

REPORT ON S.R.I. VISIT TO INDONESIA - January 8-13, 2003 - Norman Uphoff

Having planned to attend a national SRI workshop in Cambodia, January 15-17, I planned a visit to Indonesia beforehand to learn from our colleagues in that country how SRI activities are proceeding. This will be a summary report.

1. The **Agency for Agricultural Research and Development (AARD)** has satisfied itself and its parent ministry, the Ministry of Agriculture, through three years of evaluation, that SRI methods enhance rice productivity and could help break out of the rice yield stagnation that Indonesia has experienced in recent years. Evaluations have been done at AARD's central rice research institute at Sukamandi under the leadership of Dr. Anischan Gani, who took over responsibility for SRI evaluation from Dr. Sunendar Kartaatmadjah in 2001 when Pak Sunendar was made director of AARD's Assessment Institute for Agricultural Technology (AIAT) in Central Java.
2. SRI methods (young seedlings, single seedlings, wider spacing, reduced water applications during the growth phase, soil-aerating and weeding, and buildup of soil organic matter) have been incorporated -- along with IPM methods and inorganic nutrient management, using a leaf color chart (LCC) to assess rice plants' nitrogen status -- into AARD's **Integrated Crop and Resource Management** strategy, known as ICM. This strategy was evaluated in 8 provinces last year with good results and is now being spread within those provinces and being extended to 14 provinces (27 districts) under this year's implementation plan.
3. In July, 2002, an SRI network was established with Dr. Gani as its coordinator, working from his base at Sukamandi. It includes the Indonesian IPM program, which has pioneered farmer field school methodologies and agroecological thinking about rice-based farming systems, as well as NGOs such as ADRA (the Adventist Development and Relief Agency), the Field Foundation,¹ CRS and World Education. Gani has already participated in staff and farmer training programs organized by network partners and has prepared training materials in Bahasa Indonesia. CIIFAD has offered to provide the network with a computer and internet connection to facilitate internal and external communication, but to transfer funds for this some formal agreement needs to be executed between AARD and CIIFAD. Gani will be working to get this finalized.
4. On January 9, a seminar on SRI was held at AARD headquarters in Jakarta, hosted by Dr. Djoko Said Damardjati and Dr. Haryono, with good attendance from network members. Also attending were Dr. Achmad Fagi, former director of the Sukamandi station, formerly secretary of AARD, and a member of the IRRI board of directors; Dr. Faisal Kasryno, former director-general of AARD; and Dr. Effendi Pasandaran, former director of AARD's Centre for Agro-Socio-Economic Research (CASER). Pak Fagi, Pak Faisal and Pak Effendi are all advisors to the Ministry of Agriculture and AARD and have known about SRI for some years now and been supportive in getting it evaluated. Ir. M. Napitupulu, secretary-general of the Indonesian Water Partnership also attended as a potential new member of the SRI network, being interested in its water-saving potentials.

¹ This is an NGO that supports ongoing IPM activities with farmers in Indonesia now that the FAO program that launched IPM there has been concluded.

5. On January 10, a presentation on SRI was made at the **Centre for Development Studies** at IPB, the country's main agricultural university in Bogor. The former director of the Centre is now Minister of Agriculture and has been interested in SRI since 1998. The current director, Dr. Bayu Krishnamurti, continues this interest. A representative of a Bogor-based NGO working on IPM in Indonesia expressed interest in working on SRI after the presentation.

6. In the afternoon, Dr. Effendi Pasandaran, Dr. Gani and I met with Dr. Pantjar Simatupang, director of the **Centre for Agro-Socio-Economic Research** in Bogor and with the head of CASER's research department, Dr. Nizwar Syafaat. CASER is planning to do an economic evaluation of ICM, which was discussed as well as other socio-economic issues. For this, Dr. Gani will assist CASER with written information on ICM. It was good to have an opportunity to share what we know so far about SRI with CASER.

7. On January 11, a seminar on SRI was presented at AARD's **Rice Research Institute** at Sukamandi, with senior research staff there and representatives of Field-Indonesia and the IPM program. Several staff acknowledged their earlier skepticism about SRI and its potentials, but now that evidence and plausible explanations are accumulating, it is becoming seen as an important augmentation of rice science.

8. Gani showed us his field trials of SRI, and we also saw an interesting dimension of the ICM strategy, which seeks to include crop-livestock interactions within more productive rice-based farming systems. Rice straw is enriched with microorganisms and urea to raise digestibility from 25% to 50%, while straw is used as bedding for confined, stall-fed cattle, producing manure- and urine-rich material that is further enhanced as compost through microbiological action. This is still in the demonstration stage, but experimental results are very impressive (and the cattle looked marvelously healthy and sturdy). Cattle can become "organic matter factories."

9. As an aside: Bruce Ewart of ADRA told me about a rather unexpected example of crop-livestock integration with SRI. One of the farmers in West Timor had a nice SRI plot growing, which had enough tillering that he was expecting an 8 t/ha yield. One night a horse got into the field and ate the crop back to its stubble. Initially, hope for the field was lost, but the plants with their strong root systems recovered, and eventually, a yield of **12 t/ha** was harvested. Ewart said he has heard of some farmers in the Philippines allowing their cattle or buffalo to graze their immature rice fields to "shock" the plants into giving higher yield, while also yielding nutritious fodder. Some experiments should be done on possible benefits from such grazing, at what age and how extensively. Rice could become a supplementary fodder crop, giving as good or better yields while feeding livestock.

10. The **IPM program** has done its own SRI trials in four provinces. Farmers are happy with the methodology, according to Arief Lukman Hakim of the Field Foundation. Doubling of yields has been common. The average figures he cited were 5.6 t/ha with improved methods, through the farmer field schools, and 9.5 t/ha with SRI methods. The national average is 4.5 t/ha. Workshops have recently been held in four locations in eastern, central and western Java. One interesting conclusion from farmers is that **SRI does not require any increase in labor**, which has been reported also by farmers in Madagascar, Sri Lanka, Cambodia and other countries.

11. Farmers in the IPM program in Ciamis, Central Java, have been practicing and evaluating SRI since 2000, with good results. They are now quite knowledgeable and enthused regarding SRI. Arief showed us four CD videos that IPM farmers have produced on SRI, complete with attractive pictures on the disk and jacket. Unfortunately, he could not copy them before I left so he will send copies soon to Cornell, where we can make these productions available on the SRI home page on the web. It is very gratifying to see farmers so keen on SRI that they would produce their own extension materials, and would do this in such a sophisticated way.

12. Water management is often a problem, either because of too much or too little, or because farmers do not have independent access to water but must get it in a cascade (field-to-field) system. Farmers are finding that SRI plants can have considerable survival power with water deficits, if gotten well started. Some farmers have tried 4-day-old seedlings. In one location, they were swept away by flooding, but in two other locations, farmers decided that they like such really young seedlings better.

13. The traditional/conventional practices that need to be superceded differ considerably from SRI: 21-25 day seedlings, spaced 10x10 or 10x15 cm, planted 7-12 to a hill. Traditional varieties are being used with SRI methods to good effect. ADRA reported that one farmer got a yield of **11.2 t/ha** with a traditional variety, Sri Putih. One innovation in nursery management is to plant seeds in soil on top of a gunny sack that can be pulled to the area where seedlings are to be transplanted when they reach the desired (young) age. In most places, weed control is the main problem for SRI adoption. Farmers need access to effective, cheap weeders. So far there have been positive responses from district governments, one providing land for SRI trials. They are starting to give SRI support in their development budgets, along with farmer field schools.

14. The most dramatic SRI results have come from farmers cooperating with **ADRA**, the Adventist Development and Relief Association. The first 7 who tried SRI in West Timor averaged 11.7 t/ha, compared to 4.4 t/ha on their regular fields, which already were yielding more than double the average for their area, about 2 t/ha. About 600-700 farmers are now using SRI there, and probably 2,000 farmers will use it SRI in this coming season. The remarkable thing is that these really high yields are coming **without water management**, just from using single, young seedlings with wide spacing -- also compost and weeding. Yields should be even higher once farmers start using recommended water control. The one farmer this past season who did maintain water control averaged **12.4 t/ha**, indicating this further potential.

15. In Lampung, 40 farmers working with ADRA who tried SRI in 2001 got yields of 8.5 t/ha, almost three times the usual yield of 3 t/ha. Plots averaging 100m² were set up in 45 places. ADRA was also introducing *bokasi*, a special compost method developed in Japan. Using molasses and sugar with rice straw, and also some microorganisms to speed decomposition, compost can be made in as few as 7 days. Farmers in Lampung like this, according to Ewert.

16. ADRA as an organization has become quite interested in SRI promotion. The New Zealand branch funded production of a professionally-made video on SRI methods, using farmers and their fields for the filming. This video, to be distributed in Bahasa and in English, is now being finalized. The famous Indonesian popular singer, Maya Rumantir, has learned about SRI and

offered to pay for mass distribution of the video, and to promote it on national television. She is famous for a song where she stands in a rice paddy, with bamboo hat, so this will open the video. This will be our first test of "social marketing" for SRI.

17. I spent several hours on January 12 with Bruce Ewert at his home in Jakarta, talking about ADRA's experience with SRI and about the experience I know from other countries and organizations. ADRA is working with World Education, represented in Indonesia by Matt Zimmerman, a recent graduate of Cornell (Master of Professional Studies/International Agriculture and Rural Development), to help the ADRA field staff take more farmer-centered and participatory approaches to SRI diffusion.

18. Later that day, I spent four hours with **Dr. Sjarifuddin Baharsjah**, former Minister of Agriculture and member of the IRRI board of directors. I had first told him about SRI during his visit to Ithaca in June 2000, but he had found it hard to believe. During our discussion this time, I could provide him with more data from many countries, including Indonesia, and also show him impressive pictures of what SRI can achieve, as well as offer explanations, tables and graphs from scientific research, etc. that support and clarify what we have been saying about SRI.

19. Pak Sjarif offered to take initiative on behalf of SRI to get more active collaboration among government, NGO and farmer associations. He spends much of his time, now that he is retired from politics and administration, working with the national federation of IPM farmer associations, and he is chairman of the board of directors of the Field Foundation. Pak Sjarif is thus in a good position to provide leadership for SRI, especially given his IRRI connections. His support is most welcome.

20. The morning of January 13 was spent at the **Field Foundation** office in a meeting set up by Russ Dilts, who worked with FAO's IPM program in Indonesia for a number of years and who continues as an advisor. I showed a powerpoint presentation on SRI to staff of the Foundation, with Ewert and two key ADRA staff, Agusman Rizal and Hartjahjo Ariawan, also present. The desire for cooperation among network partners was very evident and encouraging.

21. Indonesia is a gigantic country, and its current political uncertainties add to the normal inertia present in a very bureaucratic system, dispersed over many islands, with numerous logistical, financial and linguistic problems. It is the third most important rice-producing and consuming country in the world. There is great pressure on the government to get rice productivity growing again, to reduce both of its problems of economic stagnation and rural poverty at the same time. There is growing concern with environmental problems as well.

22. One of the root causes of rice yield stagnation appears to be the low levels of organic matter in the soil, usually less than 1% when they should be at least twice that. The heavy use of chemical fertilizers and pesticides over several decades has contributed to problems of soil health. There is also growing concern about water supply and shortages in the future. Thus SRI comes at a very opportune time. There are some fine partners in Indonesia intent on cooperating across the sectoral lines that normally compartmentalize and stultify action. Especially if there are going to be growing farmer initiatives to evaluate and disseminate SRI knowledge and methods, it is possible that SRI benefits could be diffused fairly rapidly in this huge country.