

Adoption and adaptation

Between 2004 and 2010, the *Groupe de Recherche et d'Echanges Technologiques* (GRET) supported the introduction and dissemination of SRI in Myanmar's Northern Rakhine State, as part of a series of projects aiming at ensuring food security. Based on this initial experience GRET started to introduce the System of Rice Intensification in the Ayeyarwaddy Delta in the aftermath of Cyclone Nargis. Working in a new setting and context, the overall results were different – but no less interesting.

Pierre Ferrand and Hla Min

With more than 800,000 inhabitants, the Northern Rakhine State is one of the most densely populated areas of Myanmar. Situated on the western coast of Myanmar and bordering Bangladesh, it remains one of the least developed parts of the country and suffers from low income, poverty, malnutrition, and poor infrastructure. A high proportion of the population is made up of small-scale or landless farmers who can only partially meet their household food needs. Farmers lack information and marketing options, and inputs, such as seeds and fertilizers, are unavailable. SRI seemed like a good option for meeting our overall objectives of increasing rice production and supporting the most vulnerable farmer households.

An evolving methodology During the first two years, GRET introduced SRI with demonstration plots, open field experiments and the use of incentives. Our objective was to convince farmers of the advantages of SRI and to increase the number of participants in the Farmer Led Experiments im-

plemented by the project (see box).

Our strategy changed after the 2006 rainy season as, although more and more farmers seemed convinced by the approach, the total acreage under SRI cultivation remained low. This meant providing the tools needed by farmers and paying more attention to training and supporting local groups. We started working with farmer facilitators, organising six technical meetings per season, focusing on aspects such as transplanting, weeding and harvesting. We found out that the availability and price of the iron rotary weeder promoted by the project was one of the main obstacles to adoption of SRI, so we worked to design a new weeder which was not only lighter but also more affordable.

After four years, we could see the results of our work in the fields of many farmers. Having worked with up to 5,700 farmers, a brief assessment showed that 18% of the summer paddy farmers in the area were practising SRI, with 9.3% of the area's total acreage being cultivated in this fashion. SRI produced higher paddy yields than traditional farming practices: yields were about 700 kg/ha higher soon after the beginning of the project in 2005, and up to 1.4 tons/ha higher in 2007.



Trying out a direct seeder for summer rice. Photo: Pierre Ferrand

Results and lessons learnt An impact assessment carried out at the end of 2008 showed that about 80% of the SRI users wanted to continue practising SRI in the next season. We also found that half of all SRI users had modified the recommended techniques according to their specific conditions, a clear consequence of the approach we followed, and of the farmers' engagement in the participatory action research process.

Unfortunately, GRET left the area in 2010, and because of restrictions and limited accessibility it was not possible to continue monitoring the situation. Yet we could talk of a "critical mass" and a "self-dissemination point". As a result of our strategy, we were able to reach a large number of farming households in the area, regardless of their status. This led to a thorough and sustainable dissemination of SRI. The clear advantages of SRI were another factor: farmers were especially interested in SRI as yields increased, and because a smaller amount of seed is needed. The need for labour was not a hindrance to the uptake of the technique, as labour is plentiful in the area.

Based on the experience gained in Northern Rakhine State, GRET was convinced that SRI could be beneficial in other areas too. After the damage caused by Cyclone Nargis in May 2008 we decided to work in the Ayeyarwaddy Delta, fully aware that this region has different characteristics.

Into a new area The Ayeyarwaddy Delta is a rice growing area with thousands of acres of rainy season and summer rice. Summer rice was introduced

Extension approaches

In both project areas farmer facilitators played a key role in reaching out to more farmers, both during training sessions and support visits. In both cases, they were an important part of the Farmer Extension Groups and of the Farmer Led Experiments. Our training sessions were built around demonstration plots, with a group of farmers gathering regularly during the season to focus on the main challenges in the field. Each demonstration plot was no larger than one third of an acre, in order to be easily manageable but still big enough to work as an on-site experiment. Training handouts were prepared by GRET agronomists and provided to each farmer at each session.

The Farmer Led Experiments were run by those already involved in a Farmer Field School or a Farmer Extension Group, and who wanted to continue experimenting with new practices on their own plot under the guidance of a local expert. Usually, the issues covered were proposed by the farmers themselves. Exchanges between individuals were a central part of this approach, and meetings were organised regularly. The plan was to build a participatory and long lasting process at the grassroots level, with farmers setting their own experiments and learning from each other. The provision of inputs was kept at a minimum in order to ensure ownership and the sustainability of the process.



From experiments to “customised versions”.

Photos: Pierre Ferrand / GRET

in the early 1990s and then spread to practically all the rice fields where fresh water is available. It is cultivated with early-maturing varieties, and it yields twice as much as local varieties of rainy season rice. However, after more than a decade practising the same crop management (including broadcasting more than 300 kg of seed per hectare), farmers were suffering from the cumulative effects of pests and diseases and soil degradation, and were also vulnerable to price fluctuations. The impact of Cyclone Nargis in the area only added to these difficulties.

GRET decided to introduce SRI, relying first on demonstration plots and farmers who act as contact points, and then supporting the formation of Farmer Extension Groups. Special attention was given to the local production methods and context, and to the farmers’ major concerns, such as the availability of seed and the fertility of their soils. Starting in the 2009 summer season, our project targeted experienced farmers with an interest in trying out new practices. The SRI principles were discussed with farmers in awareness meetings. Farmers were selected to host the demonstration plots, where farmers experimented with early weeding, transplanting young seedlings, shallow transplanting, and the use of fewer seedlings per hill.

The total amount of seeds used in all the demonstration plots was significantly lower than normally used (an average of 115 kg/ha). And the harvest records showed that yields were not lower than those obtained with the conventional practices – although they were also not

higher. As in other areas, we saw that certain conditions needed to be met. In the Delta, farmers broadcast a high amount of seeds as a way to suppress the growth of weeds. The farmers had no time to tend the nurseries, nor for transplanting the young seedlings, especially as the farmers here manage large areas. In addition it was difficult (and expensive) to find skilled labour for transplanting the seedlings.

More results, more lessons learnt

In 2010, the harvest records of the farmers we were working with in 37 different villages showed positive results, both with local varieties and with two “improved” high-yielding varieties. While the local varieties showed an average increase of 17 per cent (+ 450 kg/ha), the “improved” ones yielded 19% (+ 750 kg/ha) more compared to the traditional rice production systems. Although positive, these results also showed that SRI is not a package or a recipe to follow in all areas and all farming households.

The uptake of SRI was much lower in the Delta than in Rakhine. In the Delta, the average area managed by each farmer family is larger, and farmers are used to seed broadcasting methods. The availability of labour and the transplanting skills, as well as the access to finance for hiring labour, were amongst the main hurdles identified. Other farmers mentioned the lack of time (the planting period is short and this does not let farmers cover a large area) and a lack of equipment. Much better adoption rates were seen with seed producers, who are already used to providing extra care to their plots; they could cover the additional labour costs by getting a better price for the higher quality seed. In 2010, seed producers increased their incomes by 40 per cent.

Our work in these two different areas showed how, before any introduction or demonstration, it is important to carefully consider the agro-ecological and socio-economic conditions in the target area. These will influence the uptake and impact of SRI. This also showed the need to adjust our practices, switching from transplanting to direct sowing and testing two different mechanical seeders. Building upon the findings of these first years, the project in the Delta has supported the introduction of “customised versions” which still lead to lower production costs and higher yields, and contribute enormously to improved food security and livelihoods.

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