The ASEAN Integrated Food Security (AIFS) framework and Strategic Plan of Action (2015-2020) recommends introduction of System of Rice Intensification (SRI) and Conservation Agriculture integrated practices as a Climate-Smart agriculture to address the emerging issues related to food security, the SRI-LMB project intervention in the Lower Mekong River Basin countries can be seen as a very timely initiative.

Utilizing the implementing consortia of the Project, which are functional at the local, national and regional level, so far, the field activities were conducted at >500 Farmers’ Participatory Action Research (FPAR) sites involving more than 12,000 farmers in 33 districts of 11 provinces across all four countries (3 in Cambodia, 3 in Lao PDR, 3 in Thailand and 2 in Vietnam). More than 500 field experiments and locally-suited SRI demonstration plots were set up by farmers for the development of low-cost technological options mostly in rainfed production systems using SRI principles.

The results reported so far were clustered under three performance indicators: 1) improved farmer livelihoods (productivity, profitability and labour productivity; 2) resource use efficiency (water productivity, inorganic fertilizer use efficiency, and total energy input); and 3) climate change mitigation (greenhouse gas emission reduction), where possible, and were compared with the baseline scenario. The results showed that SRI practices helped to improve livelihoods across the LMB region by increasing rice yield (66% w.r.t. baseline) and net returns (70% w.r.t. baseline).

Further it showed that the labour use efficiency increased (66% w.r.t. baseline) with SRI practice along with higher water productivity (59% w.r.t. baseline) and inorganic fertilizer use efficiency. At the regional level, 31 Kg of paddy was produced per Kg of inorganic fertilizer applied, whereas it was 11 kg in the baseline figure. The total energy input in farming decreased by 37%. With respect to greenhouse gas emission reduction, the results reported 16% and 13% reduction in total greenhouse gas emission from rainfed and irrigated areas respectively compared to the baseline figures.

Therefore, it was clear that there is a potential to reduce greenhouse gas emissions by encouraging adoption of SRI practices. The SRI intervention provides opportunities to address the food security, climate change adaptation and achievement of sustainable development goal in a more complementary way. Sustaining ecosystems and their services, creating more with less, accelerating access and integrating the poorest are possible through this kind intervention.
The National Review and Planning Workshop (NRPW) of SRI-LMB project in Vietnam, was held at Ha Tinh, on 17th August 2017. There were about 40 to 45 participants including staff from Plant Protection Department (PPD), research institutes, SRI-LMB project personnel, FAO and project farmers.

**Mr. Tran Van Hieu**, Country Coordinator introduced the SRI-LMB project implementation in Vietnam to the participants and welcomed them to the workshop. From 2015 to 2017, the project worked directly with 2160 farmers. Data analysis shows that the average yields from SRI demonstrations in Bac Giang and Ha Tinh provinces were higher by 0.6-1.2 and 0.16-0.36 T/ha, respectively, compared to control plots. Since SRI plots also required lower expenditures, the net returns were higher by USD 267-392 and 109-131, in Bac Giang and Ha Tinh, respectively.

**Mr. Nguyen Quy Duong**, Vice Director General, PPD, Ministry of Agriculture and Rural Development (MARD), recounted the gains that have been made since the SRI practices were declared as a Technical Advance in 2007. Today, nearly 2 million farmers adopt these practices (including partial adoption). SRI is highly relevant for addressing the current agricultural problems of the country, like high input usage and costs of cultivation, pesticide residues on farm produce and the looming risks of climate change.

**Dr. Hoang Van Phu** who coordinates the SRI Network in Vietnam, explained that in 2015, SRI practices were adopted by farmers in 35 provinces on about 500000 ha. A key problem for wider adoption was the non-availability of a proper weeding tool.

**Mr. Nguyen Quy Duong** discussed the possibility of including weeding as one of the services offered by the service-provider teams supported by the PPD, which currently can be hired by farmers to spray pesticides on their fields. The SRI Network of Vietnam, initiated in 2015, now has more than 20 organizations, with about 60 individuals. Members include organizations like PPD of MARD, NGOs like Oxfam and individual researchers.

**Ms. Alma Linda Abubakar**, from the FAO discussed the details of their Save and Grow Campaign. With supportive case studies from Vietnam and Philippines, she drew the attention of the participants to how the integration of rice and aquaculture production systems can offer more benefits to the rice farmers.

There was a significant discussion on how SRI practices could be scaled up in the two provinces. The main ideas concerned integrating useful SRI practices into regular department work of advising farmers; developing research and communication outputs based on project experience for various stakeholders; demonstrating SRI practices on a large area; motivating farmers to influence their peers; and integrating these practices in other programmes where possible. Staff from both provinces expressed the possibility of mobilizing some of the funds required for scaling up through the local budgets already available, by integrating SRI promotional activities into their regular work.

During his closing remarks, **Mr. Nguyen Quy Duong** expressed that the government is interested in ensuring that the activities continue even after the project ends.

The PPD will encourage and support development of plans for scaling up SRI. Where possible, SRI promotion will be integrated into regular activities of the department and other projects being implemented (e.g. WB6 project; IPM projects). PPD will attempt to convince provincial governments to provide funds earmarked for agricultural extension to scale up SRI.

The department will soon be initiating a project on rice value chain development, which also allows opportunity for integrating SRI promotion among farmers. Approaching National Agricultural Extension Center can be another opportunity to obtain funding for the activities, including SRI promotion and integrating it with aquaculture.
Continuing support for the SRI-LMB FPAR women groups in Bac Giang province, Vietnam

The SRI-LMB project is continuing to support women groups who were involved with the Farmer Participatory Action Research (FPAR) activities in three communes of Bac Giang province, Vietnam. The implementation of the activities over a one-year period until February 2018 is being facilitated by the Center for Initiatives for Community Empowerment on Rural Development (ICERD). Project funding is routed through our key partner, the Food and Agriculture Organization of the United Nations (FAO).

Several studies have shown increasing outmigration of the Vietnamese women from rural to urban areas over the last three decades, due to both working and non-working reasons. But this does not seem to hold good for our project areas. Women participants outnumbered men farmers in the FPAR activities. In 2017, about 85% of the total 720 farmers directly involved with the FPAR activities were women.

Many of these women farmers from Bac Giang province had met the participants of the Regional Review and Planning Workshop (RRPW) during the field visit organized in April 2017. They had explained that adoption of SRI practices benefited them, by reducing costs and increasing yields. Regarding pesticide usage, while their input usage had decreased, they still considered that inorganic pesticides provided better pest control. In the subsequent NRPW in August, several participants expressed that the demonstration of SRI practices over a large, contiguous area could be significant in convincing more farmers about the benefits of SRI practices.

The ICERD project considers many of the above issues. Through surveys and workshops with active involvement of the FPAR women farmers and other community members, including the Commune People’s Committee, it has documented detailed, relevant information on the challenges faced by the farmers in adopting and extending SRI practices; current practices and extent of pesticide application; and gender roles and responsibilities in the farming households. Activities planned under the project include:

- Raising public awareness about the negative externalities caused by indiscriminate pesticide usage
- Facilitation of experimentation by women farmers in using biological agents and botanical pesticides
- Training women farmers on preparing botanical pesticides and using straw bio-mats to better capture the nutrients from animal waste
- Demonstration of the SRI practices in a large, 5 to 10-hectare plot by mobilizing the land owners
- Involving the women groups in trials for growing potato on harvested rice plots with minimum tillage

These activities are expected to encourage adoption of more eco-friendly agricultural practices by the women farmers, and stimulate adoption of SRI practices by other community members in the short-term. The field activities are complemented with plans for policy advocacy. The project experiences will be presented to the Commune People’s Committee so that they could be considered for inclusion in their work plan for sustainable agriculture development, with the larger farming communities. Successful outputs will also be shared with the PPD and MARD.
Workload sharing in farming households, Bac Giang Province, Vietnam

Recent research led by the International Food Policy Research Institute (2017) critically examines four conventionally accepted ideas concerning women and agriculture, all linked to food security: that they bear a higher burden of poverty, have minimal access to land, are intrinsically better in environmental stewardship and make a higher contribution to food production. The nuanced analysis is helpful in designing better programmes to reach out to women farmers.

While dissecting the idea that women farmers produce 60 to 80% of all food, the researchers note the paucity of data to justify the claim. They state that “better data on women’s and men’s labor in agriculture and household production are critical in designing policies to promote food security.

One of the workshops facilitated by ICERD specifically examined this issue. The simple exercise consisted of women and men participants collectively allocating the percentage household workload shared by women and men related to specific activities. Rice production system was broken down into 21 key activities, raising children and household management into six activities each, and miscellaneous tasks

<table>
<thead>
<tr>
<th>Activities</th>
<th>Percentage workload shared by</th>
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<tbody>
<tr>
<td></td>
<td>Men</td>
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<tr>
<td>Dong Phu Commune</td>
<td></td>
</tr>
<tr>
<td>Crop production</td>
<td>39</td>
</tr>
<tr>
<td>Taking care of children</td>
<td>31</td>
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<tr>
<td>Household jobs</td>
<td>15</td>
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<tr>
<td>Miscellaneous tasks</td>
<td>39</td>
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<tr>
<td>Tan Thinh Commune</td>
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<tr>
<td>Crop production</td>
<td>31</td>
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<tr>
<td>Taking care of children</td>
<td>35</td>
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<td>Household jobs</td>
<td>21</td>
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<td>Miscellaneous tasks</td>
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<td>Tan Hiep Commune</td>
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<td>Crop production</td>
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<td>Taking care of children</td>
<td>27</td>
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<tr>
<td>Household jobs</td>
<td>42</td>
</tr>
<tr>
<td>Miscellaneous tasks</td>
<td>45</td>
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</tbody>
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The above table provides the average percentage of workload on women and men. All the three communes, women’s share of the workload was more than that of men for all activities. In case of rice farming, in general, excepting for the tasks like leveling land, ploughing, deciding on which pesticide to buy and reading the label on the container, women were involved more in all other tasks, from purchasing inputs to spraying pesticides and selling produce.
Field mission to review status of FPAR implementation in Laos

ACISAI, with the Food and Agriculture Organization (FAO) and the SRI-LMB project team in Laos, planned and took part in a project review mission in October 2017. The key mission objectives were: verification of FPAR implementation status in Laos in 2017; holding discussions with District Agriculture and Forestry Office (DAFO) officials to better understand issues related to project implementation; and, collecting information and data concerning crop growth and development from FPAR sites visited.

The mission team visited 25 FPAR sites in eight districts in three provinces. Discussions were held with DAFO officials in eight districts; and with the Farmer Trainers and District Trainers in nine districts across Khammouane, Savannakhet and Vientiane.

At the time of field visit, 59 percent of the FPAR sites were already said to have been harvested in eight of the nine districts. No harvesting had begun in Fouang FPAR plots since the farmers were said to have delayed planting because of late onset of rains. Most of the FPAR sites visited had mature grains ready for harvest in both SRI and Farmer Practice (FP) plots. In SRI plots, transplanting single young seedlings (13 to 23 days old) at wider spacing (mostly 25 x 25 cm) was most common. In FP plots, farmers most commonly transplanted multiple (up to 7) older (14 to 28 days) seedlings per hill using lower spacing (mostly 20x20 cm.)

Lower seed usage, increased tillering, better panicle growth with more grain filling and improved grain quality, potential to use grains as seeds, increased yields and reduced costs were among the advantages of SRI pointed out by the FTs and farmers. Some considered transplanting to be easier with SRI (less area needed for nursery raising, easier uprooting of seedlings, faster transplanting due to wider spacing which also saved time) while others thought transplanting younger seedlings at wider spacing, especially when using hired labor, was difficult, more time consuming and costly. Higher weed incidence and risks of young single seedlings being destroyed by snails or rotting in case of flooding after transplanting, leading to more gaps and lower yields, were the main concerns related to SRI adoption.

For the FPAR sites where data was collected, projected yield per hectare based on farmer estimates showed that for the 13 FPAR sites where comparison was possible, the yields of SRI and FP plots could be equal at one site; at six sites, SRI plots could yield more and in the remaining six, the FP plots may. But in case of the latter, four of the six plots reported crop damage due to snails and diseases.
Building on SRI-LMB project experiences in Thailand

During the Regional Review and Planning Workshop (RRPW, 2017), Ms. Ladda Viriyangkura, Senior Specialist on Rice Inspection and Certification from Thailand Rice Department, had discussed the challenges confronting the Thai farmers, the various driving forces influencing agriculture and the opportunities that could be tapped into to ensure a healthier agricultural sector, and better lives for the farming communities.

The country’s Development Plan for Agriculture is part of the National Strategy No. 3, for strengthening the economy on a sustainable basis. It emphasizes conservation and management of natural resources including water and soils, increasing their use-efficiency, and focusing on strengthening forward and backward linkages in agriculture. The strategy outlined by Ms. Ladda involved working with all relevant stakeholders, from farmers to private sector and consumers, to make agriculture profitable for everyone concerned. And it considered not only working with more efficient and sustainable rice production systems, but also value addition, and ensuring produce quality and traceability, all of which could help in better price realization by farmers.

While scaling up SRI remains a priority for ACISAI, enhancing the center’s scope of work to include other ecological approaches, and issues like certification and marketing, could be useful. Post RRPW, two activities undertaken by the center staff are aligned along this interest.

In September 2017, the Team Leader and the Action Research Coordinator of SRI-LMB project were part of a group visiting two Community Resource Centers (CRC) in Ubon Ratchathani province. The objective was to better understand the project activities of Better Rice Initiative Asia (BRIA) and Olam International. Interaction with the farmers provided insights into the gains made by the project farmers and the challenges faced. Farmer interest in tapping better markets was very clearly reflected during the visit.

ACISAI also coordinated a visit by a European private development consultancy agency to Uttaradit province in November 2017. The implementation partner in SRI-LMB project, the Vocational Training and Development Center for Thai People along the Border Areas (VTDC), organized a workshop with farmers from two villages. The potential idea of experimenting with an alternative ecological approach in rice cultivation linked to produce procurement was discussed during this Event.

This was followed by a one-day field visit to the villages of the farmers who participated in the workshop, so that the external experts could get a better understanding of the field conditions. The final decision on any collaborative project between ACISAI, the external
The NRPW of the SRI-LMB project, Cambodia, was held on 28th November 2017. There were nearly 50 participants, with about 15 women. Besides the staff involved with project implementation from the General Directorate of Agriculture (GDA) and representatives of partner organizations (FAO and Oxfam America), there were participants from two NGOs, HEKS (Swiss Church Aid) and FIDR (Foundation for International Development/Relief), headquartered in Switzerland and Japan, respectively, and Multi Angles Center Co. Ltd., a Cambodian private consultancy company working with rural development.

Mr. Kea Kong, Country Coordinator of the project, welcomed the participants to the workshop. He provided a quick update of the project framework and work done from 2014 to 2017, from setting up CPFARs and implementation of FPARs, to the last activity of training selected farmers on poultry management.

Mr. Ashwin Mysore from ACISAI brought the participants up to date with the major project milestones in 2017.

Dr. Mak Souen, Deputy Director General of the GDA, noted that several gains, including yield enhancement, resulted from the project in Cambodia. He said SRI was especially useful for seed production.

Ms. AlmaLinda Abubakar of the FAO recollected her discussion with Dr. Ngin Chhay, Director of Department of Rice Crop, about how the SRI-LMB project differed from other SRI-related activities in Cambodia. The project approach emphasized and facilitated farmer experimentation with the various SRI practices rather than simply encouraging them to adopt them all as a package.

Presentations by provincial project teams, farmer representatives and researchers involved with the Monitoring, Evaluation and Learning (MEL) surveys provided insights into several gains made from SRI adoption by FPAR farmers, including increased yields and decreased inputs, which overall helped in increasing the profitability for rice growers. They also highlighted some of the factors which could help in promoting SRI practices better. While some activities, like better planning of the training sessions and capacity building of the project staff are easier to handle, the labor shortage discussed as a key constraint to adoption of SRI practices, is not.

Dr. Sophal Chuong, the MEL researcher, noted that while labor shortage was indeed a reality, about 60% of the farmers were smallholders, owning less than one-hectare area; such farmers, if convinced about the utility of SRI practices and were open to making some changes, like extending their agricultural work over a longer period of time, and cooperating with other farmers, could still adopt the beneficial SRI practices. Opportunities for activities to promote scaling up SRI practices hence exist and are required in the country.

Mr. Vanny of Oxfam America noted that the rural service provider teams being supported by Oxfam, which are already operational in two provinces, could be useful to tackle the labor shortage which constrains SRI adoption.

Dr. Ngin Chhay catalyzed an active discussion on the varying perception about the extent of SRI adoption in the country among various stakeholders.

A significant point emerged that this difference is rooted in whether one thought of the SRI practices as a package to be adopted in its entirety or not. For some, an SRI farmer is one who adopts all 12 practices defined as SRI practices in Cambodia by CEDAC. Such people do not recognize partial adoption of the practices and hence, discount the spread of SRI. But, several participants argued, the farmers adopted selected beneficial practices from the SRI suite depending on their situation and experiences. And this counted as SRI adoption too.

The participants also identified several activities that are important for consideration in the post-project period. These included: working with SRP standards, encouraging SRI practices among seed producers, linking farmers to better rice markets through contract farming, promoting ecological practices and varietal trials to enhance resilience of farms and farmers, demonstrating SRI practices over a large, contiguous area, and conducting trials to better understand options for mechanizing rice cultivation.
Supporting Landless and Women under SRI-LMB project in Cambodia

The SRI-LMB project supported training of landless households and women farmers in poultry management. The activity was aimed at strengthening the skills of and create additional opportunities for the trainees to improve their household income. A total of 150 individuals, 89 of them women, in 10 villages across the three project provinces were trained by Farmer Trainers. The project provided a wire cage with 15 chicks, a hen and a rooster for demonstration at every training venue. Each of the trainees received 15 chicks and a wire cage.

The Farmers Field School approach of discovery-based learning was adopted. Nine training sessions were planned from July to December 2017. Together, they covered all aspects of poultry raising, from incubation and hatching of eggs to construction of small cages for raising birds; from pest and disease management and feeding practices to economic analysis of the enterprise. A monitoring visit was conducted by a team consisting of the SRI-LMB project staff province on the day of the visit.

Experience of Cambodian farmers with SRI adoption

The monitoring team also utilized the opportunity to visit project farmers in six villages in the provinces of Takeo, Kampot and Kampong Speu to understand some of their experiences with adoption of SRI practices. Transplanting younger, fewer seedlings per hill at a wider spacing along a row was most commonly associated with SRI by the farmers. The time of onset of rains was an important factor in determining the age of seedling transplanted; delayed rains meant transplanting aged rather than younger seedlings. The farmers reduced planting distance in case of lower soil fertility and higher age of seedlings available for transplanting.

The farmers identified several benefits of SRI, including:

- Advantage of identifying off type plants easily, which is important for seed production
- Reduced seed costs because of lower seed usage
- Decreased costs of transporting seedlings from nursery to main field
- Higher yields (by 20 to 30%, though other factors like soil type and rainfall received also influence)
- A healthier crop.

Additional benefits of the FPAR training were visible too. For e.g. the FPAR farmers were more conscious about using better quality seeds. They tried to increase the organic manure application to their lands. The SRI practices that the Cambodian farmers find to be useful are centered around transplanting seedlings. The farmers reflected that decision on whether to transplant or not is based on factors like availability of water source (which is used for inundating fields for weed management), location of land in the lower slopes (which encourages transplanting) and access to adequate labor at reasonable costs, with the latter being very influential.

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