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Briefing Note

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Agricultural Transformation in Northern, Lao PDR

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Abbreviations

ADB	Asian Development Bank
AEC	ASEAN Economic Community
ASEAN	Association of Southeast Asian Nations
CDE	Centre for Development and Environment
EU	European Union
FAO	Food and Agriculture Organization
GDP	Gross Domestic Product
Lao PDR	Lao People's Democratic Republic
LIWG	Land Issues Working Group
MAF	Ministry of Agriculture and Forestry
MRLG	Mekong Region Land Governance
NA	National Assembly
NAFRI	National Agriculture and Forestry Research Institute
PIC	Parliamentary Institute of Cambodia
USD	United States Dollar
WB	World Bank

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1. Introduction

Lao PDR is a mountainous country of which approximately 53 percent is agricultural land [1]. The country is rich in natural resources, particularly forest [2, 3]. Agriculture's share of Gross Domestic Product (GDP) has been constantly dropping - from around 50 percent in 1997 to 16.2 percent in 2017 - signifying the massive structural change in the national economy and deagrarianization [4]. Nonetheless, the sector still employs more than 60 percent of the country's total workforce [4]. This implies that farming activities are still vital to the majority of the population [5]. Rice is the main crop produced for sale and consumption [3, 5]. About 57 percent of households live in lowland areas, 22 percent in upland locations and 21 percent on plateaus [6, 7].

The people in the northern upland area have long depended on subsistence agriculture for their livelihoods, particularly shifting cultivation [8]. Rice, maize, cassava and other food crops have been produced primarily for household consumption [5]. Shifting cultivation was the common practice before the boom in commercial crops. In the last two decades, farm production has shifted toward commercial-oriented production, driven by both market demand and policy to regulate land use practices [9, 10]. Agricultural transformation has brought significant change to the livelihoods of local households [8]. This briefing note reviews the process and characteristics of agrarian transformation in the northern upland areas and its implications for rural livelihoods. The paper addresses two research questions:

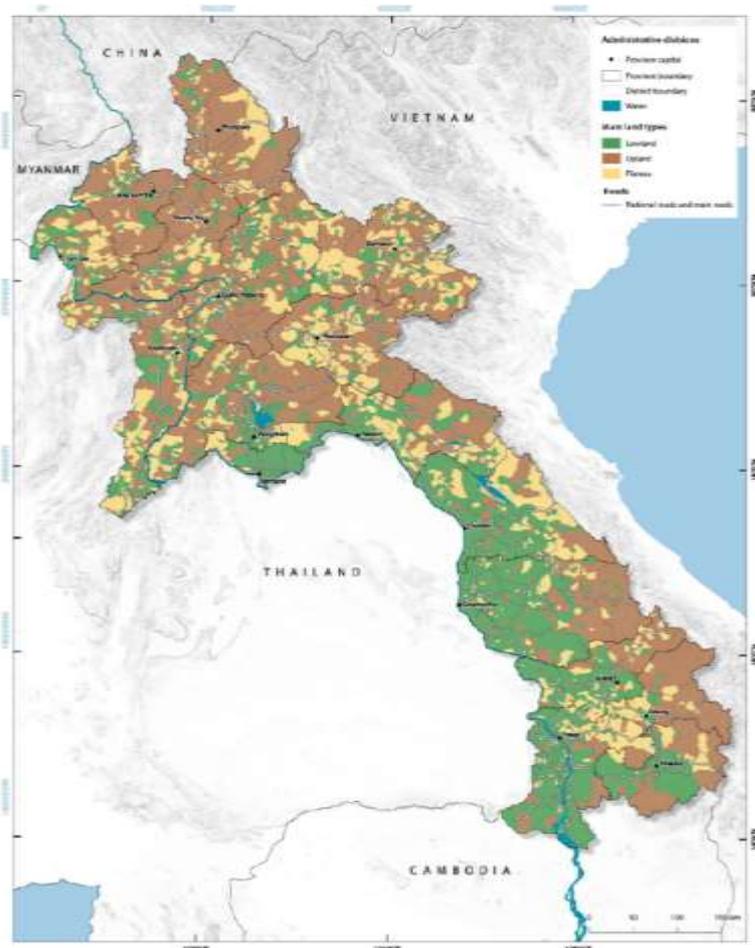
- What are the characteristics and driving forces behind upland agriculture transformation?
- What are the implications of this transformation for farming households?

2. Characteristics of Upland Agriculture

2.1 Trends in land cultivation

About three-quarters of the country is mountainous, marked by three main upland areas: (1) the northern highland; the central-southern highland; and the Boloven plateau (Figure 1) [11, 12, 13]. The northern upland covers eight provinces - Phongsaly, Luangnumtha, Oudomxay, Bokeo, Luangprabang, Xayabury, Huaphanh and Xiangkhaung. The levels of elevation vary between 2,820 meters in the north to as low as 70 meters in the south [12, 13]. The mountainous conditions of the country makes many locations very difficult to access, and improving road connections to those areas has become a challenge [13]. The degree of accessibility explains the variations in local land

use and why subsistence agriculture and shifting cultivation are still practiced in some inaccessible areas [1, 14]. Lao PDR has about 50 ethnic groups of whom the Hmong represent the largest living in the northern upland area [15, 16]. Their traditional livelihoods have been mainly focused on subsistence agriculture and shifting cultivation [1, 13, 17]. However, production has barely met household consumption needs [18]. This farming method had been traditionally undertaken for many decades, although there have been some claims that the practice is destructive to the environment and ecosystems [11, 19, 20, 21]. Cropping patterns vary according to land type, ethnic diversity, tenure rules and population density [22].



Source: Agriculture Atlas of Lao 2011

Farming in the upland areas relies predominantly on rainwater. Annual precipitation ranges from 1,300mm to 2,500mm. Most food crops, particularly rice, maize and vegetables, have been grown on small plots of land, mainly for household consumption. Other crops, such as yam, taro, cassava, sweet potato, chili and cucumber, coexist in the upland farming systems. Sesame and Job's tears

have been the main cash crops [1, 13, 23]. People have practiced shifting cultivation by clearing the forest to grow rice for one year and then to plant other food crops for another one or two years before abandoning the land for three to 15 years [24]. However, population growth has led to a deficiency in farmland available for rotation and that is the main factor behind the reduction in the practice of shifting cultivation. Other associated factors include improved access to markets and degraded land quality [1, 13, 17, 21, 25].

Since the 1980s, the government has been implementing a policy to rearrange land use and land reserved for agriculture and forest areas. The policy aims to reduce shifting cultivation, to promote sustainable farming in upland areas, and to encourage the private sector to invest in agriculture by providing necessary farm inputs such as seeds, as well as introducing new farming techniques, and improving access to markets and credit [12, 22, 26]. The Ministry of Agriculture and Forestry implemented the Agriculture Law in 1998 to regulate, protect rights, and promote agricultural production [27]. The sections below discuss the trajectories of land use and patterns of crop production in the northern upland areas.

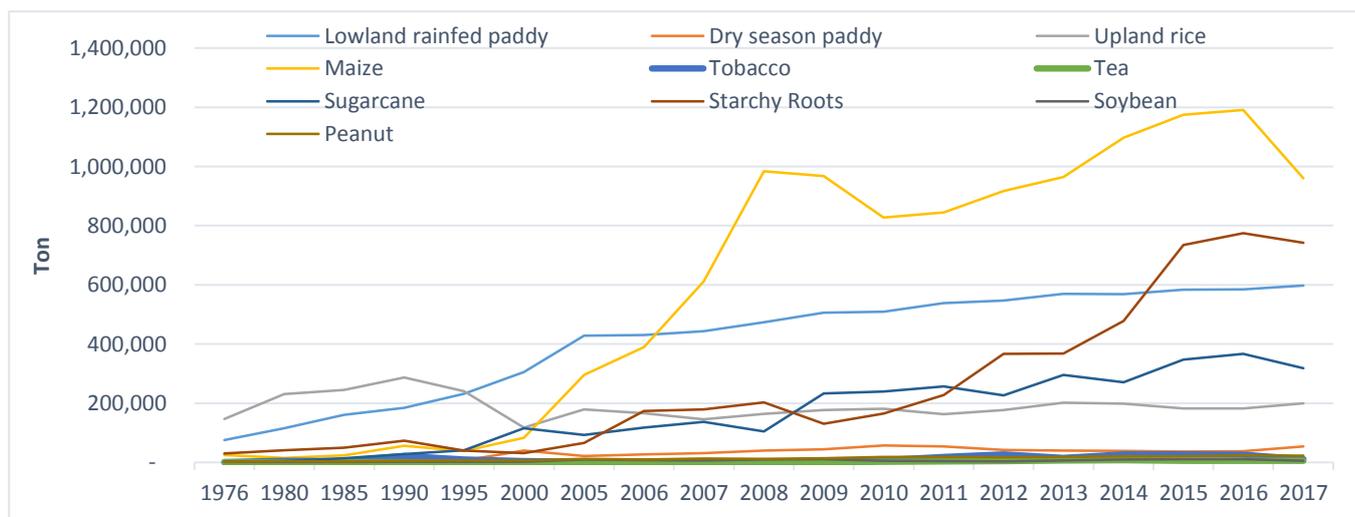
2.2 Changes in land use practices and cropping patterns

The share of land in Lao PDR devoted to agriculture increased slightly from around 8 percent in 2003 to 10.26 percent in 2016 [4]. The expansion in cash crop production in the northern upland contributed to the increase [25]. Within two decades, the northern highland underwent a significant agricultural transformation from so-called “forest-subsistence” agricultural practice to “commercially-oriented” agricultural production. Cash crops have often replaced rice and other crops that were previously produced under shifting cultivation [28]. The move triggered a change in farmers’ relationship to their land and natural resources [7, 9].

At present, a large proportion of landscape is covered by cash crop production [14]. By the end of 2010, for example, more than half a million hectares were planted with maize, rubber, banana, cassava and sugar [22, 29]. The most remarkable transition was the expansion of smallholder rubber production, in which the area of associated land expanded from 595 hectares in 2003 to 139,047 hectares in 2010 [30]. By 2014, land used to cultivate bananas across the country covered 22,920 hectares, most of which was located in Oudomxay and Laungnumtha provinces [29]. Maize cultivation has expanded rapidly since 2000 particularly in Bokeo provinces. The production of maize increased from 38,000 tons in 2000 to almost 1,200,000 tons in 2016 (Figure 2) [26].

The production of tea, soybeans and peanuts appears to have been constant over time with a slight increase in land devoted to tobacco cultivation and a noticeable growth in cassava production (Figure 2). The expansion of land devoted to agriculture resulted in forest loss and degradation [9]. An increase in land accessibility accelerated the forest loss and land degradation.

Figure 2: Trend of crop production in the eight northern upland provinces



Sources: Combined data from Lao Statistics Bureau
 (Website: <https://www.lsb.gov.la/en/#.XTEaKH9RPIW>)

3. Drivers of Upland Agricultural Transformation

The agricultural transition in the northern upland has been the direct result of a combination of factors. First, regional and international market demand and trade integration have been the main driving forces behind the boom in many cash crops that has taken place in the area. The increased demand from China, along with other countries in the region such as Thailand and Vietnam, triggered a rubber boom in the area. Good economic returns enticed more smallholders to participate in the production of this crop [10]. This was also the trigger behind the maize boom in 2005 [26]. The expansion of Cavendish banana production since 2008 has been stimulated by investment from Chinese companies through land concessions and contract farming [29]. Fresh bananas have been exported to China and the export revenue in 2015 was USD 39,938,034 – about a 16-fold increase compared with 2011 [29].

Second, the implementation of agriculture and land use policy has significantly shaped the agricultural production of the whole country including in the northern upland. It began with the shift to a free market economy in the 1990s and the opening of the regional border for trade, stimulating agricultural production and boosting the demand for farm products. This brought economic opportunities for local farmers to participate in cash crop production, driving more demand for farmland and contributing to the agricultural transformation [22]. The government land use policy, designed to reduce shifting cultivation and to support farm intensification has brought significant changes to agricultural production [9, 10]. This policy has helped to secure land ownership and that has served as an incentive for farmers to invest in permanent cash crop production, leading to a sharp reduction in shifting cultivation, and has given a boost to cash crop production [31].

Third, the combination of development at the local level, such as the improved road connections, availability of markets, easier access to farm inputs and machinery, has helped to accelerate the agrarian transition especially in the case of rubber [10, 18]. There are also some instances in which farmers have been drawn into cash-crop production through contract farming [18].

4. Implications of Upland Agricultural Transformation on Rural Livelihoods

The transition from subsistence to commercial-oriented farm production has resulted in improved socio-economic conditions for many farming households. But it has, at the same time, posed threats to the sustainable use of natural resources. The impacts have varied in accordance with the biophysical and socio-economic conditions of the community [9, 32]. The intensification of maize production in Xieng Khouang, and bananas in Laung Namtha and Oudomxay, have helped to improve the wealth and living standards of the smallholder farmers, exemplified by an improvement in housing conditions, and better access to health services, electricity and transport [24]. The highly profitable rubber production in Laung Namtha province has had a significant, positive impact on the livelihoods of smallholder farmers and has secured their land ownership [10, 22]. The boom in demand for bananas has created employment opportunities for the local community. The average monthly salary has been USD 258 which is five times the amount earned from subsistence farming [29]. The transition has also given rise to other economic activities such as input supply, hired labour, agricultural trade, the renting of farm machinery, and so on [24]. As their

income from cash crops has increased, many local farmers have been able to reduce their reliance on forest products [9].

However, the land use policy that prompted the creation of distinct zones between agriculture and forest conservation failed to properly take into account the biophysical and cultural characteristics of the area and led to some negative impacts for the local community. The stabilisation of shifting cultivation, shortening the fallow interval, and the expansion of commercial crop production contributed to the collapse of this traditional farming practice, risking the household food security of the poor and smallholder farmers who used to depend on it [9, 18, 22, 33]. The loss of forest resources due to the expansion of crop production cut-off access to the natural safety net of the community, reducing biological and socio-economic diversity and exposing local livelihoods to external risks. This forced them to relocate [9, 22, 29]. Increased cash crop production intensified the demand for farmland. While some people could legitimize their claims to land, others were excluded from access [9]. Although the economic impacts of cash crop production have been generally positive for many, some smallholder farmers have become worse off. The drop in commodity prices has been the reason behind the loss of land among smallholders, forcing them to become wage-labourers [22]. The loss of forest cover and the intensification of cash crop production, especially in respect of banana cultivation, has exerted severe environmental impacts on upland ecosystems. The loss of biodiversity has been the major environmental impact, followed by the degradation of soil fertility, erosion, and water and soil pollution [24, 34, 35].

5. Conclusion

The landscape of the northern highland of Lao PDR has experienced significant changes. The policy to stabilize shifting cultivation, the increased demand for cash crops and the development of local infrastructure has driven rapid change in the area. Agricultural production has shifted away from so-called “forest-subsistence” agriculture to “commercially-oriented” production. The result of this transition has been a boom in the production of several cash crops, mainly rubber, followed by maize, bananas and cassava. Agrarian transformation and the proposed land use policy have triggered a change in farmers’ relationship to their land and natural resources.

The impact of agricultural development has been generally positive, with farmers reporting higher farm income that has contributed to their better wellbeing, although some have claimed a decline

in their livelihoods due to a drop in farm commodity prices. The loss of traditional livelihoods, which constituted a natural safety net, has exposed the local poor people and smallholder farmers to external risks. The most worrying aspect is the rise in negative environmental impacts from intensive mono-cropping.

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