

# THE DEVELOPMENT OF COMMERCIAL AGRICULTURE IN LAOS: CURRENT STATUS AND PROBLEMS TO BE SOLVED

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## **Abstract**

*In the last decade, Laos' agriculture has been commercialized faster and has gained given achievements. From a self-sufficiently agricultural country, Laos' has become one of the net exporters of agricultural products. However, commercial agriculture in the nation is still less competitive due to poor irrigation and transportation systems; small-scale production, limited agro- processing, weak linkages between stakeholders within value chains, etc. Therefore, it would be necessary for the country to upgrade agricultural and rural infrastructure; apply widely new technologies and GAP standards; improve skills of farmers through education and extension systems; strengthen the linkages within agricultural value chains; and improve continuously policies to facilitate commercialization of agricultural products.*

**Keywords:** *Cash crops & livestock, commercial agriculture, export, Lao PDR.*

## **1. Introduction**

Agriculture is the mainstay of the economy of Laos (officially the Lao People's Democratic Republic - Lao PDR). In the early 21st century the sector generated nearly half the country's gross domestic product (GDP) and employed some three-fourths of the labor force. The expansion of land under cultivation has been impeded. The great majority of Laos's farmers are engaged in rice agriculture. Lowland farmers generally plant irrigated paddy fields, while upland dwellers cultivate rain-fed swiddens. Many farmers in the uplands practice subsistence agriculture. In years with "normal" harvests, Laos is self-sufficient in rice production. However, a shift toward market-based and commercial agriculture in the recent decade has been gaining momentum, propelled primarily by the government's modernization initiatives.

Unlike subsistence and nature-based agriculture, commercial agriculture is likely to result in welfare gains through the realization of comparative advantages, economies of scale, and technological dynamism (Gebremedhin and Jaleta, 2010). Policies for commercial

transformation of smallholder agriculture are often aimed at promoting household market participation” (Gebremedhin and Jaleta, 2013).

This paper aims to overview development of commercial agriculture in the last decade in Lao PDR and discuss key factors influencing this process as well as several recommendations to speed up the renovation in agricultural sector in the country.

## 2. Method

The study is mainly based on secondary data gathered from FAOSTAT and Laos’ relevant agencies. Descriptive statistical methods and expert consultation were used to analyse the development of Laos’ commercial agriculture, and to give comments and conclusions.

## 3. Results

### 3.1. Development of commercial agriculture in Laos in the recent decade

As shown in Table 1, in the 10-year period of 2010-2019, the area harvested of almost cash crops in Laos have been increasing while the annual growth rate in harvested area of food crops have reduced. The annual increase in area was especially high for cassava (14.55%), sugar cane (8.44%), tea (7.44%), and coffee (6.32%). The negative growth in area of food crops such as rice and maize reflected that there were transitions from the self-sufficiency to cash crops in the nation during the decade.

**Table 1: Area harvested of main crops in Laos in the last decade (ha)**

Year	Cassava	Coffee	Maize	Rice	Sugar cane	Taro	Tea	Tobacco
2010	19,940	50,595	212,745	855,114	15,355		2,415	8,355
2011	31,135	54,775	212,105	817,250	24,765		2,715	7,755
2012	43,975	56,875	196,815	933,767	20,490		2,705	6,975
2013	45,185	57,345	212,030	891,190	14,270		3,440	6,025
2014	60,475	70,330	243,385	957,836	34,070	12,000	3,990	6,250
2015	75,465	77,535	254,025	965,152	36,130	12,000	4,180	6,360
2016	75,810	77,900	258,910	973,327	36,180	17,180	4,200	6,880
2017	70,930	80,890	207,190	956,134	29,090	12,120	3,990	4,580
2018	71,010	82,980	165,620	848,174	30,555	12,385	4,195	5,670
2019	67,726	87,817	148,000	783,766	31,826	12,709	4,606	5,515
%/year	14.55	6.32	-3.95	-0.96	8.44	1.15	7.44	-4.51

Source: FAOSTAT Data accessed 2-4-2021 and calculated by the authors.

Thanks to intensive farming and application of new technology in cultivation, the yield of all crops has been increasing, especially in case of coffee with annual growth rate of 8.39%, tea (6.33%) and cassava (3.22%/year) (Table 2).

**Table 2: Yield of main crops in Laos in the last decade (hg/ha)**

Year	Cassava	Coffee	Maize	Rice	Sugar cane	Taro	Tea	Tobacco
2010	250,797	9,149	47,986	35,909	533,165		10,766	100,293
2011	238,699	9,495	51,684	37,513	493,438		13,186	103,598
2012	241,246	15,355	57,185	37,367	515,215		14,695	108,330
2013	277,567	16,051	57,260	38,315	606,258		17,747	94,199
2014	269,501	16,150	58,033	41,786	540,201	112,500	19,887	101,368
2015	315,706	17,531	59,689	42,501	558,720	112,500	15,060	99,119
2016	317,900	17,535	59,958	42,625	558,043	109,275	17,381	97,093
2017	321,028	18,642	57,557	42,251	606,528	111,691	19,198	77,762
2018	320,945	18,611	59,273	42,264	600,401	119,750	19,201	95,247
2019	333,506	18,890	48,446	43,865	619,169	121,681	18,706	102,821
%/year	3.22	8.39	0.11	2.25	1.68	1.58	6.33	0.28

*Source: FAOSTAT Data accessed 2-4-2021 and calculated by the authors.*

The increase in production of cash crops were rather high in the decade as a result of improved farming practices associated with expanded cultivating areas (table 3). After 9 years since 2010, cassava production increased more than 4.5 times in 2019 (with annual growth rate of 18.24%), coffee production increased about 4 times (with annual growth rate of 15.24%), sugar cane production increased about 2.5 times (with annual growth rate of 10.25%), and tea production increased nearly 4 times (with annual growth rate of 14.24%). Most of the increases in these crops were geared toward exports to China, Thailand, and Vietnam where with improving transport connections, are becoming increasingly viable markets.

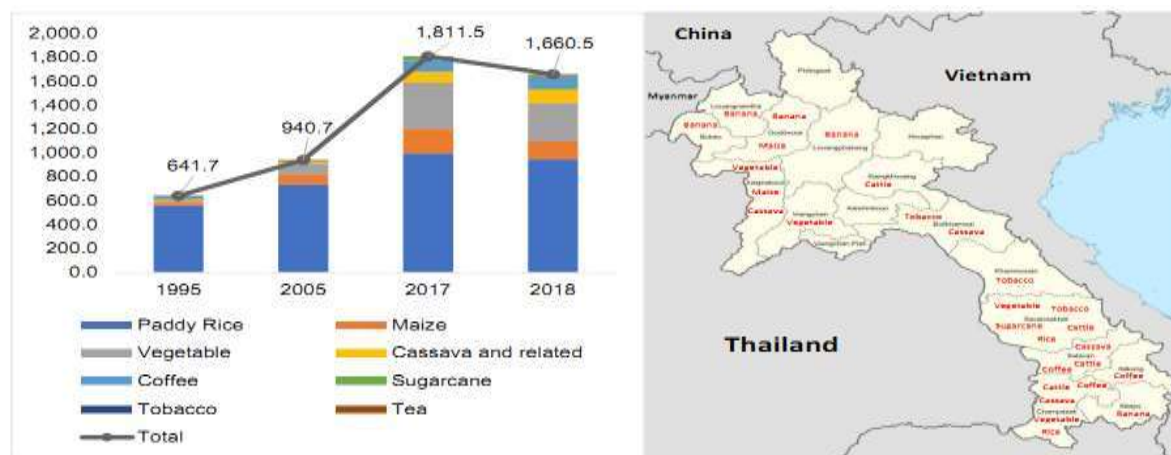
**Table 3: Production of main crops in Laos in the last decade (tonnes)**

Year	Cassava	Coffee	Maize	Rice	Sugar cane	Taro	Tea	Tobacco
2010	500,090	46,290	1,020,875	3,070,640	818,675		2,600	83,795
2011	743,190	52,010	1,096,235	3,065,760	1,222,000		3,580	80,340
2012	1,060,880	87,330	1,125,485	3,489,210	1,055,675		3,975	75,560

2013	1,254,188	92,045	1,214,085	3,414,560	865,130		6,105	56,755
2014	1,629,805	113,580	1,412,440	4,002,425	1,840,465	135,000	7,935	63,355
2015	2,382,478	135,925	1,516,250	4,102,000	2,018,655	135,000	6,295	63,040
2016	2,410,000	136,600	1,552,360	4,148,800	2,019,000	187,735	7,300	66,800
2017	2,277,050	150,795	1,192,525	4,039,779	1,764,390	135,370	7,660	35,615
2018	2,279,030	154,435	981,680	3,584,700	1,834,525	148,310	8,055	54,005
2019	2,258,702	165,888	717,000	3,438,000	1,970,566	154,644	8,616	56,706
%/year	18.24	15.24	-3.85	1.26	10.25	2.75	14.24	-4.25

Source: FAOSTAT Data accessed 2-4-2021 and calculated by the authors.

Figure 1 below shows increasing in area of some cash crops such as coffee, tobacco, cassava, vegetables and sugarcane in the 23-year-period of 1995-2018. Cultivation of coffee, tobacco, cassava, vegetables, sugarcane were mainly in the southern provinces while banana and maize were mainly in the north provinces of Laos.



**Figure 1: Allocation and cultivating areas of main crops in Lao PDR**

Source: Lao's Ministry of Agriculture and Forestry (MAF, 2019)

There are also opportunities for Lao PDR in trading livestock products with its neighboring countries, especially China and Vietnam, where with high rates of economic growth, increasing prosperity, and growing market demand for protein. Moreover, further land conversion opportunity exists in the Lao PDR to expand both cash crops and livestock production. The livestock sector growth is especially rapid. Table 3 and table 4 illustrate that there was notably significant growth for goat, chicken, pig, and cattle population as well as production.

**Table 3: Growth in population of major livestock in the last decade (head)**

Year	Buffalo	Cattle	Chicken (000')	Goat	Pig
2010	177,000	206,000	24,500	101,000	2,200,000
2011	178,000	215,000	26,200	119,000	2,120,000
2012	177,000	236,000	28,100	122,000	2,235,000
2013	177,000	239,000	30,000	129,000	2,360,000
2014	172,132	242,509	31,349	135,509	2,526,542
2015	176,569	249,688	32,951	152,870	2,650,005
2016	173,191	257,581	33,620	156,270	3,007,215
2017	176,844	265,964	35,294	164,775	3,147,575
2018	180,390	273,812	37,435	173,436	3,114,474
2019	183,763	280,937	39,531	180,770	3,093,720
<i>%/year</i>	<i>0.42</i>	<i>3.51</i>	<i>5.46</i>	<i>6.68</i>	<i>3.86</i>

*Source: FAOSTAT Data accessed 2-4-2021 and calculated by the authors.*

Livestock are particularly important in the more poverty-prone Northern provinces, where there is less land available for cropping due to the mountainous terrain. Some 89% of farm households own one or more types of livestock, and where possible, many households will have fishponds. Smallholder farmers dominate livestock production, accounting for approximately 95% of national herd. The feeding of animals includes (1) fallow cropland; (2) communal areas along roads and rivers, and areas around fields and villages; (3) dedicated grazing land; (4) secondary forests; and (5) other uncropped communal lands. Crop by-products such as rice straw are also fed to ruminants.

**Table 4: Growth in production of major livestock in the last decade (tonnes)**

Year	Buffalo	Cattle	Chicken	Goat	Pig
2010	19,470	25,750	19,600	1,414	59,671
2011	19,580	26,900	20,960	1,666	58,178
2012	19,470	29,500	22,480	1,708	60,765
2013	19,470	29,900	24,000	1,806	64,372
2014	18,947	30,544	25,168	1,897	69,293
2015	19,460	31,828	26,465	2,141	73,438

2016	19,086	32,479	27,002	2,189	82,757
2017	19,475	33,571	28,334	2,308	86,863
2018	19,851	34,597	30,040	2,430	86,190
2019	20,208	35,533	31,707	2,532	85,855
<i>%/year</i>	<i>0.41</i>	<i>3.64</i>	<i>5.49</i>	<i>6.69</i>	<i>4.13</i>

*Source: FAOSTAT Data accessed 2-4-2021 and calculated by the authors.*

Commercial livestock production has developed around major towns and cities such as Vientiane, supplying meat, eggs, and milk to the urban population. Significant cross-border livestock trade is expanding to China and Vietnam since 2014 (Table 5 and Table 6) with further potential growth if reproductive and survival rates continue to improve, ensuring livestock health and easing the sale and transport of stock. Current livestock trade is significantly underreported with cross-border movement of livestock mostly avoiding international border gates.

**Table 5: Laos' export quantity of main cash-products in the last decade (tonnes)**

Year	Bananas	Cassava	Cassava dried	Coffee, green	Coffee, roasted	Cattle	Chicken	Pig
2010	12460	0	0	17088	0	0	0	0
2011	11910	0	0	25008	0	0	0	0
2012	14641	0	0	20535	0	0	0	0
2013	15253	0	0	31480	0	0	0	0
2014	50344	16375	100334	22140	561	9	10	0
2015	75196	30232	218823	17102	104	218	4	22
2016	275608	59858	435882	23069	246	60	0	6
2017	212997	71362	685496	29265	918	766	0	0
2018	129666	72233	548186	25695	461	355	64	0
2019	53615	358921	529764	26155	3073	1614	60	442
<i>%/year</i>	<i>17.60</i>	<i>85.42</i>	<i>39.48</i>	<i>4.84</i>	<i>40.51</i>	<i>182.31</i>	<i>43.10</i>	<i>111.71</i>

*Source: FAOSTAT Data accessed 2-4-2021 and calculated by the authors.*

Laos' export of agricultural products has rapidly increased in the last decade, especially with presence of cassava, coffee roasted, cattle and chicken since the year of 2014.

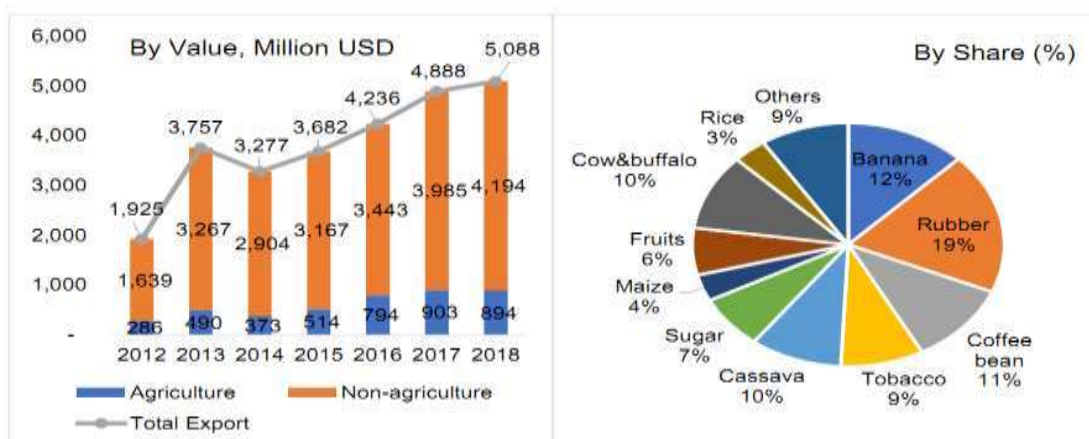
Annual growth rates of agricultural export in terms of quantity and value were very high in 5 recent years, typically by 182%/year and 145.33%/year for cattle.

**Table 6: Laos' export value of main agro-products in the last decade (1000 USD)**

<b>Year</b>	<b>Bananas</b>	<b>Cassava</b>	<b>Cassava dried</b>	<b>Coffee, green</b>	<b>Coffee, roasted</b>	<b>Cattle</b>	<b>Chicken</b>	<b>Pig</b>
2010	1758	0	0	33424	0	0	0	0
2011	2270	0	0	72350	0	0	0	0
2012	2922	0	0	63259	0	0	0	0
2013	3106	0	0	72589	0	0	0	0
2014	34804	15065	20156	63165	2876	37	31	0
2015	54759	27826	28506	57079	986	1258	8	92
2016	197813	62203	50373	63317	2217	227	0	29
2017	167864	87233	94927	87156	4494	2575	0	0
2018	112167	75932	79682	84326	3217	1853	180	0
2019	14024	16235	74098	54767	9551	3288	90	639
<b>%/year</b>	<b>25.95</b>	<b>1.51</b>	<b>29.74</b>	<b>5.64</b>	<b>27.13</b>	<b>145.33</b>	<b>23.76</b>	<b>62.34</b>

*Source: FAOSTAT Data accessed 2-4-2021 and calculated by the authors.*

The production and export of agricultural products are considered crucial for livelihood improvement of Lao people since the majority of them are dependent on agriculture as the main source of income. However, the export of agricultural products is relatively small compared with that of the non-agriculture which is driven by electricity and copper concentrate or ores. Its share was 16% of the total export during 2012-2018 (Figure 2). Nevertheless, the export of agriculture products increased strongly with an average 25.4% annual growth during 2012-2018. Among exporting products, the export of banana and live animal were the most promising with high market demand in China and Vietnam. In 2018, the main commercial agriculture and forestry for export were banana, rubber, tobacco, coffee bean, cassava, and sugar. Meanwhile, the export of banana and rubber has surpassed the previous longstanding export champions such as coffee and wood product that used to be the top agricultural exports in 1990s and 2000s.



**Figure 2: Laos' agricultural export in total export during 2012-2018**

*Source: Lao PDR's Ministry of Industry and Commerce (MoIC, 2019)*

Overall, major markets for Lao agriculture exports are Vietnam, China, and Thailand (Table 7). Vietnam is the main market for various agro-products except banana (China), maize (China), and tea (Thailand). Nonetheless, Chinese market has a potential to grow in the future, with an outstanding demand to import 50,000 cattle from Lao PDR and 50,000 tons of rice since the mid of 2019. For other crops such as sugarcane, the negotiations are still underway.

**Table 7: Major markets for Lao agricultural export by share (%) during 2014-2018**

Importers	Banana	Live Animal	Maize	Cassava	Tea	Rubber	Rice	Tobacco	Coffee
Thailand	4.80	0.00	20.10	0.50	78.00	0.60	9.10	5.70	9.30
China	93.50	16.20	41.60	25.50	9.00	43.80	27.80	2.60	1.40
Vietnam	1.60	83.80	34.90	66.60	2.90	52.80	51.20	66.90	50.10
	-	-	3.20	3.70	4.10	1.60	6.60	13.70	8.10
			(PH)	(TW)	(FR)	(MAL)	(BE)	(SG)	(BE)
	-	-	-	-	-	-	-	3.60	13.10
								(HK)	(JP)
Others	0.00	0.00	0.00	3.70	5.90	1.10	5.30	7.50	31.10
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

*Source: Lao PDR. 's Ministry of Industry and Commerce (MoIC, 2019)*

(Note: PH=Philippines, TW=Taiwan, FR=France, MAY=Malaysia, BE=Belgium, SG=Singapore, HK=Hong Kong, JP=Japan)



These production increases, often aimed at export markets, demonstrates that, development of commercial agriculture played a major role in improving Laos' farmer households' living standards as well as reducing poverty in the rural area. Table 8 showed that after 20 years since 1992-1993, the poverty rate in Laos' rural area reduced from 51.8% to 28.6 % in 2012-2013. At the ending of 2019, the poverty rate in Lao's rural area was only 23.8%.

**Table 8: Laos' Poverty Incidence, from 1992–1993 to 2019 (%)**

	1992– 1993	1997– 1998	2002– 2003	2007– 2008	2012– 2013	2013*	2019*
Rural	51.8	42.5	37.6	31.7	28.6	31.4	23.8
Urban	26.5	22.1	19.7	17.4	10	7.9	7.0
Vientiane	33.6	13.5	16.7	15.2	5.9	2.5	5.0
North	51.6	47.3	37.9	32.5	25.8	31.0	20.7
Central	45	39.4	35.4	29.8	23.3	23.5	21.5
South	45.7	39.8	32.6	22.8	29.2	29.9	17.7
National	46	39.1	33.5	27.6	23.2	24.6	18.3

*Source: P. Warr, S. Rasphone and J. Menon, 2015*

*and (\*) Lao Statistics Bureau and World Bank. 2020.*

### **3.2. Some factors impeding development of commercial agriculture in Laos**

Firstly, physical constraints arise from the Lao PDR's geographic characteristics and climate such that: (a) rugged mountainous terrain reduces the amount of arable land and soil quality in many areas, and makes the provision of infrastructure expensive, particularly for transport; (b) limited availability of water during the dry season reduces the area of land that can be irrigated; (c) the dispersion of population with long travel times between settled areas, largely over hilly and mountainous terrain, increases travel costs, consequently limiting access to socioeconomic opportunities and services; and (d) vulnerability to climate instability and natural disasters, especially severe floods during the rainy season, exposes the country, its population, and cropland to catastrophic climate events.

Secondly, socio-economic constraints include (a) a production base oriented to subsistence agriculture practiced by farmers who lack experience and basic technical, production, and market skills; (b) low productivity and low market prices and competition from neighboring countries; (c) underdeveloped value chains for cash crops and livestock; (d) limited access to agriculture inputs due to cost and logistical constraints; (e) limited access to irrigation facilities; (f) poor physical access that leads to postharvest losses and

increased cost to move and process outputs; (g) insecure land ownership and property rights, which reduces investment in, and protection of, land and water resources; and (h) lack of access to financing for agriculture and agribusiness, which hampers investment and trade.

Thirdly, capacity constraints include (a) poorly educated farmers with low levels of literacy and numeracy, who lack access to training on improved practices; (b) poorly defined and inconsistently applied policies, rules, and regulations, creating uncertainty in the market; (c) limited institutional capacity of government agencies to address infrastructure, trade, and economic challenges; (d) limited capacity of financial institutions to provide services in support of agriculture; (e) inefficient practices throughout the input and output value chains; (f) the inability of farmers and agribusinesses to meet technical and Sanitary and Phytosanitary standards (SPS), compromising food safety and reducing opportunities for export; and (g) shortfalls in government budgets needed to support the sector.

### ***3.3. Some recommended solutions to speed up the development of agribusiness in Laos***

#### *(1) Improving agricultural and rural infrastructure*

Figure 2 above indicates only few agricultural products such as banana, cassava, vegetable and rubber are produced in the North with easy access to the railway while more products such as rice, sugarcane, tobacco, cattle, vegetable and coffee are produced in the Central and Southern parts of the country. More market opportunities would be obtained if the Laos-China railway is linked with better transport infrastructure from the South. The construction of Laos-China railway started in the end of 2016 and expected to be completed by December 2021. Improving rural transportation systems in the Central and Southern parts, therefore, is very necessary to enable agricultural products access easily to potential market of China. Cross-border logistics would also be developed to facilitate regional trade. Besides that, irrigation systems need to be constructed and upgraded reasonably to expand cultivating area and improve agricultural yield and production.

#### *(2) Applying widely new technologies and Good Agricultural Practice (GAP) standards*

To enhance the competitiveness of agricultural products in the regional and international markets, together with develop larger-scale agricultural production and improve products' quality by applying new inputs, it is necessary for Laos to enforce standards and regulations on agricultural practice, and guarantee food safety through compliance with basic SPS standards and GAPs. Strengthening agricultural research as well as transferring research results of the new knowledge and technologies to farmers should be more supported by Lao's government in the coming years.

#### *(3) Improving skills of farmers through education and extension systems*

According to the World Bank (2018), the Lao PDR's average nationwide adult literacy rates are 50% for women and 67% for men, and these figures are lower in rural and remote areas. Inadequate education is a contributing factor for all poverty subgroups. Most farmers lack basic literacy and numeracy skills, which are essential to operate effectively in modern commercial agriculture. Therefore, three major issues to deal with to improve skill of farmers in the longterm are: (i) increasing the number of people being educated and trained, (ii) upgrading the quality of training and relevance to modern commercial agriculture, and (iii) delivering better training programs to those that need it through improvement of agricultural extension.

#### *(4) Developing the linkages within agricultural value chains*

Main stakeholders in agricultural value chains include input suppliers, farmers, traders, processors, exporters, transport companies, shipping companies. Laos' agricultural business shares characteristics with other countries in Sub-Mekong region in terms of weaknesses or constraints including (1) high production cost, (2) low productivity and quality, (3) weak forward and backward linkages among all actors, and (4) limited access to finance (Leelawath, 2019). Most of agro-products were produced and exported in form of raw materials, thus, Lao PDR only gains a small fraction of benefit in the value chain of agricultural business. Expansion of contract farming; encouragement of private investment in value-added processing of agro-products; and improvement of linkages between all partners within agricultural value chains by creating the mechanism of reasonable benefit sharing are priority solutions to speed up Laos' high value and commercial agriculture.

#### *(5) Improving continuously policies to facilitate development of commercial agriculture*

The Lao PDR's Agricultural Development Strategy to 2025 and Vision 2030 emphasizes the encouragement of international trade of non-rice agriculture products, the recognition of the need to improve and ensure food quality both for national consumption and export. In order to implement the strategy, it is necessary to legalize land tenure and improve regulation on land management, encourage private sector to invest in agricultural production and processing for export by renovating trading policies, especially in better sharing information of the annual quota available to traders and producers and develop technical assistance from international communities in penetrating international markets.

## **4. Conclusion**

In the last decade, Laos' agriculture has been commercialized faster and has gained significant increases in terms of cultivated areas, yields and productions of cash crops & livestock. Thanks to this process, from a self-sufficiently agricultural country, Laos has become one of the net exporters of agro-products. However, commercial agriculture in the nation is still less competitive due to many difficulties especially poor irrigation and rural

transportation infrastructures; small-scale production, limited agro- processing, and weak linkages between stakeholders within agricultural value chains. Therefore, in the coming years, it would be necessary for the country to upgrade agricultural and rural infrastructure; apply widely new technologies and GAP standards; improve skills of farmers through education and extension systems; strengthen the linkages within agricultural value chains; and improve continuously policies to facilitate commercialization of agricultural products./.

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