with rural households and southern provinces of Sekong and Attapeu experiencing the highest prevalence rates. Households headed by individuals with no education, those relying on agricultural wage labour as a primary livelihood source, or those without an income source are most at risk of food insecurity.
- Overall, 17 percent of households do not have adequate food consumption, and nearly half are relying on coping strategies due to insufficient finances to meet their basic needs. These conditions highlight continued economic challenges in accessing an adequate diet despite the stabilization of the national currency and disinflation in 2024.
- The eroded coping capacity of households takes on special relevance given that one in four households were significantly affected by a shock within the six months preceding the

December 2024 survey. Natural hazards remain the most frequent shock (reported by 41 percent of households), followed by poor harvests, sickness or health expenditures, and loss of or reduced income. One in four rural households reported reduced incomes compared to the previous year.

- The Mission recommends a series of short-term agriculture-related measures to provide immediate assistance to flood-affected small-scale farmers, particularly the poorest and women-headed farming households. Additionally, it proposes several medium-term strategies aimed at sustainably boosting market-oriented agricultural production by small-scale farmers, amid high food prices, while also safeguarding the country's natural resource base.
- To address the acute food insecurity situation, the Mission recommends improving economic access to food through livelihood support programmes, strengthening the social protection system and ensuring timely and sufficient assistance for communities affected by shocks. In addition, the Mission emphasizes the need to prioritize the four pillars of the Early Warning for All Roadmap (2024–2027), expand the school feeding programme while strengthening local food procurement, scale up nutrition sensitive communication to promote the availability and consumption of nutritious diets, and integrate climate resilience with sustainable agrifood systems to ensure long-term food security.

OVERVIEW

At the request of the Government of the Lao People's Democratic Republic, a joint FAO/WFP Crop and Food Security Assessment Mission (CFSAM) visited the country from 7 to 21 December 2024. The objectives of the CFSAM (henceforth referred to as the Mission) were to estimate staple food crop production in 2024, assess the impact of multiple flood events and other factors affecting the agriculture sector, determine cereal import requirements for the 2024/25 marketing year (September/August) and evaluate the severity and magnitude of acute food insecurity. The Mission identified a broad set of key measures to address the urgent needs of small-scale farmers impacted by weather hazards, providing recommendations to support a sustainable increase in small-scale farmers' agricultural production and proposed interventions to address acute food insecurity.

The Mission held extensive discussions with key institutions in the private and public sectors, as well as civil society organizations (see Annex 1 for a full list of institutions). The Mission met with importers of essential agricultural inputs (fertilizers, seeds, pesticides and machinery), rice millers and other food processors, as well as several key actors at the Lao Agri Food Expo 2024 held in Vientiane on 16–20 December 2024. The Mission was supported by the FAO's Land and Water Division (NSL), which conducted a geospatial assessment of the flood extent prior to the in-country visit. For the field visits, the Mission was organized into four teams, covering a total of 19 districts across seven provinces (out of 17 provinces).^a The districts were selected to ensure an adequate representation of the flood-affected areas and a diverse range of crops, livestock and agroclimatic conditions. Six experts from the Ministry



of Agriculture and Forestry (MAF) at the central level joined the field teams, while provincial and district MAF staff facilitated farm visits and organized focus group discussions with village chiefs, women's unions and farmer groups. Local wholesale and retail markets, along with major retailers, were visited in all seven provinces.

The 2024 cropping season was characterized by multiple flood and landslide events of small to medium severity as well as early-season dry-weather conditions that primarily affected southern provinces. The Ministry of Natural Resources and Environment (MoNRE) reported over 20 flood events between June and October 2024. The floods in Luang Namtha Province in September were the most severe; however Luang Namtha Province is a relatively minor contributor to the national cereal output.¹ Most flood events were triggered by tropical storms and cyclones. The country's Disaster Risk Management (DRM) system was activated, with warnings issued by the Department of Hydrology

^a The Mission visited the following districts:

Team 1: Oudomxay Province: Beng and Houn districts; Xayabouly Province: Phieng and Xayabouly districts.

Team 2: Vientiane Province: Vangvieng, Feuang, Xanakharm, Thoulakhom and Phonhong districts; Vientiane Prefecture: Xaythany and Parkngum districts.

Team 3: Khammuane Province: Nongbok and Xebangfai districts; Savannakheth Province: Champhone and Xepone districts.

Team 4: Champasak Province: Khong, Sanasomboun, Pathoumphone and Pakxong districts.

and Meteorology (DMH), but no state of emergency was declared by the government.

More than 35 000 farmers suffered crop, livestock and/or irrigation infrastructure damage and losses due to the flood events in 2024. The floods affected 20 300 hectares of paddy cropland, representing about 2 percent of the total area cultivated with paddy in 2024 and 2 100 hectares of vegetables. Although the impact of floods on crops was severe at local level, their overall effect on the aggregate national paddy and vegetable production remained limited.

Irrigation infrastructure sustained significant damages with a total of 368 irrigation schemes affected. Without immediate rehabilitation, more than 15 700 hectares of cropland will remain unirrigated in the next cropping season in 2025.

In 2024, plantings of paddy, sweet maize and cassava were estimated at an above-average level, driven by high domestic prices at planting time. The sharp increase in food prices since 2022 has been a major driver of agricultural investment in recent years, also contributing to an expansion of cash crop cultivation. However, at the same time, the high cost of agricultural inputs has squeezed incomes of small-scale farming households. According to World Food Programme's (WFP) household surveys, the percentage of agricultural households reporting a year-on-year reduction in incomes increased from 22 percent in December 2022 to 27 percent in December 2024.²

Crop yields, including paddy, maize and cassava, have declined over the past decade, primarily due to inadequate access to, and application of, critical agricultural inputs, such as fertilizers and improved certified seeds, as well as mechanization. In 2024, paddy yields are estimated to be moderately below the five-year average. During the Mission field visits, farmers identified constrained economic access to fertilizers as a major impediment to increase yields, especially for paddy. Weather shocks have contributed to significant variability of yields in the past decade, including in 2024. Additionally, pest and disease prevalence were above average during the 2024 wet season, driven by higher-than-average temperatures and precipitation amounts. Paddy production in 2024 is estimated at

3.8 million tonnes (2.3 million tonnes in milled terms), about 3 percent above the previous five-year average (2019–2023). This increase is driven by an expansion in plantings that outweighed a decline in yields. However, heavy rainfall in September and October 2024 disrupted harvest operations and resulted in increased post-harvest losses.

Sweet maize production is estimated at 170 000 tonnes, nearly 2 percent above the five-year average. Production of maize grain, used as livestock feed domestically and largely exported, is estimated at 443 000 tonnes, about 15 percent below the five-year average, as maize cultivation has been increasingly replaced by cassava. Resultantly, cassava production has grown rapidly over the past five years and is estimated to have reached 6.8 million tonnes in 2024, nearly 60 percent above the five-year average. Banana production is estimated at 879 tonnes, about 15 percent above the average. These estimates do not include production from large investment farms.

Flood events resulted in the death of 6 802 cattle, 1 646 buffaloes, 1 015 sheep and goats and 2 175 pigs, representing less than 1 percent of the total livestock population in 2024. However, given the favourable pasture conditions, the absence of major pest or disease outbreaks and the growing market demand for livestock products, the livestock population and production are expected to have increased in 2024. The Mission identified the low quality and quantity of forage for ruminants as the primary structural constraint in the sector. Rice straw is the main feed sources for ruminants, but due to its low protein content, it does not provide sufficient nutrients to support increased ruminant productivity. Integrating nitrogen-fixing legume crops in the rice production cycle, either as a grain, soil cover or fodder crops, could significantly improve both livestock forage and soil quality.

Food prices surged from mid-2022, with the annual food inflation rate peaking at 53 percent in May 2023 before to 15 percent by early 2025, amid a stabilization of the exchange rate and declining global food prices. The high food prices triggered an increase in agricultural labour supply and investment into the agriculture sector, as households sought to increase production of food for their

own consumption and limit their dependence on markets. The ninth round of the World Bank's Rapid Monitoring Phone Survey (May–June 2024)³ found that scaling up food production remained the most widely adopted strategy among households to counter the effect of rising food prices.⁴

The primary driver of the high food inflation rates has been the depreciation of the national currency (Lao kip), which lost over 80 percent of its value against the United States dollar between 2022 and 2024. This sharp depreciation significantly increased import costs of fuel, fertilizers and food.

Domestic cereal utilization is estimated at 2.62 million tonnes of cereals (rice in milled terms) in the 2024/25 marketing year (September/August). With total domestic cereal production estimated at 2.9 million tonnes (rice milled terms), import requirements are pegged at just 40 000 tonnes of rice, primarily to supply supermarkets with high-quality fragrant rice from Thailand. An additional 5 000 tonnes of rice is expected to be imported by the WFP as food assistance for the school feeding programme and the ASEAN Plus Three Emergency Rice Reserve.

Cereal exports for the 2024/25 marketing year (September/August) are forecast at 305 000 tonnes, including 75 000 tonnes of rice, mainly glutinous rice for the European and North American markets and 200 000 tonnes of maize, mainly shipped to Viet Nam, China (mainland) and Thailand where it is primarily processed as animal feed. Nearly all cassava production, estimated at about 6.84 million tonnes, is anticipated to be exported, mainly to China (mainland).

Despite a slightly above-average production of key food staples, acute food insecurity has increased moderately in 2024. This primarily reflects the

impact of persistently high inflation rates, as market purchases remain the main source of food for more than 50 percent of households. Additionally, the impact of typhoons and associated flood events aggravated conditions in affected areas.

According to the results of WFP's mobile Vulnerability Analysis and Mapping system (mVAM), about 1.12 million people^b (representing 11 percent of households) were estimated to be acutely food insecure in late 2024,^c including 77 000 people facing severe acute food insecurity. This compares to 9 percent of households in 2023. Since the food security assessment was conducted during the harvest season in December 2024, conditions are expected to worsen as the lean season approaches, peaking around September 2025.

Acute food insecurity varies significantly across areas and population groups, with the highest rates in rural areas and in southern provinces of Sekong, Attapeu and Salavan as well as in northern provinces of Bokeo and Oudomxai. Households headed by individuals with no education, those relying on agricultural labour wages and those without a stable income source are at particular risk, highlighting economic shocks as a key driver of food insecurity.

To assess changes in food security since the previous CFSAM in 2022,⁵ the WFP's December 2024 analysis was compared with data from December 2022 and 2023. The findings indicate a slight deterioration in food security in 2024 compared to 2023, when 9 percent of households were acutely food insecure. However, compared to 2022, when acute food insecurity was estimated at 13 percent, data suggests an overall improvement. This two-year trend indicates a fragile recovery from the COVID-19 pandemic and the global food price crisis in 2022, but it also underscores the negative impact of

^b This estimate of acute food insecurity is based upon a modified version of WFP's Consolidated Approach for Reporting Indicators of Food Security (CARI) methodology. The calculation methodology does not require the collection of a lengthy expenditure module which is impractical for high frequency, phone-based surveys. Readers are, therefore, cautioned when interpreting direct comparisons between the acute food insecurity findings from these phone-based survey findings and those collected from traditional face-to-face survey methodologies.

^c The remote household food security data collected between 1 and 30 of December of 2024 (sample size = 2 055 households) is the primary source of food security findings corresponding to 2024 presented in this section; it has been abbreviated as "mVAM 2024" in the text for clarity and brevity.

the 2024 typhoons and the low resilience of rural populations to weather shocks.

Regarding food consumption, no significant improvements have been observed since 2022, when the mVAM survey began. The proportion of households with poor or borderline food consumption rose slightly from 16 percent in 2022 to 17 percent in both 2023 and 2024, indicating continued challenges in accessing an adequate diet, even during harvest periods and despite easing food inflation. According to data from the Lao Social Indicator Surveys conducted in 2017 and 2023, child wasting and underweight have increased slightly compared, while stunting remains persistently high. Concerns about high food prices have moderated in 2024, but they remain a major issue for 12 percent of households. Market access, while improving, remains a challenge for 14 percent of households, particularly in rural areas due to financial and logistical constraints.

The moderate improvement in food security from 2022 to 2024 is also reflected in a decline in households adopting food security coping strategies. The proportion of households relying on livelihood-based coping strategies fell from 61 percent in December 2022 to 47 percent in December 2024, while those using crisis or emergency coping strategies declined from 26 to 12 percent. Similarly, the percentage of households applying food-based coping strategies decreased from 44 to 40 percent, with a more notable reduction in severe coping mechanisms. The proportion of households reducing adult food consumption to prioritize children's food needs fell from 18 to 10 percent, while those limiting portion sizes decreased from 18 to 13 percent. These trends may reflect slowing inflation and a shift toward longer-term adaptation strategies in response to persistently high food prices.

One in four households experienced a significant shock in the second half of 2024, a decrease from December 2022. Climate-related hazards remained

the most frequently reported shock, followed by reduced harvests, health-related expenses and loss of or reduced income. During the Mission interviews, farmers reported declines in rice yields in the flood-affected areas, though paddy production declines were not substantial at the provincial and national levels. Supporting these findings, mVAM survey data showed an increase in households expecting lower yields from 29 percent in 2022 to 33 percent in 2024. These results highlight the vulnerability of rural agricultural systems to weather shocks, especially in drought-prone areas lacking irrigation infrastructure.

The Mission has outlined a range of recommendations to support the agriculture sector and to support improvements in food security conditions. The recommendations align with the MAF's 9th Five-Year Agriculture, Forestry and Rural Development Plan 2021–2025 (AFRD⁶) and focus on: 1) short-term measures to provide immediate assistance to address the needs of small-scale farmers affected by floods, particularly for the poorest and women-headed farming households and 2) medium-term measures to support a sustainable increase in small-scale farmers' agricultural production for the market, amid high food prices, while protecting the country's natural resource base.

To address food insecurity, the Mission recommends improving economic access to food through livelihood support programmes, reducing production costs, strengthening the social protection system and ensuring timely assistance for communities affected by shocks. Additionally, the Mission reiterates the importance of prioritizing the four pillars of the Early Warning for All Roadmap (2024–2027), expanding high-quality school feeding programmes with stronger local food procurement, scaling up nutrition-sensitive communication to promote the availability and consumption of nutritious diets and integrate climate resilience and sustainable food systems to ensure long-term food security.

SOCIOECONOMIC CONTEXT

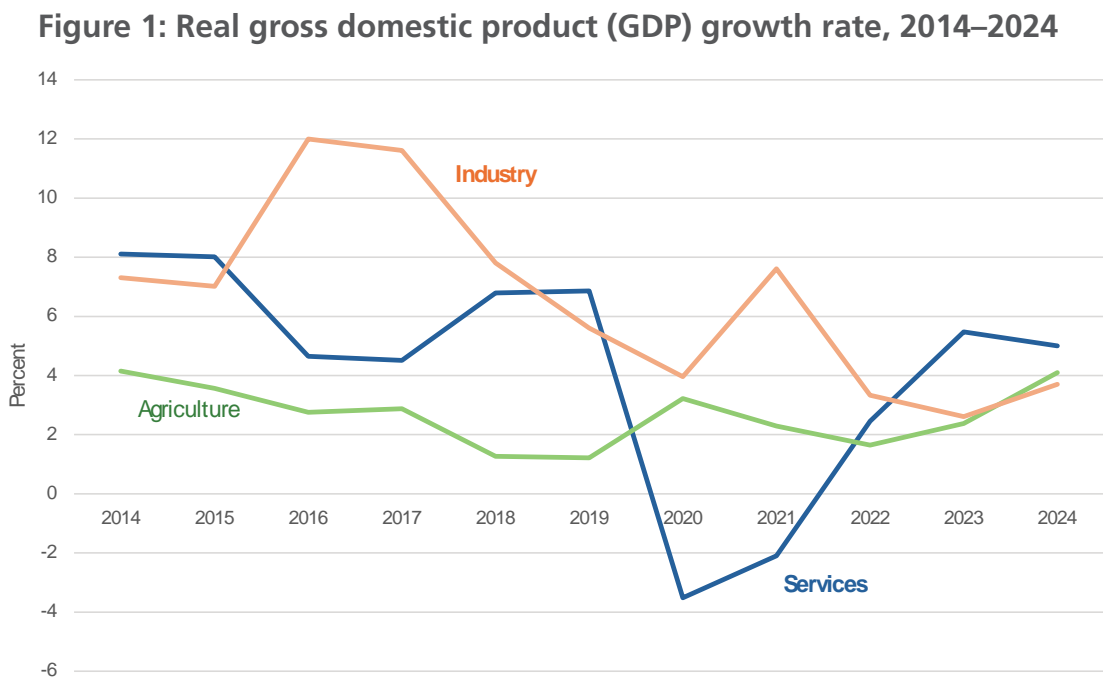
Macroeconomy and the agriculture sector

The Lao People's Democratic Republic is a lower middle-income landlocked country,⁷ bordered by China (mainland), Thailand and Viet Nam, which are its key trading partners. Annual economic growth, after bottoming out at an estimated 0.5 percent in 2020 at the start of the COVID-19 pandemic, partially recovered to an estimated 4.1 percent in 2024.⁸ However, this rate was well below the average of 7 percent recorded between 2010 and 2019. Financial instability, steep currency depreciation and high inflation rates have been key challenges affecting the country's economy and hindering a faster post-pandemic recovery.

In 2024, economic growth was primarily driven by the services sector, which has accounted for nearly 40 percent of the national economic output



over the past decade. A recovery in tourism in the years since the COVID-19 pandemic, supported by new infrastructure developments, including a major railway line, boosted the upturn in the services sector. The industrial sector, particularly mining, electronics manufacturing and hydropower



Source: Author's own elaboration based on data from the Lao Statistics Bureau (LSB), 2024.

generation, played a secondary role in economic growth, but growth rates in this sector have fallen since hitting a multi-year high in 2016.

The agriculture sector, contributing approximately 13 percent of economic output between 2019 and 2023,⁹ is the third sector of the economy (in monetary terms). In 2024, the agricultural output is estimated to have grown moderately but growth rates have generally lagged behind those of the services and industrial sectors. As well as persisting structural impediments, agricultural output in 2024 was also constrained by damages and losses caused by weather shocks, and the adverse effects of high agricultural input costs.¹⁰

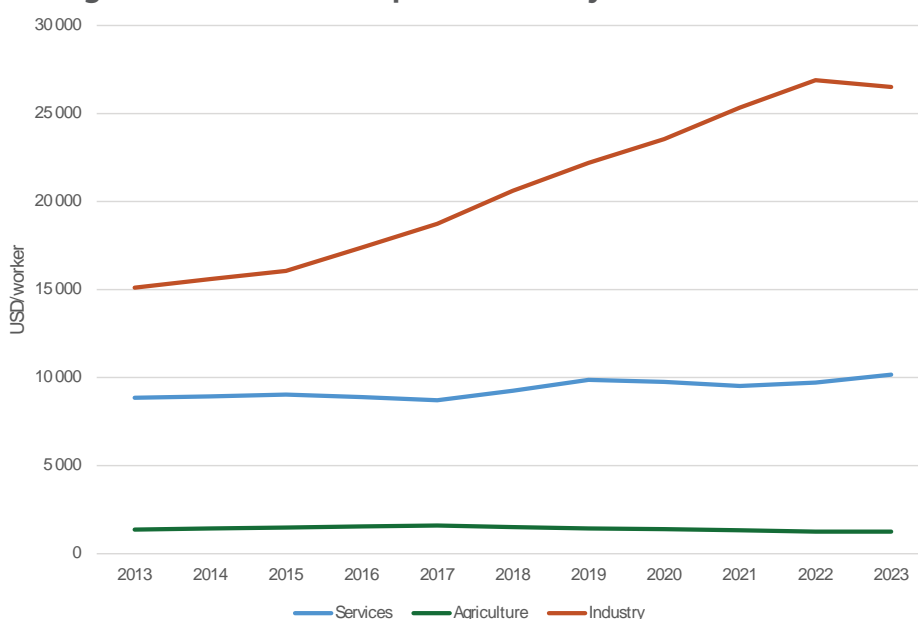
In the immediate years preceding 2024, agricultural growth was mainly driven by an expansion of temporary crop production, with livestock, forestry and fisheries together accounting for only one-third of the total agricultural output in monetary terms.¹¹ Among the temporary crops, non-rice commodities that have spurred growth primarily cassava and rubber, amid strong export demand; rice is the key food staple and the main cereal produced in the country. Between 2020 and 2024, export volumes of rubber increased by nearly 40 percent, while cassava exports almost doubled with most exports destined for China (mainland). However, despite significant

growth in some areas, productivity in the agriculture sector (measured by value added per worker) has remained stagnant since 2013 and behind levels in the industrial and services sectors, reflecting low input intensive agricultural systems.

Although agriculture is not the primary driver of the economy, it employs approximately 60 percent of the labour force,¹² making it a crucial source of livelihood and income for a large segment of the population.¹³ The recent rampant inflation rates also contributed to a shift in internal labour supply dynamics, with an increasing proportion of the workforce moving to the agriculture sector, largely at the expense of the service sector. This transition occurred, in part, as households sought to increase self-production of food as a coping mechanism, amid escalating food prices.

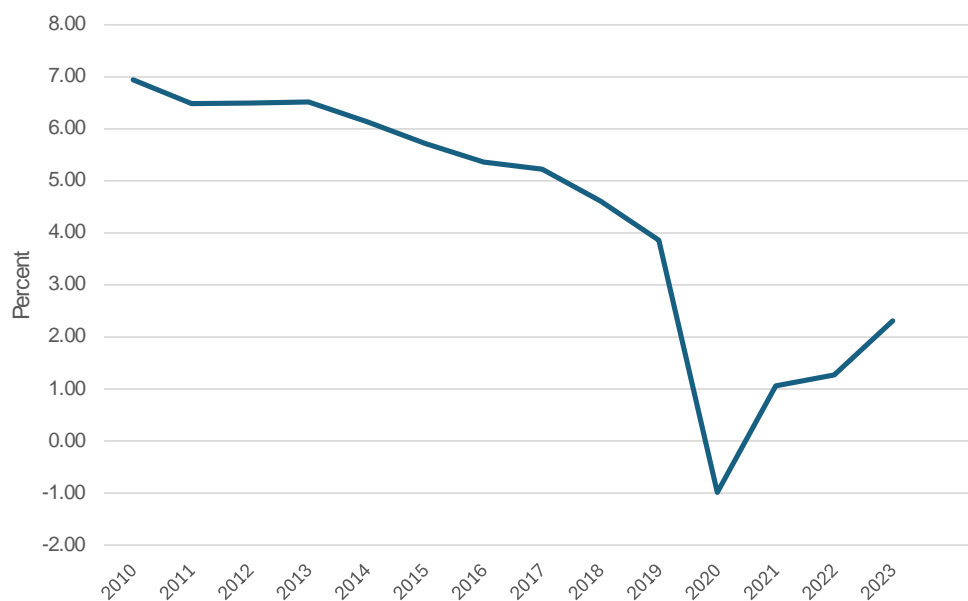
However, while work in the agriculture sector provided some relief in terms of food security and alternative income sources, the overall real income growth has remained constrained. Nationally, annual growth rates of per capita income since 2020 have been below the rates recorded in the preceding decade and, when combined with elevated inflation rates, real income growth has been severely contained. Between 2023 and 2024, World Bank data indicates that average wages

Figure 2: Value added per worker by sector, 2013–2023



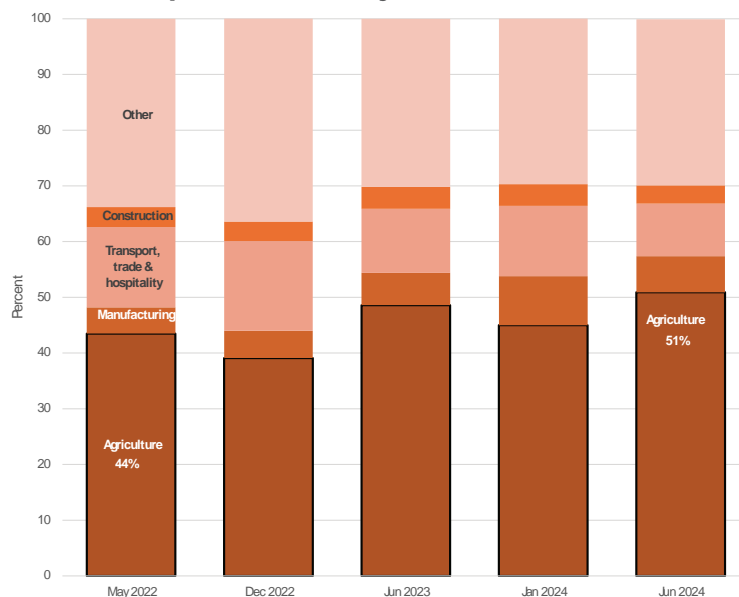
Source: Author's own elaboration based on data from the Lao Statistics Bureau (LSB), 2024.

Figure 3: Annual growth rate of gross domestic product (GDP) per capita (constant 2015), 2010–2023



Source: Author's own elaboration based on data from the Lao Statistics Bureau (LSB), 2024.

Figure 4: Sectoral employment (main job, percent of working respondents), May 2022–June 2024



Source: Author's own elaboration based on data from the Lao Statistics Bureau (LSB), 2024.

grew by only 8 percent, falling far short of the more than 20 percent inflation rate, inferring severe financial constraints for many households.¹⁴ Consequently, the persistent wage stagnation and rising cost of living have fueled increasing levels of outmigration, particularly to Thailand, as workers seek better earnings abroad.¹⁵ Therefore,

despite the internal reallocation of labour between sectors, there is still a reported shortage of labour in agriculture due to an overall decrease in labour supply at the national level. This was noted during the Mission's field visits, with farmers frequently citing lack of labour as a key challenge to expand and intensify production.

Inflation and its main drivers

Consumer prices have been increasing rapidly since mid-2022, driven primarily by the steep depreciation of the national currency (Lao kip) against key currencies. Annual headline inflation peaked at 41 percent at the start of 2023, and since then there has been a period of disinflation through January 2025. However, annual rates still remained in double-digits, with prices increasing by 15.5 percent at the start of 2025.¹⁶

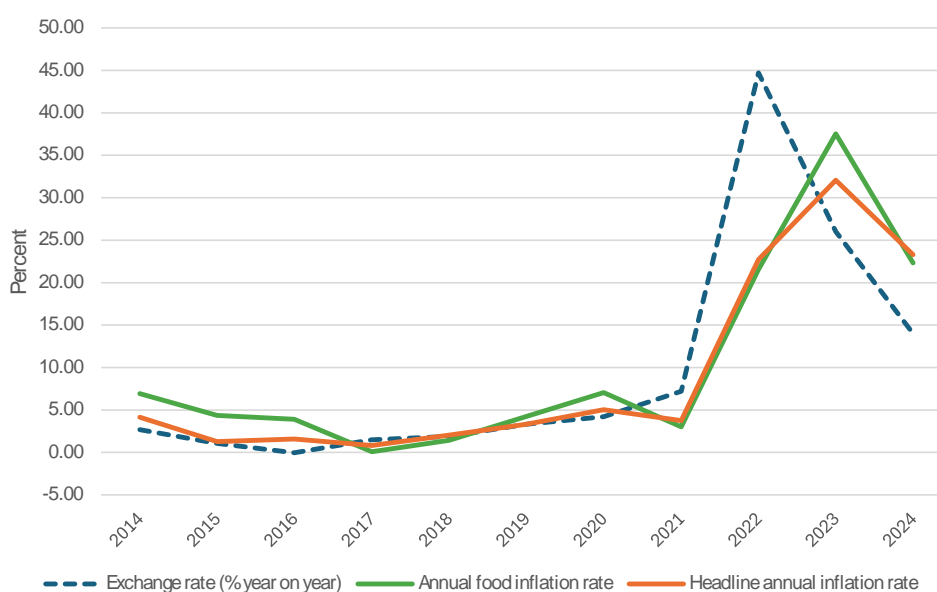
A combination of factors underpin the high inflation rates, with the most significant being the depreciation of the Lao kip. The currency lost significant value against major trading partners' currencies, particularly the United States dollar and the Thai baht, driving up import costs between January 2022 and December 2024, the exchange rate depreciated by more than 80 percent against the United States dollar. Given Lao's heavy reliance on imported fuel, fertilizers and consumer goods, the weak Lao kip exacerbated inflationary pressures across several sectors, including agrifood.

Food price increases have been a key driver of the overall high inflation rates in consideration of the weight of food items in the national consumer

basket (46 percent).¹⁷ Food inflation peaked at 53 percent in May 2023 before declining in the following months. However, at 14.4 percent in January 2025, annual food price increases remained above recent historical averages (6 percent between 2017 and 2021, prior to the surge in inflation). Lao households spend on average 40 percent of their income on food, and these high food prices have adversely affected food insecurity.¹⁸ In parallel, the high food inflation rates have also spurred an expansion in crop plantings, as farmers reacted positively to the high prices. However, the expansion in the planted area has been contained by the rising costs of agricultural inputs, including fuel, fertilizers and labour.

As with consumer prices in general, the primary factor behind the rapidly increasing food prices has been the depreciation of the exchange rate. A 2024 World Bank study reports that, between 2017 and 2023, a 1 percent depreciation of the Lao kip against the United States dollar instigated a more than 1 percent increase in food prices.¹⁹ The full pass-through effect, when local food prices fully adjust to changes in the exchange rate, is estimated to take between 18 months and two years. This relatively slow adjustment indicates that a sizeable proportion of food price increases is due to the exchange rate's impact on indirect costs of food,

Figure 5: Inflation rates and exchange rate, 2014–2024



Source: Author's own elaboration based on data from the Lao Statistics Bureau (LSB), 2024.

including fuel and transportation. The exchange rate also had some direct impacts for mostly imported food items such as sugars and dairy.²⁰ Moreover, the influence of exchange rates on domestic prices has intensified since 2000, partly due to the rising volumes of food imports as a proportion of domestic supply.

International prices have had less impact on domestic food prices compared to the exchange rate. However, similar to the influence of the currency on domestic food markets, global food prices have become more influential in recent years,²¹ reflecting the increasing integration of Lao's domestic agrifood system into international markets. The proportion of imports in domestic supply has increased since 2010 for fish, seafood and starchy roots, while it has remained relatively stable and low for rice.²²

Monetary expansion has also contributed to the high inflation rates. However, monetary tightening, including interest rate hikes, along with new regulations introduced in early 2024 to increase the repatriation of export earnings and bolster foreign reserves, have helped ease depreciation pressures. As a result, the exchange rate stabilized from mid-2024 onward and this has been a key contributor to falling food inflation rates experienced in 2024.

Administrative organization

The country is divided in 17 provinces^d and one prefecture (Vientiane) which are subdivided in 148 districts. In 2020, there was a total of 8 416 villages, out of which 6 031 are rural (72 percent) and 2 914 are categorized as upland villages (35 percent).²³ About 10 percent of the villages (845 out of 8 416) had no road access in 2020.²⁴ Since 2016, the country is transitioning to a model of governance known as *sam-sang* (three drive) devolution that establishes three

levels of local administration: provincial, district and village. The devolution directive defines the formal functions of local administrative levels, enhancing the decision-making capacity at the district level and identifying the village as the basic development unit. While the provinces retain the responsibility for defining development strategies, district governments are implementation units across all sectors. Village administration is led by a locally-elected village chief, who is assisted by deputy chiefs and heads of village hamlets. While responsibilities have been delegated to these three levels of government, financing and decision-making remain centralized.²⁵

Population

According to the Lao Statistics Bureau (LSB), the national population was estimated at 7.55 million in 2023. The population density is the lowest in Southeast Asia with 32 people/km².²⁶ Due to its highly diverse and rugged terrain, there are significant population density variations between provinces. The highest population density is 290 people per km² in Vientiane Prefecture, while four provinces have a density below 15 people/km².^{e, 27}

The country also remains one of the most agrarian economies in the world, with 67 percent of the population living in rural areas²⁸ and nearly 90 percent of all households engaged in agriculture.^{f, 29} The low population density permits the practice of slash and burn agriculture, also called swidden cultivation, as well as land concessions to large investment farms.

The country has a predominantly youthful population, with half of the population under the age of 24 as of 2015. The annual population growth rate slowed to an estimated 1.45 percent between 2005 and 2015 compared to 2.08 percent between 1995 and 2005.³⁰

^d Attapeu, Bokeo, Bolikhamsai, Champasak, Huaphanh, Khammuane, Luang Namtha, Luangprabang, Oudomxay, Phongsaly, Sainyabuli, Salavan, Savannakhet, Sekong, Vientiane Province, Xaisomboun and Xiengkhouang.

^e Phongsaly, Xiengkhuang, Sekong, Attapeu provinces.

^f Farm household are those with at least one member engaged in agriculture activities, either as the primary or secondary source of employment, or for subsistence.



AGRICULTURE

Overview

The agriculture sector contributed 13 percent to the country's total GDP in 2023 and is the backbone of the rural economy.³¹ However, the contribution of large investment farms is not accounted for in the annual national accounts, and as such the actual contribution of the agriculture sector to the national economy is likely to be higher.⁹ The agriculture sector employs more than 60 percent of the workforce (an estimated 2.4 million people),^h making it one of the most agrarian economies globally.³² The share of crop production accounted for 62.1 percent of the agriculture GDP in 2023, while animal husbandry and fishing represented 15.4 and 16.1 percent, respectively. Logging accounted for the remaining 6.4 percent. The food processing industry accounted for 2 percent of the total gross domestic product (GDP) in 2023.³³

The agriculture sector primarily, but not exclusively, falls under the authority of the Ministry of Agriculture and Fishery (MAF) which develops five-year strategy documents to guide its work in supporting the growth and development of the agriculture sector. The agriculture sector is inadequately funded with an Agriculture Orientation Index (AOI) estimated at a low of 0.28 in 2022, compared to a world average of 0.48.^{i,34} According to the Bank of the Lao People's Democratic Republic (central bank), national investment in agriculture remained low, but it is increasing, with the sector accounting for 1.08 percent of all credits in 2023, up from 0.18 percent in 2019.³⁵



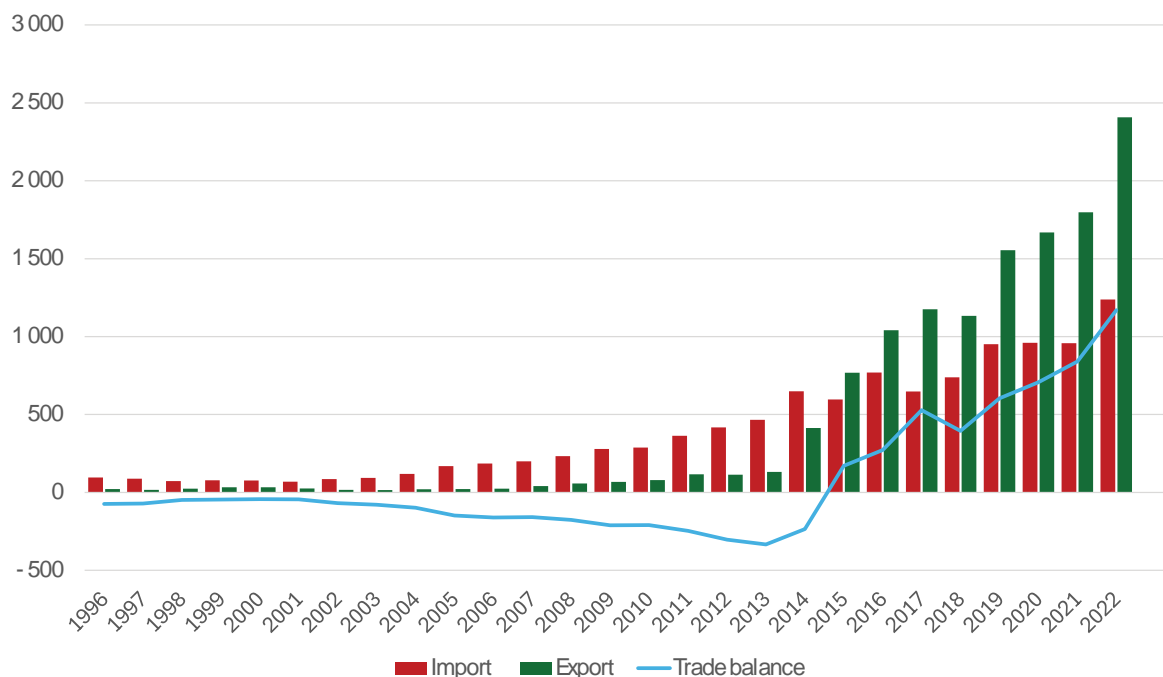
According to FAOSTAT,³⁶ exports of agricultural goods have increased rapidly over the past ten years, while imports grew at a slower rate, reversing an historical agricultural trade deficit into a rapidly expanding trade surplus since 2015 (Figure 6). In 2023, the monetary value of food exports was estimated at nearly USD 1.36 billion and representing 16.2 percent of all exports. Main export commodities included cassava (USD 386 million), rubber (USD 289 million), bananas (USD 246 million), maize (USD 128 million), coffee and tea (USD 76 million), fruits and vegetables (USD 74 million, including USD 50 million of watermelon). Rice exports, mostly glutinous varieties, amounted to USD 24.2 million.³⁷ Most of the produce exported originated from large investment farms (mainly banana, rubber and watermelon) as well as cassava and rubber plantations by small-scale

⁹ For the national account, the Lao Statistic Bureau uses production data from MAF Agricultural Statistic yearbooks which do not account for the commercial farm investments and the Consumer Price Index (CPI) disaggregated data. The contribution of the commercial farm investments is captured only every five years by the economic census. The next economic census is planned after completing the 2025 population census.

^h The agriculture census identified as agriculture labour, agricultural households with family members aged at least 15 years.

ⁱ The Agriculture Orientation Index (AOI) for government expenditures is defined as the agriculture share of government expenditures, divided by the agriculture share of the GDP. This indicator measures progress towards SDG Target 2.a.

Figure 6: Agriculture import, export and trade balance, 1996–2022 (USD million)



Sources: Author's own elaboration based on data from the FAOSTAT. 2024. Crops and livestock products. Rome. [Cited 7 December 2024]. <https://www.fao.org/faostat/en/#data/QCL>.

Lao farmers on newly opened lands. The Mission observed these developments on a significant scale in all areas visited, trends which are driving a change in the country's land use.

In 2023, the import value of agricultural commodities amounts to USD 185 million, seven times lower than the value of agriculture exports. The value of agricultural commodities accounted for 2.4 percent of the total import amount in 2023. Key imported agricultural commodities included fruits and vegetables (USD 54 million), wheat (USD 11.9 million) and maize seeds from Viet Nam. Rice imports accounted for USD 4.6 million from Thailand and Viet Nam.

Climate and geographic regions

The climate is tropical-seasonal and dominated by the southwestern monsoon, which provides about 80 percent of the annual cumulative precipitation amount. Average rainfall amounts are about 1 900 mm/year, but they range from 1 300 mm in the northern valleys to over 3 200 mm at high elevations in the south.³⁸ Precipitation amounts are the highest on the southwestern slopes of the mountains, while most of the Mekong Plain and the

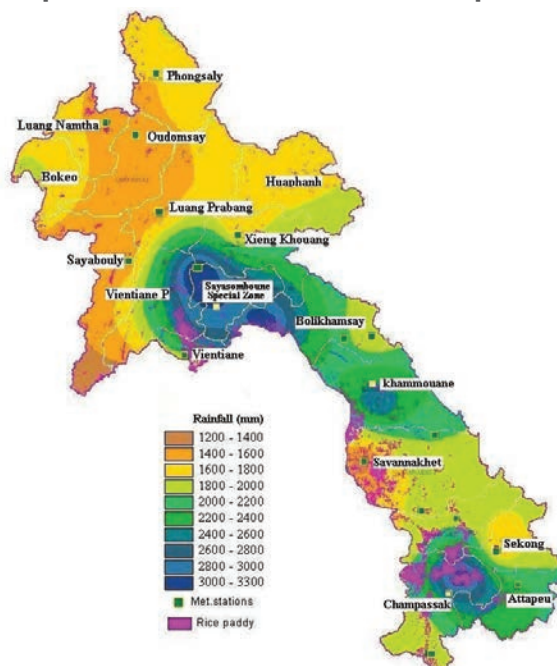
leeward aspects of mountains receive markedly less. Overall, provinces in the northern region receive less rainfall than the central and southern regions.

There are two distinct seasons: 1) the wet season (monsoon) from May to October and 2) the dry season from November to April. The dry season can be further divided into a cool period from November to February and a hot period from March to April, during which initial monsoon rains typically occur. May is the warmest month and December and January the coldest. Extra-seasonal high intensity rainfall often occurs during September and October in the west of the central parts of the Annamite Range. This is due to an extension of typhoon systems originating over the sea, moving westward towards the Vietnamese coast and only partially blocked by the Annamite Range.

Agricultural land is prone to soil erosion with about 80 percent of the national territory being mountainous and over two-thirds of the land having slopes greater than 30 percent. The country is divided in three main geographic regions^{39, 40, 41}:

1. The northern and central mountainous area, with an elevation generally >500 metres above

Map 1: Mean annual rainfall map (mm)



Disclaimer: The boundaries and names shown and the designations used on these map(s) do not imply the expression of any opinion whatsoever on the part of FAO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers and boundaries.

Source: Basnayake J., Inthavong T., Kam S.P., Fukai S., Schiller J.M. and Chanphengxay M. 2006. Climatic Diversity within the Rice Environments in Laos. Rice in Laos (pp.47-65). 2008–2025. ResearchGate GmbH. January 2006. https://www.researchgate.net/publication/267098280_Climatic_Diversity_within_the_Rice_Environments_in_Laos.

sea level (masl), a climate ranging from tropical monsoon to temperate climate in higher elevations, typically receiving between 1 500 and 3 000 mm of precipitation annually.

2. The eastern mountain chain stretches along the border with Viet Nam and includes upland areas and three large plateaus: Phuan Plateau in Xiengkhuang Province, the Nakai Plateau in Khammuane Province and the Bolaven Plateau in southern provinces.
3. The tropical lowlands and floodplains along the Mekong River and its main tributaries which includes the most important agricultural plains of Vientiane, Savannakhet, Khammuane and Champasak as well as several minor

plains, most of which are in located in northern provinces.

Water resources

The country is endowed with abundant water resources. The Mekong River basin covers 90 percent of the country's territory. Only in Huaphanh and Xiengkhouang provinces several rivers drain into the South China Sea via Viet Nam. The Mekong River shapes the country's national boundaries as it forms most of the border with Thailand, except for Xayaboury Province, while the watershed of the Annamite Range determines the border with Viet Nam. Riparian states coordinate water resources development through the Mekong River Commission (MRC).^j The upper course of the Mekong

^j The river is one of the world's great rivers. Covering a distance of nearly 5 000 km from its source on the Tibetan Plateau in China (mainland) to the Mekong Delta, the river flows through six countries: China (mainland), Myanmar, Thailand, Lao People's Democratic Republic, Cambodia and Viet Nam. MRC came into existence in 1995 on agreement between the governments of Cambodia, Lao People's Democratic Republic, Thailand and Viet Nam. These four countries signed the "Agreement on the cooperation for the sustainable development of the Mekong River Basin" and agreed on joint management of their shared water resources and development of the economic potential of the river. The MRC has been built on a foundation of nearly 50 years of knowledge and experience in the region, starting in 1957 as the United Nations-founded Mekong Committee. In 1996, China (mainland) and Myanmar became Dialogue Partners of the MRC and the countries now work together within a cooperation framework.

and the Nam Ou, its main tributary, form deeply incised valleys. Near Vientiane, the Mekong forms a broad alluvial plain.

Water demands in the country remain low in terms of per capita public consumption. The national water consumption is estimated 4 260 million cubic metres annually, accounting for 1.3 percent of the freshwater resources. Most of the water use is in the agriculture sector, including irrigation, which accounts for about 93 percent of the water use.⁴² Development of water resources is increasing with regard to hydropower and irrigation systems. The country is dotted with small earth dams, ponds and waterholes which are used for fish cultivation, water storage for people and livestock, and irrigation. These infrastructures are exposed to flood damages.

Irrigation

From the 1960s, irrigation systems were upgraded and built with concrete weirs and well-designed canals, often with financial and technical support from foreign donors.⁴³ Since the 1990s, the government has invested significant resources in irrigation infrastructure, aiming to increase rural incomes and stabilize rice production to attain self-sufficiency. According to the MAF Department of Irrigation (DOI), the total area equipped for irrigation increased from 231 000 hectares in 2010 to 317 000 hectares in 2023, operated by nearly 19 500 schemes.⁴⁴ Most of the irrigated area increase in recent years comes from large investment farms that have installed electric irrigation pumps. The new MAF irrigation development plan 2026–2030 aims to increase irrigated infrastructure area to 475 000 hectares by 2030.⁴⁵

According to DOI, over the past three years, the irrigation infrastructures command area remained stable. However, the actual irrigated area is likely to be underreported as DOI irrigation statistics do not include the small irrigation pumps for vegetable and other cash crops production. Low electricity costs and market demand for cash crops drive investments in small irrigation pumps.

Most of the irrigation is gravity surface water systems and 95 percent of it relies on water from rivers, ponds or lakes.⁴⁶ Two-thirds of the irrigation schemes are

temporary weirs used for complementary irrigation during the wet season, while 12 percent are pump irrigation, mostly found in the Vientiane Plain and along the Mekong River and its tributaries. Higher irrigation efficiency technologies, such as drip and sprinkler systems, are limited to large investment farms/plantations (such as banana) and small vegetable plots during the dry season. Drip and sprinkler pipes are now produced in the country and are available at competitive prices for users.

Existing irrigation infrastructures are generally old. Dilapidated canals and diversions, aging water pumps and inadequate operation of infrastructure results in significant water losses and inefficiencies. Most smallholders are unwilling or unable to pay even modest irrigation service fees.⁴⁷ In addition, floods repeatedly cause extensive damage to irrigation infrastructures.

The need to effectively manage water systems led to the introduction of Water User Groups (WUGs) in the 1990s. DOI objectives in establishing WUGs were to make existing schemes economically viable and self-sustaining through the introduction of operation and maintenance cost recovery systems.⁴⁸ In 1998, the DOI introduced the irrigation management transfer policy aiming to handover the management of irrigation schemes from the government to local communities. In 2024, the implementation of this policy remains a challenge and DOI aims to increase support and capacity building in order to facilitate the implementation of the policy.⁴⁹

Cropping systems and crop calendar

There are two broad cropping systems: small-scale farmers and large investment farms focusing on export crops, such as banana and rubber plantations. Small-scale farmers cropping systems can be broadly classified based on their occurrence in geographic regions⁵⁰:

- In the lowlands, where most of the agricultural production takes place, rainfed wet season crops and irrigated farming systems are practised. Temporary irrigation schemes are used to supplement rainfall during the wet season to

cope with frequent dry spells. In areas with access to permanent irrigation, a second crop is possible during the dry season, typically with photoperiod-sensitive rice varieties, vegetables or cash crops, such as watermelons. The use of improved rice varieties, fertilizer and other inputs is higher for the second crop which is mainly for commercial purposes. Livestock are free ranging during the dry season, consuming rice stalks and confined in the wet season.

- In the sloping uplands, slash and burn agriculture is practiced. Upland rice is intercropped with a variety of cash crops, while paddy cultivation takes place in narrow inland valley floors. Livestock, mainly pigs, cattle and poultry are free ranging. Fertilizers are not applied in upland systems as the burning of biomass (forest or its regrowth) provides sufficient nutrients for the swidden crops. Farmers typically consider their upland soils to be sufficiently fertile, although their fertility may rapidly decline. Households' food consumption in upland areas is typically covered by 40 percent with their production and 40 percent with wild food collection, with the remaining amount met with market purchases.⁵¹
- In the southern plateau, cash crops such as coffee, tea and cardamon, and fruit trees are extensively grown, replacing shifting cultivation.

More than 100 types of temporary crops were reported by the 2020 Agriculture Census. Rice is the main temporary crop and it covers more than half of the total annual cropping area.⁵²

There are two main cropping seasons: wet and dry. During the dry season, irrigation is necessary to ensure annual crop development. Table 1 presents a generic crop calendar for paddy, maize and cassava.

Rice. The country is considered the centre of origin of glutinous rice. In 2023, about 94 percent of small-scale farmers were growing rice. Glutinous rice accounts for over 90 percent of the national paddy production,⁵³ while the balance is non-glutinous rice cultivated primarily for commercial purposes. The main (wet) season, mostly rainfed, extends from May to November and contributes to almost 85 percent of the annual paddy production. The secondary (dry) season stretches from December until May, and crops are entirely irrigated (Table 1). The bulk of the rice output is produced in the lowland plains along the Mekong River and its tributaries, mostly in the Vientiane, Savannakhet and Champasak plains, which account for nearly half of the total paddy production. Only 10 percent of the production takes place in the uplands, mostly in the north. Paddy yields in lowlands average about 4 tonnes/ha, while swidden paddy in the uplands yield about

Table 1: Paddy, maize and cassava crop calendar

Crop	Cropping season	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Paddy	Wet season lowland					Planting	TP		Vegetative stage		Harvesting		
	Dry season lowland	TP	Vegetative stage		Harvesting								Planting
	Wet season upland	Slash and burn					Planting		Vegetative stage		Harvesting		
Maize	Wet season upland	Slash and burn					Planting		Vegetative stage		Harvesting		
	Dry Season lowland	Vegetative stage		Harvesting									Planting
Cassava		Slash and burn					Harvesting	Planting	Vegetative stage				Harvesting

Note: TP – Trans-planting.

Source: Author's own elaboration based on data collected during the 2024 FAO/WFP Crop and Food Security Assessment Mission (CFSAM) to the Lao People's Democratic Republic.

2 tonnes/ha. Investments in irrigation infrastructures and a successful rice breeding programme made the country self-sufficient in rice. According to MAF, the adoption of improved varieties is high, with 82 percent of the paddy planted area with improved varieties and 18 percent with local varieties.⁵⁴

In both rainfed lowland and upland paddy, interruptions of the regular monsoon rainfall can result in moderate to severe moisture stress for rice crops, significantly affecting yields. Excessive rainfall amounts can also have negative impact on rice production, particularly when rainfalls occur near the physiological maturity of the paddy crop. Periods of intense rainfall often occurs in September and October, affecting harvesting, threshing and processing, and seed drying, resulting in increased harvest and post-harvest losses. Continuous rainfall during the period of flowering can affect fertilization and grain formation. Excessive rainfall amounts can also favour an increased incidence of plant diseases and pests, resulting in low crop yields. The frequent occurrence of both droughts and floods is a key factor underlying much of the year-on-year variations in crop production.

Maize. Maize production is largely concentrated in five provinces in the northern mountains, namely Oudomxay, Luangprabang, Xayaboury, Huaphanh and Xiengkhuang, which combined represent about three-quarters of the national outturn. Maize is mostly cultivated as a commercial slash and burn crop on sloping land and as such has historically been a significant driver of deforestation in the northern part of the country. Maize production is almost entirely of dent maize that is used by the local animal feed industry and for export to Viet Nam and China (mainland), in order of magnitude of the export quantity, where it is used primarily as animal feed. Over the past decade, the area under maize has decreased by half, from 254 000 hectares in 2014 to 123 000 hectares in 2023.

Cassava. The planted area has rapidly increased since 2021, reaching nearly 250 000 hectares in 2023 in response to an increase in regional and global demand for starch-based products, animal feed and ethanol. Cassava cultivation takes place

in all three regions of the country, but nearly three-quarters of the production is concentrated in five provinces, namely Xayaboury, Borikhamxay, Khammuane, Saravane and Champasak. Cassava is grown in close proximity to factories that process starch, allowing for direct marketing. The production is driven by small-scale farmers, as a means to increase and diversify their revenue source. Cassava sales provide a significant share of farmers' income after rice sales.⁵⁵ Cassava is mostly cultivated as a slash and burn crop on sloping land, often replacing forest land and causing deforestation.^{56, 57} Some cassava plantings are also taking place in paddy lowlands, displacing rice production. In 2022, MAF registered 22 cassava starch factories and five cassava crusher plants.

Banana. More than two-thirds of the 31 000 hectares of small-scale farmers' banana production takes place in four provinces, namely Oudomxay, Luangprabang, Xayaboury and Saravane. Most of the national banana production originates from large investment farms, which are not currently included in national agricultural statistics. These farms mainly export bananas to China (mainland), Viet Nam and Thailand. Concerns over deforestation and health risks to national workers in banana plantations prompted the government to ban new plantations and contract extensions for existing plantations in 2017. The ban was lifted in August or September 2018 with the government trying to align the industry with Good Agricultural Practices (GAP). Panama disease (*Fusarium oxysporum* Tropical Race 4) has spread in the northern part of the country leading to a decrease in plantings.

Pulses. Nitrogen-fixing legumes are a minor crop in the country, covering only 1.5 percent of the annual cropped area in 2023. The main legumes grown in the country include peanuts (12 400 hectares), black and red beans (11 400 hectares), soybeans (3 000 hectares) and mung beans (1 990 hectares).⁵⁸ The marginal cultivation of nitrogen-fixing crops has implications on both soil fertility and animal husbandry.

Other annual crops grown in the country include sweet potatoes, taro, sesame, watermelon or tobacco. The main permanent crop is rubber, with an

estimated 331 000 hectares planned in 2024.⁵⁹ Other permanent crops include coffee, tea and pineapple.

Slash and burn systems, and the use of fire in agriculture

The slash and burn system, also called swidden or shifting cultivation,^k has been practiced for at least a millennium in the mountainous regions of Southeast Asia.⁶⁰ The practice involves the use of fire by communities for rainfed crop cultivation as well as livestock, pasture, hunting and forest management. The cultivation method consists of slashing forest or regrowth during the dry season, mostly from December to May. The dried biomass is then burned and the ashes, rich in plant nutrients, spread on the soil surface before crop sowing. Timber grade wood and bamboo are sold or kept for domestic use. On steep slopes, the land is then cultivated for one to three years before it is left fallow to regenerate biomass (to be later burned). Due to the fallow land rotation system that is necessary to regenerate biomass, slash and burn farmers and communities need to control several times more land than what they cultivate in any given year.

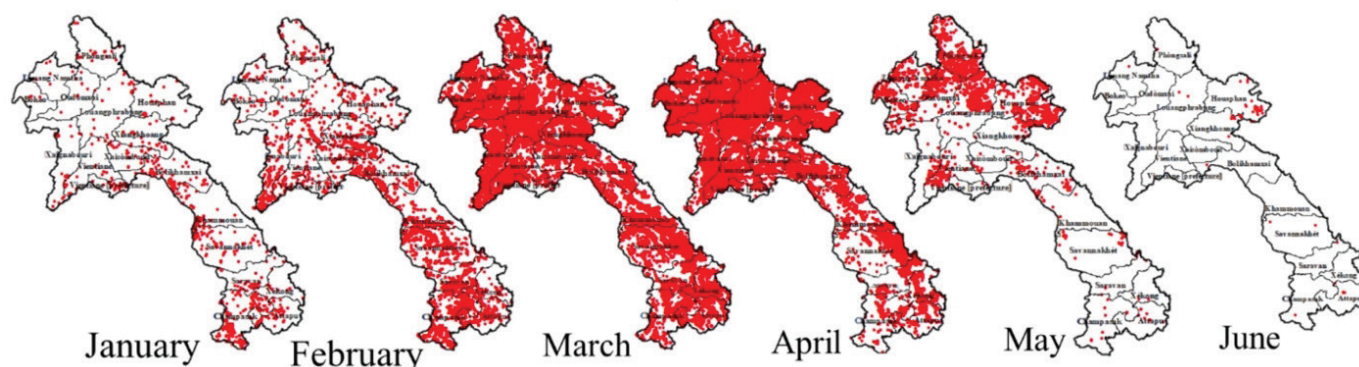
A 2013 analysis of satellite images commissioned by the MAF Sectoral Working Group for Agriculture and Rural Development (SWG-ARD) estimated that

shifting cultivation techniques covered approximately 6.5 million hectares in 2009, accounting for about 24 percent of the total land area.⁶¹ The main slash and burn crops are cassava, upland rice and maize. In recent years, this traditional technique has increasingly been applied to clear land for large investment farms.

Slash and burn agriculture is *extractive* by nature as farmers are burning biomass to release nutrients for crops, rather than obtaining these nutrients from fertilizers or manure.

Fires are part of the country's agriculture landscape. Map 2 indicates that the spatial distribution of fires is widespread across the territory, with higher incidences in the north. The fire season starts in January until May and peaks in March–April, just before the start of the southwestern monsoon and the main cropping season. The main causes of fires on agricultural land include: a) slash and burn by small-scale farmers for land preparation and by large investment farms for opening new land; b) disposal of crop residues and weeds after harvest, particularly on lowland paddy fields; and c) burning pastureland to renew grass cover. In addition, fires also occur around settlements, as they are often lit to dispose of rubbish. Fire for the purpose of hunting mostly affect forest or regrowth. These fires also contribute

Map 2: Spatial distribution of fires by month during the fire season (January to June), 2015–2021



Disclaimer: The boundaries and names shown and the designations used on these map(s) do not imply the expression of any opinion whatsoever on the part of FAO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers and boundaries.

Source: FAO. 2023. *Spatio-temporal dynamics of air pollution and the delineation of hotspots in the Lao People's Democratic Republic*. <https://openknowledge.fao.org/server/api/core/bitstreams/4ef3600b-2e1f-4ee6-966e-35c256e3635d/content>

^k The terms slash and burn agriculture or swidden cultivation are used interchangeably in this report.

to air pollution, and fire on agricultural land is by far the main contributor of this type of air pollution.⁶²

As about 80 percent of the country is mountainous and 70 percent of arable land is sloping land, the country is highly vulnerable to uncontrolled wildfires as they propagate faster on slopes. Other factors such as temperature and wind during the dry season can also influence the spread of fires.

Fertilizers

All synthetic fertilizers used in the country are imported. Yet, the country is endowed with some of the largest potash deposits in the world. The carnallite ore is relatively shallow, generally buried at depths of 100–500 metres and common across the Lao-Thailand Khorat Plateau. The thickness of the mineral layer varies with only a few large ore bodies thicker than 50 metres. Main carnallite ore deposits are in the prefectures of Vientiane, Khammuane and Savannakhet.

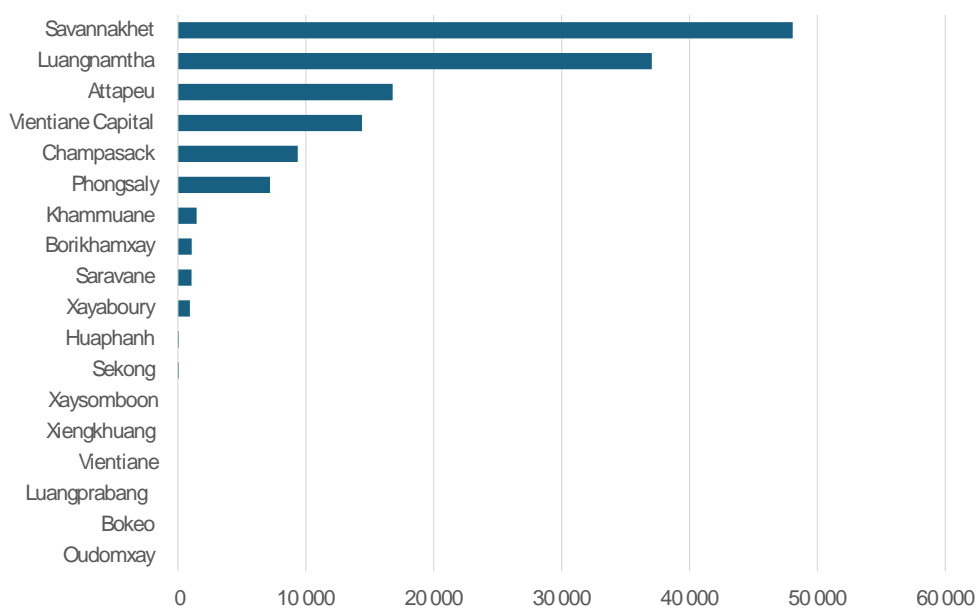
Potash mining is currently ongoing in Khammuane and Vientiane prefectures. A mining plant in Khammuane in 2021 is producing 1 million tonnes

of potash per annum, while in Vientiane Prefecture a 10-million-tonne capacity mining plant is under development.⁶³

Despite large deposits of potash, there is limited in-country capacity to process the raw material into fertilizer. The country exported 1.6 million tonnes of potash in 2023,⁶⁴ mainly to China (mainland) and Thailand for processing into compound NPK fertilizer. On the other hand, the country imported a total of nearly 138 000 tonnes of fertilizers in 2024, including compound NPK fertilizer.¹

Imports of fertilizers is overseen by the MAF DOA, which issues import permits for a defined quantity of fertilizer to be sold in selected provinces.⁶⁵ This process starts with a request to PAFOs to obtain a provincial-level fertilizers *distribution quota*. To obtain these provincial *quotas*, importers must first establish an agricultural input shop in the targeted province and demonstrate technical knowledge in fertilizer trade. Large investment farm enterprises can also apply for import permits from MAF DOA to procure fertilizers for their own use but would not be permitted to sell or distribute fertilizers to

Figure 7: Fertilizer distribution quota by province, 2024 (tonnes)



Sources: MAF Division of Regulatory and Agricultural Input Registration.

¹ MAF quarantaine.

small-scale farmers. They are, however, authorized to procure fertilizers from registered importers/input shops under the *quota* system.

In Vientiane Prefecture, about 20 companies are authorized to import and sell fertilizers, while quotas are provided to cover specific areas within the prefecture. In Vientiane Province, only one company is importing and distributing fertilizers. Out of 18 provinces, fertilizer importers have obtained distribution quotas in ten provinces (Figure 7).

In 2024, a total of 53 companies had fertilizer import permits in the country, out of which 37 have obtained quotas and are authorized to sell to small-scale farmers. Another 16 fertilizer importers are large farm investors that obtained fertilizer import permits for their own farms. Based on the companies' registration, on average, each importer planned to import 270 tonnes annually per type of fertilizer. Only three companies planned to import 1 000 tonnes or more annually per type of fertilizer.^m

The formal sources of fertilizer for small-scale farmers are local importers/input shops and their agents in the villages (mostly villagers themselves). A parallel informal distribution system also exists, where fertilizer origin is not traced. These informal traders generally offer fertilizers at the same or higher price than importers/input shops but, in addition, provide advisory and credit services that importers and input shops generally do not. During the Mission's field visits, farmers reported to learn on fertilizer use from demonstration plots established by informal traders. Some rice millers also provide fertilizers on credit to paddy farmers.

As a result, fertilizers are not supplied in the quantity needed to satisfy local demand and at very high prices. As per the fertilizer prices obtained during the Mission, the local price of urea in Lao kip is 21 to 65 percent higher than the equivalent product in Thailand, while the price of diammonium phosphate (DAP) is 10 to 47 percent higher.

Milling industry

There are more than 35 000 rice mills in the country, mostly operated by the private sector. Small and very small mills, with a processing capacity of 2–5 tonnes per day, produce about 80 percent of the total rice supply and perform the traditional function of custom milling paddy for local consumption.⁶⁶ Based on observations made by the Mission and discussions with entities in the rice value chain, the small-scale mills have a high percentage of broken grains and consequently there is a need to upgrade equipment. Following improvements in transportation infrastructure in the main paddy producing areas, farmers and traders are increasingly selling to medium-sized millers.⁶⁷ A few large-scale mills, processing more than 30 tonnes/day, are able to produce higher quality grades of rice for both domestic and export markets.

Farm structures

The 2019/20 Agriculture Census⁶⁸ identified nearly 644 100 agriculture households,ⁿ most of which are engaged in subsistence cultivation. On average, each agricultural household owns 2.8 hectares of agricultural land. Land leases remain limited, covering only 2.6 percent of the total agricultural land owned by households.

Agricultural land ownership among households can be categorized in three groups:

- **Less than one hectare**, 21 percent of Lao farmers fall into this category, out of which 1 percent are landless farmers.
- **One to three hectares**, covering nearly half (47 percent) of agricultural households.
- **More than three hectares**, applying to nearly one-third (32 percent) of farmers.

Slash and burn farmers typically own and manage 5 to 15 times more land than they cultivate with

^m One company in Savannakhet Province repackages imported fertilizer in bulk.

ⁿ An agricultural household in the Lao People's Democratic Republic refers to a revised definition of farm households, namely households that own 0.1 hectares or more of agricultural land: a) five cattle or more; b) ten pigs and goats or more; and c) 50 poultries or more.

annual crops. Fallow land from shifting cultivation in forest areas, typically left uncultivated for 5 to 15 years before reuse, is categorized as non-agricultural land in the 2019/20 census.

Additionally, large investment farms, estimated at 2 384,⁶⁹ are collectively managing more than 1 million hectares of land in total.⁷⁰

Livestock

According to the 2019/20 Agriculture Census,⁷¹ about 80 percent of farming households are raising livestock and poultry, and more than half of them are engaged in some aquaculture/fishing activity. Freshwater fish-farming in small pounds is widely practiced. These subsectors are driven by food consumption patterns where animal products are a critical source of protein. The annual consumption per person is estimated at 38 kg of meat, 8 kg of eggs and 33 kg of fish,^{o, 72} while consumption of legumes is less than 2 kg/person.⁷³

Data from MAF's annual surveys, presented in Table 2, shows a rapid increase in livestock population over the past decade, particularly for cattle, sheep and goats, and pigs, which increased by more than 40 percent between 2015 and 2023. According to the Agriculture Census, the largest numbers of livestock and poultry were in villages located in the plain with good access to roads. However, pig populations were concentrated in more remote mountain villages. Most farming households rear cows and buffaloes for sale and meat consumption, while very few farm households keep these animals with the objective of producing milk or for draught.

Climate risks

The country is exposed to extreme climate risks, including droughts, tropical storms and cyclones that frequently cause floods and landslides. Agriculture typically suffers the greatest losses from climate-related disasters. In 2018, 58 percent of the total flood losses in monetary terms originated in the agriculture sector.⁷⁴

Floods. Flooding is a major natural hazard in the country with most flood events originating from Mekong River overflows. The water level of the Mekong River fluctuates by up to 20 metres between the wet and dry seasons. The river basin hydrology leads to extreme flooding in one portion of the basin, with average or below-average water levels prevailing elsewhere. The hydrology of the Mekong River and its tributaries is increasingly influenced by the regulation of water releases from hydroelectric dams.⁷⁵

Flood events are mainly induced by either the westward monsoon or by cyclones originating over the sea, moving westward from the Vietnamese coast and interacting with the monsoon. The typical flooding season stretches from June to October (the monsoon season), and the typhoon season between July and December. The period between July and September is the high-risk period for flood events, when rainfall levels are most intense. Over the past 14 years, the country was affected by floods during nine flooding seasons.^p

Droughts. The country is also susceptible to droughts, although with a risk lower than floods. The probability of a severe meteorological drought

Table 2: Livestock population in 2015 and 2023 ('000 heads)

	2015	2023	Increase 2015/2023 (percent)
Cattle	1 828	2 563	40.2
Buffaloes	1 165	1 250	7.3
Sheep and goats	533	799	49.9
Pigs	3 207	4 542	41.6

Source: Author's own elaboration based on data from MAF Agriculture Statistics Yearbooks [Cited November 2024].

^o Milk consumption is low and is estimated at 3 kg/person/annum.

^p Significant floods happened over the past years 2011, 2013, 2014, 2018, 2019, 2020, 2023 and 2024.

is estimated at about 4 percent.⁷⁶ Drought is a slow onset natural disaster and, while its effects are not immediately observable, its impact on crops can be severe and extensive.

Drought-prone areas are situated largely in the southern parts of Xayaboury Province, in Vientiane Province and Prefecture, and the lowland belt along the Mekong River from the central province of Borikhamxay to the southern provinces along the Cambodian border. There have been drought conditions on the Bolaven Plateau, which is usually more humid. The risk of drought is low in eastern parts of Khammuane, Savannakhet and Saravane provinces, along the border with Viet Nam.⁷⁷ Dry spells may occur in June and July, often with a severe impact on crop yields; less than 10 percent of the cropland area is irrigated.

As a result of climate risks, the country suffers high annual variability in rice production due to the high incidence of droughts and floods. This variability has made it difficult to achieve a reliable rice surplus at the national level, hindering investment in the processing capacity needed to develop a viable export industry.⁷⁸ As such, investments in disaster risks management should be an integral part of efforts to foster agricultural economic growth.

Agricultural information systems

Agricultural statistics

Two government institutions collaborate to produce national official agriculture statistics: the Lao Statistics Bureau (LSB) and the MAF. The LSB, under the Ministry of Planning and Investment (MPI), conducts agricultural censuses, with the first census conducted in 1988/99 and then at ten-year intervals, with the third census completed in 2019/20. The census of agriculture provides structural data, such as the number and size of farming households,^r gender, land use, irrigation, area cultivated by crop, livestock, labour as well as village infrastructures and services.

The MAF Statistic Centre, under the Department of Planning and Cooperation (DoPC), compiles

agricultural sectoral data from different departments and publishes them in Agricultural Statistics yearbooks. These publications comprise a range of data, including area, yield and production by crop, recommended crop varieties, livestock and poultry population, irrigation, forestry as well as food consumption. To estimate crop area, yield and production, MAF relies on multiple data sources, including the administrative system, sample household surveys as well as satellite imageries in cooperation with the ASEAN Food Security Information System (AFSIS). Given budget constraints, sample surveys are not conducted annually and are limited to the main agricultural production areas. MAF surveys use the list of farming households reported by the LSB census of agriculture 2019/20 as a sampling frame and implement field measurements for area and yield, which is estimated using a crop cutting method. The last agricultural sample survey was conducted in 2022.

The administrative system is the primary source of agricultural data. Data collection starts at village level, under the responsibility of the head of the economic units. The Mission observed that, at the village level, the capacity and modality to collect agricultural data varies considerably between locations. For example, in some villages, the village chief calls all farmers for a meeting, generally held in October during the paddy harvest. Data on area planted and production, as well as livestock ownership, are compiled based on farmers' reports during the meeting. In other villages, crop statistics are not maintained and available data are limited to land taxes, which is based on land use categories, such as flat land used for paddy/vegetable/cash crops, pastureland, uncultivated land and constructed land.

Given the complementarities between the sources of agricultural data, MAF staff review and reconcile existing datasets to estimate annual crop area, yield and production that are published in the Agricultural Statistics yearbooks. There are substantial differences between LSB and MAF data, both on crop area as well as trends. The main gap identified in national agricultural statistics is the absence of data related to large investment farms.

^r Also referred as small-scale farmers in this report, distinguishing them from large investment farms.

Damage and loss assessments in agriculture

The Department of Social Welfare (DSW), under the Ministry of Labour and Social Welfare (MLSW), oversees disaster management activities which are carried out by two subordinated divisions: the Disaster Prevention Division and the Disaster Control and Recovery Division. Disaster risk reduction and management is a shared responsibility among all four administrative levels of the Disaster Risk Management (DRM) system, namely: 1) central; 2) provincial; 3) district; and 4) village. In conformity with the law on disaster management,⁷⁹ Disaster Management Committees (DMCs) are established at Central (CDMC), Provincial (PDMC), District (DDMC) and Village (VDMC) levels. The CDMC is chaired by the Deputy Prime Minister, while provincial and district level DMCs are chaired by deputy provincial governors and deputy heads of districts. At the local level, the heads of the villages coordinate the data collection on damage and loss (D&L) and participate in the implementation of disaster management activities. The Mission observed that capacity at village level varies considerably from one location to another.

In the event of a severe disaster,^{5, 80} the DRM mechanism is activated in the affected areas. In 2024, the DRM mechanism was activated in all 18 provinces, via an official communication from

the Minister of Labour and Social Welfare, based on forecasts and warnings issued by the Department of Hydrology and Meteorology (DMH). Following the activation, sectoral ministries, including agriculture, are tasked to present a consolidated national report on the flood D&L. In total, 15 out of 18 provinces were eventually affected by floods in 2024.

D&L data collected on agriculture, including livestock, fisheries and forestry, at village level, are verified by the District Agriculture and Forestry Office (DAFO) and validated by DDMC. Consolidated D&L data are then submitted to the Provincial Agriculture and Forestry Office (PAFO) and PDMC for verification and validation. Both DAFO and PAFO dispatch field teams to visit the affected areas and work with teams at village and district levels. At the national level, the agriculture D&L data are consolidated into a national report by the Division of Planning under the Department of Planning and Cooperation (DoPC).

Standardized D&L assessment tools and guidance for the agriculture sector have not been systematically implemented across all provinces. As a result, methodologies used to collect data, as well as the actual information gathered, vary across administrative areas, creating challenges for accurate aggregation at the national level.

⁵ Severe Disaster means disaster, occurring in any area, that causes damage and loss to health, lives, assets, socioeconomics and the environment, greater than the capability of provincial authorities to handle.

MAIN FACTORS AFFECTING AGRICULTURAL PRODUCTION IN 2024

Climatic conditions

The Department of Meteorology and Hydrology (DMH), under the Ministry of Natural Resources and Environment (MONRE), carries out climate, hydrological and agrometeorological monitoring, and issues early warnings. Currently, the monitoring of rainfall, temperature and other agrometeorological variables is undertaken through a network of 152 meteorological stations and 38 hydrological stations. DMH produces monthly and annual weather reports⁸¹ and, with support from FAO, DMH produces weekly agromet bulletins covering all 18 provinces and 144 rural districts.⁸² There are various regional platforms monitoring flood and drought, offering early warnings. In particular, the Mekong River Commission (MRC) plays an important role in basin-wide river monitoring, as well as flood and drought forecasting in the lower Mekong riparian countries.^{† 83, 84, 85} MRC uses a subset of DMH hydrometeorological stations for its river monitoring system.

Dry season 2024. The 2023/24 El Niño event⁸⁶ led to a particularly hot and dry season with a more pronounced effect in central and southern parts of the country. As a result of the El Niño effect, the early monsoon rainfall, which generally occurs in April and May, was well below average (Figure 8). Furthermore, in March, April and May 2024, the country experienced unusually high temperatures of above 40°C. According to DMH, the dry season irrigated paddy crops were under heat stress in some locations, affecting their growth and impacting yields.⁸⁷ Weather conditions during the 2024 dry season also had a negative impact on the quality of pastures. However, in areas not affected by excessive



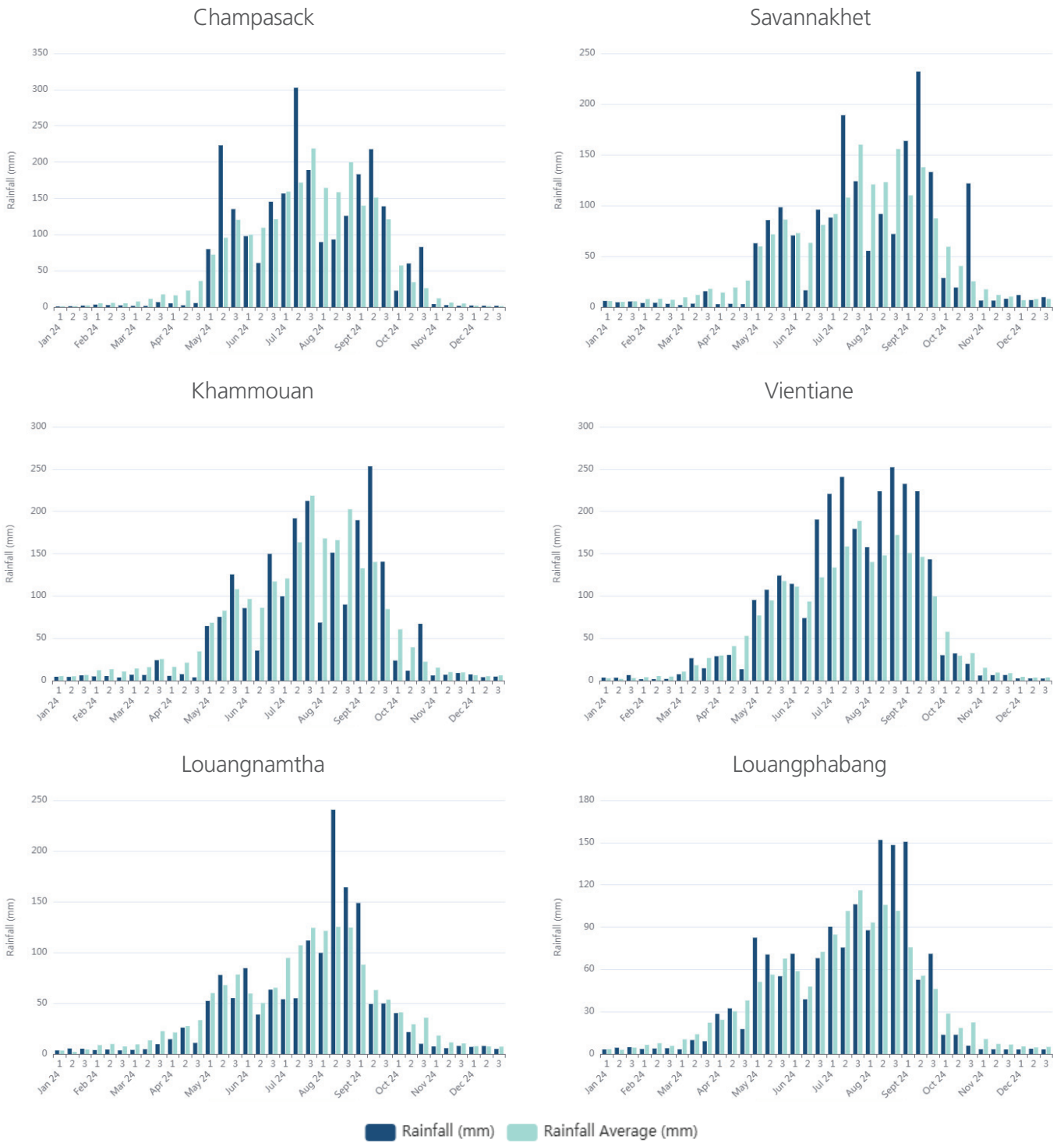
temperatures, dry conditions generally were generally favourable for harvesting operations.

Wet season 2024. The wet season started in a timely manner and total seasonal precipitation amounts were well above average (Figure 8), with high intensity rainfall events recorded. The Mission reviewed all weekly wet season situation reports (June to October) produced by MRC for the lower Mekong Basin⁸⁸ to identify areas affected by high intensity rainfall events that might have resulted in floods and/or landslides. Six high intensity rainfall periods were identified, mostly concentrated in August and September (Map 3).

Heavy rainfall occurred at the end of May and early June 2024 throughout the Vientiane, Khammuane, Savannakhet and Champasak plains, negatively impacting the germination of paddy crops and as a result many farmers had to replant paddy fields, resulting in a delay in the vegetation growing period and harvest operations by between two and four weeks.

[†] Dissemination of MRC analysis are done through the Near Real-Time Monitoring (HYCOS), Flood Forecasting and Drought Forecasting and Early Warning websites.

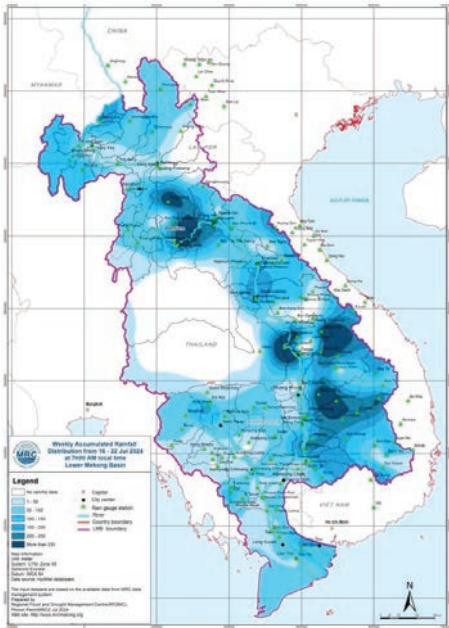
Figure 8: Rainfall estimates, January to December 2024 (mm)



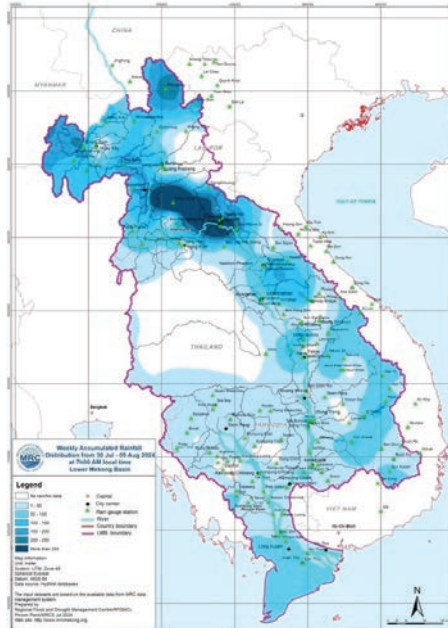
Source: WFP. 2024. *Data – Seasonal Explorer, 2024*. Vulnerability Analysis and Mapping (VAM) of WFP. Rome. [Cited December 2024]. <https://dataviz.vam.wfp.org/>.

Map 3: High intensity rainfall events in the lower Mekong Basin, between July and October 2024

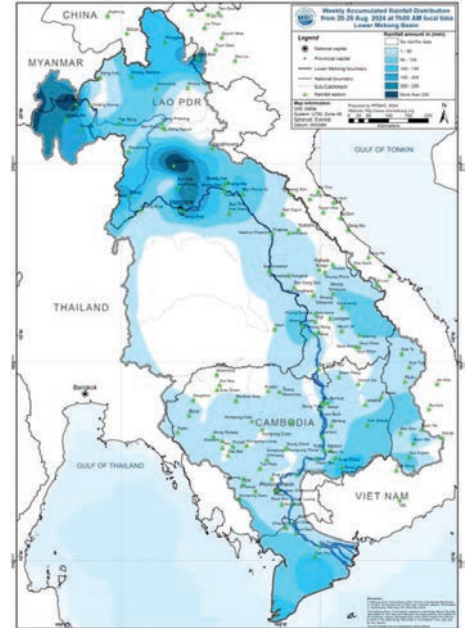
16–22 July 2024



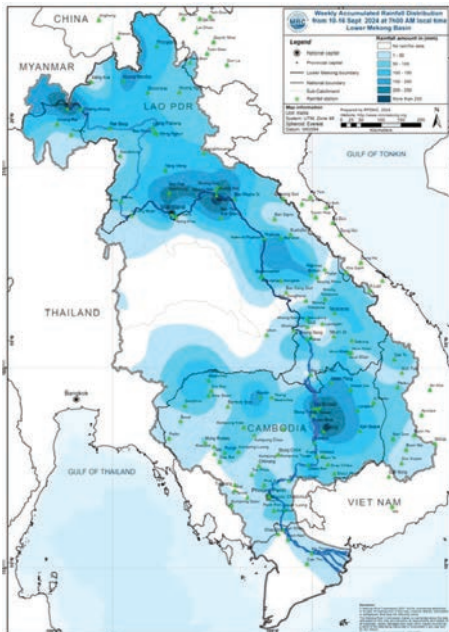
30 July–5 August 2024



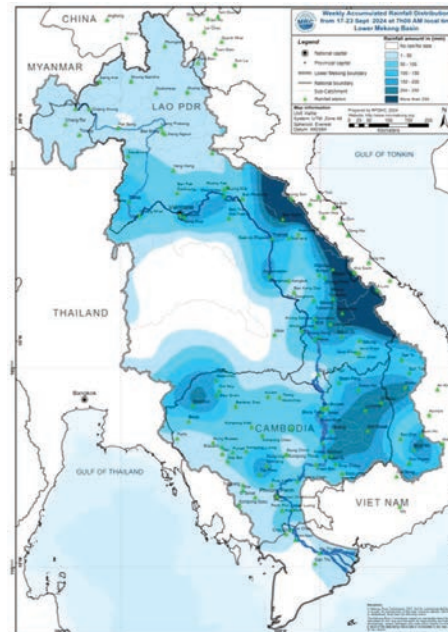
20–26 August 2024



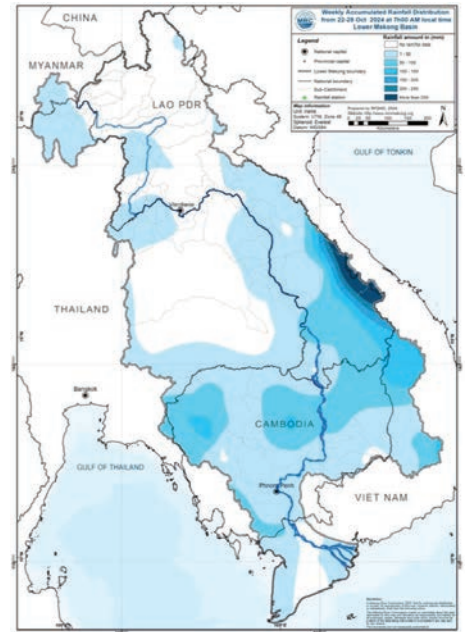
10–16 September 2024



17–23 September 2024



20–28 October 2024



Disclaimer: The boundaries and names shown and the designations used on these map(s) do not imply the expression of any opinion whatsoever on the part of FAO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers and boundaries.

Source: Mekong River Commission. 2024. *Index of/weekly_report/2024*. Vientiane. [Cited 7 December 2024]. https://ffw.mrcmekong.org/weekly_report/2024/.

According to DMH rainfall data, precipitation amounts in the southern part of the country (south of Savannakhet) for the period June–August were slightly below average in most meteorological stations.⁸⁹ Field observations and farmer interviews conducted by the Mission indicated that the below-average rains did not affect paddy crop productivity, however, coffee bean production was negatively affected in the south. In September and October 2024, rainfall amounts were well above average in all provinces, except for Bokeo province in the northwest which experienced slightly below-average rainfall amounts during the entire monsoon season. Heavy rainfall in September and October 2024 affected harvest operations, leading to increased harvest and post-harvest losses.

Regarding pastures, weather conditions were generally favourable during the 2024 wet season, leading to increased biomass availability for livestock during the 2025 dry season.

Floods

In 2024, three tropical storms and one cyclone interacted, caused multiple floods and landslide events.^{90, 91, 92, 93}

➤ **Tropical storm Prapiroon** made landfall in Viet Nam on 22 July 2024 and quickly weakened as it moved westward inland. The system reversed course east of Huaphanh

province and dissipated by 25 July 2024. The remnants of Prapiroon interacted with the westward monsoon and caused heavy monsoon rains at the end of July in various parts of the country (Map 3).

➤ **Typhoon Yagi** made landfall in northern Viet Nam on 7 September 2024 and moved westward toward the Lao People's Democratic Republic when the system was weakening rapidly. The system entered the northern part of the country on 8 September 2024 and dissipated the following day. The combination of Yagi and the southwest monsoon led to heavy rainfall over northern parts of the country (Map 3). The highest daily total precipitation amount after Yagi landfall was recorded in Luangprabang city at 167 mm. The typhoon caused widespread floods and landslides, particularly in Luangnamtha, but also in Oudomxay, Luangprabang, Bokeo, Pongsaly and Xaiyaboury provinces.

➤ **Tropical storm Sulik** made a landfall in the northern coast of Viet Nam on 19 September 2024 when it quickly weakened to a tropical depression due to land interaction. The system dissipated by 20 September when it reached the central part of the country. The remnant of Soulik interacted with the westward monsoon to produce heavy rainfall over the central and southern parts of the country (Map 4), causing localized flash floods.

Map 4: Best tracks of typhoon Yagi and tropical storms that affected the country, 2024

Prapiroon

Yagi

Sulik

Trami



Disclaimer: The boundaries and names shown and the designations used on these map(s) do not imply the expression of any opinion whatsoever on the part of FAO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers and boundaries.

Source: Metoc. Navy. 2024. Joint Typhoon Warning Center. U.S. Navy. Naval Meteorology and Oceanography Command [Cited 7 December 2024]. <https://www.metoc.navy.mil/jtwc/jtwc.html>.

- **Tropical storm Trami** made landfall in central Viet Nam on 27 October 2024, when it rapidly weakened as it moved around the Lao-Viet Nam border over Sekong province. The system changed direction and moved toward the Vietnamese coast, dissipating on 28 October 2024. Trami caused late rainfall along the Lao-Viet Nam border (Map 3).

Heavy rainfall amounts during the southwest monsoon caused floods in various parts of the country in June and July 2024. On 29 August 2024, the Mekong Water Commission issued a warning as Mekong River water levels reached alarm-levels in several cities.⁹⁴ On 13 September 2024, the DMH issued a flood warning, reporting rising water levels in Sangthong, Sikottabong, Sisatanak, Hadxaifong and Pak Ngum districts of Vientiane.⁹⁵ The main flood events in 2024 were the following:^{96, 97, 98, 99, 100}

- **9–11 June.** Overflow floods in Vientiane Prefecture.
- **3 July.** Flash flood along the Nam Song River in Vientiane Province.
- **23 July–1 August.** Flash floods in Luangprabang (particularly in Viengkham and Phonhong districts) and Khammuane provinces.
- **21–26 August.** Flash floods in Xayaboury (Khop District), Vientiane (Vangvieng District), Borikhamxai (Thaphabath District) provinces.
- **31 August.** Flash floods: Luangprabang (Ban Nasangweuy) Province.
- **11–12 September.** Overflow of the Mekong River in various locations of Luangnamtha, Luangprabang and Bokeo (Huiyxai District) provinces and flash floods along the Nam Ou River in Luangprabang and Phongsaly provinces.
- **12 September.** Overflow floods by Mekong River in Bokeo (Huiyxai District) and Luangprabang provinces as well as Vientiane Prefecture.
- **22 September.** Flash floods in various locations along Nam Xam River in Huaphanh Province.
- **1 October.** Flash floods in Phongsaly Province, Bounneu District.

In total, the Ministry of Natural Resources and Environment (MONRE) reported more than 20 flood events from June to October 2024.¹⁰¹ Although multiple, there were no large-scale flood events. In addition, damage to the agriculture sector was assessed to be limited. Reflecting the low severity of floods in 2024, the government did not declare a state of emergency, which is applied when the flood “*event has a serious impact*”.¹⁰²

Weather-related damage and loss estimates

By the end of December 2024, national level agricultural D&L data was not available. This principally reflected the differing D&L data collection and reporting instruments used across the country, as well as the time lag in communicating between the four DRM levels, which presents challenges when aggregating data to the national level.

In the absence of national D&L data, the Mission contacted all flood-affected provincial MAF offices to obtain D&L data. The Mission also reviewed geospatial flood extent estimates from FAO’s Land and Water Division (NSL), for the July–September 2024 period, as means to corroborate MAF ground assessments.

Tables 3 to 4 provide an overview of the extent and severity of the 2024 floods on crops, livestock, fishery and irrigation. It is important to note that these data are preliminary, as the verification process through the DRM system had not been completed when the Mission visited the country. Therefore, these estimates might differ slightly from final government D&L figures.

More than 35 000 farmers suffered crop, livestock and/or irrigation infrastructures damage and loss from the multiple flood events in 2024. About 20 300 hectares of paddy suffered partial crop losses from flood events, representing 2 percent of the total area cultivated with paddy crops in 2024. Paddy harvest losses are estimated at 20 800 tonnes or about 0.6 percent of the total paddy production. In addition, about 2 100 hectares of vegetables and 4 600 hectares of other crops (mainly cassava and rubber trees) were affected, resulting in an estimated

4 380 tonnes of losses of vegetables and 3 590 tonnes of other crops. While these losses have serious implications for households' income and food security, at the national level, the impact of the floods on the paddy and vegetable supplies are limited.

Livestock deaths amounted to 6 802 cattle, 1 646 buffaloes, 1 015 sheep and goats and 2 175 pigs, representing 0.12 percent of the total population in 2024.

Irrigation infrastructures suffered substantial damages, with 368 irrigation schemes affected. Table 5 provides details on the category of damages by province. In total, 256 weirs, 27 reservoirs and 1 earth dam were broken while about 5.7 km of irrigation canals and 20.8 km of drainage canals were damaged or silted. Without support to rehabilitate irrigation infrastructures, more than 15 700 hectares of cropland risk to not be irrigated in the next main 2025 cropping season.

Table 3: Damage and loss on crops, 2024

Affected province	Farmers affected ^{1/}	Paddy land flooded (hectares)	Vegetable crops flooded (hectares)	Other crops flooded (hectares) ^{1/}	Total crop land flooded (hectares)	Paddy losses (tonnes)	Vegetable losses (tonnes)	Other crops losses (tonnes) ^{1/}
Northern region	11 339	889	2 057	177	14 462	2 919	2 057	177
Phongsaly	730	249	-	-	979	252	-	-
Luangnamtha	4 321	640	1 426	-	6 387	640	1 426	-
Oudomxay	1 099	-	150	-	1 249	247	150	-
Bokeo	411	-	-	64	475	18	-	64
Luangprabang	No data	-	-	113	113	120	-	113
Huaphanh	813	-	182	-	995	1 024	182	-
Xayaboury	3 965	-	299	-	4 264	618	299	-
Central region	21 085	16 957	31	4 228	42 301	17 234	2 323	3 228
Vientiane prefecture	4 463	-	-	1 138	5 601	3 086	-	138
Xiengkhuang	206	255	-	-	461	131	-	-
Vientiane	No data	1 285	31	-	1 316	1 285	31	-
Borikhamxay	1 382	-	-	-	1 382	5 737	2 292	-
Khammuane	12 017	11 519	-	3 090	26 626	4 778	-	3 090
Savannakhet	3 017	3 898	-	-	6 915	2 217	-	-
Southern region	2 618	2 442		183	5 243	679		183
Sekong	No data	-	-	-	0	-	-	-
Champasack	2 618	2 442	-	183	5 243	679	-	183
Attapeu	-	-	-	-	0	-	-	-
Total	35 042	20 288	2 088	4 588	62 006	20 832	4 380	3 588

^{1/} Mostly cassava and rubber trees.

Source: Author's own elaboration based on data from the Provincial Agriculture and Forestry Office (PAFO), 2024.

Table 4: Damage and loss on livestock and fishery, 2024

Affected province	Cattle deaths (heads)	Bufalo deaths (heads)	Sheep/ goat deaths (heads)	Pig deaths (heads)		Fish pound damaged (unit)	Fish losses (tonnes)
Northern region	636	134	145	579	59 307	1 018	320
Phongsaly	4	-	4	4	116	4	-
Luangnamtha	529	123	109	236	44 192	120	-
Oudomxay	1	-	-	-	-	-	194
Bokeo	4	-	-	1	149	11	61
Luangprabang	44	-	31	297	4 375	39	64
Huaphanh	11	10	-	22	908	508	-
Xayaboury	43	1	1	19	9 567	336	-
Central region	3 083	756	435	798	27 693	2 543	940
Vientiane Prefecture	-	-	-	-	-	1 745	283
Xiengkhuang	10	0	2	13	150	20	-
Vientiane	36	24	26	158	-	-	-
Borikhamxay	23	11	27	41	1'354	268	-
Khammuane	3 014	721	380	586	26 189	510	656
Total	6 802	1 646	1 015	2 175	114 693	6 104	2 199

Source: Author's own elaboration based on data from the Provincial Agriculture and Forestry Office (PAFO), 2024.

Table 5: Damages on irrigation infrastructure, 2024

Affected province	Number of irrigation schemes affected	Number of weirs broken	Number of reservoirs damaged	Number of earth dams broken	Irrigation canals damaged (linear metres)	Drainage canal damaged (linear metres)	Area which can no longer be irrigated for the next season (hectares)
Northern region	223	135	22	1	3 590	20 080	6 158
Phongsaly	11	7	-	-	-	-	146
Luangnamtha	31	31	-	-	-	-	2 067
Oudomxay	26	10	-	-	-	-	134
Bokeo	14	30	-	-	-	-	608
Luangprabang	10	9	-	-	1 282	-	65
Huaphanh	94	11	-	1	2 308	20 080	1 590
Xayaboury	37	37	22	-	-	-	1 548
Central region	135	111	5	0	2 096	0	9 026
Vientiane Prefecture	15	8	5	-	-	-	1 768
Xiengkhuang	21	12	-	-	-	-	2 582
Vientiane	9	9	-	-	-	-	1 261
Borikhamxay	37	37	-	-	-	-	1 906
Khammuane	31	23	-	-	2 096	-	1 509
Savannakhet	22	22	-	-	-	-	-
Southern region	10	10	0	0	0	0	548
Sekong	10	10	-	-	-	-	548
Total	368	256	27	1	5 686	20 080	15 731

Source: Author's own elaboration based on data from the Provincial Agriculture and Forestry Office (PAFO), 2024.

Agricultural Inputs

Seeds

From the 1990s, rice breeding and seed production stations were established, selecting a series of high-yielding glutinous varieties which have been distributed to farmers in the major rice-growing areas in the Mekong Valley. These are mostly glutinous varieties, developed by integrating favoured genetic characteristics, such as drought and submergence tolerance, and early maturing, from strains produced by the International Rice Research Institute (IRRI) and Thailand, with Lao rice strains. This combination helps to enhance yield potentials across a diverse range of environments. According to MAF, over 90 percent of the cultivated paddy area by small-scale farmers was planted with improved rice varieties in 2024.¹⁰³

All paddy varieties bred and distributed in the country are open pollinated. However, without an adequate seed replacement rate, the quality of these seeds deteriorates over successive harvests leading to a decline in yield potentials. Rather than saving seeds from each harvest for the subsequent cropping season, farmers should replace seeds every two to three years to sustain optimal yield levels. This underscores the need for a robust certified seed production and distribution system. Currently, the country's paddy seed system is led by government entities and farmer groups with very limited participation of the private sector. The main actors in the paddy seeds supply chain are:

- Five NAFRI agriculture research centres^u which produce, foundation and registered R2 certified seeds, while some centres also produce registered R3 certified seeds through farmer groups.
- Six Department of Agriculture Extension and Cooperatives (DAEC) seed centres,^v which produce registered R3 certified seeds through farmer groups.

- PAFOs and DAFOs which distribute certified seeds to farmers but also work with farmer groups to produce registered R3 certified seeds.

The Mission noted that seed production is concentrated near the capital, in central Vientiane province. On the other hand, the Mission visited several districts in more remote areas of the north where there were no seed producer groups and consequently farmers had very limited or no access to improved seeds. Strengthening coordination of seed production and distribution throughout the country may result in improved farmers' access to high-yielding seed varieties, particularly in rural locations far from the main urban centres.

During field visits, farmers frequently reported to obtain improved seeds mainly from other farmers or from members of a seed group. A very small portion of farmers reported purchasing paddy seeds from the market. The main varieties identified in the field were from Vientiane, including Thadokham (TDK 8, 11, HTDK 14, 15, 16, Vientiane 450), Phonengam (PNG) varieties, Xebangphay 4 variety and PAFO (Homsavanh) variety. Varieties introduced from Thailand as well as from Viet Nam (Kohang) were also used by interviewed farmers. Farmers also reported using local varieties, especially in remote locations. Local varieties are selected and conserved by small-scale farmers.

In 2023, the five NAFRI research centres produced 145 tonnes of registered R2 certified seeds for distribution to seed farmer groups, according to the Ministry of Agriculture and Forestry (MAF).¹⁰⁴ Given the recommended seed rate, this quantity would be sufficient to plant approximately 2 400 hectares for seed production.

With an average usable yield of 3 tonnes/hectare of paddy for certified seed production, this would result in an annual production of about 7 200 tonnes of R3 certified seeds. However, to maintain yield potentials, farmers need to replace R3 certified seeds every two to three years. As a result, the total quantity of

^u Namely: Napok, Thasano, Loungnamtha, Phone Ngam and the upland agriculture research centres.

^v Namely: Xaiaburi, Khamouan, Savanaket, Salavan, Vientiane Province and Vientiane Prefecture.

seeds required to service approximately 90 percent of the paddy cropped area with improved seeds would range between 30 000 and 50 000 tonnes of R3 certified seeds. This means that the current seed system supplies only 14 to 24 percent of the seeds needed for farmers to fully benefit from the national seed breeding programme.

For the estimated 2024 paddy area of 1.01 million hectares (lowland and upland), applying the recommended seed rate^x would require slightly more than 60 000 tonnes of paddy seed. However, considering common seeding practices, the Mission estimated that the actual seed use is likely to be around 110 000 tonnes per year^y (see section on cereal supply/demand balance sheet).

To cope with the impact of increased production costs and reduced labour supply (a consequence of the sharp currency depreciation and high inflation rates), the Mission found that farmers were delaying the replacement of seeds (to minimize costs) and broadcasting paddy seeds instead of transplanting (to minimize costs and save on labour needs). Typically, paddy seeds are broadcasted in May, before the monsoon rains intensify. However, this practice is highly risky, as heavy rainfall at the beginning of the season may create water pans from runoffs, which negatively affects paddy seed germination. At the village level, the topography influences the proportion of farmers who are broadcasting paddy seeds, rather than transplanting. In 2024, heavy rainfall at end of May and early June throughout the Vientiane, Khammuane, Savannakhet and Champasak plains led to poor germination of paddy broadcasted seeds. Many paddy farmers had to replant their paddy fields, resulting in increased production costs and a delayed harvest ranging from two to four weeks. However, the replanting of paddy fields in June did not affect crop productivity. Hybrid maize seeds are mostly imported, while

cassava cuttings of different varieties are propagated by farmers and cassava factories. Outbreaks of cassava mosaic virus are a main concern. Vegetable seeds are mostly imported from Thailand, Viet Nam and China (mainland), although there is a nascent domestic vegetable seed production system led by the private sector that supplies local input shops.

Fertilizers

Based on focus groups discussions, the Mission was informed that lack of access to fertilizers is one of the most critical constraints farmers face. Farmers also identified fertilizer application levels in lowland crop systems as the main driver of paddy yields. A crop budget analysis conducted by PAFO Vientiane Prefecture in 2023 indicates that fertilizers account for 50 percent of the production costs by small-scale farmers.^z If farmers are implementing Good Agricultural Practices (GAP), fertilizers would represent up to 55 percent of the production costs. If the implementation of GAP includes the rental of a mechanized transplanter, then fertilizer costs would represent approximately 40 percent of a small-scale farmer's budget.^{aa} A World Bank report found that the lack of access to agriculture inputs, and fertilizer in particular, is the main barrier to the adoption of climate resilient technologies, such as GAP, and soil fertility management practices.¹⁰⁵ Given the comparatively low use of fertilizers by farmers, there is a significant margin for yields to increase (see recommendations) .

Imported fertilizers are used in larger quantities per hectare on large investment farms, while small-scale farmers mostly apply fertilizers on lowland crops (principally paddy, vegetables and watermelon).^{ab} Fertilizers are not used in upland swidden cultivation for paddy, maize and cassava crops, but typically one or two bags/hectare of nitrogen-phosphorus-potassium (NPK) 21–7–14 compound fertilizer is applied on upland rubber

^x 60 kg/hectare lowland and 80 kg/hectare upland.

^y Average of 108 kg of seeds/hectare.

^z Assuming labour costs for transplanting, fertilizer and pesticides application is done by unremunerated household labour. The main costs categories include fertilizer (LAK 3 million), land preparation using rented tractor (LAK 2.4 million), pesticides/herbicides (LAK 370 000).

^{aa} The main costs categories include, fertilizer (LAK 3.25 million), land preparation using rented tractor (LAK 2.4 million), pesticides/herbicides (LAK 150 000), rented transplanter (LAK 2.4 million).

^{ab} There are no reliable data on fertilizer use and fertilizer prices in the country.

plantations. The most used fertilizers on paddy crops are urea (46–0–0) at planting/transplanting time and DAP (16–20–00) as a top-dressing time, 45 days after transplanting. NPK compound fertilizers, such as 15–15–15 and 16–8–8, are used in lower quantities. Most farmers do not apply fertilizers at the recommended application rates (Annex 2). Farmers interviewed reported using between 0 and 250 kg of fertilizer/hectare on lowland paddy. The higher quantities being on irrigated land during the dry season and for commercial farmers supplying larger rice mills. The lower quantities being in locations further away from the milling industry and with higher access to animal manure. In these locations, the burning of rice straw is often the main source of plant nutrients, although the practice has a negative long-term impact on soil fertility.

Most farmers apply organic manure on their paddy fields, also after burning rice straw. While this is a good practice, the quantities of manure applied are too small to influence soil fertility and soil nutrient cycles.

According to MAF's Division of Regulatory and Agricultural Input Registration, the country imported 137 550 tonnes of synthetic fertilizer in 2024, 26 percent more than in 2023. A significant proportion of fertilizers is imported by large investment farm companies and, therefore, an increase in import quantities does not necessarily translate into an increase in the application rate by small-scale farmers, and the Mission found that fertilizer use by small-scale farmers has remained the same or slightly lower in 2024 compared to the previous year. There is also informal trade in fertilizers, as mentioned by fertilizer import companies interviewed during the field visits.

There are no readily available data on fertilizer prices across the country. At the time of the Mission, urea was sold at LAK 630 000–860 000/50 kg bag and DAP at LAK 670 000–900 000/50 kg bag.^{ac} The lowest prices were found in Vientiane and the highest prices in northern provinces. All farmers

interviewed reported that fertilizer prices had significantly decreased between September and December 2024, by an estimated 20 to 30 percent. However, at planting time of the main wet season rice between May and June 2024, fertilizer prices were at about the same level as in 2023.

Agricultural labour

Focus group discussions with farmers in selected villages ranked the lack of agricultural labour as their second main constraint to increasing production, after access to fertilizers. Persistent inflation has fuelled outmigration, with the number of Lao migrant workers in Thailand now estimated to have surpassed pre-COVID-19 levels. Field visits indicated that there are employment opportunities for the rural population, including in large investment farms, as well as the construction, manufacturing or tourism sectors. These job types are often preferred to daily agricultural labour in paddy fields. Focus group discussions with farmers indicated that seasonal employment is preferred to longer-term arrangements, enabling workers to return to their villages to support the main agricultural activities at planting and harvesting time. A shortage of labour in non-agriculture sectors offers more employment flexibility for rural households.

Following an increase in the minimum wage in 2023, the government raised the rate further on 27 September 2024 to LAK 2.5 million/month.¹⁰⁶ Agricultural labour wages are, however, higher. Farmer focus groups indicated that daily agricultural wages increased substantially over the past years and were generally aligned with wage rates in large investment farms or in the tourism sector. Field visits indicated that, on average, daily labour wages paid by small-scale farmers were 15 percent higher in 2024 compared to 2023. The highest rates were found in villages near Vientiane Prefecture, averaging LAK 200 000/day (without meal) in 2024, up from LAK 170 000/day in 2023. In more remote districts in the north, the average daily agricultural wage ranged from LAK 150 000 to 200 000/day.

^{ac} Rabbit brand.

Mechanization

In lowland rice producing areas, many farmers own hand-held tractors or threshing machines, while those who do not often rent from neighbouring farmers. Over the most recent decades, farmers have been increasingly selling their livestock, especially cattle and buffaloes, to buy two-wheeled tractors.¹⁰⁷ Small combine harvesters are also increasingly used in the lowland plains. In contrast, mechanization is very limited in upland rice production systems, with most farm and post-harvest operations performed manually.

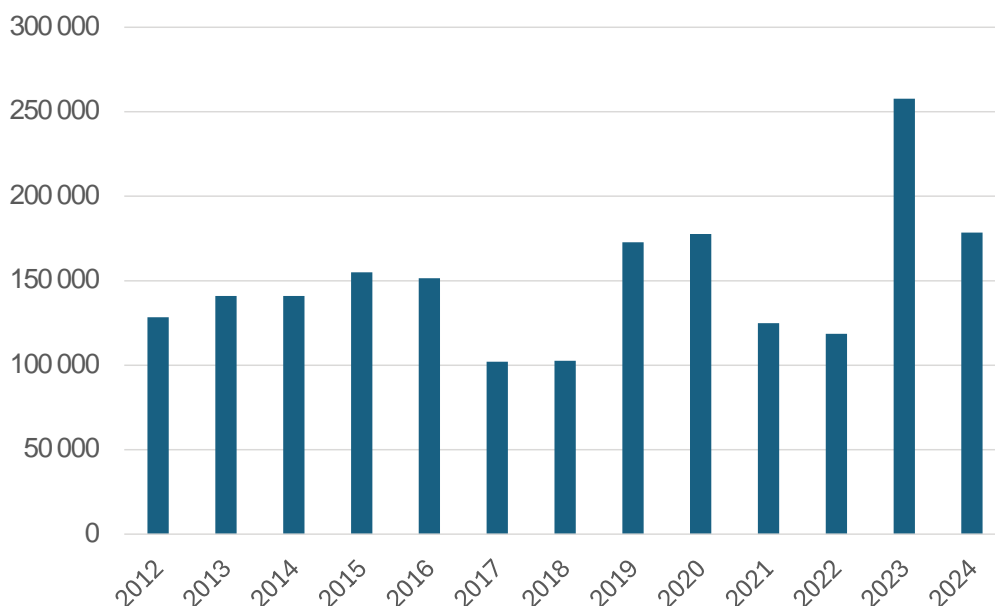
To cope with a reduced supply of agricultural labour, more farmers are purchasing land preparation services (four-wheel drive tractors) and harvesting/threshing services from local service providers. Focus group discussions indicated that the price of machinery services had substantially increased over the past years, including in 2024. The lack of four-wheel drive tractors and small combine harvesters are supporting the higher

prices. Constrained supply of farm machinery and high prices are posing difficulties for farmers to implement farm operations in a timely manner, with potential negative impacts on crop yields and harvest losses.

Fire incidence

Large fires, mostly on forest and agricultural land, can be monitored through satellite imagery, specifically using the Visible Infrared Imaging Radiometer Suite (VIIRS) indicator.^{ad} MAF is implementing a national forest monitoring system including fire monitoring,¹⁰⁸ given the high incidence of fires. On average, the country experienced more than 150 000 fire alerts annually between 2012 and 2024.¹⁰⁹ On a yearly basis, the number of fire alerts has increased from 2012 onward, with figures peaking in 2023 and 2024 (Figure 9). This data provides supporting evidence for the recent trend of agricultural expansion into new areas, including in 2024.

Figure 9: Total number of VIIRS fire alerts, 2012–2024



Sources: Author's own elaboration based on data from the Global Forest Watch. 2025. *Dashboards for Laos*. [Cited 6 January 2025]. <https://www.globalforestwatch.org/dashboards/country/LAO/?category=fires&location=WyJjb3VudHJ5IiwidEFPII0%3D&map=eyJYW5Cb3VuZC16dHJ1ZX0%3D>.

^{ad} Visible Infrared Imaging Radiometer Suite (VIIRS) is a satellite imagery sensor capable of generating data processing streams with global coverage every 14 hours.

Pest and diseases

With a wet and warm 2024 monsoon season, the incidences of pests and diseases was higher than average and often cited as a key constraint by farmers. **Table XX** presents the main pests observed during the Mission’s field work or reported by MAF. The Lao Climate Service for Agriculture publishes pest and disease alerts on its website.¹¹⁰ The prevalence of stem borers was particularly high in Champasak Province where it caused some yield reduction on 658 hectares of paddy. Fall armyworm also had a negative impact on paddy yields in the provinces visited by the Mission in the north. In other provinces, pests and diseases pressure on paddy remained near average. Regarding banana, *Fusarium* wilt remains a major problem, particularly in the northern part of the country.

Area planted

MAF is mandated to generate annual agricultural statistics. The Mission reviewed MAF’s and LSB’s crop area time series data, and based on an assessment of the factors that influenced the agriculture sector in 2024, forecasted the 2024/25 area planted by crop.

The primary factor affecting planting decisions in 2024 was food inflation. The ninth round of the World Bank’s Rapid Monitoring Phone Survey,¹¹¹

conducted between May and June 2024, found that households responded to rising food prices by scaling up food production. High food prices also stimulated an expansion in cash crop cultivation by small-scale farmers. For the dry season 2024/25 paddy crop, the Mission evaluated regional climate forecasts¹¹² and long-term trends to estimate the area planted.

Table 6 compares the 2024 planted area with the previous five-year average (2019–2023). The total paddy area is estimated at 1.01 million hectares, 4.4 percent above the last five-year average. Lowland rainfed paddy (wet season rainfed and dry season irrigated) is estimated at 812 000 hectares, about 4.3 percent above the average, while upland rainfed paddy is estimated at 101 000 hectares, 5.1 percent above the average. Maize (for feed) planted area is estimated at 89 000 hectares, about 15.6 percent below the last five-year average, as cassava cultivation replaced maize production. Sweet maize, however, reached 28 000 hectares, about 4.1 percent above the last five-year average, driven by food inflation.

The cassava planted area is estimated at 272 000 hectares, about 77 percent above the five-year average, mainly due to high prices paid to farmers in 2023 (LAK 1 900–2 000/kg of fresh cassava root) by processing plants. Given the scale and cultivation practices, cassava production remains

Table 6: Paddy, maize, cassava and banana planted area, 2024/25 and changes compared to the last five-year average, 2019–2023 ('000 hectares)

	2019	2020	2021	2022	2023	Five-year average (2019–2023)	2024/25	Change 2024/ five-year average (percent)
Lowland rainfed	778	765	772	771	806	778	812	4.3
Dry season	89	97	87	95	97	93	98	4.8
Upland rainfed	99	108	82	93	101	97	101	5.1
Paddy (Total)	966	970	941	959	1 003	968	1 010	4.4
Maize (grain)	124	106	111	93	96	106	89	-15.6
Sweet maize	28	25	26	27	27	27	28	4.1
Maize (Total)	152	131	137	120	123	132	117	-11.7
Cassava	101	112	113	191	249	154	272	77.0
Banana	27	26	26	26	31	27	31	15.7

Note: Figures may not add up due to rounding.

Source: Author’s own elaboration based on data from the Ministry of Agriculture and Forestry (MAF) and collected during the FAO/WFP 2024 Crop and Food Security Assessment Mission (CFSAM) to the Lao People’s Democratic Republic (estimates), 2024.

a primary driver of deforestation in the country. In 2025, however, cassava plantings are expected to decrease slightly in response to a 55 percent decrease in farmgate prices for fresh cassava in 2024 (LAK 900/kg).

The area planted with bananas is estimated at 31 000 hectares, about 15.7 percent above the last five-year average.

The crop area planted on large investment farms is not accounted for in these estimates.

Crop yields

The Mission reviewed MAF's yield time series by crop as well as factors that influenced them in 2024/25. Figure 10 illustrates that paddy yields in the three farming systems (wet season rainfed, dry season irrigated and upland) have decreased slightly over the past decade. Maize and cassava have also declined (Figure 11). According to MAF's data, only

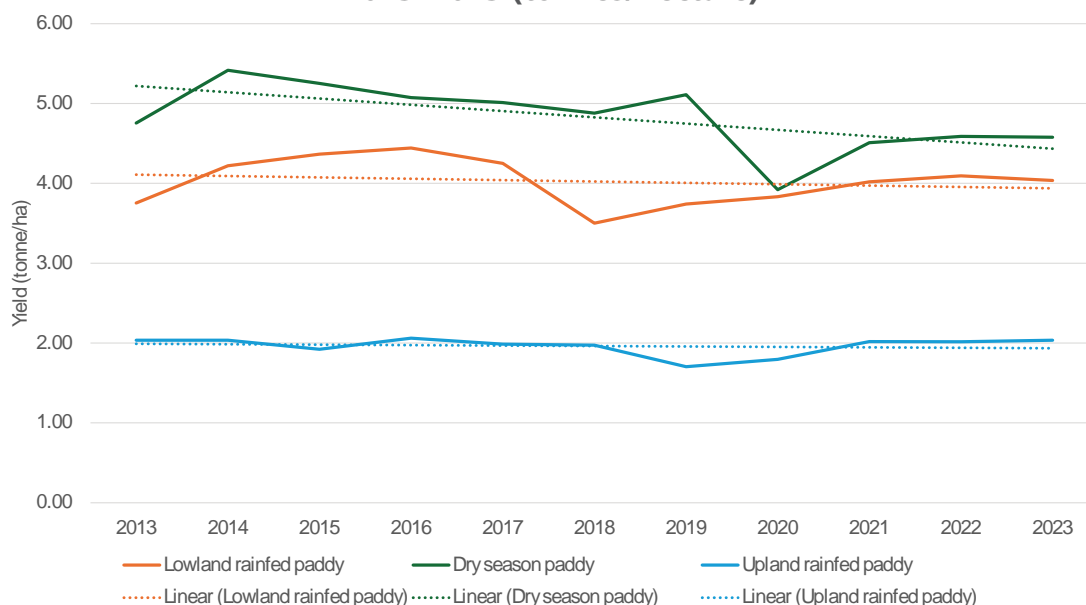
banana yields have increased, despite the impact of *fusarium* wilt disease.

Several reasons explain the decrease in paddy yields over the past decade:

- Lack of access to fertilizers.
- Lack of access to improved certified seeds.
- Lack of access to mechanization.
- Lack of knowledge on Climate Smart Agriculture practices.
- Impact of weather shocks (primarily typhoons and droughts).

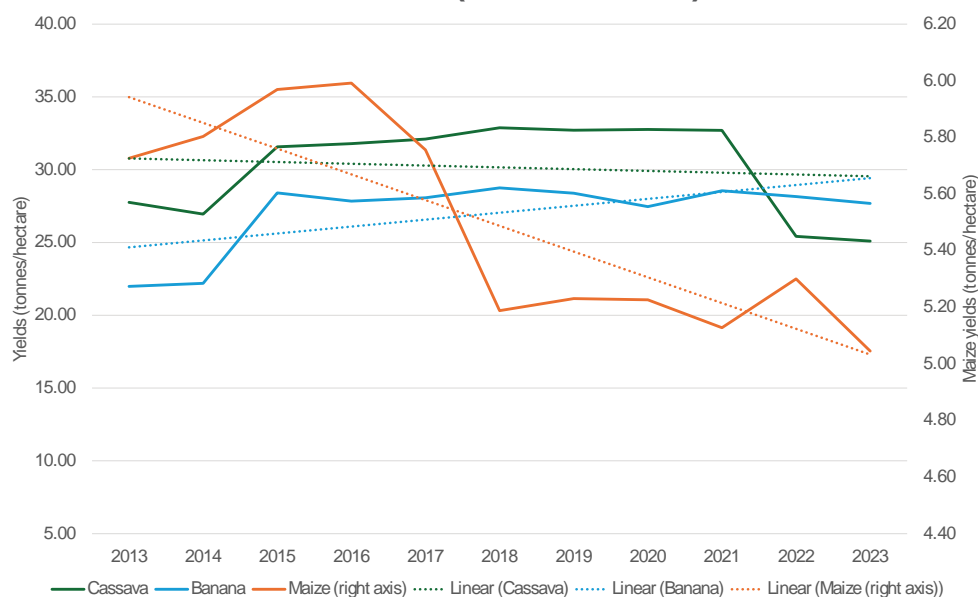
In 2024, inflation reduced small-scale farmers' access to agriculture inputs, with a negative impact on lowland paddy crop yields across the country.

Figure 10: Yields of lowland rainfed paddy, dry season and upland paddy, 2013–2023 (tonnes/hectare)



Sources: Author's own elaboration based on data from the Ministry of Agriculture and Forestry (MAF). 2024. Agricultural Statistics yearbooks.

Figure 11: Yields of cassava, bananas and maize, 2013–2023 (tonnes/hectare)



Sources: Author's own elaboration based on data from the Ministry of Agriculture and Forestry (MAF). 2024. Agricultural Statistics yearbooks.

Table 7: Paddy, maize, cassava and banana planted yields, 2024/25 and changes compared to the last five-year average, 2019–2023 (tonnes/hectare)

	2019	2020	2021	2022	2023	Five-year average (2019–2023)	2024/25	Change 2024/25 five-year average (percent)
Lowland rainfed	3.74	3.83	4.02	4.09	4.04	3.94	3.87	-1.8
Dry season	5.11	3.92	4.51	4.59	4.58	4.54	4.44	-2.2
Upland rainfed	1.70	1.80	2.02	2.02	2.04	1.91	2.10	9.5
Paddy (Total)	3.66	3.61	3.89	3.94	3.89	3.80	3.75	-1.3
Maize (hard)	4.98	4.97	4.83	4.99	4.77	4.91	4.96	1.1
Sweet maize	6.31	6.31	6.40	6.37	6.01	6.28	6.13	-2.4
Maize (Total)	5.23	5.23	5.13	5.30	5.04	5.19	5.24	1.1
Cassava	32.71	32.77	32.70	25.42	25.09	29.74	25.14	-15.5
Bananas	28.39	27.46	28.56	28.16	27.68	28.05	27.96	-0.3

Note: Figures may not add up due to rounding.

Source: Author's own elaboration based on data from the Ministry of Agriculture and Forestry (MAF) and collected during the FAO/WFP 2024 Crop and Food Security Assessment Mission (CFSAM) to the Lao People's Democratic Republic (estimates), 2024.

Table 7 compares the 2024/25 yield estimate with the previous five-year average (2019–2023). The national paddy yield is estimated at 3.8 tonnes/hectare, 1.3 percent below the five-year average. Lowland rainfed paddy yield is estimated at 3.9 tonnes/hectare, 1.8 percent below the average, reflecting the effects of floods and untimely heavy rainfall in September and October 2024. The dry season 2024/25 paddy yield is forecast at 4.4 tonnes/hectare, 2.2 percent below the average. Upland rice yield has reached

2.1 tonnes/hectare, about 9.5 percent above the last five-year average, owing to favourable rainfall conditions in the northern part of the country.

Maize (for feed) yield is estimated at a near-average level of 5 tonnes/hectare, benefiting from above-average rainfall amounts in the north, some of the main producing areas. Cassava yield is forecast at 25 tonnes/hectare, about 16 percent below the previous five-year average, mainly due to rapid soil fertility degradation in key producing areas.

Table 8: Paddy, maize, cassava and bananas planted production, 2024/25 and changes compared to the last five-year average, 2019–2023 ('000 tonnes)

	2019	2020	2021	2022	2023	Five-year average (2019–2023)	2024/25	Change 2024/25 five-year average (percent)
Lowland rainfed	2 911	2 933	3 102	3 157	3 253	3 071	3 145	2.4
Dry season	455	380	392	438	442	421	433	2.7
Upland rainfed	169	194	165	187	205	184	213	15.5
Paddy (Total)	3 535	3 507	3 660	3 782	3 900	3 677	3 790	3.1
<i>Rice (milled equivalent)^{1/}</i>	2 121	2 104	2 196	2 269	2 340	2 206	2 270	3.1
Maize (hard)	615	527	535	463	458	520	443	-14.7
Sweet maize	178	156	169	171	162	167	170	1.7
Maize (Total)	794	684	704	634	620	687	613	-10.7
Cassava	3 320	3 685	3 710	4 863	6 255	4 367	6 835	56.5
Bananas	762	721	728	737	862	762	879	15.4

^{1/}Paddy to rice milling rate of 60 percent.

Note: Figures may not add up due to rounding.

Source: Author's own elaboration based on data from the Ministry of Agriculture and Forestry (MAF) and collected during the FAO/WFP 2024 Crop and Food Security Assessment Mission (CFSAM) to the Lao People's Democratic Republic (estimates), 2024.

Crop production

The 2024 rice (milled) production is forecast at 2.27 million tonnes, 3 percent above the last five-year average, as the increase in area planted more than offset the decline in yields. Heavy rainfall in September and October 2024 affected harvest conditions which resulted in increased post-harvest losses. Sweet maize production is estimated at 170 000 tonnes, 2 percent above the average. Maize, used as livestock feed or to be exported, is estimated at 443 000 tonnes, 15 percent below the last five-year average. Cassava production is estimated at 6.83 million tonnes, about 57 percent above the last five-year average. Banana production is estimated at 879 tonnes, 15 percent above the average.

The production of large investment farms is not accounted for in the above estimates.

Livestock

Livestock productivity is strongly constrained by inadequate forage quality and quantity. Most smallholders practice traditional animal husbandry techniques, with little or no investments in improved livestock rearing.¹¹³ In upland areas, livestock are free grazing in forest regrowth after slash and

burn, or on limited pastureland. In lowland areas, before paddy harvests, ruminants are grazed on roadsides, footpaths, degraded forest land and low productivity grassland due to overgrazing and invasive weeds infestation, such as *Chromolaena odorata*. After the paddy harvest, from November to May, livestock are grazed freely in rainfed paddy rice fields.

Rice straw is the main feed sources for ruminants. Having a very low protein content, rice straw cannot support nutrient requirements to achieve increased performance of ruminants. Integrating nitrogen fixing legume crops in the rice production cycle either as a grain, soil cover or fodder crops could support an improvement in both livestock forage and soil quality.

Considering the 2024 weather conditions that were favourable for pasture, the absence of pests and diseases outbreak, the growing market demand for livestock products and the moderate level of losses of animals due to floods, the livestock population and production are expected to have increased in 2024. Table 9 presents the number of livestock estimated by the Mission for 2024 and compares the changes with the previous five-year average.

Table 9: Number of livestock estimates, 2024 and changes compared to the last five-year average, 2019–2023 ('000 heads)

	2019	2020	2021	2022	2023	Five-year average (2019–2023)	2024	Change 2024 five-year average (percent)
Cattle	2 110	2 188	2 296	2 426	2 563	2 317	2 640	14
Buffaloes	1 222	1 234	1 239	1 248	1 250	1 239	1 256	1
Sheep and goats	648	682	716	764	799	722	839	16
Pigs	4 115	4 298	4 714	4 407	4 542	4 415	4 633	5

Note: Figures may not add up due to rounding.

Source: Author's own elaboration based on data from the Ministry of Agriculture and Forestry (MAF) and collected during the FAO/WFP 2024 Crop and Food Security Assessment Mission (CFSAM) to the Lao People's Democratic Republic (estimates), 2024.

FOOD PRICE SITUATION

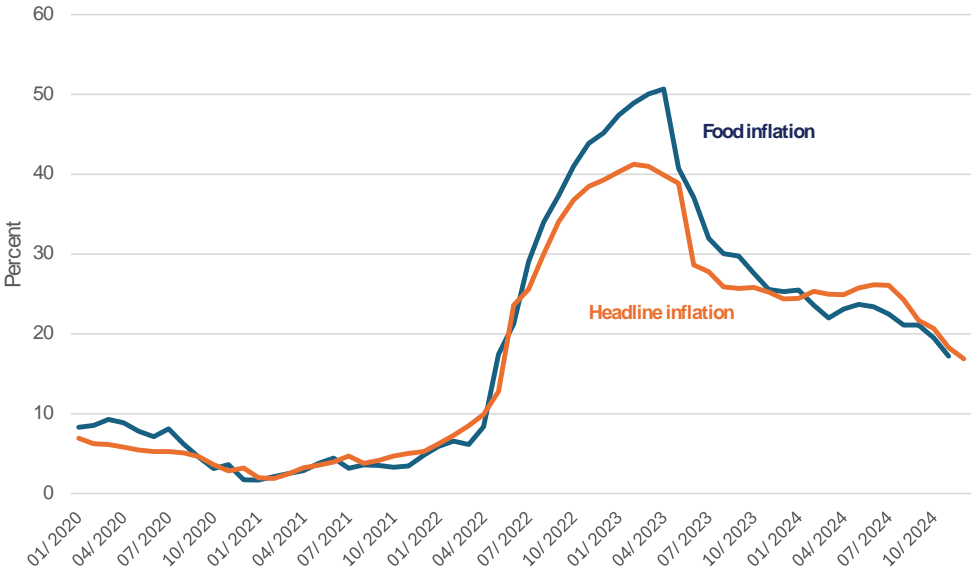
Food prices

Food prices began increasing sharply from mid-2022, with the annual food inflation rate peaking at 53 percent in May 2023. Since mid-2023, there has been a period of disinflation through January 2025, largely supported by the stabilization of the exchange rate which had been a key driver of inflationary pressure in the immediate preceding years. Lower international food prices had also contributed to a slowdown in food inflation rates. However, estimated at 15 percent in January 2025, the annual food inflation remains elevated. These high prices have affected a large proportion of households, across income groups and areas. The 2024 World Bank welfare monitoring survey showed that 58 percent of households had been significantly affected by the high inflation rates.¹¹⁴ In response, more than half of households surveyed had reduced food consumption, inferring negative impacts on food security and nutrient intake.



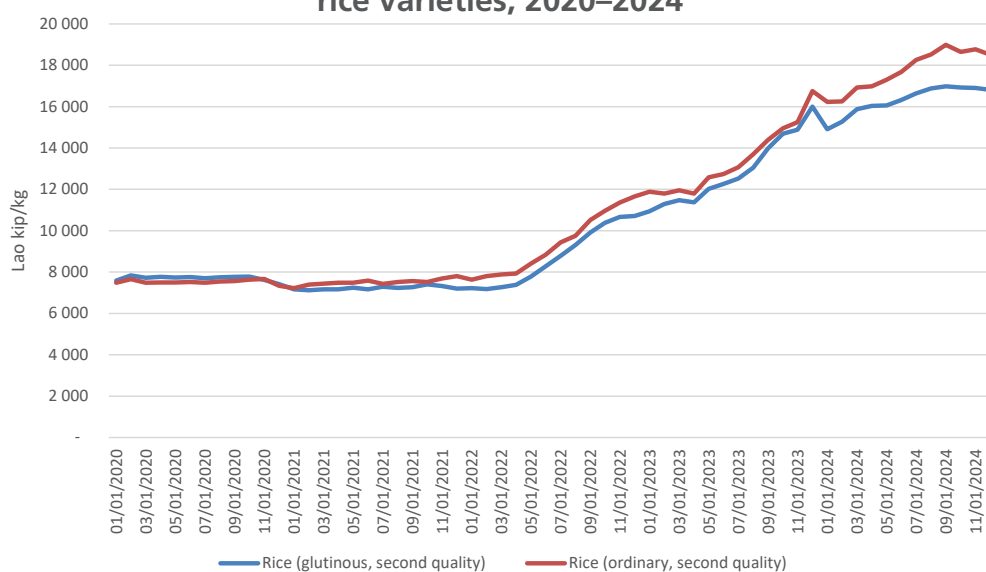
In addition to constraining access to food, rising food prices have also influenced labour supply, with more people turning to agriculture both to benefit from relatively better wages and to increase their own food production as a coping strategy. The World Bank’s Phone Monitoring Survey recorded a growing share of the workforce in the agricultural

Figure 12: Annual headline and food inflation, 2020–2024



Source: Author's own elaboration based on data from the Lao Statistics Bureau (LSB), 2024.

Figure 13: Monthly nominal retail prices (national average) of main rice varieties, 2020–2024



Source: Author's own elaboration based on data from the Lao Statistics Bureau (LSB), 2024.

sector between 2022 and 2024.¹¹⁵ Farm incomes have also become an increasingly important source of livelihood during this period, underscoring the sector's crucial role.

Rice is the primary staple food in the country, contributing to approximately 45 percent of the average person's caloric intake. Per capita rice consumption in the country is among the highest in the region.¹¹⁶ As a result, rice prices, particularly for the widely consumed glutinous type 2 variety, play a crucial role in food security and household welfare, especially for urban families that do not produce their own food. At the same time, rice production and sales are vital sources of income for many rural agricultural households, with more than two-thirds of farm households engaged in rice sales.¹¹⁷

The nominal average price of glutinous type 2 rice began rising rapidly in April 2022 but saw a slower rate of increase in 2024 as the exchange rate stabilized. By December 2024, prices had reached record highs, standing 5 percent higher year-on-year.¹¹⁸ A slowdown in benchmark Thai export prices for the same variety further contributed to domestic price stability, with Thai export prices rising by only 3 percent annually in December 2024, compared to 4 percent in 2023 and 9 percent in 2022.

During the Mission's field visits and interviews, paddy farmers, millers and DAFO officials identified rising production and distribution costs, mainly driven by a weak currency, as key factors behind the surge in rice prices since 2022. The recent slowdown in price increases has been largely supported by the stabilization of the exchange rate.

The prices of various other food items also increased steeply since 2022. As of December 2024, nominal average retail prices of poultry and pig meat, important protein sources, were at all-time highs, increasing by 22 percent and 5 percent, respectively, year-on-year. Similarly to rice and other food items, these price hikes have been primarily driven by the sharp depreciation of the Lao kip, which raised production costs.

With imports making up only 2 percent of poultry meat and 10 percent of pig meat in the domestic supply (2018–2022 average), international prices and exchange rates have likely had a limited direct impact. Instead, the rise in domestic prices is mainly attributed to high transport and processing costs, driven by currency depreciation which pushed up fuel prices. Similarly, farmed tilapia prices have also increased over this period, though, like pig and poultry meat, their rate of price growth slowed in 2024.

CEREAL SUPPLY/DEMAND BALANCE SHEET

The national cereal supply/demand balance for the 2024/25 marketing year (September/August) is summarized in Table 10. It considers rice, sweet maize and maize (for feed) crops; cassava, which is essentially a cash crop grown for export, is not included. The balance sheet is prepared on the basis of the Mission's crop production estimates outlined above, including a forecast for the output of the dry season 2024/25 paddy crop to be harvested in April–May. In drawing up the national cereal balance sheet, the following assumptions were made:

- **Population** of the country as of mid-2024 is projected at about 7.65 million.^{ae, 119}
- **Cereal production** is estimated at 2.88 million tonnes.



- **Food consumption** is estimated at 1.44 million tonnes of cereals, using a per capita average annual consumption of about 187 kg of cereals,

Table 10: Food supply/demand balance sheet 2024/25 marketing year, September/August (tonnes)

	Rice (milled) ^{1/}	Maize	Total cereals
Total Availability	2 270	613	2 883
Stock drawdown	0	0	0
Production	2 270	613	2 883
Total Utilization	2 240	383	2 623
Food use	1 330	108	1 437
Seed use	110	11	121
Animal feed use	165	250	415
Industrial use	250	0	250
Losses	385	150	400
Exports	75	230	305
Imports (commercial)	40	0	40
Food assistance imports^{2/}	5	0	5

^{1/}Paddy to rice milling rate of 60 percent.

^{2/}WFP McGovern-Dole School Feeding Programme and ASEAN Plus Three Emergency Rice Reserve (APTERR).

Note: Figures may not add up due to rounding.

Source: Authors' own elaboration based on the data collected during the 2024 FAO/WFP Crop and Food Security Assessment Mission (CFSAM) to the Lao People's Democratic Republic (forecast), 2024.

^{ae} Using the 2023 Lao Statistics Bureau population growth rate of 1.37 percent.

which includes 173 kg of rice and 14 kg of sweet maize (mostly consumed green on the cob).¹²⁰

- **Seed requirements** are estimated at 121 000 tonnes, assuming a similar area planted to 2024 and using an average seed rate of 105 kg/hectare for wet season lowland paddy,^{af} 125 kg/hectare for dry season paddy,^{ag} 150 kg/hectare for upland paddy and 20 kg/hectare for sweet and hard maize.
- **Feed use** is estimated at 432 000 tonnes, which includes 7 percent of paddy production, 10 percent of sweet maize and 52 percent of maize (for feed) production.
- **Other uses** are estimated at 250 000 tonnes of rice used by the domestic brewing industry and other industrial use.
- **Stocks** are expected to remain the same at the end of the 2024/25 marketing year and, therefore, no stock drawdown is anticipated.

- **Post-harvest losses**, including handling and storage losses, are estimated using a rate of 17 percent for rice, due to excess rainfall in September/October 2024, and 8 percent for maize.

With an estimated utilization of 2.62 million tonnes of cereals, anticipated imports (commercial) are small and forecast at only 40 000 tonnes of rice, mainly to supply supermarkets with high quality fragrant rice from Thailand. An additional 5 000 tonnes of rice is expected to be imported by WFP as food assistance, under the school feeding programme, and the ASEAN Plus Three Emergency Rice Reserve initiatives. The anticipated exports for the 2024/25 marketing year (September/August) are forecast at 305 000 tonnes of cereals, including 75 000 tonnes of rice, mainly glutinous rice to supply markets in Europe and North America, and 200 000 tonnes of maize, mainly to Viet Nam, China (mainland) and Thailand where it is processed as animal feed. Nearly all the cassava production, estimated at 6.84 million tonnes, is anticipated to be exported, mainly to China (mainland).

^{af} Assuming about half of the wet season paddy area is broadcasted (150 kg/hectare) and half transplanted (60 kg/hectare).

^{ag} Assuming about 70 percent of the dry season paddy is broadcasted.

FOOD SECURITY

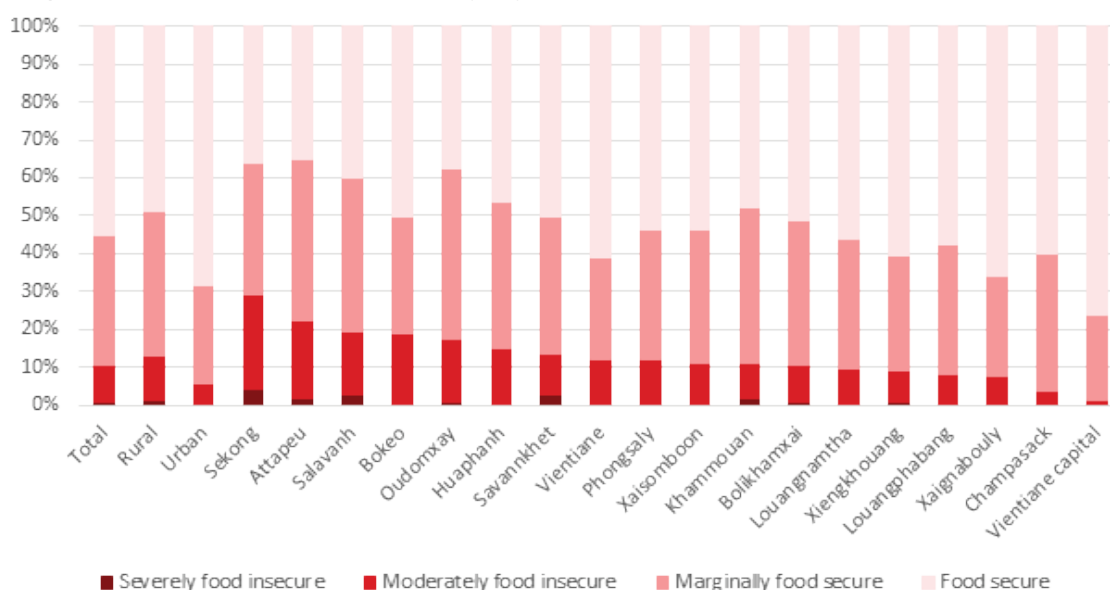
In September 2022, WFP launched the mobile Vulnerability Analysis and Mapping (mVAM) household survey, conducting monthly and then quarterly (since 2024) assessments to estimate key food security indicators at both provincial and national levels.^{ah} According to mVAM, acute food security in the country has shown a slight and irregular improvement since 2022, indicating a weak recovery from the global food crisis, and a fragile adjustment to high inflation (Figure 14). However, trends vary significantly among provinces and between rural and urban areas.

This report uses quantitative data from the December 2024 mVAM Household Survey and qualitative insights from Focus Group Discussions (FGDs) conducted during fieldwork from 15–19 December 2024. The FGDs aimed to understand the impact of recent natural disasters,



such as droughts and typhoons, on household acute food security. The report uses a comparative analysis of the acute food insecurity situation in December 2024 with the previous Mission

Figure 14: Acute food insecurity by residence and province, December 2024



Source: Author's own elaboration based on data from the WFP remote Household Food Security Survey collected in December 2024.

^{ah} The sampling of each round survey is designed to provide representative information at province level with precision of a 9 percent and 95 percent confidence level.

conducted in December 2022, also controlling for potential seasonal effects.^{ai}

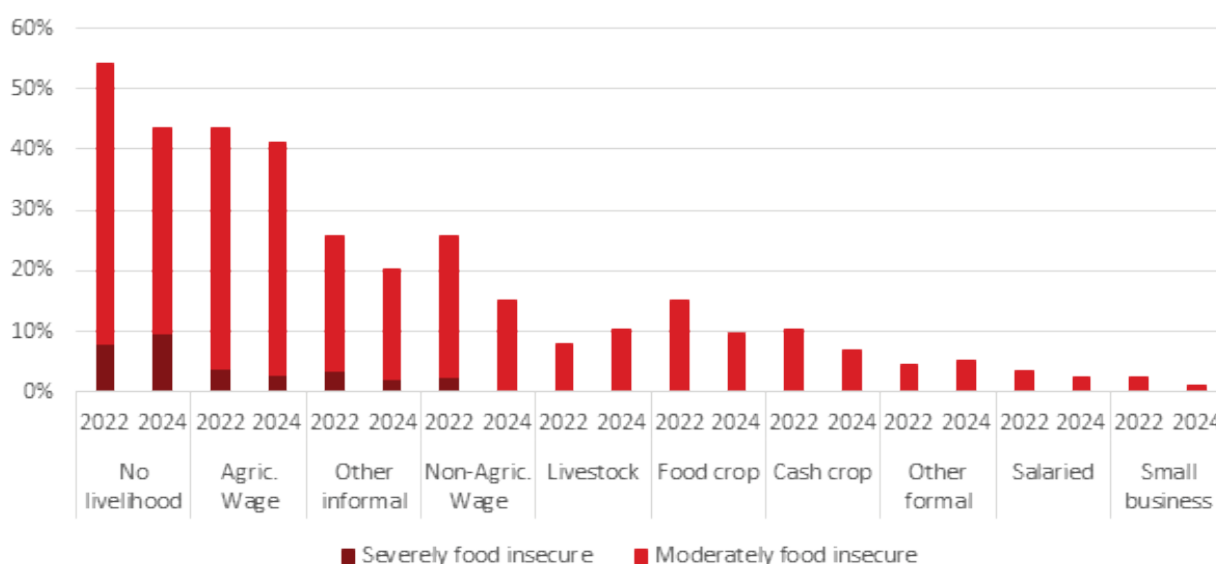
In December 2024, 11 percent of households were experiencing acute food insecurity and 1 percent was facing severe acute food insecurity. As shown in Figure 14, food insecurity varied widely by province, ranging from 1 percent in Vientiane to 29 percent in Xekong, the highest prevalence, followed by Attapeu at 22 percent.

Rural households, those led by individuals with no education, and those without an income source or relying on the informal sector, are more likely to face acute food insecurity. The highest risk is among households with no livelihood source (44 percent), followed by those relying on agricultural wage labour (41 percent), non-agricultural wage labour (15 percent) and other informal sources (20 percent). Compared to December 2022,¹²¹ food security has improved among most livelihood sources, especially among households with no income source or relying on non-agricultural wage labour, reflecting slight economic improvement and social protection

measures. Conversely, acute food security has worsened among households engaged in livestock production and those with other formal income sources (Figure 15).^{aj}

Overall, acute food security by December 2024 slightly improved compared to 2022, reducing from 13 to 11 percent. However, it was 2 percentage points higher than in December 2023 (9 percent),¹²² indicating an irregular recovery trend. In 2022, when the country was still recovering from the impact of COVID-19 pandemic, the global and food crisis hit the country driving prices up and accelerating the depreciation of Lao kip. By the end of 2022, households were facing a food inflation of 45 percent and a national currency depreciation of 36 percent. After reaching record highs, inflation rates slowed down and the Lao kip stabilized during the last quarter of 2023, which could partly explain the improvement in food security observed by December 2023 compared to one year back. However, the Lao kip continued depreciating in 2024 until July.^{123, 124} By the end of 2024, the country was still considered in external and overall debt distress (LIC-DSF).

Figure 15: Food insecurity by main livelihood source, December 2022–December 2024

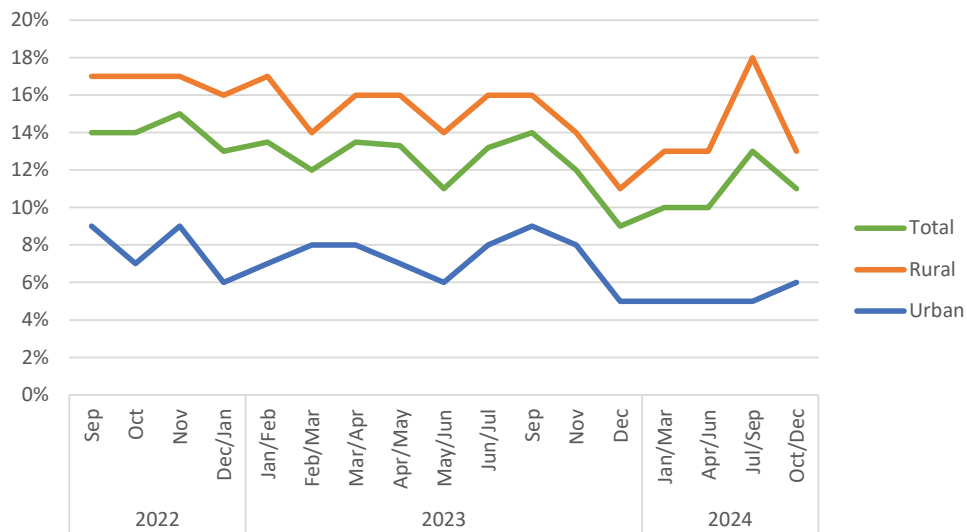


Source: Author's own elaboration based on data from the WFP remote Household Food Security Survey collected in December 2024.

^{ai} The mVAM December 2024 results are compared with those of mVAM December 2022 instead of Mission 2022, collected in November 2022, to control for the potential seasonal impact on food security and access indicators.

^{aj} Other formal sources of income include pension, transport, wholesale, etc.

Figure 16: Acute food insecurity trend, September 2022–December 2024 (overall and by residence)



Source: Author's own elaboration based on data from the WFP remote Household Food Security Survey collected between September 2022 and December 2024.

Economic pressure and Typhoon Yagi, which hit the country during the lean season, are key contributory factors explaining the higher acute food insecurity rates in December 2024 compared to 2023.

Typhoon Yagi, the most powerful storm to hit the South China Sea in 30 years, affected 15 provinces in September 2024. In this month, food insecurity peaked in rural areas to 18 percent, the highest rate since mVAM was launched, while urban areas maintained a stable 5 percent. This difference in the impact of the typhoon on food security between rural and urban areas highlights the greater vulnerability of rural households to weather events, especially of rural households relying on agriculture. By December 2024, the harvest season allowed rural areas to partially recover, though not to December 2023 levels, whereas food security slightly deteriorated in urban areas compared to September 2024, likely due to the indirect consequences of the tropical cyclone.

Despite the slight improvement in overall food security compared to 2022 observed in most provinces, in Vientiane, Bokeo, Xekong or Xaignabouly provinces, food insecurity in December 2024 was between 3 and 7 percentage points higher than two years before (Figure 16), confirming the geographical and context variability within the country.

The current report presents the food security situation as observed during the harvest season,

and thus expected to worsen as the lean season approaches. The highest level of food insecurity is likely around September, with an estimated 13–14 percent affected if trends continue. It is important to monitor the situation, especially during the lean and rainy seasons.

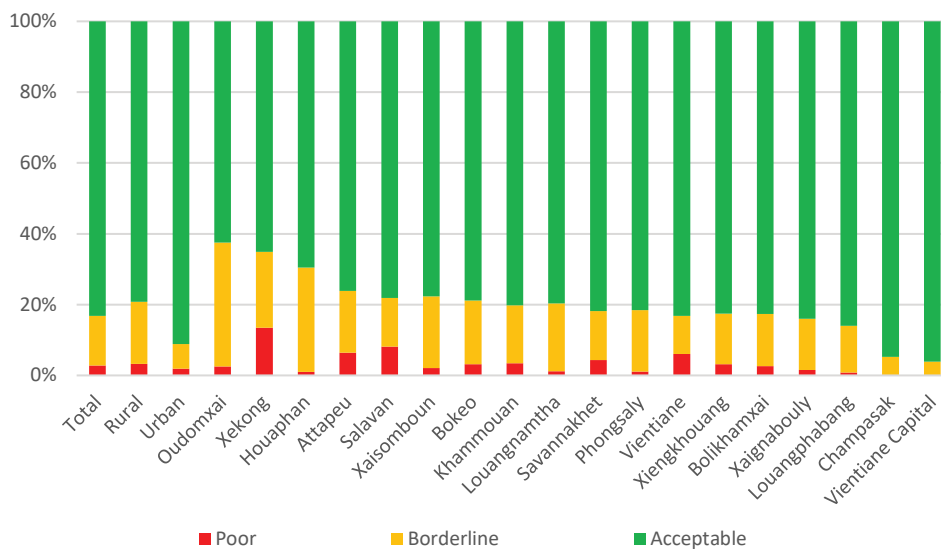
Food access and coping mechanisms

Food consumption

December 2024 data indicates that approximately one in six households (17 percent) have an inadequate diet. The rate is more than twice as high among rural households compared to urban households (21 percent vs. 9 percent, respectively). The highest levels of inadequate diet were reported in Oudomxai (38 percent) and Xekong (35 percent) provinces. Additionally, households headed by individuals with no education (25 percent) and those with a large household size (seven or more members, or 22 percent) are more likely to have an inadequate diet. (Figure 17).

The percentage of households with inadequate food consumption has increased from 16 to 17 percent, between December 2022 and 2024. This slight deterioration is associated with lower fruit consumption in 2024, from five to three days per week. Household diets continue to be based on cereals, vegetables and animal protein

Figure 17: Food consumption score, September 2022–December 2024 (overall and by residence)



Source: Author's own elaboration based on data from the WFP remote Household Food Security Survey collected in December 2024.

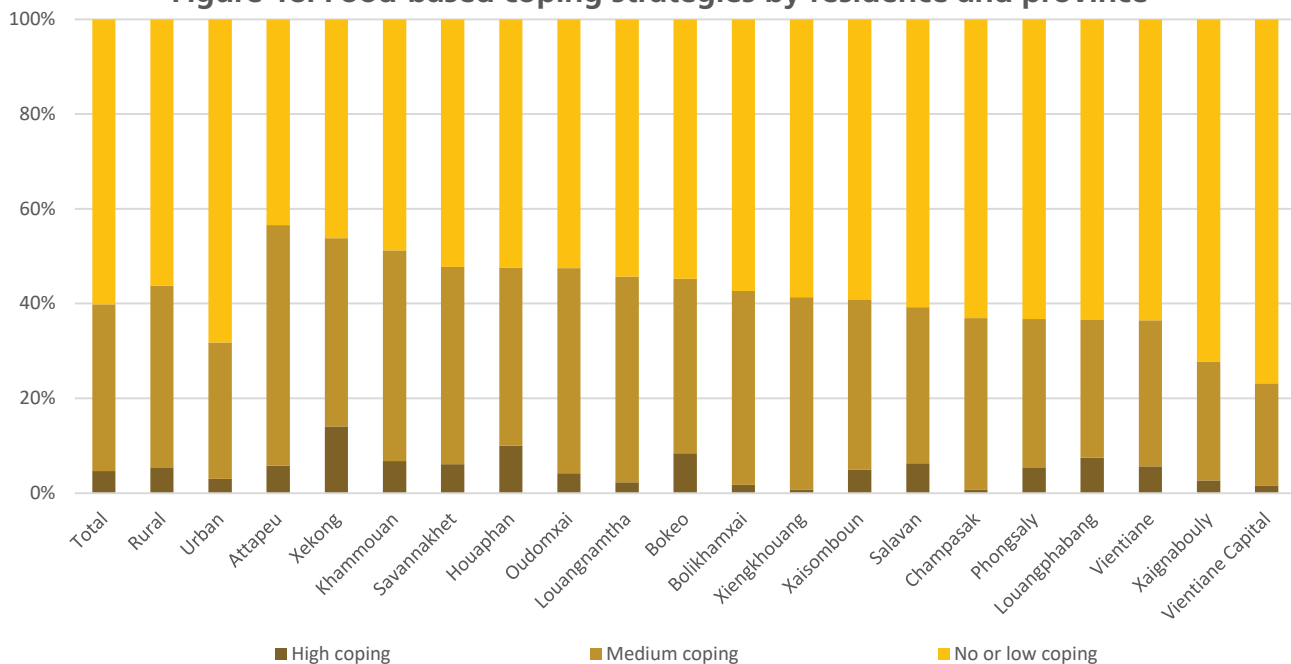
(6–7 days/week), with regular consumption of fruits, fats and sugar (2–3 days/week), while pulses and dairy products are rarely consumed (less than once a week).

Food-based coping strategies

According to December 2024 data, two in five households (40 percent) used food-based coping strategies due to lack of food or money to buy food.

Common strategies included reducing preferred food (46 percent), decreasing portion sizes (13 percent) and reducing adult consumption to allow children to eat (10 percent). More rural households (44 percent) used these strategies than urban households (32 percent), Figure 18. Households with seven or more members and those with four or more children aged 0–17 years were more likely to rely on these strategies than smaller households (Table 11).

Figure 18: Food-based coping strategies by residence and province



Source: Author's own elaboration based on data from the WFP remote Household Food Security Survey collected in December 2024.

Table 11: Percentage of households using food-based coping strategies at least once in the past seven days by demographic characteristics

	Ate less preferred foods	Borrowed food	Limited portion sizes	Reduced adult consumption	Reduced number of
Total	46.51	7.45	13.14	9.82	4.78
Rural	50.61	8.50	13.95	11.52	5.83
Urban	38.16	5.31	11.47	6.35	2.66
Sex_HoH: Female	52.10	13.79	13.63	9.77	7.99
Sex_HoH: Male	46.04	6.91	13.09	9.82	4.51
Edu_HoH: None	58.29	10.38	17.17	14.60	7.21
Edu_HoH: Primary	48.39	8.31	12.90	9.11	4.63
Edu_HoH: Secondary or higher	34.72	4.31	10.75	6.86	2.16
HH Size: 1 - 2	35.81	10.96	7.25	0.90	2.31
HH Size: 3 - 4	45.07	4.71	11.36	7.81	3.37
HH Size: 5 - 6	47.00	8.25	11.56	9.72	4.29
HH Size: > 7	50.03	8.58	18.65	14.33	7.63
Children (0-17): None	38.89	5.74	8.58	1.82	2.33
Children (0-17): 1	42.92	6.58	7.92	4.92	2.62
Children (0-17): 2-3	48.07	8.66	15.84	13.79	5.66
Children (0-17): 4+	58.13	6.87	19.23	15.19	9.05

Note: HoH: Head of Household.

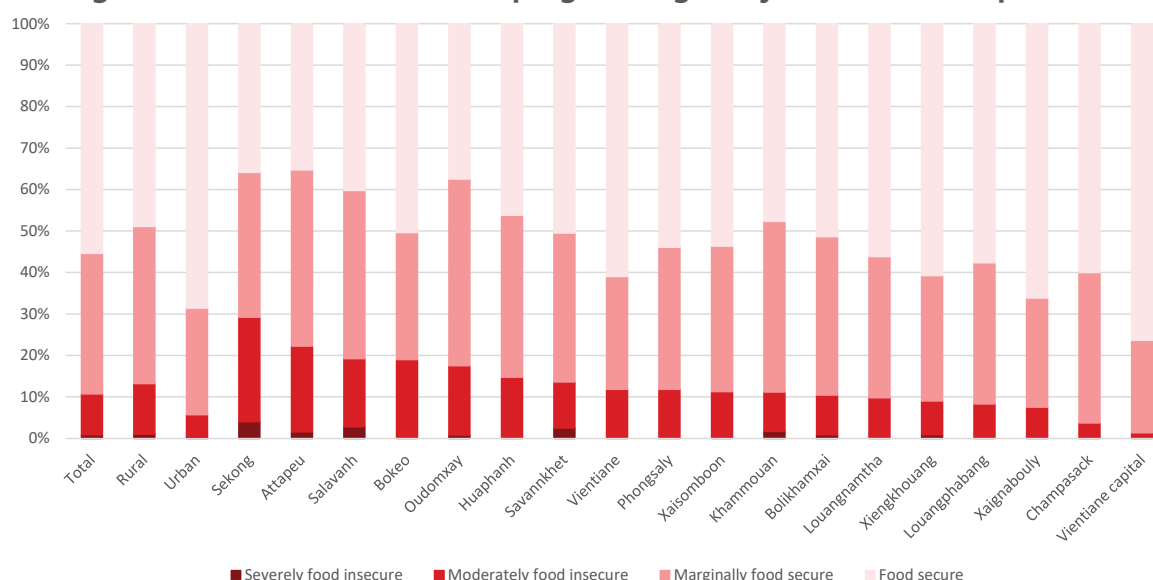
Source: Author's own elaboration based on data from the WFP remote Household Food Security Survey collected in December 2024.

The proportion of households employing food-based coping strategies in December 2024 (40 percent) is lower than in December 2022 (44 percent) and 2023 (42 percent) which could indicate a slow but progressive recovery of households coping capacity. The overall reduction in the Coping Strategies Index is driven by the decrease in the percentage of households applying severe food-based coping strategies such as reducing adult consumption for children to eat (18–10 percent) or limiting portion sizes (18–13 percent).

Livelihood-based coping strategies

Households employ various livelihood-based coping strategies to cope with insufficient food and lack of money to buy food or other essential needs. According to December 2024 data, nearly one in two households (47 percent) adopted different coping mechanisms, including spending household savings (32 percent) and borrowing money (11 percent), Figure 19. Most households reported that the main reason for engaging in these strategies was to obtain food (70 percent)

Figure 19: Livelihood-based coping strategies by residence and province



Source: Author's own elaboration based on data from the WFP remote Household Food Security Survey collected in December 2024.

Table 12: Livelihood-based coping strategies by residence, income sources and education

Strategy	Total	Urban	Rural	Regular income	Informal income	No Education	Secondary +
Sole HH assets	0.9	0.6	1.1	0.9	1.0	0.4	1.1
Spent saving	32.4	27.1	35.0	32.7	34.0	30.5	31.8
Purchased on credit	11.0	6.5	13.2	8.9	18.8	13.5	7.8
Borrowed from formal lender	11.3	6.8	13.4	9.1	18.5	12.5	8.9
Sold productive assets	0.6	0.3	0.7	0.3	1.6	0.7	0.5
Reduced essential health expenses	5.1	3.9	5.7	5.0	6.3	5.4	3.0
Reduced education expenses	4.2	2.6	4.9	3.2	8.6	6.8	3.0
Children sent to work	3.8	2.0	4.7	2.5	9.5	5.5	2.4
Begged from strangers	0.3	0.1	0.4	0.3	0.3	0.1	0.1
Sold house or land	0.4	0.2	0.5	0.5	0.0	0.2	0.2

Source: Author's own elaboration based on data from the WFP remote Household Food Security Survey collected in December 2024.

and cover health expenses (19 percent). Overall, 12 percent of households reported employing crisis or emergency strategies, such as reducing essential health and education expenses and sending children to work. Households with four or more children aged 0–17 years (58 percent) and those experiencing a reduction in income of more than 50 percent (68 percent) were more likely to use livelihood-based coping strategies in the 30 days prior data collection.

Table 12 illustrates how livelihood-based coping strategies adopted by households are influenced by their characteristics. Households that primarily rely on income from the informal sector, as well as those headed by individuals without formal education, are more likely to borrow or purchase on credit.

In December 2024, fewer households employed livelihood coping strategies to cover food and other essential needs compared to December 2022 or 2023, in line with the positive trend also observed on the food-based coping strategies. The proportion of households applying livelihood coping strategies reduced from 61 to 47 percent between December 2022 and December 2024. The severity of the strategies employed also reduced in the same period from 26 to 12 percent of households relying on crisis or emergency coping strategies.

Factors constraining food availability

High costs/low availability of agricultural inputs

The proportion of households relying on crop production as primary (or secondary) source of income has decreased from 47 to 41 percent between December 2022 and 2024, and those relying on own production as the main source of food increased from 34 to 43 percent in the same period. This could potentially reduce market supplies in localized areas, as farming households increase the consumption of self-produced food, reducing the proportion of food for sale. Moreover, the World Bank reports an increase in the proportion of workers employed in agriculture between May 2022 and June 2024 and a higher share of households engaged in agricultural activities¹²⁵ commercial or subsistence, compared to pre-COVID-19 levels, despite a slight decrease in the last year. These results seem to point out to an increase of agricultural activities for own consumption or with limited profitable margin, likely as household strategy to mitigate the impact of high inflation rates.

During the Focus Group Discussions conducted in agricultural areas of Oudomxay and Khammouan provinces,^{ak} where agricultural own production is the primary source of food and income, participants pointed out to excessive costs and limited availability of agricultural inputs significantly constraining food

^{ak} The Focus Group Discussions were conducted in Nalai and Chantai villages in Oudomxay Province, Nasom and Phonhome villages in Xaignabouly Province, Doneboon, Dongkasin and Dangtha villages in Khammouan Province and Donemone, Wattana and Seponkao villages in Savannakhet Province.

production. In Nalai Village (Oudomxai Province), focus group participants explained how the cost of agricultural inputs such as fertilizers and seeds increased, while market prices for key cash crops like maize did not rise correspondingly. This price disparity reduced farmers' profitability, forcing them to either scale back production or operate at a monetary loss. Despite their production capacity, villagers in Nalai struggled to meet input costs due to insufficient market returns.

In Nongbok District (Khammouan Province), villagers faced similar challenges in securing agricultural inputs, limiting their ability to maintain or expand their production levels. Vulnerable households who rely on subsistence production are affected, as challenges in accessing agricultural inputs undermine their ability to feed their families. Rising input costs without adequate financial mechanisms to support farmers has forced them to consider alternative or small-scale farming practices and increased their reliance on remittances. In addition, costs have increased significantly, as highlighted in Nalai and other villages, further straining the ability of small-scale farmers to sustain their operations. This issue is compounded by labour migration, where workers leave rural areas for higher wages abroad, increased outmigration was mentioned in some villages across the surveyed regions.

The loss of income among agricultural households is confirmed by WFP mobile household surveys. The percentage of agricultural households with reduced incomes has increased, from 22 percent in December 2022 to 27 percent in December 2024. In 75 percent of the cases, incomes decreased in more than 50 percent. Trend analysis also indicates a shift from the cultivation of food crops to cash crops, reflecting farmers' strategy for more profitable options. The proportion of households relying on food crop production as primary income source reduced from 27 to 20 percent between December 2022 and 2024, while the percentage of households relying on cash crop production doubled from 6 to 12 percent over the same period.

Shocks and the impact of natural hazards on farmland

By December 2024, one in four households were significantly affected by a shock in the six

months prior to the survey, a decrease compared to December 2022 (one in three households). Natural hazards remain the most frequent shock (41 percent), followed by poor harvest, sickness or health expenditures and loss of, or reduced income. Compared to 2022, the impact of natural hazards and poor harvests increased, while high food and fuel prices have reduced, especially in rural areas, while high food prices in urban areas are still frequently cited.

Natural hazards, particularly floods and droughts, frequently disrupt livelihoods, services and food availability. Typhoon Yagi, which hit in September 2024, brought heavy rains and floods to the country, affecting 186 000 people in 1 208 villages and 15 provinces, including fatalities and displaced households. Damages estimated at USD 7.9 million included 24 600 hectares of agricultural land, 298 houses, 252 road sections, 77 schools and 11 health facilities. The United Nations Children's Fund (UNICEF) estimated 48 500 children impacted, including 24 000 in need of critical support and 92 000 people in need of water, sanitation and health services.¹²⁰

Based on farmer interviews in Nalai and Hoon villages in Oudomxai Province, substantial declines in rice yields were reported in the areas affected by flooding, mostly in fields adjacent to rivers. In these fields, farmers reported yield reductions of 20–30 percent compared to last year. However, at the provincial level the decline in paddy production was not substantial. In Seponkao Village in Savannakhet Province, farmers faced both floods and droughts, destroying standing crops and disrupting planting cycles. Recovery of farmland has been slow, compounded by financial constraints preventing households from repairing flood-damaged infrastructure or investing in climate-resilient practices. The mVAM food security monitoring showed an increase in households expecting yields lower than average, from 29 percent in December 2022 to 33 percent in December 2024.

These findings highlight the vulnerability of rural agricultural systems to climatic variability. The lack of irrigation infrastructure amplifies these hazards, limiting farmers' ability to adapt to changing rainfall patterns or dry season planting. Addressing

this challenge requires investments in disaster risk reduction, such as improved irrigation systems and promoting diversified cropping systems that can withstand extreme weather conditions.

Labour shortages and migration

During the last cropping season, the challenges for crop production most frequently reported by farmers were the outbreak of pests and diseases, climate events (droughts and floods) and limited availability of labour. Compared to December 2022, difficulties accessing fertilizers have reduced while those related with labour force availability have increased.

FGD participants identified labour shortages as a key factor limiting expansions in food production. In villages like Nalai and Chantai in Oudomxai Province, high demand for agricultural labour is unmet due to workforce migration to Thailand in search of higher wages. Most participants reported knowing someone who left the country for better wages in 2024. This trend presents a challenge to farming households to meet planting and harvesting labour demands and can impact agricultural productivity. These results are in line with the IMF 2024 Country Report by which outward migration, estimated at 50 000 in 2022, was projected to increase up to 180 000 in 2024.¹²⁶

Households already burdened by high input costs must allocate additional resources to secure skilled labour, further straining financial stability. The interconnectedness between rural labour markets and agricultural production suggests that addressing labour shortages requires local employment opportunities and policies to retain skilled agricultural workers.

Factors constraining food access

High food prices

High food prices remain a critical challenge. The national consumer price index (CPI) increased

by 100 percent between April 2022 and October 2024.¹²⁷ Food prices rose across all regions in the 12 months to December 2024, including staple foods like glutinous rice. Between December 2022 and December 2024, glutinous rice prices increased by 56–70 percent, while in Attapeu milled rice rose by 150 percent and 360 percent for unmilled rice. Chicken meat prices also rose by 132 percent over the same period.^{al, 128}

Households' concerns about food prices reduced compared to December 2022 (from 18 to 12 percent), especially in urban areas. The slowdown of food inflation and CPI stabilization since October 2024 may explain this trend, along with households adapting to a high inflation environment. However, high food prices still impact household purchasing power, with 17 percent of households experiencing insufficient food intake.

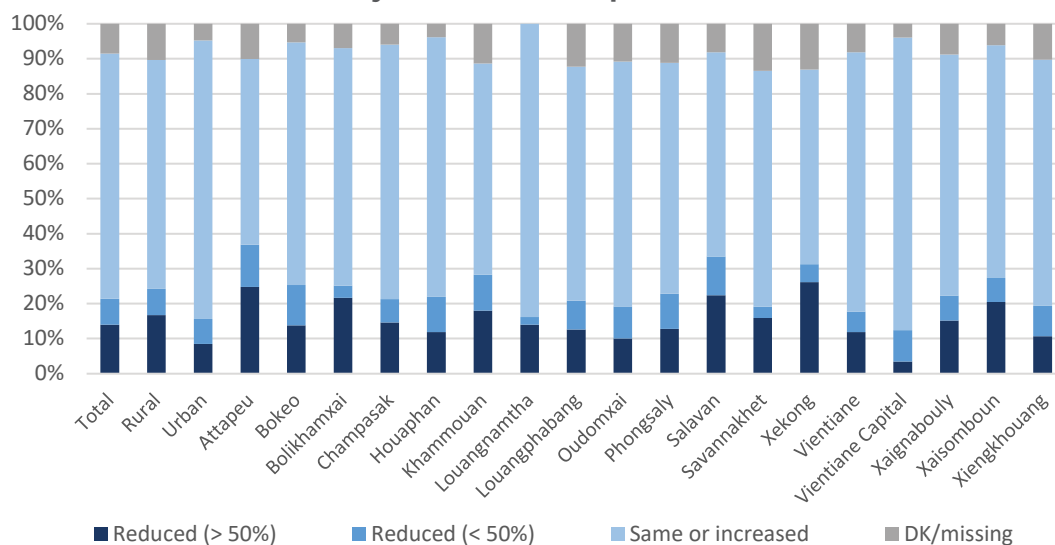
While rising food prices incentivized agricultural households to produce more, the increased costs of agricultural inputs like fertilizers and seeds have limited gains. Low returns on agricultural investment and high consumer goods prices highlight the need to stabilize input costs, improve market prices for farmers and ensure affordable access to nutritious food for vulnerable households.

Income constraints and limited wages

Changes in income and constrained wages further compounded difficulties in accessing food. According to field visits, agricultural wages in Nalai (Oudomxai Province) increased from about LAK 120 000/day in 2023 to LAK 150 000/day in 2024. Overall, income stability or increase was also supported by the mVAM data, by December 2024, 70 percent of households had stable or increased income compared to the same month the previous year, as illustrated in Figure 20, a similar percentage than in December 2022. However, trends differ between rural and urban areas or between agricultural and non-agricultural households. In urban areas and for non-agricultural households, the proportion of households experiencing reduced incomes declined between December 2022 and

^{al} Author's calculations based on retail price data from WFP.

Figure 20: Change in income compared to the same month and previous year by residence and province



Source: Author's own elaboration based on data from the WFP remote Household Food Security Survey collected in December 2024.

2024, whereas in rural areas and for agricultural households, this proportion increased during the same period.

In rural areas the wage growth was not enough to offset the rising costs of food, agricultural inputs such as fertilizers and seeds, as in Phonhome (Xaignabouly Province) area. It is worth noting that the inflation rate remained above 20 percent for nearly two and a half years. The cumulative inflation rate, encompassing the months of December 2022, 2023 and 2024, amounts to 81 percent.

Overall, inflationary pressure in the market has outstripped any wage increase. Between January and May 2024, average wages grew by 8 percent, significantly below the inflation rate of 26 percent.¹²⁹ These economic pressures had forced many households to take on additional debt to make ends meet, exacerbating their financial vulnerability. However, the proportion of households that borrowed money has reduced in the last two years, from 32 percent in December 2022 down to 27 percent in the same month of 2024. This apparently positive trend could indicate a slight improvement in households' financial capacity as a result of the slowdown in the inflation rate and increased wages compared to December 2022 but could also hide harder conditions to get credit or loans. A more in-depth analysis is required to identify the causes behind this lower indebtedness.

Despite the local wage increases, migration to neighbouring countries like Thailand remains a more attractive option for many workers due to the significantly higher earning potential abroad. This ongoing labour migration not only reduces the availability of agricultural workers locally but also contributes to income instability for households that remain dependent on farming activities.

Constrained access to markets

By December 2024, 14 percent of households reported difficulty accessing markets, an improvement from December 2022 (24 percent). This improvement was more pronounced in urban areas, where challenges halved from 14 to 7 percent, compared to rural areas where it reduced from 28 to 17 percent. Financial and physical access constraints, such as poor road infrastructure and inadequate transportation, remain the main difficulties. In Seponkao Village (Savannakhet Province), residents faced market access issues due to infrastructure-related constraints, such as the lack of a bridge over the Xepon River. Similarly, villages in Khammouan and Xaignabouly provinces cited poor road conditions and insufficient transport options as obstacles. These logistical challenges limit households' ability to purchase food and disrupt local supply chains, contributing to price volatility and reduced food availability. Challenges accessing markets were more frequent in Bokeo, Houaphanh, Khammouan, Louangphabang and Xekong

provinces, where 20–24 percent of households faced difficulties in the 14 days before the survey. While market access improved in most provinces since 2022, in Bokeo and Vientiane, the situation remained similar.

Health and nutrition

Covering health expenses is the second major reason for households employing livelihood coping strategies, according to mVAM surveys. Moreover, getting sick or health expenses was the third most important shock reported in rural areas, after natural hazards and poor harvests. Although access to health has improved compared to 2022, by December 2024, 5 percent of households still faced challenges accessing health. Difficulties continue to be more frequent in rural areas (6 percent) compared to urban (3 percent).

Access to water, hygiene and sanitation facilities remain poor in some areas. According to the Nutrition Sentinel Surveillance Survey conducted in April–May of 2024, 60 percent of households

had improved access to drinking water, similar percentage had access to handwashing facilities while 86 percent had improved access to sanitation. Access to drinking water is more challenging in the northern provinces whereas sanitation and handwashing facilities are poorer in the southern part of the country.

Based on the same survey, 36 percent of children under five in the country are stunted, 11 percent are acutely malnourished and 28 percent are underweight. These malnutrition rates are classified as "*very high*" for stunting and "*high*" for wasting according to the World Health Organization (WHO) thresholds.¹²³ At the time of the survey, the stunting rate was higher in the northern part of the country whereas child wasting was more frequent in the south. As for the immediate causes of malnutrition, infant and young child feeding practices appear as a key driver with only 32 percent of children under two years old consuming the minimum dietary diversity and 23 percent having an acceptable diet.

RECOMMENDATIONS

The Mission provides a comprehensive set of recommendations to support sustainable growth in the agriculture sector and recovery in the regions impacted by weather shocks. The Mission also outlines a number of measures to address the acute food insecurity situation.

Agriculture

To provide assistance to small-scale farmers affected by floods, strengthen resilience of the agrifood sector and unlock small-scale farmers potential, the Mission recommends the implementation of a series of short- and medium-term measures aligned to the MAF's 9th Five-Year Agriculture, Forestry and Rural Development Plan 2021–2025 (AFRDP). AFRDP aims to achieve an average agricultural growth rate of 2.5 percent per year, contributing 15.3 percent to the national GDP, through the implementation of 13 sector sub-projects.

Short-term measures aim to provide immediate assistance to address the needs of small-scale farmers affected by flood, particularly for the most vulnerable and women-headed farming households (AFRDP Sub-Project 8 – Disaster Risk Reduction).

Measure I. *Urgently rehabilitate damaged irrigation infrastructure, in time for the next main wet cropping season in 2025.*

Technical assessment of damaged infrastructures is required to ensure the implementation of a more flood-resistant irrigation infrastructure.

Measure II. *Support access to agricultural inputs for small-scale farmers affected by weather shocks in 2024, for the next main wet cropping season in 2025.*

- Support the provision of improved climate resilient paddy seeds and fertilizers (urea and NPK) for affected households for the 2025 main



wet season. The mechanism could include a cash transfer/voucher to enable farmers to procure these resources from agroveter shops.

- Support the provision of vegetable gardening inputs, including seeds and fertilizers, to households with small landholdings to enhance food production, income and access to diverse foods.

Measure III. *Provision of immediate support to small-scale farmers to rebuild their livestock and fish stocks.*

- Provide timely cash transfers to replace lost livestock and fish fingerlings to affected small-scale farmers. Also, provide immediate support with supplementary animal feed in the areas affected by weather shocks for at least six months until the next main harvest (in irrigated areas), together with training on good animal feeding practices.
- Support access to veterinary care and vaccination services in the affected areas to prevent any additional losses from potential increased livestock morbidity and resulting mortality.

- Support the repair of damaged aquaculture infrastructures through a grant support mechanism.

Medium-term measures aim to unlock small-scale farmers' agriculture commercialization potential offered by high food prices, while protecting the natural resource base.

Over the past decade, the national average paddy yield has declined slightly and much of the production increase is attributed to the expansion of cultivate area. Crop diversification has also remained limited, missing opportunities for import substitutions and the export of vegetables and fruits. Nearly 20 percent of households are net food sellers, especially rural and low-income households. Subsistence agriculture is also predominant among poor households. While high food prices can encourage greater agricultural investment and potentially boost production, realizing this potential requires strategic policy interventions that support small-scale farmers.¹³⁰ The primary barriers are related to farmers' limited access to fertilizers, mechanization and seeds, while better and timely market information would enable farmers to make more informed decisions.

Measure IV. *Assess the fertilizer sector with the aim of enhancing farmers' access to fertilizers and explore opportunities for fertilizer manufacturing offered by the large national potash reserves* (AFRDP Sub-Project 1 – Land management and fertilizer).

Access to fertilizers is identified as the main barrier to increasing paddy yields and GAP adoption. The Mission recommends a review of the fertilizer market to identify constraints and challenges facing farmers to access and apply appropriate fertilizer amounts to unlock agricultural production potential and capitalize on the fertilizer mining opportunities to establish fertilizer manufacturing. Key aspects to consider:

- Conduct a detailed fertilizer supply chain analysis in the country to identify bottlenecks and potential international suppliers of urea and DAP.
- Review trade procedures and reinforce quality control and traceability of fertilizer movements

in the country through sales reporting.

- Assess the feasibility of providing foreign currency loans at preferential rates to importers seeking to procure in bulk from the international market, using railway infrastructure and bag/bulk blend in the country.
- Implement policies to promote investment in granular compound/NPK fertilizer manufacturing plants, including strategic partnerships with regional actors, using locally-mined potash and with formulations adapted to various crops and soil conditions.
- Conduct an analysis to determine the scale of borrowing needed by fertilizer distributors for working capital and to off-lending to small-scale farmers.

Measure V. *Accelerate access to mechanization to address labour shortages, and increase productivity* (AFRDP Sub-Project 5 – Production model).

Despite the higher costs, more farmers are purchasing land preparation services (four-wheel drive tractors) and harvesting/threshing services from local service providers and combined harvesters' operators. Field visits found that the price of machinery had substantially increased over the past years. The lack of four-wheel drive tractors and small combined harvesters is a contributing factor to the increasing prices. In this context, farmers find it challenging to implement farm operations in a timely manner, while cost of production is increasing. In this context, the Mission recommends to rapidly expand the existing mechanization support programmes (matching grant) to more farmers.

Measure VI. *Strengthen coordination of climate-resilient seed supply and review the national seed law to encourage participation of market actors in the multiplication and delivery of climate-resilient seeds* (AFRDP Sub-Project 3 – Research and seed multiplication).

The Mission estimated that the country would need four to seven times more improved paddy seeds to fully capitalize on the genetic potential offered by the locally-bred high yielding varieties. Bolstering

coordination between the key public actors in the seed supply chain is seen as an effective means to help improve the efficiency of the seed market and by extension farmers' access to improved seeds. Improving access to quality seeds is a key lever for supporting agricultural growth. In this context, the Mission recommends to:

- Review the national seed sector with a view to create a conducive environment to enable enhanced coordination between actors, including the private sector, in the multiplication and delivery of climate-resilient seeds and developing marketing arrangements to reach segments of the rural population.
- Review the geographical coverage of the seed centres/farmers groups and improve coordination among key paddy seed system actors, namely NAFRI agriculture research centres, DAEC seed centres and PAFO, and DAFO.

Measure VII. *Test and scale up the integration of nitrogen-fixing legume crops into lowland rice production systems to improve both rice straw forage and soil quality* (AFRDP Sub-Project 3 – Research and seed multiplication).

The Mission identified forage quality and quantity as the main constraint to livestock productivity, with rice straw being the main feed source for ruminants. Given its very low protein content, rice straw cannot support nutrient requirements to achieve increased performance of ruminants. The Mission recommends testing and scaling up the integration of nitrogen-fixing legume crops into lowland rice production (e.g., relay cropping) to improve both rice straw forage and soil quality. Legumes can be grown for grain, soil cover or fodder crops. Potential legume crops could include mung beans varieties (*vigna radiata*), lima beans (*phaseolus lunatus*), winged beans (*psophocarpus tetragonolobus*), velvet beans (*muncuna pruriens*) or vetches.

Measure VIII. *Pilot the implementation of a market information system* (AFRDP Sub-Project 13 – Linking production and market).

Timely data and information on market prices to facilitate transparent transactions along value chains

are not available in major wholesale markets. Access to price information would enhance small-scale farmers engagement in the agrifood system and better enable farmers to capitalize on production opportunities offered by the recently rising food prices.

Measure IX. *Institutionalize and scale up land use planning and implement policies to control fire* (AFRDP Sub-Project 1 – Land management and fertilizer).

While large investment farms (mainly banana, rubber and watermelon) and cassava plantations by Lao farmers on newly opened lands is bringing needed income into rural areas and boosting agricultural exports, it is also driving a rapid change in the country's land cover/land use. The 2015 forest inventory indicates that forest cover decreased by 0.6 million hectares in ten years (from 14.3 million hectares to 13.7 million hectares).¹³¹ The decrease of forest cover was attributed to commercial and household use logging, shifting cultivation and agricultural expansion, mining, hydropower, infrastructure and settlement area. These changes are also increasing the country's vulnerability to climate risks, droughts and floods.

Slash and burn cultivation is the main method used to clear land for agriculture and the use of fire for crop cultivation is practiced by the majority of farmers, resulting in deforestation, environmental degradation and increased greenhouse gas (GHG) emissions, 62 percent of national GHG emissions come from Agriculture, Forestry and Other Land Use (AFOLU).¹³²

Fires on agricultural land, mainly slash and burn agriculture by small-scale farmers and large investment farms and the burning of paddy crop residues, are the main fire categories in the country. These fires also contribute to air pollution. Slash and burn agriculture practices are "extractive" by nature, as farmer burn biomass to release nutrients for crop plants, rather than obtaining these nutrients from fertilizers or manure. In this context, making fertilizers available at accessible prices could form part of the policies to reduce the incidence of fire (Recommendation IV above). In this context, the Mission recommends:

- Urgently institutionalize and scale up land use planning within the different governance

structures from central to local levels, and to cover all villages in the country. Currently, land use planning is conducted on a project basis by MAF's Department of Agriculture Land Management (DALaM) with limited long-term adoption/enforcement at local community level.¹³³

- Define and implement policies to curb the negative impact of fires, starting with the conduct of a comprehensive study on "fire incidence and determinants" in the country.^{am}

Measure X. Reinforce the national agriculture information system.

Two government institutions are collaborating to produce official agricultural statistics; the Lao Statistics Bureau (LSB) and MAF. MAF is mandated to generate annual agricultural statistics, which are published in Agricultural Statistics yearbooks. Given the complementarity and uncompletedness of the existing agricultural data sources, MAF experts review existing datasets and evidence to estimate annual crop area, yield and production. The implementation of a permanent agricultural statistic system would substantially improve the national information system. The agriculture censuses implemented by LSB provide the foundation for a permanent agriculture statistics system in the country for small-scale farmers. As data on the contribution of large investment farms are not collected, the contribution of this sector is missing in the national statistics, including the national accounts. The Mission recommends implementing a permanent agriculture statistics system for small-scale farmers and large investment farms, which could have the following features:

- Two annual sample surveys (dry and wet season) to estimate more accurately the areas planted, yield and production of main crops (e.g., rice, maize (hard), sweet maize, cassava, bananas, rubber, coffee).
- Bi-annual online survey forms administered to all large investment farms to estimate area planted, yield and production as well as the implementation of GAP.
- Maintaining the administrative system to estimate small crops, with the introduction of a small sample for field verification.

D&L assessment tools and guidance for the agriculture sector have not been systematically developed and standardized. The flood affected provinces and districts have each prepared their own reporting formats to guide village level data collection. Therefore, data collection methodology, indicators and reporting formats may vary from one province/district to another, presenting challenges for aggregation of data at the national level. By the end of January 2025, consolidated agricultural D&L was not yet available at national level. The main bottleneck lies with the standardization of the D&L data collection and reporting instruments as well as the time lag in the communication/validation chain across the DRM administrative levels. The Mission recommends developing tools and guidance for D&L assessment in the agriculture sector as well as information system solutions to facilitate data management. At institutional level, the Mission recommends establishing a "multisectoral DRM preparedness, early action and response task force" drawn from different MAF Departments to strengthen agriculture DRM, particularly in times of crisis.

^{am} Such a study could cover the following themes:

- Remote sensing component: a) estimate the extent and location of fire incidence and its evolution over the past 30 years by using remote sensing technology (high resolution imageries) and b) analyse how the incidence of fire may have changed over time and what factors contribute to these changes.
- Fire management components; a) review of the fire-based land management system practiced in Timor-Leste, including customary norms; b) analyse the relevant legal and policy framework; c) identify the key drivers of fire at community level; d) identify existing community mechanisms to reduce the negative impact of fire incidence on permanent crops and assets; e) identify community perception on the long-term negative impact of the use of fire; f) identify policy options for reducing fire incidence.

Food security

The Mission findings highlight that limited economic access among vulnerable households to meet basic needs, coupled with the impact of extreme weather events, are key drivers of acute food insecurity in Lao PDR. These factors have compelled households to adopt coping strategies that undermine their future resilience. Furthermore, inadequate food consumption persists in an estimated 17 percent of households, and rates of child wasting have increased. The education level and main livelihood source of households are identified as cross-cutting factors closely linked to food security. To address these pressing challenges, the Mission proposes the following recommendations:

Measure I. *Enhance household purchasing power and coping capacity.*

To mitigate the consequences of the sustained high inflation rates on households' purchasing power and strengthen household coping capacity by ensuring a sustainable and sufficient sources of income, the following actions are recommended:

- **Design and implement livelihood support for unstable income groups** targeting households with labour capacity but lacking stable sources of income such as those dependent on agricultural wage labour and other informal livelihoods. Interventions include promoting livelihood opportunities and diversification, and implementing cash or food-for-assets programmes, while enhancing community resilience through activities such as constructing or rehabilitating water points, roads and transport infrastructures, irrigation systems, and community gardens, among others.
- **Ensuring the availability of affordable agricultural inputs** to maintain minimum profitable margins and livelihood sustainability, with special focus on households engaged in food production.
- **Enhance Social Protection for Vulnerable Households** to tackle the persistent pockets of severe acute food insecurity by strengthening the government systems to identify and target

the most vulnerable households. Special attention should be given to households with low education levels, no income sources, or dependence on informal livelihoods in the provinces of Xekong, Salavan, Savannakhet, Khammouane, Attapeu, Bolikhamxai, Oudomxai and Xiengkhouang.

- **Disaster Response Assistance** by ensuring timely humanitarian assistance for disaster-affected communities, with anticipatory action plans and shock-responsive protection systems.

Measure II. *Enhancing disaster and climate risk management.*

As natural hazards represent the most frequently reported shock, prioritizing the improvement of disaster and climate risk management is essential to mitigate negative impacts on food security, particularly in rural areas. Recommendations include:

- **Implementing the Early Warning for All Roadmap (2024–2027)**, that channel investments towards enhancing and integrating early warning systems and mechanisms for effective disaster risk reduction from national to local levels. Activities should address the four pillars that cover the following areas of improvement:
 - ◆ Disaster risk knowledge.
 - ◆ Detection, monitoring, analysis, and forecasting.
 - ◆ Warning dissemination and communication.
 - ◆ Preparedness and response capabilities.

Measure III. *Strengthening School Feeding Programmes:*

The strong link between food insecurity, low education levels, and child malnutrition underscores the importance of school feeding initiatives under the National School Lunch Programme.

Recommended activities include:

- **Guarantee the quality of services:** Ensure the implementation of ongoing school feeding

programmes in alignment with best practices to maintain high-quality service-delivery.

- **Prioritizing vulnerable areas:** Expand the National School Lunch Programme to regions with higher rates of child malnutrition, food insecurity, and lower education levels.
- **Strengthening local procurement:** Increasing the local sourcing of school meals while ensuring that supply meets demand, add further benefits to the community. It enhances local food systems, increases farmers' production and income and improves food diversity, safety and nutritional quality of school plates with fresh foods to meet the dietary needs of children.

Measure IV: *Scaling nutrition-sensitive interventions.*

With the deterioration of household food consumption and the increase in child wasting

and underweight, it is essential to expand nutrition-sensitive actions to ensure local availability and accessibility to healthy diets. Key recommendations include expanding initiatives such as the Farmer Nutrition Schools, with the following activities aimed at improving the skills of households most vulnerable to food insecurity and malnutrition:

- **Strengthening skills for nutritious crop cultivation and establishing home gardens** to enhance local and household-level food production and dietary diversity.
- **Implementing social and behaviour change communication** to maximize resource utilization in order to ensure healthy diets and minimize health risks, particularly for groups with high nutrient requirements such as children under five, pregnant and lactating women, and adolescent girls.

ANNEXES



Annex 1 – List of institutions visited in Vientiane Prefecture

Government institutions

- Ministry of Agriculture and Forestry (MAF)
 - ◆ Department of Agriculture (DoA)
 - ◆ Department of Livestock and Fisheries (DLF)
 - ◆ Department of Planning and Cooperation (DoPC), Statistics Centre
 - ◆ Department of Planning and Cooperation (DoPC), Directorate of International Cooperation
 - ◆ Department of Irrigation (DoI)
 - ◆ Department of Forestry (DoF)
 - ◆ Department of Agriculture Extension and Cooperatives (DAEC)
 - ◆ Department of Agriculture Land Management (DALaM)
 - ◆ Division of Regulatory and Agricultural Input Registration
 - ◆ National Agriculture and Forestry Research Institute (NAFRI), Rice Research Centre
- Ministry of Natural Resources and Environment (MONRE)
 - ◆ Department of Hydrology and Meteorology (DHM)

- ◆ National Resources and Environment Research Institute (NRERI)

- Ministry of Finance (MoF)
- Ministry of Planning and Investment (MPI)
 - ◆ Lao Statistics Bureau (LSB)
- Ministry of Industry and Commerce (MIC), Small and Medium Enterprise Promotion (SME)
- Ministry of Labour and Social Welfare (MLSW)
 - ◆ Department of Social Welfare (DSW), Disaster Control and Recovery Division

Banks

- Bank of the Lao People's Democratic Republic (Central bank)
- Lao Development Bank (LDB)
- Banque pour le Commerce Exterieur du Laos (BCEL)

International organizations

- United Nations Development Programme (UNDP)
- World Bank (WB)

Annex 2 – MAF recommended fertilizer application rates

Table A2a: Recommended fertilizer application rates

Crop	Fertilizer	Wet Season		Dry Season	
		Rate (kg/hectare)	Compost (kg)	Rate (kg/hectare)	Compost (kg)
Rice	NPK (16:16:16)	100	1 500	150	1 500
	Urea (46:00:00)	75		90	
Maize	NPK (16:16:16)	150	0	150	0
	Urea (46:00:00)	100	0	100	0
Cassava	NPK (16:16:16)	200	0	0	0
	Urea (46:00:00)	100	0	0	0
Sweet Potatoes	NPK (16:16:16)	100	0	0	0
	Urea (46:00:00)	0	0	0	0
Pulses	NPK (16:16:16)	200	0	200	0
	Urea (46:00:00)	0	0	0	0

Source: Author's own elaboration based on data from the Ministry of Agriculture and Forestry (MAF) and collected during the FAO/WFP 2024 Crop and Food Security Assessment Mission (CFSAM) to the Lao People's Democratic Republic (estimates), 2024.



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