

Chapter 7

SRI in Laos

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7.1 Introduction

The first organization to introduce SRI into Laos was Oxfam Australia, a non-governmental organization (NGO), which conducted the first SRI trials during the rainy season of 2001. The Lao National Agriculture Research Center (NARC), under the Ministry of Agriculture and Forestry (MAF), however, conducted its own trials during the dry season of 2001/02 and the rainy season 2002 and concluded that “the likelihood of disseminating SRI throughout Laos is extremely slim.” As a result of this verdict, the spread of SRI within Laos was, thereafter, limited to a very small amount of progress attributable to the support of several international NGOs.

Then, from 2006, with the cooperation of MAF's Department of Irrigation, an irrigation project funded by the Asian Development Bank (ADB), which I lead, and a Japanese non-profit organization (NPO), Pro-net 21 undertaking a grass-roots technical assistance program with support from the Japan International Cooperation Agency (JICA), together began actively promoting the extension of SRI in Laos. In response to the results of our activities, in September 2008, the Minister of Agriculture and Forestry issued an official MAF decree to the 17 Provincial Agriculture and Forestry offices (PAFOs), instructing them to “promote SRI extension activities.” Also in September of the same year, the MAF Minister, H.E. Sitaheng Rasphone, when addressing the National Assembly explained about the results of SRI evaluations and proclaimed that MAF would henceforth promote SRI. That was 4 years after NARC had dismissed SRI entirely. After MAF adopted a policy of promoting the extension of SRI, its spread could begin being observed in Laos.

This chapter will relate how SRI has been extended in Laos from its first introduction to the present, its current status, the challenges it faces, and its prospects for the future.

7.2 A Look at the Lao Nation

The Lao People's Democratic Republic (from here on called Laos) is located in the center of Southeast Asia's Indochinese Peninsula. It is a landlocked country, surrounded on 5 sides by Vietnam, Thailand, Cambodia, China, and Myanmar. Its land area, at 237,000 km², is roughly the same as Japan's main island of Honshu. As much as 80% of its land area is covered by mountains, and only 4% is arable. With a population of 7.4 million (2008), comprised of 49 ethnic groups, it is a truly heterogeneous country.

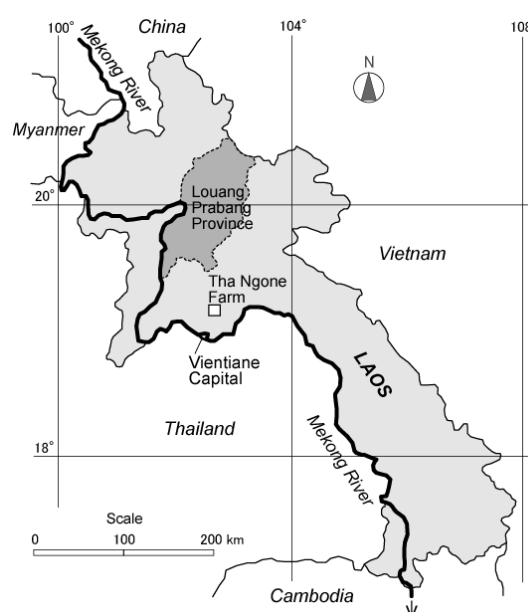


Figure 1: Map of Laos

Laos has a tropical monsoon climate with a rainy season from May through October, and a dry season from November through April. The average annual temperature is around 26°C. It is somewhat warmer in the south and cooler in the north. Average annual rainfall over the last 10 years in the central southern city of Pakse was 2,223 mm, while it was 1,420 mm in the central northern city of Luang Prabang. There is little difference between the two regions. Not having large earthquakes or typhoons, it is a tranquil country blessed with an abundance of nature.

The major industries in Laos are the primary industries of agriculture, forestry, and animal husbandry. In 2009, the agriculture sector accounted for 33% of the gross domestic product (GDP), with the industrial sector accounting for 25%, and the service sector accounting for 42%. A full 70% of the population is employed in the agriculture sector.

The image of Laos in the past was that of a country suffering the burden of being “landlocked.” But in recent years, Laos has become looked upon as having a key position, being in the center of the Mekong River Basin. Making the most out of the framework for ASEAN regional integration, Laos is now actively promoting the development of its vast natural resources (such as its forests, minerals, and hydropower). One of the foremost policies of the country is to graduate from least-developed country (LDC) status by 2020. This and other policies have spurred an economic growth rate of more than 5% over the last 10 years. In particular, the growth rate climbed from 7% in 2004 to 7.6% in 2009. With this growth came a significant increase in per capita GDP, from US\$342 in 2000 to US\$580 in 2006, finally reaching US\$916 in 2009.

7.3 Present Situation of Rice Production and Related Agricultural Policies

Rice is the most important agricultural product in Laos. Glutinous (sticky) rice accounts for as much as 85% of overall annual rice production. For the Lao population, sticky rice is the main staple in the diet. There are numerous peoples in countries surrounding Laos that eat sticky rice, but Laos is the only country that can claim it as its national staple. According to statistics from 2007, the total area cultivated for major agricultural crops was 1.1 million hectares, about 70% of which (780,000 hectares) were planted with rice. This figure reveals just how important rice to Laos. Of this, 600,000 hectares were cultivated with rainy-season lowland rice; 70,000 hectares were for dry-season irrigated rice cultivation, and 110,000 hectares were cultivated with upland rice, so rainy-season lowland rice cultivation clearly accounts for the largest share.

The total annual rice production in Laos is estimated at 2.7 million tons (un-milled paddy). The average paddy yield for rainy-season lowland rice is 3.5 tons per hectare. During the dry season, irrigated rice cultivation can give an average paddy yield of 4.5 tons per hectare. The average paddy yield of upland rice during the rainy season is just 1.8 tons per hectare. Most of the rice produced is consumed by the farming household itself, as only about 20% is sold on the open market.

The Lao government has reported that self-sufficiency in rice production was achieved around 1999-2000. However, while this may be true for those living in the plains along the Mekong River, many farm households in the poorer areas of the mountainous north and east go without enough rice for several months every year. Supplying these areas with sufficient food is a significant challenge. And to make the situation worse, the population of Laos is growing by as much as 2.8% per annum, so a tremendous increase in demand for rice is expected in the near future.

In addition, floods and droughts occur regularly, so 'food security' became a priority in MAF's sixth Five Year Plan for developing the agriculture and forestry sector (2006-2010). While the Lao government may be under pressure to meet the growing demand for rice, the country's terrain is such that a large-scale plan to develop more rice fields is not feasible. Therefore, to produce more rice, the policy is (i) to increase rice yields through measures such as improved rice production technology or the introduction of improved varieties, and (ii) to increase cultivation area by improving the efficiency of irrigation systems.

7.4 SRI Extension through International NGOs

As mentioned at the beginning of this chapter, Oxfam Australia was the first international organization to bring SRI to Laos (Vongsakid 2002, 2007; Oxfam Australia website). After self-learning based on information provided to them by Prof. Norman Uphoff, Cornell International Institute for Food, Agriculture and Development (CIIFAD), in the rainy season of 2001 Oxfam staff members launched the first on-farm trials of SRI in two project areas: 1 farm in the Feuang district, Vientiane Province, and 2 farms in the Ta Oi district, Salavan Province, for a total of 0.046 hectares. In Ta Oi, farmers produced 23% more rice with SRI methods compared to conventional practice; but in Feuang, due to an outbreak of root rot, the yield at 2.9 tons per hectare was less than the national average of 3.2 tons per hectare.

The farmers who participated in the evaluation were anyway quite satisfied with the results, especially the fact that they could achieve their yields using just one-fifth of the usual amount of seed grain; so they decided they wanted to continue with SRI. After this, SRI land area continued to expand, with 77 families participating on 19 hectares during the rainy season of 2005, and 100 families participating on 31 hectares during the rainy season of 2007.

From around 2006, other international NGOs began to help to spread SRI, each with its own programs. The main NGOs were: (i) CUSO-VSO (Canada, now Cuso International), (ii) SAEDA (Laos), (iii) WWF (World Wildlife Fund), and (iv) ADRA Japan (Japan) (see their websites for more information). The total increase in SRI land area during this period, however, was quite minimal. During the dry season 2006-07, the Japan International Volunteer Center began implementing SRI as part of its Project to Advance Sustainable Farming and Improve Living Standards (JVC website). During the first season they worked with 2 families on 0.8 hectares in the province of Khammouane; by the rainy season 2008, this had increased to 55 families on 19 hectares.

7.5 Negative Evaluation of SRI by the National Agriculture Research Center

The Lao National Agriculture Research Center (NARC) as part of the national plan for research on rice cultivation performed on-farm trials with SRI at five of their rice research centers across the country during the dry season 2001/02 and the rainy season 2002. According to its final report on the results, NARC concluded that "the likelihood of disseminating SRI throughout Laos is extremely slim" (Schiller 2004). The reasons given for the dismissal of SRI were: (i) It is impossible to perform intermittent irrigation according to a schedule during the rainy season; (ii) The irrigation systems of Laos were designed to irrigate from plot to plot, so managing water for individual farm plots is difficult. (iii) To be suitable for SRI, the land must be very fertile, or, if not, then extremely large amounts of fertilizers must be applied to boost the soil's fertility, and considering

the current situation in Laos, this is not realistic; (iv) In particular, large-scale application of organic fertilizers is difficult.

Because of this report, the government's agriculture agencies did not proactively extend SRI activities until, in the dry season 2006/07, I encouraged the Department of Irrigation to begin working with SRI.

7.6 How I got Involved in SRI

What got me involved in SRI was a report sent to me in May 2006 by my colleague, Shuichi Sato. At the time, he was living in Indonesia and working as the team leader for a Small-Scale Irrigation Management Project financed by Japan Bank for International Cooperation (JBIC). I was living in Laos, working as team leader for a Northern Community-Managed Irrigation Sector Project (NCMI) financed by the ADB. I read Sato's report which summarized the achievements that his project had made in expanding SRI since 2002. My instincts told me: "The introduction of SRI -- a low-input, sustainable rice production system -- will undoubtedly become a principal pillar in any strategy for the survival of Lao agriculture." I wasted no time in approaching the project director for NCMI on the Lao side, Mr. Phaythoune Phomvixay, and showing him the report, giving him an explanation. Mr. Phaythoune was tremendously interested. In a kindred spirit, he said: "First, let's try it ourselves." Then we started performing trials.

7.7 Beginning of SRI Trial Planting and Extension

Our initial work with trials and the extension of SRI involved three organizations doing specifically: (i) trial planting (2006/07), (ii) extension of SRI as the grass-roots technical assistance arm of JICA (2007/10), and (iii) extension through the NCMI (ADB financed) project (2005/10). Each of these is summarized below.

(1) Beginning of Trial Planting (Dry Season, 2006/07)

We developed two implementation plans for getting started with SRI trial planting. One was to use a small amount of funding from Pro-net 21, a Japanese NPO to which I belong, performing a trial at Tha Ngone farm, located 25 km north of Vientiane (pump irrigation area, 650 hectares). I had spent some time there back when I was previously in the Japan Overseas Cooperation Volunteers. The other trials were on two farms that were in the irrigation area of the NCMI project that I was leading. A summary of the trial results is given in Table 1.

Table 1: Trial Planting of SRI in 2006/07

Source of finance	Pro-net 21 (Nippon Koei)	NCMI Project (ADB)	
		Sayabouly	Luang Prabang
Location	Tha Ngone	Sayabouly	Luang Prabang
Number of SRI planting plots	2	7	5
Planting area of SRI (ha)	0.26	0.17	0.19
Rice variety	TDK-5	TDK-5	TDK-5
Paddy yield (tons/ha)	3.27 ~4.29	5.25~7.97	3.06~4.39

Source: Prepared by K. Shimazaki

The rice yield at Tha Ngone Farm was approximately the same as yields at nearby conventional farms. At the NCMI trial farm in the province of Sayabouly, however, the yield was as much as 44% greater than the 4.5 ton per hectare national dry season average. But, in contrast, the yield at the other NCMI trial farm in the province of Luang Prabang was 22% less than the national average.

Yields were not all that we had expected them to be. However, because of the results in Sayabouly, the

Department of Irrigation considered the SRI methodology to be very promising, and it was decided that trial plantings should continue. This is due to the fact that the rice yield was 44% higher than the national dry-season average, only one-fifth the normal amount of seed grains were used, water usage was conserved through intermittent irrigation. These considerations and other factors proved the superiority of SRI and heightened its chance for further extension.



Photo 1: SRI Transplanting in the Tha Ngone Farm by Mr. Phaythoune, National Project Director of NCMI Project (Photo: K. Shimazaki, December 2006)



Photo 2: Communal SRI Activities for Weeding in the Nam Pa Scheme in Luang Prabang Province (Photo: K. Shimazaki, February 2009)

(2) Extending SRI through JICA's Grass-Roots Technical Assistance Program

After conducting the first planting trials mentioned above, Pro-net 21 applied for and was accepted into the JICA Partnership Program for grass-roots technical assistance for an "SRI Extension Pilot Project." This SRI extension project was carried out in the same areas that the earlier trials had been conducted over 5 seasons, from the dry season 2007/08 to the dry season 2009/10. A total of 141 hectares of rice cultivation area was selected in 7 irrigation areas, and 420 farm households participated in the evaluation.

This pilot project produced some very interesting results, as the farm households were located in 3 differing areas in terms of socioeconomic, natural, and other conditions, as explained below:

- In Tha Ngone, the project targets and objectives were "Expansion of SRI to 300 households, extension of SRI planting area to 100 hectares, SRI yields 20% higher than conventional practice, and a 40% increase in income." These targets and objectives were surpassed in terms of number of households reached (420), and area covered (141 hectares).
- However, in the city of Vientiane (a suburban area) and in the province of Sayabouly (where cash crops such as corn flourish), farmers tended to select from a variety of other sources of income, rather than adopt SRI. As a result, SRI was extended less there than was hoped. The project therefore expanded its activities into surrounding areas and was eventually able to meet its targets and objectives.
- In the province of Luang Prabang, where the degree of self-sufficiency is low, farmers were very positive about introducing SRI practices and showed great enthusiasm for increasing production. These farmers increased their experience with SRI and learned the appropriate management methods. Extension of SRI land area here proceeded as we had hoped it would.
- In Luang Prabang, altogether 188 households met or exceeded the target for yield, a 20% increase. The

percentage of households that achieved this target differed from one irrigation area to another (among the 7) and ranged broadly, from 19% to 93%. Overall, 45% of the households met or exceeded the target. With regard to increased income (the goal was a 40% increase), 251 households achieved this goal, but the percentage also varied widely from one irrigation area to another, ranging from 33% to 100%. Overall, 60% of the households met or exceeded the target.

Ultimately, the success of SRI was highly variable; and regarding income, it cannot be said that stability was realized. However, the fact that 251 out of the total 420 households that participated (60%) did so during the dry season of 2009/10 was encouraging. It was their first attempt with SRI, so we felt that these households would fully realize this target in the future after gaining more experience working with the new methods.

The results of the final season of the SRI extension pilot project, the 5th season, are shown in Table 2.

Table 2: Achievement of SRI Yields under JICA Grant Program (2009/2010 Cropping Season)

Irrigation Scheme/Area	Location	SRI Household nos.	SRI Area ha	% of Households achieving the target			
				Yield: 20% Increase		Benefit: 40% Increase	
				nos.	%	nos.	%
1. Tha Ngone	Vientiane	27	11	25	93	27	100
2. Nam Xouang		36	11	7	19	13	36
3. Houay Yang Noi	Sayabouly	10	2	7	70	4	40
4. Nam Pieng		194	56	60	31	64	33
5. Nam Pa	Luang Prabang	50	37	29	58	45	90
6. Pak Pa		15	10	7	47	13	87
7. Ban Sing		88	14	53	60	84	95
Total		420	141	188	45	251	60

Source: Final Report on SRI Activities by JICA Grant in 2010 prepared by K. Shimazaki

(3) Extension of SRI through the NCMI Project (2005/10)

NCMI, funded by the Asian Development Bank (ADB), has the objective of constructing small-scale irrigation systems in 5 provinces in northern Laos. Its specific goal was to create 33 small-scale irrigation systems with the help of farming communities, to increase their production of rice through extending their farming activities, and thus improving their standard of living. It was a 5-year project beginning in May, 2005, and ending in May, 2010. When the project began, integrating SRI had not even been considered; but with the results of planting trials conducted during the dry season 2006/07, the introduction of SRI began in earnest. In the dry season 2007/08, only 5.3 hectares were farmed using SRI methodology (30 households); but by the dry season 2009/10, this had increased to 332 hectares (976 households).

7.8 The Lao Ministry of Agriculture and Forestry's Decision to Promote SRI

In September 2008, the Ministry of Agriculture and Forestry (MAF) issued Decree No. 1145 to its 17 Provincial Agriculture and Forestry Offices (PAFOs) across the country (including the Vientiane capital). This instructed PAFOs to "Encourage the extension of SRI activities." The decree stated that "The Japanese NPO, Pro-net 21, through its test planting using SRI methodology, in conjunction with the Department of Irrigation, over 4 seasons from the dry season of 2006/07, and through pilot projects which ensued, clearly showed that SRI facilitates (i) increased yield, (ii) conservation of seed grain, and (iii) conservation of irrigation water. This is what is behind the government's policy to support SRI extension." In the same month of September, the Minister of the MAF addressed the National Assembly, informing them about SRI and letting them know that

the Ministry of Agriculture and Forestry would henceforth promote the dissemination of SRI. That was 4 years after the NARC, which operates under the Ministry, dismissed SRI entirely.

As a result, the Department of Irrigation (DOI) under MAF instructed all of the irrigation areas under its control in all provinces throughout the country to extend SRI in their irrigation areas. According to information from the DID, the total land area being cultivated using SRI methodology was (i) 1,473 hectares during the dry season of 2008/09; (ii) 2,550 hectares during the rainy season of 2009; and (iii) 3,625 hectares during the dry season of 2009/10.

However, as could be expected from this kind of 'top down' policy, the MAF staff at provincial and district levels who were tasked to extend SRI, despite their good intentions, did not receive sufficient technical training. This deficit extended to the farmers themselves; when I visited some of the SRI farms, in many cases I could not help thinking to myself: "Is this an SRI farm?"

7.9 Extension of SRI under the PAFO Luang Prabang (from 2008/09)

Following the MAF decision to give SRI extension a priority among activities, the Provincial Agriculture and Forestry Office (PAFO) of Luang Prabang Province -- in collaboration with its Division of Irrigation, Division of Agriculture Extension, and its offices at the district level (District Agriculture and Forestry Offices: DAFOs) -- began promoting SRI in earnest in irrigation areas spread out over 12 districts from the dry season 2008/09. The amount of land area cultivated in Luang Prabang Province using SRI methods was 1,270 hectares in 2009-10. This accounted for 35% of all the rice area in Laos cultivated with SRI (3,625 hectares) and made Luang Prabang the most active SRI province out of all 17 provinces.

(An aside: the city of Luang Prabang was the capital of the first unified Lao kingdom of Lan Xang which was formed in 1353. The city has reached new heights of prosperity now as a center for devout Theravada Buddhists, and the entire town, including its temples which number over 80, has been designated as a UNESCO World Heritage Site.)

There are a number of reasons why Luang Prabang Province became the most developed province in Laos in terms of SRI extension:

- (1) Luang Prabang's terrain is mountainous. Rice fields occupy a mere 0.7% (12,600 hectares) of the province's land area. The livelihoods of many farmers are dependent on this limited rice field area. So getting higher yields is a priority for them.
- (2) The province's rice production self-sufficiency is only 70%, so its households want to increase this proportion by any amount possible.
- (3) As a UNESCO World Heritage Site, tourists are flocking in greater and greater numbers to Luang Prabang, and, given the rising population, an increase in the demand for rice is expected. This is why increased rice production has become a priority policy for the provincial government.

The PAFO Luang Prabang is approaching the extension of SRI at various levels. These include: (i) the provincial level: the Division of Irrigation and the Agriculture Extension Service under PAFO, (ii) the district level: District Agriculture and Forestry Offices (DAFOs) in the 12 districts, and (iii) the village level: agriculture extension assistant staff (87 as of June 2010). The latter, the agriculture extension assistants assigned about 5 to 10 per district office, have been located so that there is a technical assistant stationed at a

central village within a cluster of 5 to 10 villages; from there he or she works to encourage the adoption of SRI practices. This is a new approach.

These extension staff are mostly young, inexperienced graduates from agriculture schools, but given the sincerity with which they pursue their extension activities, they are very popular with the villagers. Through diligent communication with villagers who have hitherto struggled to understand and apply SRI, these extension staff have helped the government earn the people's trust. From the perspective of the provincial government, since these extension staff will eventually be responsible for the agriculture and forestry centers which are part of the government's upcoming policy, the cultivation of these human resources is a high-priority issue

7.10 SRI Extension Phase 2 Project (from 2010/11)

Given the background mentioned above, Pro-net 21 applied for funding for another program working as a grass-roots technology program under JICA, and it has signed a Memorandum of Understanding with the PAFO Luang Prabang for a 5-season SRI extension project from the dry season 2010/11 to the dry season 2012/13, titled 'SRI Extension Project (Phase 2) in the Province of Luang Prabang.' One of the objectives of the project is summed up as follows: "Luang Prabang has, among the 8 northern provinces of Laos, become a model province in name and deed for the extension of SRI, and as such the project should aim to establish a self-sustainable SRI development system for the PAFO Luang Prabang as well as contribute to the extension of SRI activities in other provinces."

7.11 Overall Progress of SRI Extension in Laos

The expansion of SRI land area and SRI farm households over the past 10 years by the efforts of the main organizations and government bodies is shown in Table 3.

Table 3: Expansion of SRI Area and SRI Farm Households in Laos (2001-2010)

Organization (Finance)	Unit	2001	2005	2006/07	2007	2007/08	2008	2008/09	2009	2009/10
		Wet	Wet	Dry	Wet	Dry	Wet	Dry	Wet	Dry
Oxfam Australia	ha nos	0.005 2	19.0 77	1.2 2	31.0 100					
Japan International Volunteer Center	ha nos			0.8 2	14.0 22	3.8 18	19.0 55			
Pro-net 21 (Nippon Koei) & NCMI (ADB)	ha nos			0.6 3	1.0 10					
Pro-net 21 (JICA's Grass- Roots TA)	ha nos					3.7 22	8.0 56	28 94	72 212	141 420
NCMI Project (ADB)	ha nos					5.3 30	106 677	303 891	445 1,308	332 976
DOI-MAF & PAFOs (Gov. of Laos)	ha nos							1,142 3,358	2,033 5,979	3,152 9,270
Grand Total (Whole Laos)	ha nos	0.005 2	19.0 77	2.6 7	46.0 132	12.8 70	133 788	1,473 4,343	2,550 7,499	3,625 10,666

Remarks: Wet = Wet season paddy, Dry = Dry season paddy

Source: Data preparation by K. Shimazaki

7.12 Problems and Difficulties Encountered while Extending SRI

(1) SRI Risk

That SRI practices increase yields has been confirmed by the trials during the dry season 2006/07 and by those conducted thereafter— this is not questioned. On the other hand, for a variety of reasons, we were not able to meet our earliest expectations, so some farmers abandoned SRI after 1 or 2 seasons. One of the main causes for this was likely due to the suitability of field management during the first 2 months of cultivation after the planting of seedlings. With SRI, seedlings are transplanted at a very early stage of growth, so this is a particular problem since: (i) freshwater snails, crabs, mole crickets and other such aquatic animals and (ii) rice borers, grasshoppers and other insects can easily damage the crop.

Farmers have used and added to their knowledge base with various protective practices, such as the spreading about the rice fields of finely chopped vegetation varieties which are known to repel these aquatic animals and damaging insects; and allowing chickens to forage in the fields; or, in serious cases, resorting to the use of pesticides in order to control the damage. Many farmers who do not know how to do these things have simply replaced the damaged plants by planting others (supplemental planting) that have been kept for such purposes. Generally speaking, these supplements, being planted later, do not grow as quickly as the seedlings that were originally planted and they mature at different times, lessening the overall yield.

(2) The Government's SRI Extension System

Under normal circumstances, SRI extension activities should be carried out by the Department of Agriculture or by the National Agriculture and Forestry Extension Service (NAFES) under MAF since SRI is an agriculture-related technology, and the research of it should be carried out by the National Agriculture and Forestry Research Institute (NAFRI). After SRI was first introduced into Laos in 2001, however, the National Agriculture Research Center (NARC) conducted SRI trials over two seasons with results that betrayed expectations. So for a while, the government did not proactively work to extend SRI activities. But this changed after the Minister of MAF issued a decree in September 2008 to the Department of Irrigation, telling it to make the best use of irrigated land and water through the extension of SRI.

This has resulted in a major expansion of SRI extension activities from the dry season 2008/09. For farmers to adopt SRI and stick with it, though, the government must provide all-encompassing technical support which includes cultivation management, pest control management, and irrigation management. However, the transfer of information among the relevant specialized departments at the central government level is still not functioning as it should. As a result, teamwork between the divisions/persons in charge of 'cultivation and extension' and the division/persons in charge of 'irrigation' is at the provincial level dependent upon the amount of leadership shown by the head of the PAFO.

7.13 Issues Related to the Future Expansion of SRI Extension

(1) The Right Crop for the Right Land

SRI will not be successful everywhere. From experience gained so far, we have confirmed that there are social, economic, and natural issues related to the willingness of farmers to adopt SRI. Strategically, it will be most effective to first target those areas that are most favorable for adopting SRI. An area is more likely to adopt SRI than another if the following criteria are met: (i) the farmers are focused predominantly on the production of

rice, without having large alternative sources of income, (ii) their farms are relatively small (about 1 hectare or less) and the family provides most of the labor, (iii) the individual plots on the farms are relatively small, making water management easier, (iv) the farms have good drainage, and (v) soil conditions on the farms are reasonably good. The conditions set forth in (iv) and (v) above are not restricted to SRI but are true for cultivation in general. And “the right crop” is not a “must” but a “better.” In other words, it is not a method that “must be implemented in a certain way,” but more a matter of discovering a better method that the farmers can accept and adopt.

As mentioned earlier, one point that can make the difference between success and failure with SRI is management practices during the first 2 months of cultivation after transplanting the seedlings. In particular, measures have to be taken to minimize aquatic animal and pest damage during this seedling/young plant stage. Farmers have come up with various ways of fighting pests through first-hand experience. This kind of useful know-how and other information will need to be organized at the government level and disseminated to other farmers. The goal should be to have the farmers share this information broadly among themselves so that they can come up with an SRI methodology suited to their particular area.

(2) Soil Management

While it is clear that proper soil management is necessary for any type of crop cultivation, we have seen in our work with SRI that in some areas “though initial harvests had anticipated yields, without proper soil maintenance those yields will begin to decline.” Therefore, since we are trying to accelerate the spread of SRI, I should discuss the issue of soil management.

Farmers in Laos usually plant local varieties of rice during the rainy season and do not fertilize their fields. In the dry season in areas with irrigation, farmers generally plant improved varieties and apply much less than the 300 kg of chemical fertilizer per hectare recommended by the PAFO. Almost all of the farmers in Luang Prabang who were recently interviewed about their rice yields claimed that “yields during the rainy season are greater than during the dry season.” Without comparing the actual amounts of fertilizer used during both seasons, I cannot be certain, but it is likely that one of the reasons why yields are higher in the rainy season is that runoff from neighboring mountain forests is carrying nutrients to their fields.

My understanding of the most basic principle of SRI is “encourage vigorous root growth to make a healthy plant, and yields will be greater.” It goes without saying, however, that no matter how healthy the roots and the plants are, the benefits will be halved if the soil itself is not healthy. Farmers who have practiced slash-and-burn shifting rice cultivation know from experience that soil fertility deteriorates after 2 to 3 years, and they must then move to another location. SRI extension activities from here on need to make it clear to farmers that “if they want to grow rice continuously on the same field, they must continuously supply nutrients to those fields; if not, even with SRI methodology, rice yields will decrease.” I hope that we will put into practice instruction about how farmers can continuously make their own fertilizer and apply it to their fields seasonally, even if starting with only a little bit at a time.



Filed Lecture by Mr. Thaly at the Houay Kouk Scheme



Filed Practice in the Houay Than Scheme

Photo 3: Farmer Training on Organic Fertilizer (Compost) in Luang Prabang Province

(Photo: K. Shimazaki, February 2011)

(3) Irrigation-fed SRI and Rain-fed SRI

As mentioned above, my understanding of the most basic principle of SRI is “encourage vigorous root growth to make a healthy plant, and yields will be greater.” To achieve this, seedlings are transferred to the rice fields shortly after seedling emergence, given wide spacing, and provided with intermittent irrigation in order to promote vigorous root growth. This is done to produce the effect expected from SRI. At first I did not question the policy to apply SRI extension activities only to irrigation-fed rice fields because intermittent irrigation conserves water; dry-season cultivation can only be done on irrigated fields, and even in the rainy season, water needs to be fed and drained through planned intermittent irrigation, so SRI rice fields have to be irrigated - or so I thought.

However, I had received information from Prof. Norman Uphoff and others reporting that “SRI methods suitably adjusted improve rice yields even on rain-fed fields.” I also witnessed this on fields in irrigated areas that could not be drained and dried during the rainy season, of which there are many. Furthermore, according to the Department of Irrigation, the total lowland rice cultivation area in Laos is 600,000 hectares, of which 370,000 hectares can be irrigated during the rainy season and 240,000 can be irrigated during the dry season. However, according to statistics from 2007, only 70,000 hectares were actually cultivated during the dry season that year (accounting for roughly 12% of the total lowland rice cultivation area). Faced with this reality, if we are going to expand SRI throughout the country, in the future we must encourage SRI in rain-fed rice producing areas as does Cambodia (see Chapter 5 of this book: SRI in Cambodia), and not limit our activities to irrigated areas only.

(4) Sustainability of Extension Activities and Related Policies

If SRI extension is to spread in a continuous manner, it is vital that a system is built in which extension workers monitor the issues and problems that the farmers come across through their SRI experience, have these issues dealt with, and manage to feed solutions back to the farming community. The need for the Development of the Agriculture Extension System initiative has long been pointed out. In response, the National Agriculture and Forestry Extension Service (NAFES) is moving ahead with a system that utilizes: (a) “a cluster development” extension system from the central government to provinces, districts, and finally to clusters (groups of villages), and (b) “a village-level technical service system” based on LEA, the Lao Extension Approach, with an emphasis on organizing producers and training village extension workers. For (a) above, the development of

clusters, there is a real problem securing funding for the training of extension workers and their training activities. There have been, actually, some projects supporting this, and limited funding has been appropriated from the government budget, but we can only hope that adequate funding for the Development of Agriculture Extension System initiative will continue to be appropriated and an effective policy is put in place.

(5) SRI Information Sharing

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 that we expect 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. I am looking forward to the formation of the LAO-SRI Platform which will provide an opportunity for proactive information exchange with overseas organizations involved with SRI.

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