# Synthesis Report on Rice policy for Smallholder and Vulnerability in Lao PDR

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**Abbreviation**

| | |
|---|---|
| ADB: | Asian Development Bank |
| ADS: | Agriculture Development Strategy |
| DAEC: | Department of Agricultural Extension and Cooperation |
| DAFO: | District Agriculture and Forestry Office |
| DALAM: | Department of Agricultural Land Management |
| DoI: | Department of Irrigation |
| DoPC: | Department of Planning and Cooperation |
| DoPS: | Department of Personal and Staff |
| DTD: | Domestic Trade Department |
| FAO: | Food and Agriculture Organization |
| IED: | Import-Export Department |
| MAF: | Ministry of Agriculture and Forestry |
| MLSW: | Ministry of Labour and Social Welfare |
| MoES: | Ministry of Education and Sport |
| MoF: | Ministry of Finance |
| MoHA: | Ministry of Home Affair |
| MoIC: | Ministry of Industry and Commerce |
| MoIC: | Ministry of Industry and Commerce |
| MoICT: | Ministry of Information, Culture and Tourism |
| MoJ: | Ministry of Justice |
| MoNRE: | Ministry of Natural Resource and Environment |
| MPI: | Ministry of Planning and Investment |
| NAFES: | National Agriculture and Forestry Extension Service |
| NAFRI: | National Agriculture and Forestry Research Institute |
| PAFES: | Provincial Agriculture Extension Office |
| PAFO: | Provincial Agriculture and Forestry Office |
| PG: | Provincial Government. |
| PICD: | Planning and International Cooperation Department |

## ACKNOWLDEGEMENT

This synthesis report is implemented under ‘Pro-Poor Policy Analysis on Rice Policy for Smallholder and Vulnerability in Lao PDR’ which is a part of the Project of “Pro-Poor Policy Approaches to Address Risk and Vulnerability at the Country Level (GCP/RAS/276/IFA & TCP/RAS/3405)”. The Project is a regional project jointly supported by FAO and IFAD.

In Lao PDR, the project is cooperating with the Ministry of Agriculture and Forestry (MAF), particularly National Agriculture and Forestry Institute (NAFRI) to implement the project activities. The government of Lao PDR would like to acknowledge and thank FAO and IFAD for their financial and technical support of the implementation of this project.

Sincere thanks also go to all the technical supports from FAO, NAFRI, and Policy Think Tank member in reviewing and providing critical comments and suggestion in accomplish this quality report on “Policy Synthesis on Rice for Smallholder Farmer Livelihood in Laos”

**Executive Summary**

Since 2000, Laos become self-sufficient in rice production rice production has increased gradually that has surplus for reserve and export which is the milestone historical event of the country. Up two 2014, total rice production was 4 million tons, of which the percentage of (wet) season rice production covered 82%, dry season rice production covered 13% and upland rice production covered only 5%. Average paddy production per capita was between 588 kg/person which could sufficiently supply to the society and also generate surplus reserve for sale.

Lao rice production started to increase significantly since 1990s because of the expansion of irrigated areas and also an increase in yields mainly due to the scaling up of the use of improved and high yielding Lao glutinous varieties, the adoption and implementation of innovative techniques rice production for the last 10 years. Another reason is improving of infrastructure including irrigation system, research centers, seed production centers, plant and animal disease laboratories, technical extension service stations have been developed and practiced gradually.

As mentioned in general rice production is sufficient for the whole country, but rice sufficiency is still facing problem at some region particularly upland rice in the northern part of Laos. Overall, the major rice deficit provinces are in the north of the country where mountainous areas (estimated 43.000 tons). The major constraints to rice production in the Northern Laos are land suitability, lack of appropriate techniques applied, limited infrastructure and facilities, traditional rice based farming techniques and inappropriate input use, and labor shortage, and weak extension service.

It is important to note that the trend of rice producers decreased from 77 percent in 1998/1999 to 71 percent in 2010/2011 due to the low incentive to rice farmers. The rice production increased only in irrigated rice regions with ~~a~~ natural resource comparative advantages at the central and the south.

Lao PDR will be able to continue to export of surplus rice at a robust rate even when assuming modest production growth and conservative demographic change it is expected to reach 0.45–0.5 million tons by 2015 under the base case production scenario. In term of food security, the reason is that food security programs related to rice availability only need to target specific groups and locations and need to include build-in safety net and disaster preparedness elements. While commercial rice targeted for both domestic and export around 1-1.5 million tomes by 2025.

Rice value chain in Laos, is difference between regions and rice quality. More stakeholder involved in rice value chain is the case of Khammuan province and Savanakhet Province. Rice miller plays an important role in support the rice trade. Rice miller acts as supplier, collectors, processors, whole sellers, retailers and exporters. While small scale rice farmers are mainly play as producers and some of them acts as supplier, but only rice seed for individual farmers who did not have contract with rice miller.

The main problem in rice sector are quality of rice that cannot meet the international market standard due to small scale farmers rice production is fragmented and lack of horizontal integration inappropriate production techniques, land suitability for rice cultivation is relative low and agriculture land of smallholder scattered and limited infrastructure and facilities such as irrigation system, traditional farming techniques and inappropriate input usage, and labor

shortage, limited capacity in term of production techniques, resources endowment and marketing skill, return to labor from rice production is very low compare to labor wage at market.

It is not clear and consistent rice policy focusing on smallholder rice farmers be found, but there are policies in place that use various instruments focusing on rice farmers such as draft 13 policies which aims to support and facilitate from production stage to marketing stage. These policies are focusing at pilot area in term of production and marketing stage to facilitate and support on land, seed, irrigation, energy, credit, extension, processing, and transportation activities. Apart from these policies, number of laws and decrees are also support rice production as a whole.

Those problems can be solved by reformulated policies and establish responsibility body. In order to facilitate~~s~~ and organize smallholder rice farmers in to the rice sector and provide fair benefit improving all actors in a whole value chain stage. The policies reformulated appropriately following rice value chain starting from **Production stage (**land zoning and leveling for rice cultivation**,** different finance policies for different actors in rice value chain, inputs subsidy, research and extension, human resource development rice farmers organization, irrigation and energy supply, climate change mitigation/adaptation and risk management). **Marketing and trading stage (**producers or entrepreneurs contract farming to produce~~s~~ high quality rice varieties in specific areas certification and branding following GAP standard in Laos. Incentives applied for producers who received certification on good agriculture practice standards, government create development unit and information improvement on rice market for monitoring, analysis on data of market, maintaining stability and rice price, issues legal documents for contract farming and create an organization body responsible for supporting and building the trust between farmers and traders in any contractual conflict at central, provincial and district level.

# I. Introduction

## 1.1. Background

The "Pro-Poor Policy Approaches to Address Risk and Vulnerability at the Country Level (GCP/RAS/276/IFA & TCP/RAS/3405)" is a regional project jointly supported by FAO in collaboration with IFAD. The project aims to develop policy analysis and policy development capacity at the country level with a focus on policies to help small holders and the landless poor address risk and vulnerability arising from, *inter alia*, integration into long value chains. The emphasis is on institutional capacity development in four programme countries – Cambodia, Laos, Nepal and Vietnam. In Lao PDR, the project is cooperating with the Ministry of Agriculture and Forestry (MAF), particularly National Agriculture and Forestry Institute (NAFRI) to implement the project activities. The main objectives of institutional capacity development in Lao PDR are to increase knowledge and skills of NAFRI's staff and other related stakeholders in pro poor policy analysis, formulation and implementation.

Ministry of Agriculture and Forestry (MAF) formulated Agricultural Development Strategy (ADS) to 2025, and Vision to 2030. The ADS provides the framework, vision and long term development goal for ensuring national food security and sustainable development of the agriculture, forestry and natural resources sector. Since rice is most importance staple food for Lao people, the ADS stressed rice as a strategic product for Lao agriculture and economic development in which rice consumption rate tends to increase. The ADS states the long-term policy objectives of the Government in relation to the development of the agriculture sector, aimed at ensuring that the sector's stakeholders are best positioned to take advantage of the emerging opportunities. The goal is to increase rice production to 2.5 million tons in 2025 in which 2.1 million tons is for national food security and 0.4 million tons for reservation including 3,000 tons for ASEAN reservation.

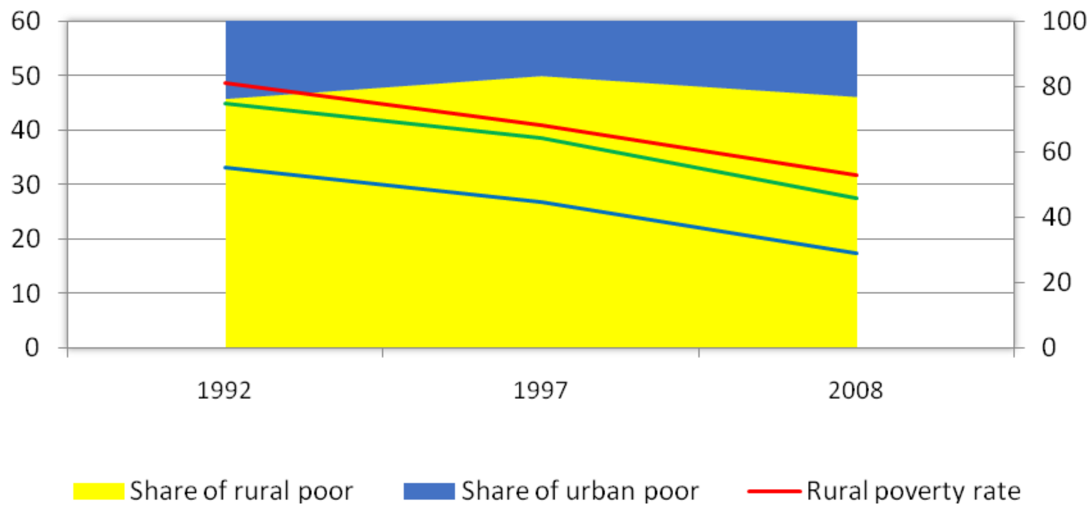
## 1.2. Rationale

Rice policy study was conducted and very well presented of the comprehensive results by economist team of World Bank and FAO under overall guidance of MAF published in 2012. The study provides a general overview of trends in rice production and consumption and includes the results of the LECS data analysis, rice value chain and, in particular, the trends in rice farming profitability, as well as regional rice market integration, rice sector policies. Scenarios for rice sector evolution based on the current policy mix and under different public investment options. Finally, provides conclusions and recommendations. Through this well presented on rice policy study, however, the study did not mention on the smallholder and vulnerability rice farmers. This desk study will used the result of mentioned above report by supplementing and inclusive smallholders and vulnerability rice farmers into the analysis with the following reasons:

1) In Laos, the poverty rate was significantly reduced due to positive of poverty reduction programs. However, the number of poor in rural areas is almost double as compared to the one in urban areas. The poverty rate of rural areas was about 31.8% in 2007/08, while the similar ratio of urban areas was only 17.4%. It is estimates that over 70% of

poor live in rural areas. This is due to the underdevelopment of agriculture that in turn limits income generating activities of rural households (NAFRI 2014).

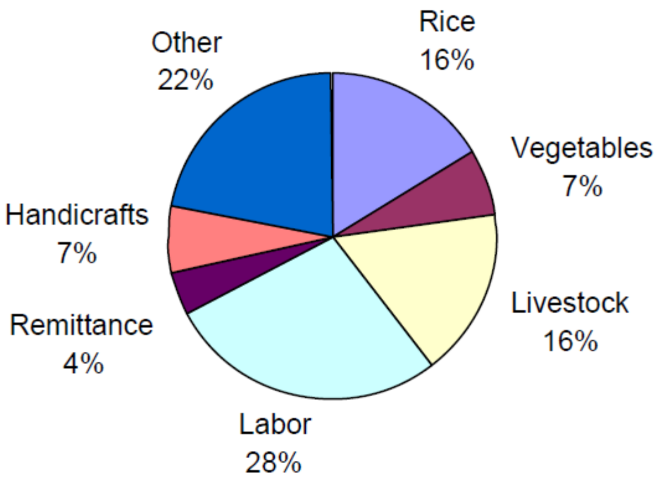
**Figure 1.** Poverty rate in rural and urban areas in Laos (%)




**Source:** NAFRI, 2014

1) The small households' primary occupation are farmers. Among the crops grown, rice is the main stable crops of small holders both for food security and some surplus for cash income. At the national level rice has been a top priority for the Government of the Lao PDR it is indicated in every National Socio Economic Development Plan (NSEDP). National development policies and strategies have emphasized the importance of agriculture in general and rice in particular in achieving food security and stimulating economic growth (ADS 2015). Rice has been importance and everything for Lao People, rice is not only associated with cultural traditions in the Laos, but has also been of prime political importance throughout the country's history. Rice has long been the most important food crop cultivated in Laos (J.M. Schiller et al 2006).
2) Small holders at rural area, rice is very thing for them it is believed that any household that have enough rice for consumption throughout the year it is considered as not poor because the cash earn from other sources or event from rice sale can be used for other purposes such as education, health care and social activities. In contrast, if any household facing rice shortage, the cash earned from sale of other agricultural commodities would be used for rice purchased for consumption and that household would have less affordable for other services. An evidence from a study (Figure 2) income from rice is the third account for 16% of annual total income of farmers (Leung *et al*. 2008).

**Figure 2.** Average sources of income of survey households




**Source:** Setboonsarng, Leung, and Stefan, 2008

3) At the macro level, rice production productivity gains have been achieved over the last two decades and the total rice production is sufficient for domestic consumption (Eliste *et al*. 2012:). Small farms continue to contribute significantly to agricultural production, food security, and rural poverty reduction. However, evident from some studies such as (Sacklokham and Manivong 2011; and Sacklokham 2012 cited in ACIAR 2014) stated that number of difficulties and challenges through rice value chains are discouraged rice industry in Laos namely the difficulty in setting up quality standards recognized by international market, poor processing procedures and facilities, market is fragmented, the lack of horizontal integration at the production level, millers have little incentive to invest in their rice mill facilities to improve rice quality, the price of rice is too low, bank interest rates are too high. Eliste et al (2012:61) briefs the production constraints to rice production in Laos are soil quality and climatic characteristic, inappropriate production techniques, limited infrastructure and facilities, traditional farming techniques and inappropriate input usage, and labor shortage.

Within these difficulties smallholders working in rice sector are the main group that facing the difficulties particularly quality of rice that can meet the international market standard, rice market is fragmented and lack of horizontal integration at production level, inappropriate production techniques, limited infrastructure and facilities, traditional farming techniques and inappropriate input usage, and labor shortage. As the nature of smallholders are limited capacity in term of production techniques, resources endowment and marketing skill.

## 1.3. Objectives and Outputs of the Policy Study

Objective, this policy study reveals the synthesis and desk research by applying value chain analysis approach, stakeholder analysis and policy gap analysis with regards to Pro-Poor Policy Analysis Roadmap and Framework. The report provides situation analysis and reviews of policies relates to rice commodity with focusing in enabling and inclusive of small holder and vulnerability in rice value chain as well how to increase benefits for poor and vulnerable groups.

Along with the objectives above, the expected of this synthesis report will provide policy recommendations that focusing on the poor and vulnerability in rice commodity at rural area with focusing enabling and inclusive of smallholder and vulnerability in rice value chain and to realize opportunities from markets for the smallholders.

In order to increase benefits for poor and vulnerable by increasing the efficiency and quality of domestic production in order to enhance competitiveness and enhancing the effective inclusion of smallholders and rural poor in the value chain.

## 1.4. Scope of synthesis

This desk study is focusing two main themes, which expected to explore (1) the situation of rice production and rice value chain with regards to the characteristic and role of smallholders and (2) government's policies and projects of rice sectors that include smallholder.

Situation analysis including identify and describe the smallholder characteristics, then mapping of existing situation of rice value chain in order to identify the role of smallholders and their constrains in that value chain as well as the risk and existing risk coping capacity of smallholder.

Policy analysis to summarize existing policies for the thematic group such as agriculture development, food safety, land, taxes, cooperative, cooperative, food security and nutrition, rural development, export promotion, etc. those are implement and then analyses the implementation of existing projects/programmes in rice sector in smallholder's perspective to see how small holders get benefits from those policies

## 1.5. Approach and Methodology

This research is the desk study through review and synthesized of report, paper and policies document which are related to rice and small holders in Laos as well as consultation workshop to obtain feedback and comments for improving the context of the paper. With regards to the scope of the research, this desk study was applied two main approaches to capture as follow:

### 1.5.1. Value chain approach

Value chain analysis describes the full range of activities required to bring a product or service from conception, through the different phases of production which combine of physical transformation and the input of various producer services, delivery to final consumers and final disposal after use (Kaplinsky and Morris 2001 sited in Jonathan Mitchell, Jodie Keane and Christopher Coles. 2009).

The value chain approach is useful when applied to analyze and address constraints, challenges as well as opportunities within a particular sector for several reasons:

First, it is because the root causes for the constraints and challenges facing specific actors in the sector may not necessarily lie in those actors themselves, but in other actors or other elements within the overall enabling system. Value chain analysis requires apply by systematic and logical way to point out root causes for the underperformance of the chains are visible. This is necessary because interventions can only be effective when they addressed the real causes of the problems. The systemic approach also involves considering all the constraints simultaneously because everything – actors, constraints, root causes – are linked to each other within the overall system and if we just address one constraint and overlook the others, in the end, our interventions may still fail to bring about benefits.

Second, the starting point of value chain analysis is end-market. That means, the analysis starts from understanding the characteristics and requirements of end-markets in order to identify real market opportunities as well as the performance gaps within the value chain with regards to meeting those requirements. Constraints, their root causes and solutions to addressing those constraints are analyzed in light of the identified real market opportunities. Real market opportunities, in turn, imply economic viability, which is of highest importance for the value chain to stay competitive, profitable and attractive for private actors, including the poor, to participate. In turn, private sector buy-in will ensure impacts from value chain interventions to sustain and scale up after development support is withdrawn.

In the context of this rice policy synthesis, apply the value chain approach involves the mapping of the rice value chain in Lao PDR, analyzing end-market opportunities, analyzing the characteristics and constraints to value chain actors, examining the nature of vertical and horizontal linkages as well as other systemic elements such as policy and support service provision in order to identify the causes of the constraints as well as policy implications to address those constraints and to realize opportunities from end-markets.

### 1.5.2. Inclusive pro-poor orientation and policy

Pro-poor policies should be about enhancing personal capabilities, self-confidence, capacity for community organization, and recognition of dignity, as well as about the distribution of material resources. We focus specifically on political capabilities defined broadly to include the institutional and organizational resources as well as collective ideas available for effective political action. Opportunities for political empowerment, we argue, arise through the iterative construction and diffusion of political capabilities during, and long after, the implementation of pro-poor policies (Laurence Whitehead and George Gray-Molina, 1999).

The reason to include the pro-poor approach in this rice policy synthesis is because of the aim of the recommendation is to bring about benefits to the poor. Inclusion could be understood in two ways. First, it involves more poor people will be empowered to be able to participate in the value chain and benefit from their participation. Second, in a broader sense, inclusion means the value chain brings about broad-based benefits to the poor not necessarily only through participating in the value chain but also through additional benefits generated from a more profitable value chain such as additional non-farm services for value chain actors or a more effective food system that allows for the stable supply of more nutritious and affordable food.

In the context of this rice policy synthesis, inclusion means all the analysis and recommendations are conducted and proposed in light of the perspective of smallholders and the rural poor. In particular, parts III solely focuses on a discussion about the characteristics and roles of smallholders and rural poor in the rice value chain as well as the risks they face and their vulnerability in the context of the rice sector. In addition, a policy analysis chapter later presents a review of existing rice-related policies and identifies policy gaps under smallholder perspective.

### 1.6. Smallholder rice farmers

Small farms, also known as family farms, have been defined in a variety of ways. The most common measure is farm size: many sources define small farms as those with less than 2 hectares of crop land (Ganesh Thapa and Raghav Gaiha., 2011).

Therefore, in this paper, smallholders have been defined as those with less than 2 hectares of land area. In Laos total farm households is 782,800 of which land less 6,200 households. Small-holder farmers who cultivate rice less than 2.0 hectare of land are 417,300 households or about 53.3% of the total farm households, these small-holders owned only about 48.98% of the total agricultural land (Calculated from Agricultural Census, 2011). Smallholder generally living in different eco-logical zone irrigated lowland, rain fed lowland and upland. The most vulnerability are upland smallholders.

**Table 1.** Number of farm household by size of land holding by province in 2011 (*1,000)

| Province | No. of farm households | Size of holding | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | No land | 0.01-0.49 ha | 0.50-0.99 ha | 1.00-1.49 ha | 1.50-1.99 ha | 2.00-2.99 ha | 3.00 ha & over |
| ***Northern Region*** | ***288.9*** | ***1.3*** | ***18.3*** | ***43.4*** | ***54.6*** | ***39.4*** | ***57.5*** | ***74.3*** |
| Phongsaly | 28.4 | - | 2.6 | 6.7 | 6.1 | 4.6 | 5.0 | 3.3 |
| Luangnamtha | 26.2 | - | 0.9 | 3.2 | 5.7 | 4.0 | 7.0 | 5.4 |
| Oudomxay | 44.6 | 0.1 | 1.8 | 5.3 | 8.9 | 6.4 | 10.7 | 11.3 |
| Bokeo | 24.8 | 0.1 | 1.6 | 3.3 | 5.4 | 4.2 | 5.3 | 4.9 |
| Luangprabang | 59.5 | 0.2 | 1.8 | 4.9 | 8.6 | 6.8 | 12.5 | 24.7 |
| Huaphanh | 42.3 | 0.1 | 5.7 | 12.0 | 10.5 | 6.2 | 5.2 | 2.5 |
| Xayabury | 63.1 | 0.7 | 3.8 | 8.0 | 9.5 | 7.2 | 11.8 | 22.2 |
| ***Central Region*** | ***336.4*** | ***3.2*** | ***31.7*** | ***50.6*** | ***60.9*** | ***35.1*** | ***59.5*** | ***95.3*** |
| Vientiane Capital | 42.8 | 2.0 | 10.4 | 7.9 | 6.6 | 2.8 | 4.2 | 8.8 |
| Xiengkhuang | 36.2 | - | 2.7 | 7.2 | 7.6 | 5.4 | 6.3 | 7.1 |
| Vientiane Province | 62.7 | 0.1 | 6.1 | 10.8 | 10.2 | 6.5 | 10.6 | 18.6 |
| Borikhamxay | 35.0 | 0.5 | 2.4 | 5.1 | 8.3 | 3.6 | 6.9 | 8.2 |
| Khammuane | 51.1 | 0.4 | 4.8 | 7.9 | 9.9 | 5.4 | 10.0 | 12.8 |
| Savannakhet | 108.6 | 0.2 | 5.4 | 11.6 | 18.4 | 11.5 | 21.5 | 39.9 |
| ***Southern Region*** | ***157.5*** | ***1.7*** | ***8.0*** | ***19.6*** | ***33.1*** | ***22.4*** | ***33.5*** | ***39.2*** |
| Saravane | 50.1 | 0.1 | 1.7 | 6.0 | 8.8 | 7.0 | 10.7 | 15.8 |
| Sekong | 12.9 | 0.2 | 0.5 | 2.2 | 3.2 | 1.5 | 2.0 | 3.2 |
| Champasack | 75.4 | 1.2 | 4.6 | 9.1 | 16.2 | 11.2 | 16.4 | 16.8 |
| Attapeu | 19.1 | 0.2 | 1.2 | 2.3 | 4.9 | 2.7 | 4.3 | 3.4 |
| ***Total*** | ***782.8*** | ***6.2*** | ***58.1*** | ***113.6*** | ***148.6*** | ***97.0*** | ***150.5*** | ***208.8*** |

Source: MAF, 2011[1]

[1] MAF 2011. Agricultural Census

### 1.7. Rice Production in Laos

Since 2000, Laos become self-sufficient in rice production rice production has increased gradually that has surplus for reserve and export which is the milestone historical event of the country (ADS, 2025). Up two 2014, total rice production was 4 million tons, of which the percentage of rainy season rice production covered 82%, dry season rice production covered 13% and upland rice production covered only 5% (MAF, 2014). Average paddy production per capita was between 588 kg/person which could sufficiently supply to the society and also generate surplus reserve for sale.

Lao rice production only really started to increase significantly in the 1990s. However, figure 1 shows the progress of rice production and harvested area for last 10 years. This occurred along with an expansion of irrigated areas and also an increase in yields mainly due to the scaling up of the use of improved Lao glutinous varieties.

In addition, the good progress of rice production in Laos due to the application of scientific techniques in the agriculture production has been expanding and developing at some area. Agricultural production system and also extension networks have also been improved and developed gradually. By the 1990s, the adoption rate for improved varieties had increased considerably, particularly in the central and southern lowland production systems, reaching some 65-80 percent of farmers in the wet season and 100 percent in the dry season (PAFES, 2011[2], and Thasano Seed Center, 2012[3] cited in Eliste et al 2012:30). Many farmers had adopted these new varieties in response to market demand, while continuing in parallel, to cultivate traditional indigenous varieties to meet personal and family taste preferences. Another reason is improving of infrastructure including irrigation system, research centers, seed production centers, plant and animal disease laboratories, technical extension service stations have been developed and expanded gradually.

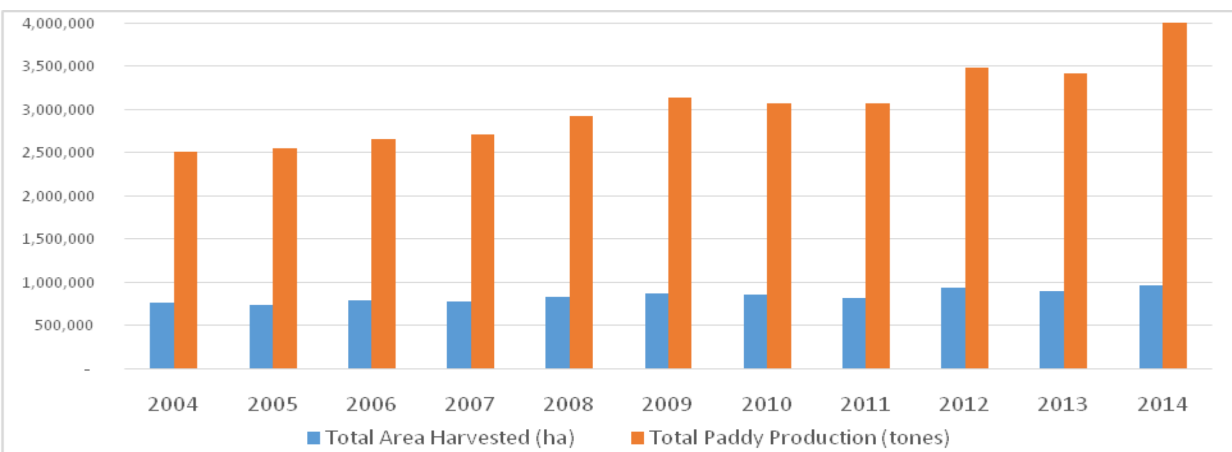


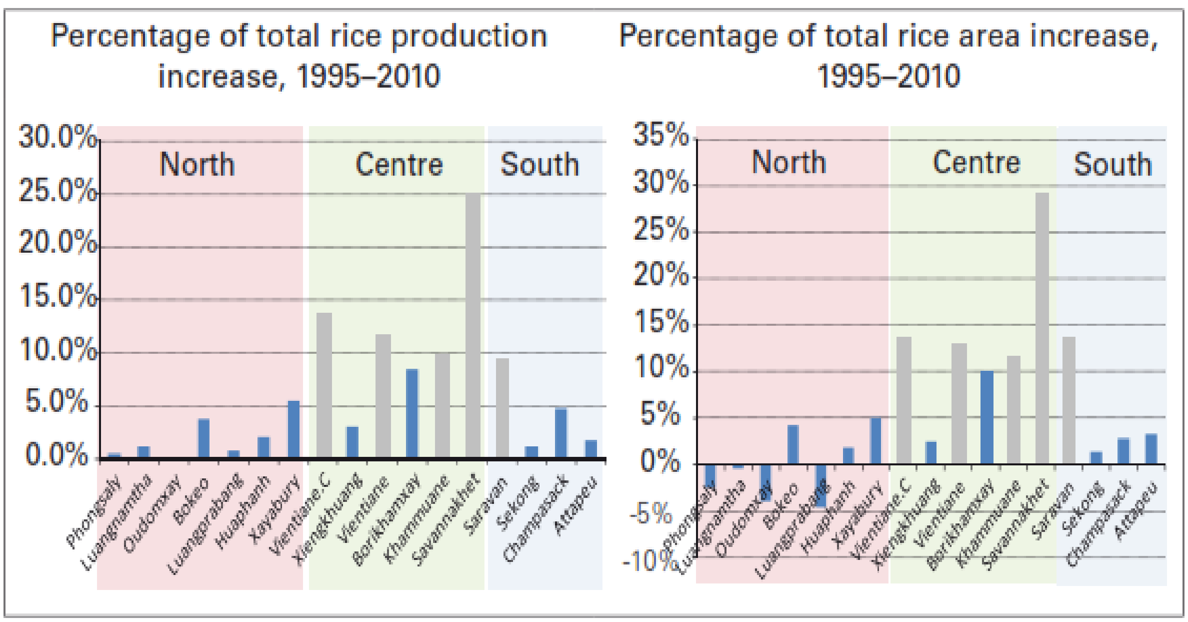

**Figure 3. Growth rates in total paddy rice output, harvested area and paddy yields.**

**Source:** Author's calculated from MAF data (2014)

[2] Report of provincial extension office, unpublished report
[3] Report of Thasano seed research and multiplication center under National Agriculture and Forestry Research Institute, unpublished report

In regional terms, the increase in national rice production was driven by four central provinces, namely Savannakhet, Khammuane, Vientiane and Vientiane Municipality, and one province in the south, namely Saravan (Figure 4). Together, this Municipality and these four provinces accounted for 70 percent of the total increase in rice production in the Lao PDR between 1995 and 2010. They also accounted for around 80 percent of the expansion in rice area in the country over the same period, which may indicate some form of competitive advantage in rice production. With the inclusion of Borikhamxay province in the centre and Champasack and Attapeu provinces in the south it is estimated that the region would have accounted for more than 80 percent of the country's rice production expansion between 1995 and 2010. While dry season crop production is almost exclusively concentrated in the seven plains along the Mekong corridor, the expansion in production in these plains was still mainly a result of expansion in the wet season system.

**Figure 4.** Percentage of the total increase in rice production and rice area expansion by province, 1995–2010




**Source:** Eliste et al, 2012:34

As mentioned in general rice production is sufficient for the whole country, but rice sufficiency is still facing problem at some region particularly in the northern part of Laos, Where mountainous areas (estimated 43.000 tons) and still facing food insecurity (Bartlett 2012). The production constraints to rice production in the Northern Laos are land suitability, inappropriate production techniques, limited infrastructure and facilities, traditional farming techniques and inappropriate input usage, and labor shortage, weak extension service and difficulties in accessing farm credit. With regards to the difficulty related to geography, the government is focusing to support the provinces that have more potential of rice production in 10 provinces, among them two provinces are selected to be pilot area (Savannaket and Khammouan).

It is interesting to note that the trend of rice producers decreased from 77 percent in 1998/1999 to 71 percent in 2010/2011 due to the low incentive to rice farmers (Eliste et al, 2012:21)[4] .The rice production increased it is because of the concentrated in regions with a natural comparative advantage such as plains at the central and the south.

Laos's exportable surplus of rice will continue to build at a robust rate even when assuming modest production growth and conservative demographic change it is expected to reach 0.45–0.5 million tons by 2015 (Eliste *et al*, 2012:21).

Rice production in term of food security, many questions may raise that nowadays Laos annually can produce rice around 4 million tones compare to the plan mentioned in food security project is 2.5 million tons in 2025 in which 2.1 million tons is for national food security and 0.4 million tons for reservation including 3,000 tons for ASEAN reservation. The corollary is that food security programs related to rice availability only need to target specific groups and locations and need to include build-in safety net and disaster preparedness elements. While commercial rice for both domestic and export around 1-1.5 million tomes.

## 1.8. Rice Trade

### 1.8.1. International High End Market

Laos shares borders with fives countries there are many border check points both international (first level), local (second level) and traditional (third level). These check points are the main gateway for the rice trade both formal and informal between Laos and its neighbouring countries.

Overall, based on the total rice surplus in the country, it is estimated that informal exports of rice may currently have reached at least 100,000 tons per year (about 4.5% of total production), which translates into a minimum of 25-30 million USD. By comparison, official exports of milled rice were just over 2 million USD in 2012 (MoIC, 2013 cited in NAFRI 2016). Lao PDR's milled rice are mainly exported to European countries such as France, Germany, Italy, and UK. These countries (Table 1) are the high end market for rice from Laos. The rice export to these countries are considers as high quality rice. The new market for Lao rice is China, in 2015 the quota for rice export to China is 8,000 tons of milled rice. It will be increased in the next future which depending on the quality and quantity that Laos can offer.

**Table 2.** Key countries imported milled rice from Lao PDR

| **No.** | Country | **Value (million USD)** |
|---|---|---|
| 1 | France | 0.619 |
| 2 | Vietnam | 0.362 |
| 3 | Netherlands | 0.089 |
| 4 | Germany | 0.205 |
| 5 | Belgium | 0.052 |
| 6 | UK | 0.154 |

[4]The results from farm model analysis suggest that low input/low output rice farming households are not able to obtain sufficiently high incomes (or returns on labour), thereby limiting their

| | | |
|---|---|---|
| 7 | Italy | 0.197 |
| 8 | Austria | 0.140 |
| 9 | Spain | 0.076 |
| 10 | Portugal | 0.094 |
| 11 | Hong Kong | 0.054 |

Source: MoIC, 2013

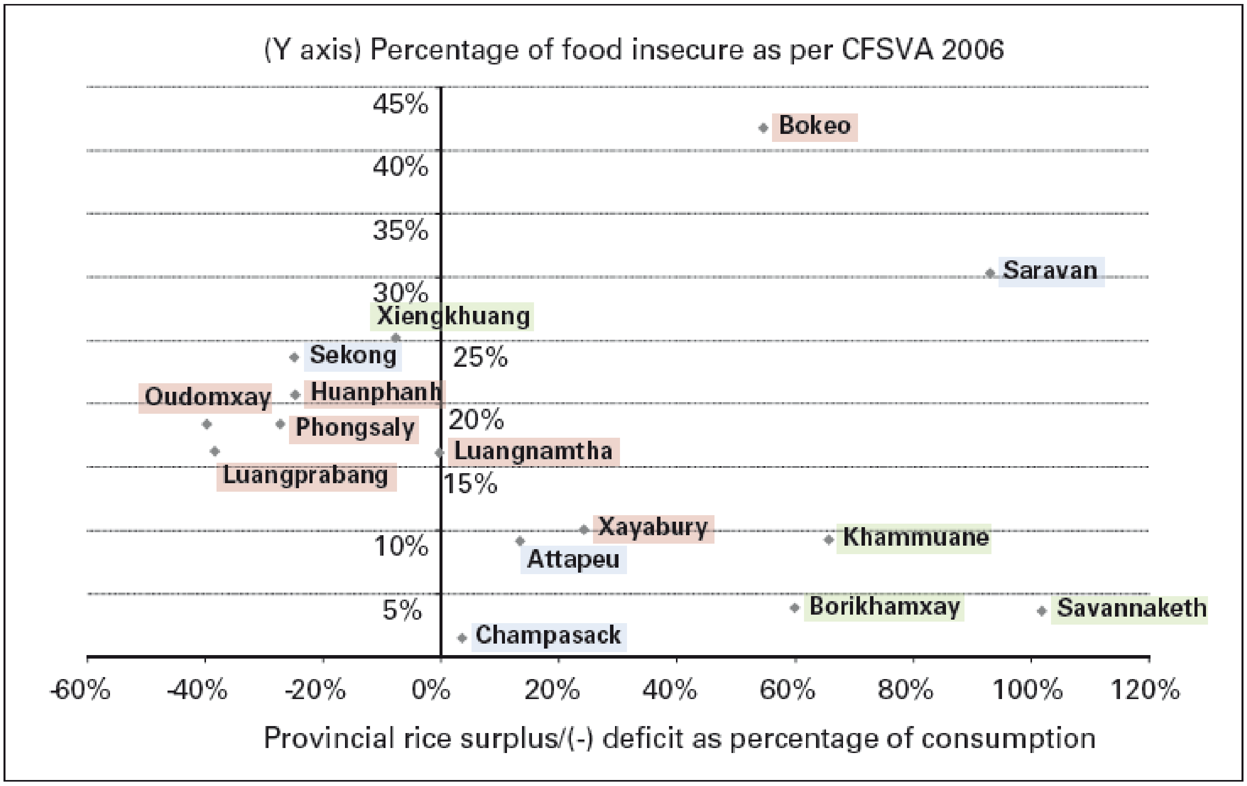
These high end markets need a certain quantity and quality of rice from Laos. Most of the rice imported by those mentioned countries is ordinary rice. When we look back to small holder Laos farmers are experiences with glutinous rice. This because of the purpose of the rice cultivation of smallholders is for subsistence for their family consumption and when they have some surplus, that amount could be sold out for household income. So that the main market for the rice from smallholders are domestic and a minor proportion to neighboring countries like Vietnam and Thailand as an evidence mentioned that glutinous rice from Laos is export to Vietnam which preceded the price jumps both in 2006 and 2010 (World Bank. 2011:29)

If we would like to include smallholder in to these high end markets and provide fair benefit to them, we need to consider how can smallholders participate and change their primary crops such as glutinous rice to ordinary rice for commercialization. As their land holding less than 2 ha. Recently smallholders are away from commercial rice production as it provide less return to labor only 2.4USD per day for the typology of low input wet season rice, 3.8 USD per person per day for the medium input wet season rice, and higher input rice wet and dry season (where the irrigation systems is available) is 6 USD per day for wet season and 4.8 USD per day for dry season (Eliste *et al*, 2012: 58-59). With regards to these evidences, smallholders at where the irrigation system is available and intensive rice cultivation can be applies those smallholder rice producers can be engage in the rice value chain for high end market, but we need support policies particularly policy to reduce the cost of production.

### 1.8.2. Domestic market

Before getting into detail of domestic and regional market in the country, it is good to know the overall picture of situation on rice deficit and surplus across the country in order to understand the available demand and supply (Figure 5) indicates the provinces that facing rice surplus and food insecure. It is noted that provinces in the Northern of Laos four of them are insecure, while another two insecure province are Xekong and Xiengkhaung at central and south, these province are mountainous area. From this figure, we can map out which provinces can be rice trade partner to each other. With regards to their location and percentage of rice surplus, rice deficit and population density. It is assumed that Champasack and Attapue can supply rice for Xekong. Bokeo and Xayabuli can supply rice for Oudomxay, LaungPrabang, and Phongsaly. Khammuan and Bolikhamxay can supply rice for Xiengkhaung and Houaphanh. While main production from Savannakhet, Saravanh and some portion from Khammuan and other provinces along the main plain for export.

**Figure 5.** Rice surplus/deficit (% of consumption) and percentage of food insecure households by province




**Source:** Eliste *et al*, 2012: 55

The domestic rice market can be described in two ways: first is the informal import rice from neighboring countries for the area that facing rice deficit and in country where the communication system is not convenience and second is in the country trade. Refer to the northern part of Laos where sharing borders with China and Vietnam so the deficit areas are mainly import white rice from China and Vietnam rather buy rice from the surplus areas such as southern Laos because the transportation constraints from southern part to northern part. The quantity of rice trade through this channel could not be recorded as it happens as informal trade through local or traditional borders trade.

Annually, the domestic demand on rice in Laos for consumption for next coming 5 years (2016-2020) is around 2.5 million tons of paddy of which for consumption 2.1 million tone[5], rice stock 400,000 tones (MAF, 2016).

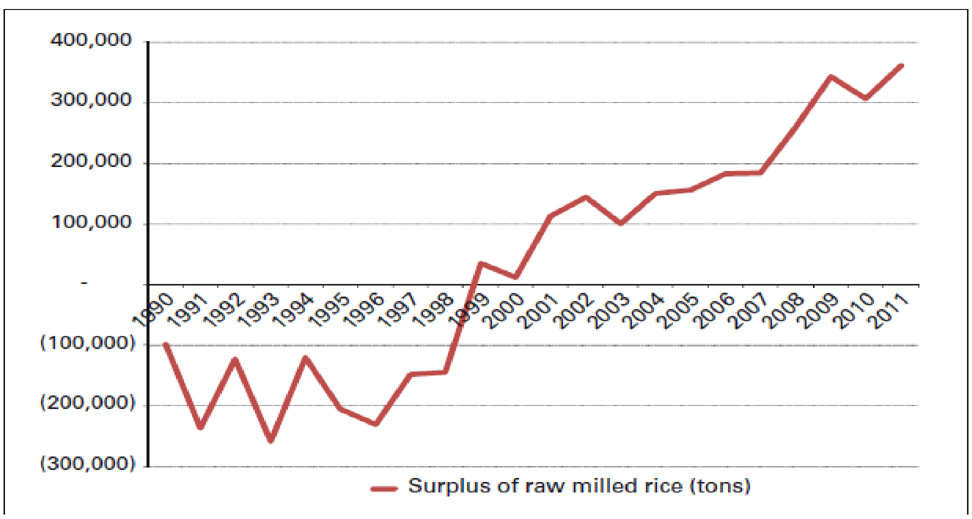
Base on the capacity and resources holding of smallholder, the domestic market such as intermediary market would be suitable for them rather than the high end-market. For instances, a case study from Khammuan province, rice for domestic consumption (about 80%) is

[5] Estimated total population including tourist in 2020 7.5 million people and paddy rice per capita per year is 280 kg.

sold in the local markets and nearby towns through many wholesalers and retailers in Khammouane, Vientiane and Savannakhet. Inaddition, there is also another kind of product distribution network that sells products to government programs through the Red Cross which then distributes these products to areas where are rural poor and serious rice shortage. Another channel is selling rice through the State Food Company to the government which supplies subsidized rice for the army and government officials. Some mixed rice and broken rice are sold to factories to be processed into other kinds of products e.g. beer factories in Vientiane, noodle processing factories in Savannakhet and rice noodle, local dessert, and alcohol factories in Khammouane (Ruamsit et al, 2013).

The Size of the amount of rice sold through different channel in each years is not available to obtained, in order to explore the growth of each market stage. However, the information on rice surplus since 1999 until 2011 is available and we can assume that each year the rice surplus is increasing and this amount is also assumed to be traded both domestic and export.

**Figure 6.** Rice surplus since 1990 (tons of raw milled rice)



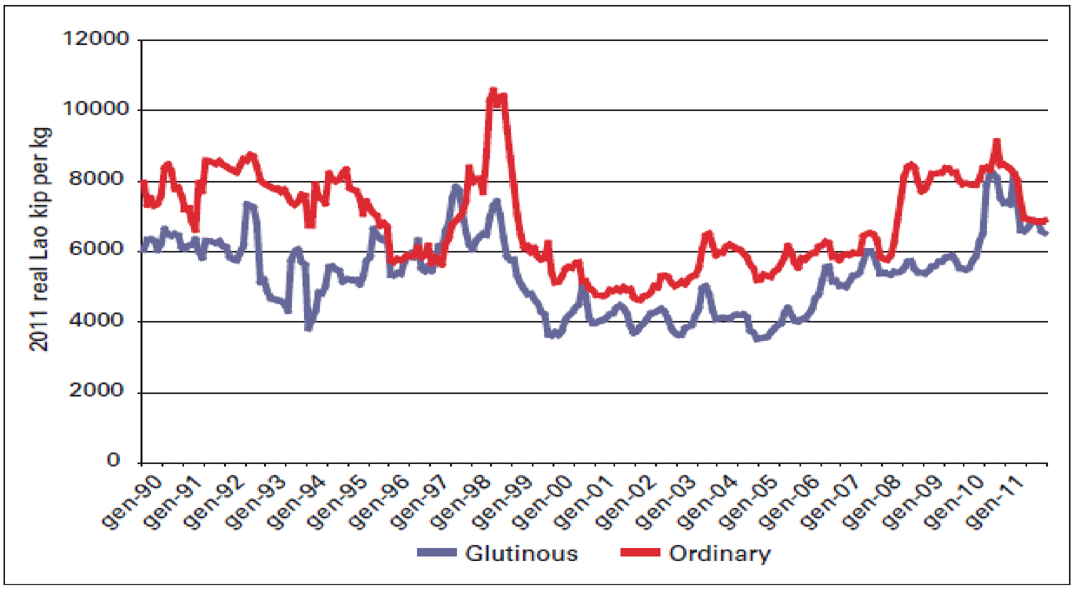

**Source:** Eliste *et al*, 2012: 50

The trend of retail price of rice in Laos can be divided into two part. First is prior 2000 when Laos could not produce rice for self-sufficient. Rice price was maintaining around 4,000-7,000 LAK per kg for glutinous rice and 6,000-8,000 LAK per kg for ordinary rice during 1990 to 1998. There is a price dramatically increased for the year 1999, one year before Laos could be produced sufficient rice for the country. The retail price of ordinary rice reach more than 10,000 LAK per kg and glutinous rice reach nearly 8,000 LAK per kg. After year 2000, rice price dropped to around 4,000-5,000 LAK per kg for glutinous rice and 5,000-6,000 LAK per kg for ordinary rice. Then rice price was increased again during 2008-2010, this because of the international trade such as with Vietnam (World Bank, 2011: 29)[6]. Since the Lao government set number of

[6] *Regional trade appears as the main proximate cause for high glutinous rice prices. Large official rice exports to Vietnam preceded the price jumps both in 2006 and 2010. Rice inflation has been highest in areas that trade with Vietnam and Thailand. Vietnam trade seems to drive*

regulation to maintain rice price and to secure rice balance and rice sufficient before any rice trade is allow, so rice export ban was released. Domestic and international trading of rice are highly regulated in the country. For example, all individuals involved in this trade in Lao PDR need to be licensed and the licenses are specific to the purpose of the trade (for example, movement at district or provincial level). Whenever products are moved between districts or between provinces, a permit is required and must be obtained at the District Industry and Commerce Office (DICO) or the Provincial Industry and Commerce Office (PICO). In addition, exportation of rice is also highly regulated through a system involving the provincial and national governments (namely, the Domestic Trade Department of MoIC). The objective is to check whether rice balances are sufficient before any trade is allowed. Due to the regulation mentioned above rice price dropped and maintaining at around 7,000 LAK per kg for both glutinous and ordinary in late 2011.

**Figure 7.** Retail prices of ordinary and glutinous rice, 1990–2011




**Source:** Eliste *et al*, 2012: 74

New trend of rice preference of consumer, the high quality rice such as organic rice, unique rice such as Khaokainoi a traditional variety that could be cultivated in only two Northern Province of Laos (Xiengkhuang and Houaphanh) becoming well known. Therefore, in recent years there are some foreign direct investment (FDI) on rice segments in Lao PDR, in particular rice mills and modern rice retails located in (Chinese company name FuTeng in Vientiane capital, Luang Prabang, Vientiane, Savannakhet totally 10 modern rice mills of which 5 rice mills are under construction. Korean rice mill in Vientiane Capital and other investors).

For the domestic market transformation, packed and branded selling in many local owned markets are in initiative stage for Lao local product. For example, in Vientiane Capital

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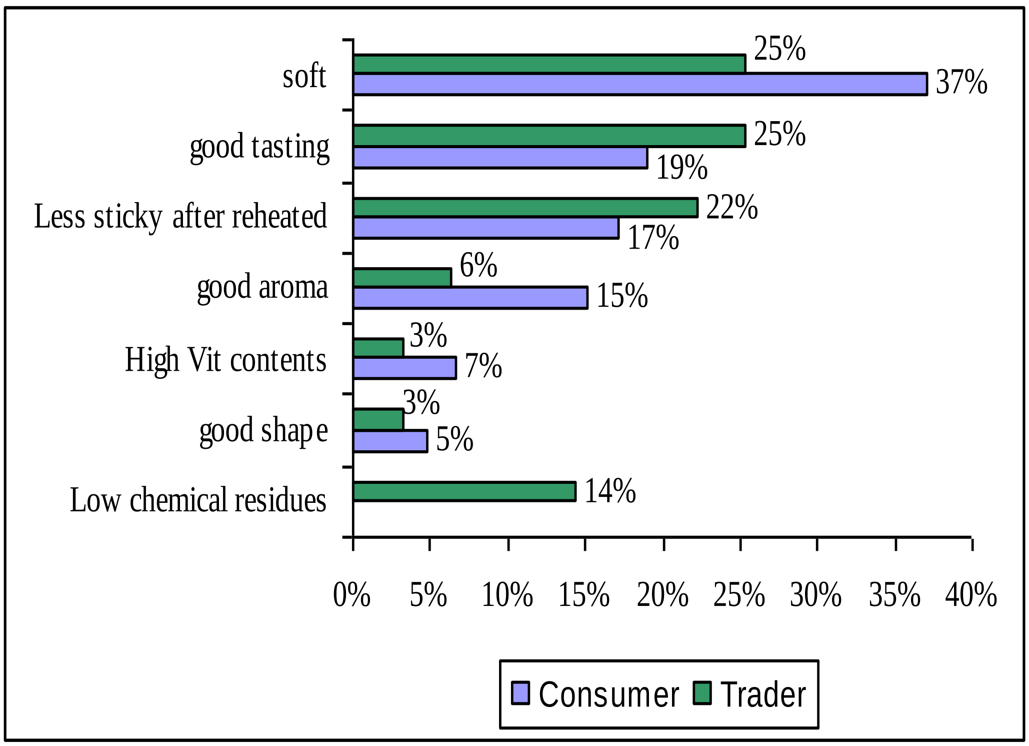
*short-run price fluctuations in particular whereas trade to Thailand drives medium to long-run rice inflation. There appears to be a strong incentive to export milled rice to Vietnam and paddy to Thailand* there are many local owned as well as foreign owned supermarkets such as Tengferes is the another Laotian owned who also had supermarket in France, M-Point Mart is Thai investor (around 10 branches in Vientiane Capital), D'mart is a Chinese investor, U-Express is a French investor.

A study found that consumer was presently preferred to long grain rice because of good taste and white colour and they also concerned about pesticide residue for food safety. It may be, therefore, an opportunity for some specific and unique rice (Khaokainoy rice) to reach the niche market (safe food market) for specialty shops, although only sold in small quantities (Manivong, 2008).

**Figure 8.** Preference of Quality of KhaoKaiNoy




Source: Manivong 2008

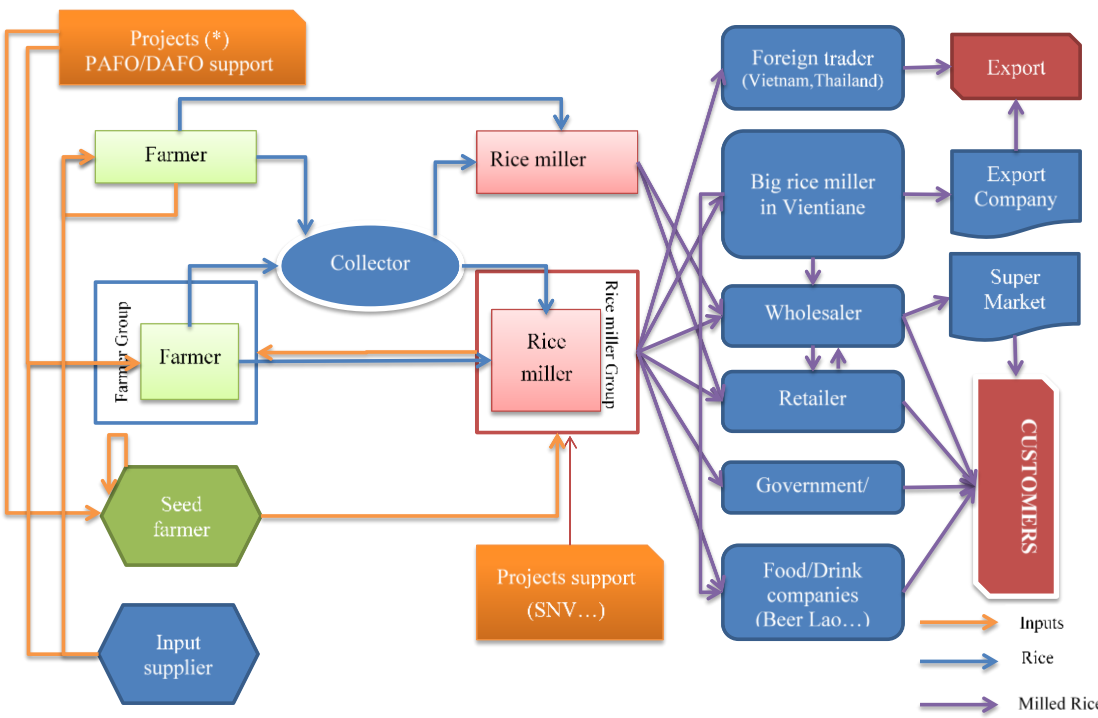
Consumer preference of buying KhaoKaiNoi rice is because of its high quality. The high quality rice reported is softness, then follow by good taste, and less sticky after reheated, good fragrant is also reported as the reason of buying this rice. In additional, they thought this rice had nutritious elements for health (high vitamin content and none chemical residue).

## II. Rice Value Chain in Laos

Rice supply chain structure will discuss case by case which studied by number of research teams incorporated with author discussion with key informant who is responsible for a project of commercial rice production in Laos.

### 2.1. General Rice value chain in Khammouane Province

**Figure 9. Rice value chain structure in Khammuane Province**




Source: Adapted from NAFRI, 2015[7]

Figure 9 shows a general picture of the rice value chain Khammoune province has two sub-chains by contractual relationship between farmers and rice millers.

In contractual value chain, each miller in the rice miller group will have contractual relationships with several groups of farmers as an input supply network. The miller provides their contract farmers with inputs such as seeds, fertilizers and even mechanization services. These inputs are provided as a form of credit, farmers will return in paddy after harvest. The millers also buy paddy from local collectors and individual farmer who they do not sign contracts. After processing, miller sell their products to wholesalers, big miller in Vientiane, other big buyers such as The Lao World Company, Thai-Ha Company, Middlemen in Thakhek and Lak20, Vientiane, alcohol processors, CP Feeding Mill, Beer Lao company. Foreign traders

[7] Frist draft report of contract farming research report, PRC/NAFRI 2015.

also buy rice direct from some mills to be exported to Thailand and Viet Nam, mostly through informal channels.

With non-contractual case, farmers get inputs from other farmer, who produce seed rice, or other input suppliers on district market. Farmer groups also can buy inputs (seed, fertilizer) as well as technical support, irrigation and extension service from PAFO/DAFO. Farmers who do not have contact with miller or without the group often depend on collectors to sell their products, only a few may be sold to millers.

**Figure 10. Actors in the rice value chain of Khammouan Province**


Source: Adapted from NAFRI, 2015

In the case of rice value chain in Khammuane province, it is clear that most farmers in Khammoune province are smallholder rice producers, rice production area average around 0.5-2ha. The role of small holder rice farmers are producers cultivating two crops a year; the main season is during the wet season. With individual farmer, rice cultivation system is mainly based on their experience. They mainly produced for their consumption purposes and sell only the rest. Individual farmers often use traditional seeds and less use of fertilizers.
Rice producers are formed as rice production group with the support of SNV and PAFO, rice farmer groups had to be established and strengthened through the trading networks of participating millers/rice miler groups, who would have helped deal with rice farmers' supply chain issues. In Khammoune, currently, there are about 70% of households participating in the FGs. Farmer group also play a minor role in term of seed suppler to individual farmers who did not has contract with millers.

From the role of actors we observe that rice miller plays very important role from input supplier, collection of rice products, processing, whole sale and retail as well as exporters their main role listed as follows:

- Involve in the farmer groups/production groups establishment (with other stakeholders: Department of Industry and Commerce, Provincial Agriculture and Forestry Office, Small Holder Project, Khammuane Development Project)
- Provide seed to farmer' groups (sponsor by Provincial Agriculture and Forestry Office, Small Holder Project, Khammuane Development Project)
- Held technical training on rice planting and postharvest techniques.
- Sign contract on rice purchasing with farmer, with the set buying price

Since, rice miller play the important role in rice value chain therefore capacity building and support to those rice miller have provided:

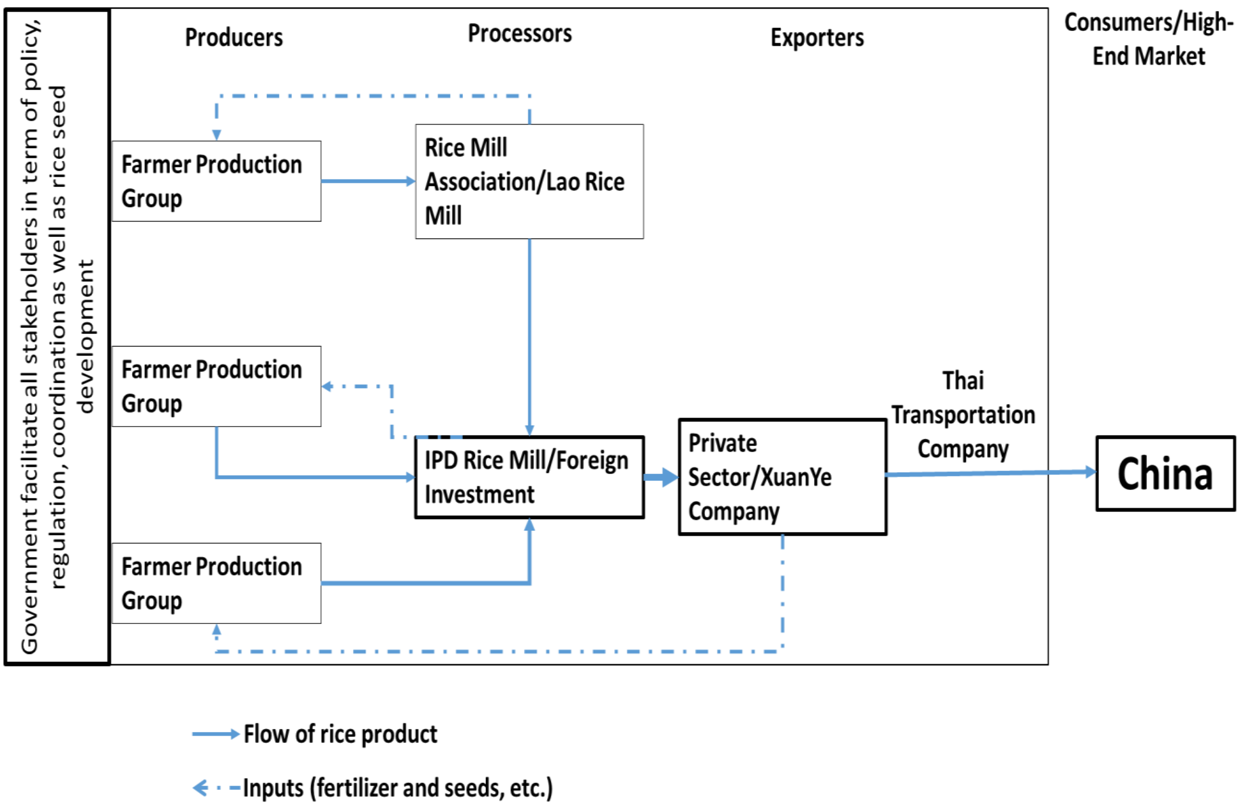
- Several trainings, study tours, and meetings for improvement technical knowledge and skills relating to rice milling, packaging, and quality controlling/processing for exporting were conducted;
- Seed and rice milling and quality control related equipment were received. For instance, the Sysamai Rice Mill, received a humidity measure machine from the SHDP; the Phaheng XainumXe Chaleunxab Rice Mill received the mill from the Improving rice commodity quality project (supported by Enhancing Milled Rice Production in Lao PDR Project, with funding support from EU;

Another actors is collectors, they purchase paddy from individual farmers or those who sold the quota for the factory but still redundant. They are traders from other districts or provinces. Collectors often do not have a stable purchasing area, they moved through the villages to purchasing paddy rice or from farmers. While, wholesalers or retailers are who distribute white rice from the millers to the consumer market. They are mainly distributed in the central area of the province and district at supermarkets or retailers in the market.

### 2.2. High quality rice value chain in Savannakhet:

High quality of rice export to China was initially follow the Lao-China Cooperation project. The rice export to China has to follow the high quality standard. Rice production to processing, storage, packaging and transportation have to follow a certain standard. Therefore, the rice mill that meets the quality set is one IPD rice mill where processing that can meet standard needed. Rice is cultivated by contracted farmers groups and they produced high quality rice for rice mill association, farmer group that have contract with IPD rice mill and Farmers group that have contract with Chinese company who export rice to China. The contract was applied 2+3 model. All rice production must be storage, process and packaging by IPD rice mill, where high standard of equipment and facility were set. When the rice already done packaging, the transportation company was hired to transport rice to China. Trucks for carry rice to China need to follow the cleanness standard. In 2015, the plan to export high quality of rice to China is 8,000 tones, up to now the company can export reach just over 10% of amount set and the export of rice will be continued.

**Figure 11.** High quality rice value chain




**Source:** Author developed, 2016 (based on discussion with technical staff of DOA, MAF)

The high quality rice produced for export to China was established with regards to four integrations components namely government, private sector, bank, and farmers.

- **Government role**

- Policy and legal documents to facilitate all stakeholders operating under the law and regulation of Laos.
- Facilitate on coordination for all stakeholders, assigned high quality rice committee member.
- Working with farmer group, rice miller and XuanYe company to facilitate on contract drafting (identify floor price which is fair to all parts) and make sure the quality of product at all stage (production, storage, processing and packaging)

- Facilitate and coordinate with Transportation Company for transporting rice to China which is certified to ensure the quality of product during transportation.
- Facilitate rice research center to produce high quality rice seed (Homsavan variety) for farmer production groups.
- Set up and improve rice production group to ensure capacity and quality as well as area of paddy.
- Provide training to farmers on rice cultivation, packaging area implementing sustainable rice intensive production techniques.
- Cooperate with private sector set up model farmers on high quality rice production of 110 households of total area of 200 hectares.

➢ **Private sector role**

- Study on feasibility for commercial rice production cost and return, land suitability, and farmers' production system.
- Support production techniques at farmers field, provide inputs (seed and fertilizers)
- 2+3 contract farming model was applied, floor price was set at 2,700 LAK per kg (farm gate price of paddy) indicate time and location of purchasing.
- Contract with rice mill association to supply rice for the company.
- Seeking potential market in China for rice from Laos.
- Advertise Lao rice through website, poster, television, radio and newspaper and other media.

➢ **Farmers role**

- Select farmers who are willingly to join the member of high quality rice production for commercialization. Then form as farmer production group.
- Clear identification of rice cultivation are avoid rice variety mixing to ensure quality.
- 2+3 contract farming with company on receiving inputs and supply rice production.

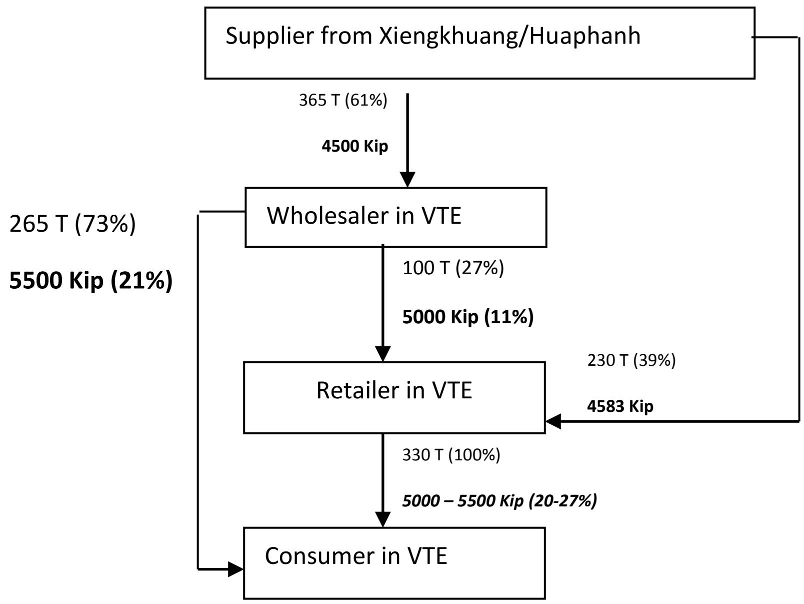
➢ **Financial Institute (bank) role**

- Seeking financial institution to provide loan for farmers for their rice production with reasonable interest rate.

### 2.3. Khaokainoy Rice Value Chian

The main channel for selling the rice is started with supplier from Xiengkhuang province to consumer in Vientiane City. Figure 12 gave an overview of the players involved on rice chain, percentage of exchanged quantity, price and margin thought out of the chain.

**Figure 12.** Organization of marketing chain




Key words:

Normal font — Quantity of stakeholders buying the product

**Bold font** — Price of stakeholders purchasing the product

**%** — Percentage of quantity going through the different chains

**%** — Percentage of margin going through the different chains

(Note: 1 USD = 8543 Kip 10/10/08)

**Source:** Manivong 2008

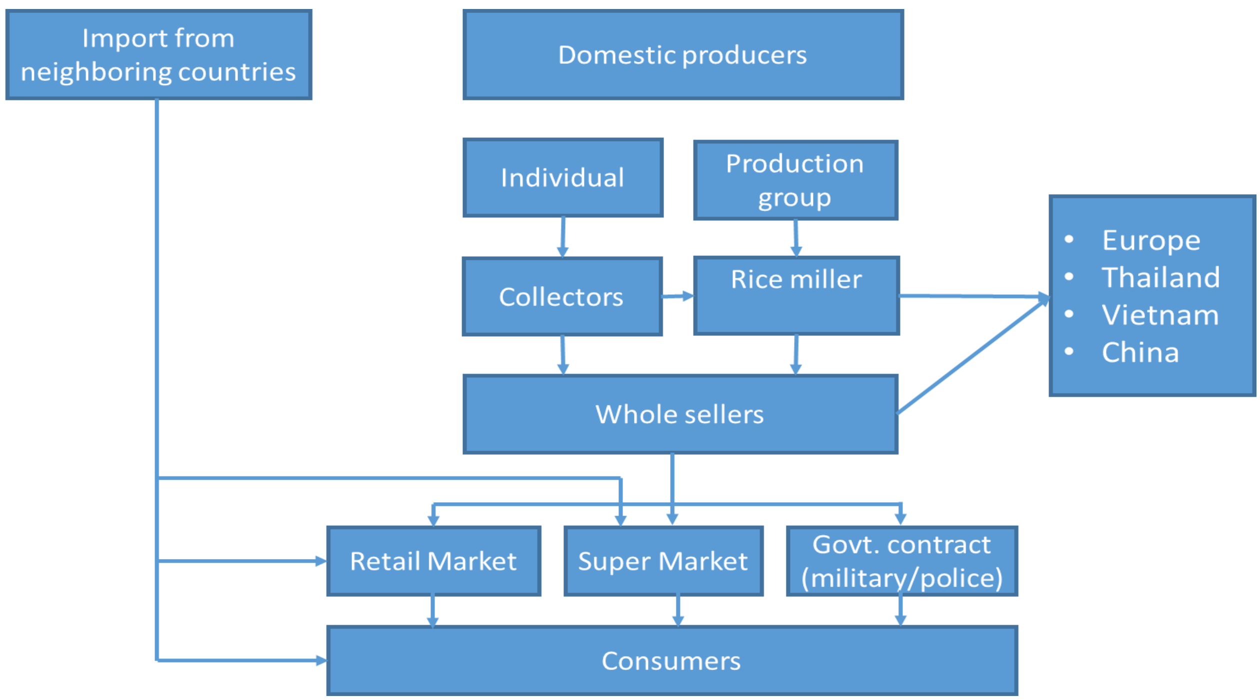
Khaokainoy rice sells in Vientiane Capital mostly supplied by trader from Xiengkhuang province. Majority of retailers are supplied directly by them, except one wholesaler bought rice from supplier from Xiengkhaung. Purchasing procedures are supplier to buy paddy from farmers and transferred to mills for milling and bringing to Vientiane market. Khaokainoy rice was sold in bulk of 48 kg. The wholesale price was about 200,000 to 220,000 kip a bag (4116 to 4583 kip a kg in 2008). Then, In Vientiane Capital rice was sold for 240,000 to 260,000 (about 5000 to 5500 kip a kg) for consumer. This would be gave a margin of 20 to 27 percent to retailer. Wholesaler purchased about 365 tons of Kaokainoy a year then sells to retailers 100 tones the left amount sells directly to consumer. Retailers in Vientiane also bought from supplier from Xiengkahung at amount of 230 tons a year. Annually, in 2008 the Vientiane Capital consumed Khaokainoy rice from Xiengkhaung at 695 tons of milled rice.

Nowadays, it is estimated to increased more. As by individual observation, Khaokainoy rice is served at many traditional and luxury restaurant in Vientiane capital as well as individual household also prefer to eat Khaokainoy rice particularly people from the northern of Laos. The price of milled rice is 6,000 Kip per kg in Xiengkhaung and 8,000 kip per kg in Vientiane Capital.

### 2.4. Overall Rice value chain in Laos

According to the reviewed of number or reports and papers. The overall of rice value chain channels could be mapped out as follow:

**Figure 13. Overall Rice value chain in Laos**




**Source:** Author, 2016 (based on the reviews from number of studies)

Based on Figure 13 the rice value chain can be described in to two parts as following:

- **Flow in part**

Rice consumed in Laos is being supplied locally as almost. Where Lao local farmers produced for their subsistence and buy from provinces and district nearby where with better potential on rice production. However, at where the road connection is not convenience and that particularly place next to boarder of neighbouring countries, local farmers at that particularly place also buy rice and immediate consumed, this volume of rice is unaccounted as it happen as informal trade through local and traditional boarders.

- **Flow out part**

The rice supply chain in the Lao PDR is composed of numerous actors at district, provincial and national level. These include mainly farmers, collectors, millers, retailers, and exporters. According to reviewing through number of studies reports. First sub-chain, most of the rice is consumed locally at village or district level and to a great extent by the farmers themselves. Second sub-chain consists in paddy being bought by collectors (or brought by farmers directly to the mills) and sold to millers located at district level, who then mill paddy and sell milled rice to retailers at the district level or to government contractors (for example, the military and the police), or export directly. Third sub-chain includes more agents, as millers and collectors at district level sell paddy on to millers and collectors at the provincial level, who in turn mill it and sell milled rice at the local level to retailers (in key provincial urban centres) and to government procurement, as well as to export markets in Thailand and Viet Nam, China (Figure 10), and European countries

Rice production in Laos mostly for subsistence oriented by small holders that have average land less than 2 ha, and only 8 percent of rice produced by farmers is sold out (ADB. 2006). Paddy traded with neighboring countries for example Thailand and Vietnam are mostly undocumented due to large part of the trade with Thailand consists of informal cross-border exports of paddy, and reported re-imports of high-quality milled rice. Therefore it is hard to get the exactly figure how large volume of rice being export annually (World Bank. 2011:26).

Overall, based on the total rice surplus in the country, it is estimated that informal exports of paddy may currently have reached at least 100 000 tons per year, which translates into a minimum of USD 25 to USD 30 million (in the year 2010/2011). By comparison, official exports of milled rice were only 2, 204 tones in the 2010/11 (Eliste *et al*, 2012: 66).

A summarized of rice amount being traded by selected rice mills (Table 3) presented that the total volume of rice operated by 6 rice mills in the year 2012 was 70,200 milled rice of which almost sold in whole sale and retail markets, some sold in super market, for institutional and organization is 3,000 tones, for processing (noodle and beerlao) 6,600 tones. While for export was not mentioned the exactly amount.

**Table 3.** Summary of rice amount being traded by selected rice mills (2012)

| Company | Up Stream | | Mill | | Down Stream | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|
| | Contract Farming | Agents/ Others | Capacity | 2012 Business Volume (MT) | Traditional W/Sale, Retail | S'mart | Inst'nal | Exports | |
| Lao World | | allied mills | 100MT/day | 6,000 | | Own | | Almost all | Difficult to replicate |
| Sengarthit | Limited | mostly agents | 30MT/day | 5,000 | Almost all | some | | | |
| Daum | Limited | mainly agents | 5MT/day | 1,200 | Almost all | | | | |
| Fu Teng& Dao Phet Group | 12,500 contract farmers - seeds, fertilizers, agro-chemicals | some agents | Total of 390MT/day | 50,000 | Almost all | | 3,000MT/ yr to Police | glut rice Viet Nam; paddy to Thailand | Also imported 500MT Viet Nam non-glutinous rice |
| Lao Agro. 2000 Co., Ltd | 4,000 contract farmers | some | 20MT/day additional 25MT/day | 5,000 | | some | Beer Lao 2,400MT/ yr, noodle 1,800/yr | | 400ha seed farm, stockpiles for Govt, own shop |
| Suthat | 750 farmers | some | 6MT/day additional 10MT/day | 3,000 | some | | Beer Lao 1,200MT/ yr Noodle 1,200MT/ yr | | EMRIP, own shop |

Source: Wang, 2013

### 2.5. Rice Value Chain Performance

The rice value chain in Laos is working well at where farmers have good relationship and contract with traders such as miller, the good linkage between miller and farmers is because of the market are available for rice where miller can sell their rice. For instance, this year Lao rice from savannakhet province has received the quota to export rice to China at 8,000 milled rice. The rice variety called Homsavan which is known as native to the province and the quality was up to international standards. Rice export scheme was being run by the Lao-China Cooperation project, signed by the government and the provincial authorities to boost bilateral cooperation in the field of agriculture. Small holder rice farmers could be benefit from those scheme if small holder can meet the quality of rice for export.

However, some cases are still facing the problem of rice value chain due to weak links between input and farming in order to improve production and quality. The adoption with improved farm practices by using fertilizer and other best practice to ensure rice quality, it would also result in higher investment cost for farmers, which are not always optimal given farmers' perception of adopting this technology.

Another issue at some area still facing weak links and trust between farming and financial institute, government supported agricultural promotion bank to provide the loan for miller to meet some the shortfall of credit. However, smallholder are less access to credit due to high interest rate.

Finally is the weak links between farmer, miller and wholesaler some actors gains more benefit as it leave small share of benefit to smallholder. For example, any transaction cost was deducted from farm gate price. It should be deducted fairly from all actors' benefit.

### 2.6. Rice Production Profitability

In order to understand profitability of rice production in the Lao PDR three production system types were developed based on farmer typologies (Table 4).

**Table 4.** Summary description of current rice production systems by farmer typology

| | Farmer typology | | |
|---|---|---|---|
| | **Type A** | **Type B** | **Type C** |
| Production practice | Low input wet season rice (lowland) | Average input wet season rice (lowland) | Higher input wet season rice (lowland) |
| Hired labour[16] | | × | × |
| Mechanization for field preparation | × | × | × |
| Fertilizer (in crop) | × | × | × |
| Pesticide | | | × |
| Modern seed varieties | × | × | × |
| NOT replacing R3 seed every three years | × | × | × |
| Contract threshing | | × | × |

Source: Eliste *et al*, 2012:58

Rice farmers profit is relative low, with regards to Eliste *et al* (2012:59) the profitability of rice farmers was calculated based on the farmer typology.

The first production model is an example of a low input quite low yield in wet season rice (lowland) production system (Type A farmer). The system utilizes only family labour and a hand tractor for field operations, and threshing is done manually, used very little fertilizer and no pesticide or herbicide applied. Modern glutinous seed varieties are used; but farmers owned seeds for every three years. The average yield is 2.1 tonnes per ha and the average wet season paddy price is Kip 1, 800/kg. The gross margin per ha is USD 267, with a return to labour of USD 2.40 per day. Assuming a typical farm size of 1.3 ha for the Type A farmer, the model suggests an annual gross margin of USD 347. Smallholder rice farmers in Laos mostly belong to the type A farmers.

The second production model is an example of an average input average yield wet season rice (lowland) production system (Type B farmer), it is used some hired labour for field operations. A moderate level of fertilizer inputs are used (150 kg/ha), but not applied in the optimal nutrient balance, no pesticides used, modern seed varieties are used, in every three years farmers keep producing their own seeds . The rice yield is 3.0 tonne per ha. The gross margin per ha is USD 245 with a return on labour of USD 3.80 per day. Assuming a typical farm size of 1.7 ha for the Type B production system, the model suggests an annual gross margin per ha (including hired labour) of USD 416, again this type of farmer are consider as smallholders.

The third production model is a wet season plus dry season, relatively high input rice (lowland) production system (Type C farmer). Both the wet and dry season production systems utilize hired labour, a hand tractor, a moderate to high level of fertilizer inputs, limited pesticides and modern R3 seed varieties (not renewed regularly), and source irrigation water via electric pumping from a river. The rice yield for the dry season is 4.0 tonne per ha with a paddy price of Kip 2 000/kg (i.e. around a 10 percent higher price than that in the wet season). The rice yield for the wet season is 3.5 tonne per ha. The annual gross margin per ha (including hired labour) is USD 489 for the wet season and USD 526 for the dry season with returns on labour per day of USD 6.00 and USD 4.80, respectively. Considering a typical farm size of 1.9 ha of wet season land and an irrigated cropping factor of 1.37 (37 percent of wet season land is irrigated in the dry season), the total annual gross margin per ha (including hired labour) is USD 866 and the return on labour is USD 5.60.

The evidence found that traders' profit margins are between 5 and 12 percent of sales value at a time of paddy prices are at Kip 1 800 per kg. Traders are also facing several obstacles in their day-to-day operations, including discretionary decisions on trade and poor road infrastructure in certain areas, both of which increase risks (and costs) of doing business (Eliste *et al*, 2012: 67). There is no any evidence that how much profit fall to farmers and other actors at the time of price mentioned.

### 2.7. Role of Smallholders in Rice Supply Chain

As mentioned in chapter 1.6 Smallholders are rural cultivators practicing intensive, permanent, diversified agriculture on relative small farm in area of dense population. Family household is the major corporate social unit for mobilized agriculture labour, managing productive resources, and organizing consumption. The household production is mainly for subsistence and generally participating in market where they can sell goods and cottage industry and as well find off-farm labour. Small householder in Laos limited of saving, limited of education to access know technology. With regard to physical assess smallholders have been defined as those with less than 2 hectares of land area. Smallholder generally living in different eco-logical zone irrigated lowland, rain fed lowland and upland. The most vulnerability are upland smallholders.

With regards to number of rice value chain research only one role that small holders are engaging and acting in the value chain. Almost smallholders in Laos are acting as producers, only at some area where farmers are organized in a form of cooperative or production group, they would have additional function in collecting as assembly points for whole seller as easier to collect their products. This mostly happen through contract farming between trader and rice production cooperative or rice production group.

It means that only at the production stage is the majority role falling to smallholder. Rice production done through 2+3 contract farming with company, farmers receive inputs and supply rice production (case of high quality rice for export). By this major responsibility, farmer have to clear on identification of rice cultivation techniques that need to avoid rice variety mixing to ensure quality.

Only few of them playing as collectors bring rice directly to the mills and sell to millers located at district level. From the reviews, at the moment there are no any small scale rice farmers has clear function as processers and traders. However, some of small scale rice farmers also play role as seed supplier for farmers who did not join the contract farming scheme (the case of Khammuane Province chapter 1.9.1).

### 2.8. Smallholder rice Farmer Constraints

Farmers are facing a number of challenges in producing rice for example, small farmers cannot take advantage of higher rice prices by expanding production if they have difficulty in accessing services and credit. Similarly, when new technologies require higher capital inputs or mechanization, small farmers may be at a disadvantage unless they are helped in reducing their transaction costs to access inputs, land credit and marketing facilities. Some significant constraints that smallholder are facing as follow:

<u>Physical (Land):</u> According to the survey and conduction of agriculture land zoning at the provincial and district levels throughout the country, the total agriculture land is approximately 4.5 million hectares (equivalent to 19% of national land area) which is divided into 3 types such as 1) flat area and suitable for cultivation of rice and short-life plants/cash crops is approximately 2 million hectares, 2) land area with moderate slope, deep soil layer which is suitable for cultivation of food crops such as corn, bean, green bean, fruit trees, industrial plants or commercial crops with the area of about 1.8 million hectares, and 3) land area with natural grass that is suitable for animal raising such as cattle, buffalo with an area of about 0.65 million hectares. In addition, there is also the forested area such as dry dipterocarp forest area, un-stocked forest area, scrub forest area and savannah area which is suitable for animals raising with an area of about 1.14 million hectares (ADS, 2025).

When consider to land suitability in term of soil quality of total agriculture land divided into three categories namely: S1 the most suitable accounted for 5%, S2 moderate suitability accounted for 35% and S3 less suitability accounted for 60%. It means that grow rice at S1 will invest less than growing rice at S2 and S3 where need more investment and inputs to ensure rice yield. Another constraint related to agriculture land, there are 62,000 of farm households accounted for 0.8% land less households (Agriculture Census 2011) and smallholder who own small land are scattered and lack of irrigation system due to geography and mountainous area.

Economic: Smallholders are limited credit and market access because they lacking of collateral, high production costs due to the economics of scale. The major constraints in the rice sector in Laos were the use of low quality and in adequate inputs by the farmers because they are lack of fund to buy inputs as well as adoption of new production techniques is very low; poor farming practices and poor post-harvest handling by both farmers and millers (EMRIP, 2011).

Social: smallholders in rural area are lack of bargaining power due to lack of collective action such as groups and cooperative that can raise the voice of smallholders. Education and trading skill is another constraint for smallholders to communicate and work with other actors in rice value chain.

Some other constraints that smallholders rice farmers facing are inappropriate production technique, limited infrastructure and facilities, inappropriate input usage, and labor shortage.

### 2.9. Risk and Opportunity

As mention in the chapter 1.13. Almost smallholders in Laos are acting as producers while processing and trading part is very rare that smallholder rice farmers engaged with. The risks could be divided into two parts.

- ❖ Risks associated with production part:

Production lost due to natural disaster: A case study from three provinces of by NERI found that the high risk of vulnerability when farmers faced a disaster is farmers who most depend on agriculture. This means the agriculture practice that not apply any climate change adaptation which almost implemented by small holders in rural area. Rice farmer are at the high risk with regard to climate change when drought or flood happen number of thousands hectare of rice area were lost. The huge lost mostly happen with smallholder due to their area is small and less access to the good infrastructure such as irrigation system that can provide water throughout the season.

Financial (Debt accumulation): As mentioned, smallholders are normally lack of resources particularly financial to invest in their agriculture production to generate more income when they are include in the market integration. Therefore, they have to access to credit sources and borrow those fund for investment. However, they are likely to face risk when any changes in macro policy or international economy crisis which influence lower price of selling rice, smallholder likely to fall in debt. For instance, in Laos Many farming families (pig, cassava and sugar cane farmers) are in debt as they make the decision to take loans for investment in agribusiness. When people came to promote business opportunities, then farmers believed and rushed to take loans without considering the details and their capacity. They didn't calculate the investment necessary and possible income from the business. It is important and necessary to raise awareness among farmers to think before they make the decision to take loan for investment. Different sectors that promote agribusiness have to be cautious in promoting farmers to invest in agribusiness and should consider assessing the risk of farmers going into debt (DAEC, 2015).

Rice farmers are also facing debt, when their rice production failure or rice price is too low, so that farmers cannot meet their production cost. In the case farmer has borrow money from the bank for production cost or farmers has contract farming 2+3 receiving inputs from traders when their rice production fail those inputs cost need to be paid, this case farmers are falling to debt.

- ❖ Risk associated with market part:

Risk on market exclusive: Economic integration and price volatility is providing small holders opportunities if they are able to meet the high standard of products. Bill Vorley et al. 2008 stated that market modernization can offer increased economic opportunities for producers, consumers, entrepreneurs, and other actors in the food chain (In some areas, new market entrants are stimulating competition for farmers' produce and there are also risks for small holder in exclusive from the opening up new markets, where domestic and international market standard much higher which is not consistent to small holder capacity. The modernization agriculture is considered as costly requirements for entry which favor the better-resourced actors. If the benefits of modernization and globalization are not fair and do not reach to the 'bottom of the pyramid so that small-scale farmers cannot get fair share in this opportunity.

- ❖ Opportunities coping with the risks:

With regards to climate change, smallholder adapted new techniques and/or change the crop to fit to the climate. Their agriculture production resilience at a certain level. For instance in Savanhnakhet province, farmers use direct seedling method for cultivating when the rain season did not come on time. In dry season, rice farmers cannot grow efficiently other cash crops such as water melon, sweet corn and other vegetable at their paddy field since the limitation of water reserve.

Market exclusive, smallholders are also have some opportunities that can be utilized to reduce the risk. Lao PDR has a comparative advantage for organic products as compared to neighboring countries as a large share of its agriculture is already organic. Provided that a good process of certification is set in place it is possible for Laos to compete on the domestic and the international market for organic products. Successful experiments in organic coffee and organic rice from Sangthong district show that the development of large scale organic market chain is feasible in Laos. There is also good prospect for Geographic indications for coffee and rice to benefit the Lao farmers in the future who will be able to compete on market niches whereas their other commodities may not be competitive in the global market. Other types of certification, for example in relation with cropping practices such as agro ecology or fair trade, will also be explored in the future as a way to increase Lao product competitiveness. Importantly, Lao commodities should be increasingly traded as products of Lao origin in order to increase their value, both culturally and economically. This will retain more benefits for Lao farmers and for the country. For instance, Erikson et al (2011) stated that organic rice is mainly produced by smallholders or by contract farmers supplying contract farming companies, number of contracted organic rice farmers has increased from 2,000 in 2004 to 6,000 in 2009 and area under organic rice cultivation on increased from 800 hectares in 2004 to 7,000 hectares in 2009 in Vientiane Province only, organic rice provides the relatively higher price paid (42 percent higher than conventional rice). There is an important regional niche market for

Lao glutinous rice (World Bank 2011:30). Another strategy to cope with uncertain market the diversification of livelihood was applied such as grow variety of crops, livestock, fresh-water aquaculture, off & non-farm activities. With regards to (V. Manivong, R. Cramb and J. Newby 2014) stated that rural livelihoods in the survey villages in Phonethong district, Champasack province have become increasingly diversified namely on farm, off-farm, and non-farm employment locally and outside area. Only 15 % of the survey households utilized their household labor exclusively for their own agricultural production, mainly rice farming. The remaining 85 % used some of their labor to earn additional income from either off-farm employment, non-farm employment in Laos, work in Thailand.

With regards to financial, the familial and communal relationships are still strongly appreciated this is an opportunity and strong point for smallholders. Relatives, friends and neighbors are often sources of consultancy and support for production, business, family, health, as well as borrow money. The result of a survey conducted by IPSARD/CAP-(NAFRI/APRC in 2011) in 3 provinces show that 81% of famers often seek financial supports from their relatives, 7% from neighbors and 5% from friends. Government of Laos established Policy Bank to provide loan for only stallholder and the poor only with low interest rate. Smallholder and vulnerability groups are those the government is most interested providing support such as development project for improving food security and commercialization to contribute to rural development. Smallholders and poor farmers are first priority that many commitments by international donors willingly to support. In Laos many developments partners working on agriculture and rural development with focusing in the area of food production for food security and nutrition, commercialization with market linkage to improve livelihoods in the rural area.

Farmer organization can enhancing accessibility of smallholders to credit, technologies, services, and market. There are some outstanding associations such as Lao Coffee Association that consists of Lao coffee producers' and export association. Good lessons from Khammoune and Savannakhet Provinces are the establishment and strengthening of producers' group. These include rice seed producers' group, irrigated water user's group, rice cultivation group, processing group or rice mill group who is doing two ways services such as purchasing of rice seeds that have high market demand from the rice seed producer's group to supply to rice cultivation group and supply inputs (e.g. fertilizer etc…) to rice cultivation group as well as buy rice from rice cultivation group for processing and selling. Being group together as farmer organization can help the member in term of bargaining power, technical assistance, and access to credit, quality control as well as uniform of the products.

**Table 5. Summary of risk/vulnerability and opportunity of rice smallholder farmers based on their roles in value chain**

| Smallholder role in supply chain | Risk/vulnerability | Opportunity |
|---|---|---|
| A. Producers | Production lost due to natural disaster. | Adapted new techniques and/or change the crop to fit to the climate. |

| | | |
|---|---|---|
| | Debt accumulation due to production failure and rice price failure | Government of Laos established Policy Bank to provide loan for only stallholder and the poor only with low interest rate. |
| B. Input service provider | | Forming as service cooperative to provide service to rice producers. |
| C. Market vender | Risk on market exclusive | Forming rice cultivation cooperative as well as buy rice from rice cultivation group for processing and selling. Farmer organization can help the member in term of bargaining power, technical assistance, and access to credit, quality control as well as uniform of the products. |

## III. Policy Analysis

### 3.1. Laws related to rice production and investments

**Investment Promotion Law. No. 2/NA, dated 8 July 2009:** Article 49 of the Investment Promotion Law (IP Law), the promoted sectors are agriculture, industry, handicraft and services. Details of promoted activities under the sectors are determined by the Government and classified into three different levels based on prioritized activities of the Government, the activities related to the poverty reduction, the improvement of living conditions of people, construction of infrastructure, human resource development, jobs creation, etc. Article 50 and 51, mention on incentive or corporate profit tax in difference zones, Article 52 mentions on other promotion incentives, the profit tax incentives, investors shall be also entitled to customs duty and tax incentives. Article 53 mentions on policy access to credit: Local and foreign investors able to access to credit sources by borrowing loan from domestic and foreign business banks and financial institutes.

**Irrigation Law No.26/NA dated 14 December 2012:** Article 46 indicates that water user association is farmer's organization that use and benefit from the irrigation project. Article 49 indicated members of water user group are considered as priority group to use water sufficiently and fairly for their agriculture production.

**Agriculture Law No. 01/98 NA, dated 10 October 1998:** Article 3 indicated that government promote Lao people and all economic sectors both domestic and foreigners invest in agriculture in order to produce food, commodities, material for processing industry for both domestic and export. Article 4 indicates that government protect investor by regulation, law and policy for example credit policy, tax exemption policy, restriction on import product for promoting domestic production and domestic and foreign market. Article 5 indicates that investors have to right to change agricultural land by any mechanism without approval by agriculture sector.

### 3.2. Legal document related to farmer capacity

**Prime Minister's Decree on Cooperatives. No. 136/PM (2010):** This decree determines rules, regulations and measures regarding establishment of cooperatives in the Lao PDR in order to assist and support small commercial entrepreneurs in collectively being competitive, cooperating and helping each other, growing in production for trade and establishing income, contributing of poverty and improving living condition of the people.

**Prime Minister's Decree on Associations. No. 115/PM (2009):** This Decree sets the rules and regulations governing the establishment, operation and management of associations registered as legal entities in Lao PDR for the purposes of: (1). Promoting the Lao people's rights of freedom, creativity and ownership in the organization of associations aiming at national protection and development; (2).. Providing references to individuals or organizations intending to set up their associations; (3). Providing references to government organizations concerned in managing, facilitating and encouraging lawful activities by associations, promoting associations' contributions towards socio-economic development and poverty eradication, as well as countering and restricting activities affecting national stability, social order and individual rights of freedom.

**Agreement of Minister Regarding the Establishment of Agriculture production group. No.2984/MAF (2014):** This agreement stimulates the principles, regulations and conditions concerning to establishment and progress of agriculture production group in order to promote and strengthen production by small scale farmers while at the same time preparing to be member of agriculture cooperatives, raising incomes and improving livelihoods, with the aim to eliminate poverty as part of economic and social development.

**Agreement of Minister Regarding the Establishment of Agricultural Cooperative. No.2983/MAF (2014):**This agreement stimulates the principles, regulations and conditions concerning to establishment and progress of agricultural cooperative in order to promote and strengthen production by small scale farmers, raising incomes and improving livelihoods, with the aim to eliminate poverty as part of economic and social development.

Through the implementation of decrees and agreements above, farmer groups and cooperation in the year 2014 reached 484 groups with total household of 14,227 and total area of 24,841.36 ha. Among these group, 233 groups are rice commercial production groups with total household of 8,285 and total area of 10,437 ha. And 79 groups are rice seed production groups with 1,738 households and area of 2,248 ha (table 5).

**Table 6.** Rice production groups in Laos 2014

| No | Production group | No. of group | No. of HHs | Total area (ha) |
|---|---|---|---|---|
| 1 | Rice seed production group | 79 | 1,738 | 22,48.28 |
| 2 | Commercial rice production group | 233 | 8,285 | 10,437.04 |
| 3 | Rice production group | 172 | 4,204 | 12,156.04 |
| Total | | 484 | 14,227 | 24,841.36 |

**Source:** Authors calculated data from Department of Agriculture Extension and Cooperative.

### 3.3. Policies and strategies related to rice production

**Socio-Economic Development Plan 2016 to 2020:** Develop the agriculture-forest sector so to ensure stabile and sustainable production of food and commercial goods; expand agriculture production according each local area potential in the orientation of clean and modern and qualitative intensive agriculture; apply modern techniques and technology into production to ensure the agriculture goods supply to industrial processing and service sectors quantitatively and qualitatively linking it to the goods processing for value added enhancement; and sustainably manage the forest. Ensure sufficient rice production to internal consumption and as export good as per the market demand. Following the government direction that 10 provinces will focus on rice production (Luang Namtha, Bokeo, Sayaboury, Vientiane, the Capital, Bolikhamxay, Khammouane, Savannakhet, Saravan and Champasak) to achieve 2.5 million tons by 2020, in the area of 600,000 hectares. Water supply from irrigation covers 315,000 hectares of which, yielding 5 tons per hectare. This can supply people's consumption of about 2.600-2.700 kcal per person per year which contributing into nutrition intake of the people (rice, flour, meat, fish, eggs and dairy).

**Agriculture Development Strategy to 2025 and vision to the year 2030:** The Agriculture Development Strategy has clearly defined the objectives, goals, target and expected outcomes for agriculture in development stage of the country. It has also defined the policies, programmes, action plan and the projects under two main goals or programmes with 16 action plans and 120 projects. General implementation measures as well as defining the roles and responsibilities of the government sectors at both centre and local levels, the role of private sectors and farmers also considered. With regards to rice and smallholders amount of rice production was set at 2.5 million tones for food security and for domestic and international trade not less than one million ha. The strategy also indicated the mechanism to improve smallholder capacity in term of production to meet the need of new era, it is necessary to improve production organization through establishing groups/institutional estate and moving toward the establishment of modern cooperative in line with value chain and value added chain in connection with agriculture strategic goods such as rice. Follow this strategy, some pilot project on rice production area development were established such as in Khammouan Province and Savavankhet province. The pilot project on high quality rice for export in Savannakhet consists of 1,033 smallholders of total area of rice production at 2000 ha.

**The 13 policies of rice production for food security project:** Along with the ADS, the party committee of ministry of agriculture and forestry has the implementation plan for 2015-2020 with focusing three main goals. First goal is about food production for food security and second goals about commercialization. These are related to rice production. For food production is clear mentioned in the 13 support policies for rice which is under developing. Commercialization is focusing a unique rice that Laos has better competitive in term of quality, organic rice, and high quality rice for example, Khao Homsavan, Khao Homsangthong, and Khao Kainoy goal was set at 1-1.5 million tones.

The 13 national rice policies to ensure food security is an important step for the rice production development to ensure food security and products in Lao PDR. Particularly, this would be impulse production; processing and trading on animal productions and water resources, which aimed at creating a stable food that can contribute to enhancing the quality of life and economy and society development as a stable and strong cultural permanent. The reason of government to support the rice production as for ensuring food security because rice is a strategy plant of economic to security and stability through political in Lao PDR. The goals are to support and provide comfort to the rice intensively and to ensure food security and products. That can be promoted the productivity capacity with high effective and get standard level as good agricultural practice. However, the 13 policies is in the process of development and it is will be endorsed by the government and will be applied for the rice production for food security project in the near future. The mentioned policies that expect to direct benefit to smallholder rice farmers are: (1). **Agricultural land management and development policy** which aims at making use of useful land in agricultural production with high effective and efficient; (2) **Policies on production promotion and processing** which aims is to establish the production that can be increased the productivity with high quality, clean, safety and no environment impact, this is to increase farmers and entrepreneurs' income by reducing the investment and make therefore more profits; (3) **Finance and Bank policy which** aim is to enable producers, processors, entrepreneurs, including production's input persons to access funding properly that can make more efficiency production, high effectivesness, also manegement on suitable marketing; (4) **Energy Policy** which aims to ensure energy supplied in the whole country and export. Build hydropower to link with agriculture and forestry activities (crops, livestock, and irrigation), tourism and the environment and to encourage farmers for more agricultural activities; (5) **Policy of marketing and pricing** which aims to develop a wide market and stable, secure supply and demand, to keep reasonable prices for producers, suppliers and consumers; and promote investment on rice production as commercialized broadly; and (6) **Labor policy** which aims to ensure number of labors on agricultural activity which high skill and capacity, and to improve life quality as the rural sustainability development.

In order to understand how the existing policies impacts rice value chain (Elist et al 2012) explained that traditionally, rice-related policies are directly the responsibility of: (i) Ministry of Agriculture and Forestry (MAF) for all support and regulations that affect producers or on-farm issues (including mainly research and extension, and irrigation development); and (ii) Ministry of Industry and Commerce (MoIC) for trade policies and the rice reserve programme or, more simply put, all post-farm sections of the rice supply chain. Other ministries such as the Ministry of Finance (MoF) and the Ministry of Planning and Investment (MPI) also indirectly have an important role in the country's overall macro-economic balance and budgetary decisions (both for central and decentralized levels). The Ministry of Labour and Social Welfare (MLSW) is responsible for issues regarding social programmes that target very poor communities (also in relation to the national rice reserve) and for labour market issues in general.

From review of number of documents there is no one consistent rice policy focusing on smallholder rice farmers but rather a number of policies in place that use various instruments, such as draft 13 policies. Some regal documents such as Agreement of the Minister Regarding Agriculture Cooperatives Article 2 mentioned "Agriculture Production Cooperatives Agriculture establishment of enterprises together with groups that farmers decide to form in order to join together to mutually assist society in production of agricultural goods as well as management of the provision of means for production, credit and sale of products and guaranteeing social services for members and their families". This legal document can be a good tools and guideline for implementing and supporting smallholder farmers particularly rice farmers to be cooperative and facilitate the member in term of production and marketing. Through the cooperative individual member can be directly benefit from support on seed, electricity, subsidized credit, extension.

# I. Conclusion and Policy Recommendations

## 1.1. Conclusion

Rice is a key staple in the Lao PDR and important element of food security. Moreover, the rice sector in the country has seen remarkable development over the last ten years. It is clear of strategy and policy on rice and development, projects are focusing on rice both for food and commercialization. Smallholders of rice farmers are also received advantage and benefit from these policies and development projects, through forming up production groups and link to private sector and market. However, as smallholder rice farmers are holding small pieces of land, low knowhow on agriculture techniques, lack of fund to invest and less negotiation power. These constraints make them away from the benefit they expected to gain from the development process on rice sector. Therefore, policies has to link smallholders as the main target of beneficiary.

With regards to the reviews of studies related to rice production in Laos, it is indicated that smallholder rice farmers have difficulty in term of return to investment of rice production which is discourage them to increased rice production for commercialization which they should apply intensive rice production follow techniques and inputs in order to increase rice yield. This because of high cost of production and unstable or low price of rice. The high quality rice expected to provide high return to smallholder, this works through public private and community partnership (government, private sector, financial institute and farmers). Therefore the contract farming is needed the most suitable model in 2+3 contract farming. A unique rice is expected to be a potential for smallholder rice farmers in the Northern Laos where the smallholder and the poor share the more percentage. This unique rice (Khaokainoy) is becoming popular in Vientiane Capital as it is served at traditional and luxury restaurant.

Smallholder rice farmers' benefit from unit of rice production is decreased when the market price of rice is decreased or farmers cannot sell their products. Smallholder rice farmers in Laos mostly belong to the type A farmers, (low input/quite low yield wet season rice (lowland) production system, utilizes only family labour and a hand tractor for field operations, and threshing is done manually, used very little fertilizer and no pesticide or herbicide, modern glutinous seed varieties are used; but it is not renew every three years), the return to labour from rice production is low. Some of smallholders also found in type B and type C (use more inputs and more intensive rice production). While type B and type C which are applied more input and more intensive rice production relatively higher gross margin and return to labour. Therefore, promoting smallholder rice farmers needs to consider two things, first is for producing rice for family consumption, and second is producing rice for commercialization. For food family consumption is focusing on type A, and for commercialization should focusing on type B and C.

There is no one consistent rice policy focusing on smallholder rice farmers, but number of policies in place that use various instruments to support rice farmers as a whole such as draft 13 policies which aims to support and facilitate from production stage to marketing stage. These policies are focusing at pilot area in term of production and marketing stage to facilitate and support on land, seed, irrigation, energy, credit, extension, processing, and transportation activities.

### 1.2. Policy recommendations

In order to facilitates and include smallholder rice farmers in to the rice sector and provide fair benefit to smallholder rice farmers it ~~is~~ needs to consider of whole value chain stage. The policies recommendation bellow are drawn from the review base on finding on constrain and potential as well as expected policy intervention that need to be in place to ease smallholder rice farmers.

#### 1.2.1. Production stage

1) Policy land zoning for rice cultivation

Land is the most important component for rice cultivation, with regards to the availability of suitable land for rice cultivation S1 (most suitable) this area must be rice cultivation area intensively. A complete set of facility must be invested and used efficiency, a year can be grown two even three crops. Number of measures for land policy are follow:

- Assess current availability and suitability for rice and smallholder rice farmer groups who utilize these lands.
- Develop agro-irrigation systems and smallholder rice farmer groups.
- Formalized land and support smallholder rice farmers to be cooperative produce rice for commercialization to be uniform in term of variety and quality (smallholders large farm).

For S2 (moderate suitable), this area should defined as optional weather rice can be cultivated or other cash crop that provide better return.

For S3 (less suitable) this area should not cultivate rice, since soil, land scape are not suitable if this area go for rice a huge investment is needed, but it still provide very low return. So that, S3 should go for area commodity such as plantation and livestock.

2) Financial policy

Provision of credit access should be carefully designed and discriminated according to different types of rice smallholder farmers who participate in the rice value chain. The interest rate need to classify for specific actors (small and poor farmers, farmer group doing rice broker or collectors, market oriented small holder farmers, medium enterprises, small and medium rice miller):

- Provide loan with a special policy on low interest rate (without paying the interest rate for certain years) to poor.
- Provide loan with low interest rate (without paying the interest rate for certain years) to strategic smallholder farmer groups that doing as rice broker links with rice traders.

- Provide loan with a medium interest rate of (without paying the interest rate for certain years) to market-oriented smallholder farmers and groups, and small and medium enterprises.
- Provide loan with a medium interest rate (without paying the interest rate for certain years with provision for extension if appropriate) to small and medium rice mill to facilitate and buy rice from smallholder.
- Provisional loan must be approved and monitor by relevant authority (i.e. DAEC/PAFO/DAFO).
- Strict monitoring and evaluation of effective loans must be made by both government banks and extension worker and agriculture development fund under DAEC (i.e. DEAC/PAFO/DAFO).

3) Policy on agricultural inputs:

As mentioned, smallholders rice farmers type A are less apply of agriculture inputs which lead to low yield and low return to labour, the policy on agriculture inputs can help smallholders to reduce the production cost. The inputs can be support by government in term of special price, farmers need to group as production group and purchased as collectively. Government can except tax for any agriculture inputs that requested by small holders' production groups.

4) Research and extension:

Government play important role in research and extension of new rice production techniques as well as introduce rice variety that provide yield and tolerant to climate change.

5) Human resource development policy for smallholders rice farmers:

Capacity building for smallholders in term of production techniques as well as processing and trading skill. The most important is quality control of rice production that meet the standard required consumers especially high end market.

6) Irrigation and energy policy:

In order to reduce the cost of production the irrigation fee and energy fee need to be considered to find out reasonable solution for smallholders. However, it is should not give free of charge, but some certain level should be charged.

7) Climate change mitigation/adaptation and risk management:

Recently, global warming and climate change are likely to affect rice production because of the increased frequency and severity of drought/submergence. Therefore, a policies related to reduce and prevent the loss of the rice production resulted from climate change should introduced as following measures:

– Disseminate the climate and weather information as well as early warning through developed planning tools for forecasting and development of climate change scenarios on district and watershed level as well as land use maps with climate change.
– Capacity building to smallholder on basic climate change adaptation knowledge, GIS, gender and climate change adaptation, etc. to be able to expose to and improve significantly their knowledge and understanding of climate change issues.
– Provide training on climate resilient rice and implemented on farm trial.
– Policy support to develop flood/drought tolerant rice varieties (TDK1, TDK 1/1, TDK 8 and TDK 11) and widely used by smallholder.
– Increasing understood on Climate Change knowledge on long-term challenge on rice cultivation in terms of potential impacts.

### 1.2.2. Marketing and trading

In order to facilitate marketing and trade of rice both for high end market and normal domestic market some policies need to be consider as follows:

1) Group of producers or entrepreneurs that produce~~s~~ rice variety in specific areas on rice production, certification and branding on quality
2) Certified rice standard in Lao PDR. These rice products show in the products fair to competition on their quality, share information and make customers can access the products directly.
3) Producers who received certification on good agriculture practice standards in Lao PDR to get premium price compared to normal price in the market from entrepreneurs. This special policy should be mentioned in the contract between them (the details of legalization are written in the contract).
4) Government create development unit and information improvement on rice market for monitoring, analysis on data of market. This information will be provided production unit which can link in regional and international organizations.
5) Maintaining stability and rice price management that support farmers can get certain level of the profit compared to investment cost to please smallholders. Government controls the rice price based on rice prices in the world market.
6) Government issues legal documents for contract farming and create an organization body to responsible for facilitating and solving any contractual conflict at central, provincial and district level.

**Table 7. Summary of policy recommendations for pro-poor smallholder rice farmers.**

| Stages | Policies | Measures | Main responsibility | Supporting role | Priority |
|---|---|---|---|---|---|
| **Rice production stage** | Policy land zoning for rice cultivation | – S1: (most suitable) Assess current availability and suitability for rice and smallholder rice farmer groups who utilize these lands. Through develop agro-irrigation systems and smallholder rice farmer groups. Formalized land and support smallholder rice farmers to be cooperative produce rice for commercialization to be uniform in term of variety and quality (smallholder large farm). Policy not allow to convert agricultural land to other purposes use.<br>– S2: (moderate suitable), this area should defined as optional weather rice can be cultivated or other cash crop that provide better return.<br>– S3: (less suitable) this area should not cultivate rice, since soil, land scape are not suitable if this area go for rice a huge investment is needed, but it still provide very low return. So that, S3 should go for area commodity such as plantation and livestock. | MAF (DALAM), PAFO, DAFO | MoNRE | Immediate priority |
| | Financial policy | – Provide loan with a special policy on low interest rate (without paying the interest rate for certain years) to poor.<br>– Provide loan with low interest rate (without paying the interest rate for certain years) to strategic smallholder farmer groups that doing as rice broker links with rice traders.<br>– Provide loan with a medium interest rate of (without | MoF, Financial institutes, MAF (DAEC, DoPC, PAFO and DAFO) | MPI | Immediate priority |

| Stages | Policies | Measures | Main responsibility | Supporting role | Priority |
|---|---|---|---|---|---|
| | | paying the interest rate for certain years) to market-oriented smallholder farmers and groups, and small and medium enterprises.<br>– Provide loan with a medium interest rate (without paying the interest rate for certain years with provision for extension if appropriate) to small and medium rice mill to facilitate and buy rice from smallholder. | | | |
| | Policy on agriculture inputs | – Government issues special price of inputs for smallholder rice farmers through tax exception for any agriculture inputs that requested by small holders' production groups, farmers need to group as production group and purchased as collectively. | MOIC, MAF (DoA, DAEC) | MAF (DOPC), MPI, MoF | Immediate priority |
| | Research and extension | – Government play important role in research and extension of new rice production techniques as well as introduce rice variety that provide yield and tolerant to climate change.<br>– Cooperate with private sector in rice seed multiplication and adoption of new modern and high variety | MAF (NAFRI, DAEC) | MoIC, Private sectors | |
| | Human resource development policy for smallholders rice farmers | – Capacity building for smallholders in term of production techniques as well as processing and trading skill, and quality control. | MAF (DAEC, DoPS), MLSW | MoES | |
| | Irrigation and energy policy | – Irrigation fee and energy fee need to be considered to find out reasonable solution for smallholders. However, it is should not give free of charge, but some certain | MAF (DoI, DoPC), MoES | MoF | |

| Stages | Policies | Measures | Main responsibility | Supporting role | Priority |
|---|---|---|---|---|---|
| | | level should be charged. | | | |
| | Climate change mitigation/ adaptation and risk management | – Disseminate the climate and weather information, early warning through developed planning tools for forecasting and development of climate change.<br>– Capacity building to smallholder on basic climate change adaptation knowledge.<br>– Provide training on climate resilient rice and implemented on farm trial.<br>– Policy support to develop flood/drought tolerant rice varieties.<br>– Increasing understood on Climate Change knowledge on long-term challenge on rice cultivation in terms of potential impacts. | MAF (NAFRI, DAEC, DOA) | MoNRE | Immediate priority |
| **Trade and marketing stage** | Policy for rice trade and marketing | – Group of producers or entrepreneurs that produces rice variety in specific areas on rice production and certified on quality. | MAF (DAEC, NAFRI), MoIC | | |
| | | – Certified rice standard in Lao PDR and share information and make customers can access the products directly. | MAF (DOA, DoPC), MoST. | MoCTS | |
| | | – Provide incentive for producers who received certification on good agriculture practice. This special policy should be mentioned in the contract between them (the details of legalization are written in the contract). | MAF (DoPS) | MoHA | |
| | | – Government creates development unit and information improvement on rice market for monitoring, analysis on data of market. | MAF(DoPC), MoIC | | |

| Stages | Policies | Measures | Main responsibility | Supporting role | Priority |
|---|---|---|---|---|---|
| | | – Maintaining stability and rice price management that support farmers can get certain level of the profit compared to investment cost to please smallholders.<br>– Government maintains the rice price based on rice prices in the world market. | MoIC | | Immediate priority |
| | | – Government issues legal documents for contract farming and create an organization body to responsible for facilitating and solving any contractual conflict at central, provincial and district level. | MAF, MoJ | | Immediate priority |

**Abbreviation:**

- MAF = Ministry of Agriculture and Forestry; DoPC = Department of Planning and Cooperation, DAEC = Department of Agricultural Extension and Cooperation, DALAM = Department of Agricultural Land Management, NAFRI = National Agriculture and Forestry Research Institute, DoI=Department of Irrigation, DoPS=Department of Personal and Staff, PAFO = Provincial Agriculture and Forestry Office, DAFO = District Agriculture and Forestry Office
- MoIC = Ministry of Industry and Commerce
- MoNRE= Ministry of Natural Resource and Environment
- MLSW= Ministry of Labour and Social Welfare
- MPI = Ministry of Planning and Investment
- MoF=Ministry of Finance
- MoIC=Ministry of Industry and Commerce
- MoES=Ministry of Education and Sport
- MoICT= Ministry of Information, Culture and Tourism
- MoHA=Ministry of Home Affair
- MoJ=Ministry of Justice

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