Background Paper for Lao PDR

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A) SALIENT FEATURES AND ROLE OF AGRICULTURE AND ITS CONTRIBUTION TO NATIONAL ECONOMY

Lao PDR is a small landlocked country with a total area of 236,800 sq km of which agriculture area is 2,378 sq km (FAOSTAT, 2011). During 1990s, the rice production area accounted for more than 80% of agriculture land (World bank report 2010), reached the peak in 2010 and decreased to 57% in 2011 (DOA statistic, 2011).

The Lao population reached 6.459 million (FAO, 2013) and is estimated to reach 6.9 million in 2015. The population consists of diverse ethnic groups. It is estimated that about 80% of the population relies on farming practices in form of subsistence agriculture. Rice, mostly glutinous, is a staple food for all ethnic groups for every meal. Average agriculture land per household is low but varying, ranging from less than 1 ha to more than 4 ha/household. [2 t/ha].

The economic structure is made up of 3 sectors of which agriculture (30.4%), industry (26.1%) and services (37.2%). Agriculture plays an important role in the national economy. Average GDP growth rate in 2010 was 7.9%. A growth rate of agriculture, industry and services was 4%, 12.6% and 8.4% respectively. (7th NSEDP, 2011). Lao PDR, although rich in natural resources, is still categorized as “a least developed” country and is led by one political party.

B) RAINFED AGRICULTURE AREA AND ITS SALIENT FEATURES

- **Main crops, main growing season and contribution to total national production**

Main crops grown on rainfed lands in Lao PDR include bean, cassava, coffee, maize, rice, tobacco, and a range of fruits and vegetables. Vegetables are mostly grown in the dry season (October-May) while rice is mostly grown during the rainy season (June-September). Irrigated rice is also grown during the dry season. Rice planted area in 2011 was 57% of the total area planted in crops (DOA, Crop statistics, 2011). Total paddy rice production was more than 2.3 million tons in 2011.

- **Number of provinces**

There are 17 provinces (including its Vientiane capital) in Lao PDR. The Lao PDR is divided into 3 parts, northern, central and southern regions. Number of farming households in 1999, the total number of households was 798,000. Majority of households are located in the central part of the country (379,700) followed by the northern (256,600) and southern (161,700) parts.

- **Food security situation**

Food security is a key priority to be addressed in Lao PDR as reflected in Lao government development policies. FAO defines food security as “when all people, at all times, have access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life”. FAO 2008 statistics reveal inequality in access to food and to income, food , food needs and consumption FAO indicators, mal-nutrition and children stunted growth rates, e.g., 37%-40% of children under five suffering chronic malnutrition (MAF Strategy 2011-2020), and 27% of Lao people still live below the poverty line. Hence, Lao PDR has not yet achieved food security as of yet.

However, under collaboration with the Swiss Agency for Development and Cooperation, IRRI has worked with the Lao Government since 1999 to improve productivity in rice based cropping systems. As
IRRI has claimed that Lao PDR has achieved rice self-sufficiency in lowland irrigated rice systems through increasing agriculture inputs and investment on irrigation system. This is done by expanding irrigation systems so that rice can be produced in both wet and dry seasons, introduction of new varieties, and increasing fertilizer use. (Linguist and Sengxua, 2001). Lao-International Rice Research Institute (Lao-IRRI) and National Agriculture Forestry Research Institute (NAFRI) work has since shifted research and development focus to rainfed rice-based production systems, both in lowlands and in uplands.

- **Food insecure provinces**

Most minority ethnic groups, particularly those who do upland farming, face food insecurity. Rice shortages are common problems among upland farming communities which are usually short of rice for at least 3 months/year (Foppes and Kethpan, 2004).

Surveys carried out by Kaufmann in 1997 with 470 families in Luang Nam Tha Province (Nale and Sing districts) found that "for the average family, over a period of 10 years, there will be 5-6 years with average yield (9 months per year enough rice to eat), 3-4 years with bad yields (5-6 months enough rice to eat) and 1-2 years with good yield (no shortage). The same pattern has also been found in other case studies (Clendon, 2001, UNDP, 2001, Foppes and Ketphanh, 2003, McLennan, 2004) (Fobbes and Kethpan, 2004)."

![Analysis of rice surplus/deficit (% of consumption) and percentage of food insecure households by province, 2006 (from CFSVA)](source: CFSVA 2006 data (WFP, 2007) and the authors’ calculations on estimated provincial rice surplus/deficit.)

- **Existing government policy and on-going development programmes**

Existing government policy to be achieved by 2020 as per MAF strategy 2011-2020:

1. “Gradual introduction and increased production of modernized lowland market oriented agriculture production, adapted to climate change, and focusing on small holder farmers”.

With regards to relevant rice policies, the Lao government has set itself the rice self-sufficiency target of reaching a production level of 4.2 million metric tons of rice by 2015. For a general rice policy and strategy overview and for salient statistics on rice production in Lao PDR, the reader is referred to the World Bank-FAO-IRRI-MAF Rice Policy Study, published in 2012.

Many on-going development programmes, UN Programmes and projects (e.g. FAO, IUCN, UNDP, UNICEF, WFP, IFAD etc.), NGOs and INGOs are currently being implemented in Lao PDR. Although roles of each organization are variable, they mostly aim to build capacity of local people for sustainable, environmental-friendly production, addressing food security and improving livelihoods of rural communities, etc. and achieving MDG targets as well as those outlined in UNDAF.

FAO and the Lao government’s National IPM Programme have been active in its support for sustainable rice intensification (SRI) and promotion of integrated pest management (IPM) through Farmers Field School (FFS) interventions in the irrigated and lowland rainfed rice production systems in about 11 provinces throughout much of the 1996-2002 period. FAO is currently involved in the development of a Regional Rice Initiative which includes Lao PDR. This initiative is aimed at reviving the network of rice IPM trainers for renewed farmer training efforts towards promotion of sustainable rice intensification in Lao PDR starting in 2013. For more information on FAO’s support to the Lao National IPM-FFS Programme, see weblink:


- **Impacts of climate change, if any**

Climate change is still considered to be a new concept for most of Lao people. Awareness on climate change is also estimated to be limited or low to zero among the rural people. But climate change has already resulted in new field problems and crises including pests and diseases as well as natural disasters (e.g., droughts and floods). Hence, impacts of climate change are costly and not to be overlooked in Lao PDR. Impacts of climate change include warmer weather, loss of crops, production, property, etc.

**C) GOVERNMENT POLICY, FOOD-INSECURE PROVINCES, AND PRIORITY PROVINCES TO ADDRESS THE FOOD SECURITY ISSUES**

- **Existing government policies to support rainfed areas**

The existing government policy for upland areas is “to totally stop slash and burn cultivation”. The focus is to be on 47 poorest districts and to be linked to initiatives for rural development, poverty reduction, and environmental protection.” (MAF Strategies 2011-2020).

According to 7th NSEDP for 2011-2015 (2011), the government policy on agriculture (including policy on support for rainfed areas) is to:

1.) Ensure food security and encourage agriculture for local consumption as well as export.

2.) Increase of agriculture productivity applying of newer scientific and technological methods.

3.) Increase the number of model families, stop shifting cultivation completely, regrouping small villages located in the mountains and encourage re-settlers, and provide land (on permanent basis) and regular work to the landless and re-settlers;
4.) Raise land yield rates by improving the existing methods of production, constitute production groups, and boost rural enterprises.

Target for implementation of the government policy (including rainfed areas), by the end of 2015, includes:

1. Food production should be enough to meet food demand. That is, part of it will be used for consumption and reserve, and some part of it will be for commercial use and export.

2. Total rice production should reach four million tons, grown in 1.04 million hectares (2.9 million to be produced in rainy season in 740 thousand hectares; 1 million tons to be produced in the dry season in 200 thousand and 0.2 million tons is for upland production and should be produced in 100,000 hectares). Expected average rice yield is 4 tons/hectare.

3. In Lao PDR, rainfed lowland rice areas are more than rainfed upland rice areas. Rainfed lowland and upland rice areas accounted for approximately 70% and 21% of the agricultural areas, respectively. Rainfed lowland and upland rice production accounted for 76% and 14% of a total rice production. (Schiller et al. 1999).

- **Food security map**

Map of food-insufficient areas

Source: FAO 2005
D) MAJOR CONSTRAINTS AND NEEDS

**Major constraints for crop production:**

1. Human resources: Population is made up of many ethnic groups with different cultures, lifestyles, languages, etc., which have implications for crop production techniques. People with technical knowledge on good practices for production intensification in the various (irrigated, rainfed lowland and upland) agro-ecosystems are limited.

2. Limited availability of technologies along a supply chain ranging from pre-production, production and postharvest technology, etc.

3. Insufficient pest, disease and production management

4. Ill-preparedness for result and impact of climate change

5. Low infrastructure

6. Budget deficit resulting insufficient funding from the national budget

• **Needs for crop production**

Technologies/technical assistance that encourage sustainable rice production intensification in both rainfed lowland and upland areas. Priority should be given to upland areas to work with farmers with large scale production. If so, it would also allow them to reduce agriculture inputs and to stop using herbicides, particularly Paraquat.

E) EXPERIENCES OF SRI ADAPTATION AND ADOPTION BY FAMERS WITH EMPHASIS ON RAINFED AREAS

SRI work in Lao PDR has been implemented by Irrigation Department, MAF, and also by many NGOs (called as Non profit association in Lao PDR). SRI was piloted in Lao PDR since late 1990s and was widely promoted in most provinces during early 2000. However, practicality versus results of SRI have been discussed and reported with multiple views. Some are as follows below:

1. Yield received under SRI practice reportedly to vary from 1.3 – 6 or 7 tons/hectare (Schiller 2004) but also were reported much higher, up to 9 tons/ha. Farmers in Northern Laos, (Sayabouly and Luang Prabang Provinces) successfully implemented SRI innovation and received yields from 6-8 tons/ha and up to 9 tons/ha whilst traditional method could only yield 3-4 tons/ha [http://sri.ciifad.cornell.edu/countries/laos/index.html].

2. SRI tested in Lao PDR could receive high yield, but with high inputs of fertilizer, which found to be difficult to be followed for wider adaptation in Lao PDR. In addition, SRI is found be unsuitable in Lao condition particularly in wet season in rainfed production areas when lack of control over water can impede management of water regimes. In the past, SRI could only adopt in irrigation areas. SRI planting technique of a single young seedling was found to be too demanding by Lao farmers (Schiller, 2004).

3. Farmers in Fueng District who tested out SRI found that SRI is only appropriate for a small area per household e.g. 1,600 sq m or 0.2 ha;

4. Farmers who tested out SRI indicated that despite of demanding land preparation for weed control and drainage under SRI golden apple snail control is notably more problematic. Young seedlings to be planted under SRI were attractive to -and easily damaged by- golden apple snails (Schiller, 2004).

5. At the moment the government is at the center of SRI extension activities in Laos. On the other hand, there are various international organizations, donors, and international NGOs that have
projects within which SRI extension activities are a sub-component. Along with these hands-on extension activities, it is necessary that the doubts and issues that have arisen regarding SRI be addressed through experimental studies based on specialized skills and knowledge of agriculture. The sharing among all relevant parties of technical information that has been gleaned through the SRI extension activities of the government and various organizations, as well as the results of experimental studies is expected to be carried out in tandem with SRI extension in the future, will help firmly root SRI in the Lao countryside and will be extremely fruitful for all (Simazaki.K., 2011)

F) OPPORTUNITIES EXISTING TO INCREASE THE AGRICULTURAL PRODUCTIVITY AND QUALITY PRODUCE IN RAINFED AREAS, AND CONSTRAINTS FACED

1. Supportive Government policy on agriculture sector and rice. Rice is a staple food for Lao people and it is one of main/most important crops for the nation;
2. Knowledge and research activities done by IRRI and others and results available for rice productivity improvements but uptake by smallholder farmers still limited;
3. Despite of more attention towards strengthening agricultural education and extension systems in Lao PDR in recent years, outreach systems still insufficient, lack of capacity, understaffed and impeded by lack of operation resources.
4. Previous work done on SRI in Lao PDR (e.g. research, pilot activities, etc. including what’s done by NGOs) both lowland and upland, for building on the success of and lessons learned from SRI done in Lao PDR, and adapting those are sound and applicable;
5. Department of Irrigation responsible for SRI work in Lao PDR shares the same ministry with Department of Agriculture (DoA) and Department of Agricultural Extension and Cooperation (DAEC, formerly NAFES).
6. Existing rice IPM network and experience on Rice IPM FFS in Lao PDR.
LIST OF IMPORTANT REFERENCE ON SRI IN LAO PDR

- Linquist, B. and Senxua, P.: Nutrient Management in Rainfed Lowland Rice in Lao PDR, 2011;
- John, S.: SRI- Suitability for Lowland Rice Production in Lao PDR, 2004;
  - [http://sri.ciifad.cornell.edu/countries/laos/index.html](http://sri.ciifad.cornell.edu/countries/laos/index.html);
  - [http://www.vegetableipmasia.org/docs/Countries/Laos/Lao-IPM%20Brochure%20_English-final%20Jan%202010.pdf](http://www.vegetableipmasia.org/docs/Countries/Laos/Lao-IPM%20Brochure%20_English-final%20Jan%202010.pdf);