REPORT ON SRI VISIT TO PHILIPPINES, March 19-28,2004 - Norman Uphoff, CIIFAD

This trip was undertaken so that I could participate in two workshops being arranged by Leyte State University, under a grant that CIIFAD has from the Association Liaison Office (ALO) in Washington, D.C. to promote inter-university cooperation for development. My program was set up by Roberto (Obet) Verzola, coordinator for the growing *SRI-Pilipinas* network, established by a number of NGOs to evaluate and disseminate SRI under Philippine conditions. These NGOs include Broad Initiatives for Negros Development (BIND), a farmer NGO known as Pabinhi, the Philippine Greens, and the Philippine Rural Reconstruction Movement (PRRM). Below is a report of a national SRI workshop organized to coincide with my visit:

National SRI Workshop, March 19

On Friday, a national SRI workshop was hosted by PRRM in Quezon City, with over 70 persons attending from 12 provinces. This was set up with just two weeks' notice. About 25 farmers who are already practicing SRI came to share their experience with the group and learn more about SRI. The rest were NGO leaders and staff, staff from the Department of Agriculture's Bureau of Plant Industry, several nuns and priests, faculty and students from different colleges and universities, journalists, consultants and private sector representatives, one candidate for mayor, and one self-described 'housewife' who had heard about the workshop on the radio and came to learn about SRI so she could share this knowledge with farmers on her home island of Palawan. This cross-section was an impressive representation of 'civil society' in the Philippines, seldom seen elsewhere coming together on such an amicable and intimate basis.

In his opening remarks, the president of PRRM, Wigberto Tañada, introduced me as a *balikbayan*, the Tagalog word used for Filipinos from abroad who are coming home, noting that this was now the third national SRI workshop hosted by PRRM, preceded by workshops in April 2002 and March 2003, with numbers and interest growing each time. I was given an hour and a half to report on SRI experience in other countries and to offer explanations for SRI success based on what we are finding in the scientific literature or on original research. These can account for how SRI methods produce, counterintuitively, more from less:

- why smaller, younger seedlings become larger, more productive plants;
- why fewer plants per hill and per square meter give higher yield when grown under SRI conditions;
- why applying less water to rice fields results in higher production; and
- why using fewer or no chemical fertilizers and agrochemicals leads to greater output.

There are good reasons for each of these 'anomalous' relationships, which I won't elaborate here. In brief, the explanations include the fact that SRI root systems growing in aerated soil do not degenerate, as happens in continuously flooded fields, and are much larger and function longer and better. Soils that are aerated and well supplied with organic matter can support larger, more diverse populations of soil organisms, including both aerobic and anaerobic microorganisms. The application of various fertilizers and other agrochemicals has inhibiting effects on such populations of soil biota.

The book I was reading during my flight to Manila, *Phytohormones in Soils* by Frankenberger and Arshad (1995), explains, for example how phytohormones produced by bacteria and fungi

living in the soil and roots promote root growth and the health of plants. Plants growin in soils that are continuously flooded lose the benefit of hormones such as auxins and cytokinins otherwise provided by aerobic bacteria and fungi to stimulate larger roots, which in turn provide more exudates, particularly carbohydrates, that give these organisms energy. The scientific foundations for SRI are becoming stronger month by month, and workshop participants were interested to know about them.

The first comment from the floor was from a farmer who said that farmers in the Philippines are "losing confidence in rice production as a source of livelihood." He said that SRI may give them hope again. "Let's not worry about the possibility of getting super-yields of 20 t/ha; let's just make sure we get 10 t/ha." He said it was good to stress the importance of ecological balance in the soils. "In the Philippines, the sale of fertilizers, pesticides and hybrid seeds has become a big business." They will surely challenge SRI, but "we are not afraid of them." I commented that because the advantages of SRI methods are so great and evident by now, we can use the language of U.S. president George Bush and his challenger, Sen. John Kerry: "Bring it on." I said that the attacks on SRI are just now starting to appear in the scientific literature, holding up the page proofs of an article to appear soon in *Field Crops Research*.

Although it claims to be a scientific refutation of SRI, the article is not based on any systematic empirical data that fairly test SRI concepts. Instead a priori arguments and modeling are presented to support the assertion that the top yields reported with SRI are impossible. All of the article's objections can be countered, however, by data from replicated trials or from what is already accepted in the scientific literature. Until now, SRI has been ignored, not taken seriously by most mainstream agricultural interests. Now that SRI is gaining prominence and momentum, we can expect more controversy. We should respond by calling attention to solid field results and to uncontestable scientific evidence and principles, offering to resolve any disagreements by empirical testing. When SRI methods have been used properly, they have shown their superiority 90- 95% of the time. With biological phenomena, nothing comes out the same way 100% of the time. A feature article on SRI scheduled to appear in the March 25 issue of *Nature*, one of the world's leading scientific journals, may help to satisfy some of the skeptics.

Ernie Ordoñez, a former undersecretary of the Department of Agriculture and before that in the Department of Trade and Industry, spoke next, saying that SRI, which he had learned about before the workshop, offers great possibilities for the Philippines. However, most of the Department of Agriculture's resources and extension efforts are currently going into promoting the adoption of hybrid varieties. While these can confer some agronomic benefits, they entail high cost for farmers, and farmers become dependent upon seed supply because they cannot replant hybrid seeds without a loss of hybrid vigor. He noted with regret that a seminar that I was scheduled to give the following Tuesday at the Department of Agriculture's Bureau of Agricultural Research (BAR) to introduce SRI to DA researchers had been summarily cancelled the day before. He said that he would try to get it reinstated. He said that an Assistant Secretary of Agriculture, when informed of the cancellation, had told him it was unfortunate.

A farmer from Pangasinan asked about the application of organic fertilizer: how much is needed? I said that the very highest SRI yields, as high as 21 t/ha, have come with very high and continued application of good-quality compost over a number of years, in this case at a rate of

about 40 t/ha. This is a very high rate, but the very yield obtained (after 6 years of SRI cultivation) more than repaid the effort. On the other hand, we have found that even small amounts of compost can give good results. Replicated trials in Madagascar have shown that 1-2 t/ha of compost when used with SRI methods can give yields 80-90% as high as with applications of 4-8 t/ha of compost. It appears that even a small amount can 'incite' or 'catalyze' biological processes in the soil that support rice growth. We do not want to make any specific recommendations but rather indicate a range of possibilities which farmers should evaluate and can decide on for themselves, considering their production needs, their soil status, labor availability, etc. Smaller farmers who have need to get the highest production from their small amounts of land are in a better position, and have more motivation, to apply large quantities.

The housewife spoke next, saying there was a real 'thirst' in the Philippines for this kind of technology (using a word that we do not). She said that in Palawan, they use very traditional methods, and there are no agricultural technicians to visit farmers, "even though we pay taxes too." She had thought that only imported GMOs (about which there is currently much controversy in the Philippines) could help them, but hearing about SRI she is very hopeful.

A farmer who used organic fertilizer next offered his suggestions about use of chicken manure and other materials, sparking off a lively discussion about use of different kinds and amounts of organic sources, with suggestions made in Tagalog that I could not follow.

The next question was whether SRI is compatible with hybrid rice. The Philippine government has made a decision to devote a large share of its agricultural budget to promotion of hybrids, and this is now controversial, especially among persons in the sustainable agriculture movement which is growing in the country. I explained that Prof. Yuan Longping, 'the father of hybrid rice' in China, has himself evaluated SRI methods and found that they can add 1-3 t/ha to the already higher yield of his varieties. He has been the most important supporter of SRI use in China. We find the two approaches to raising yield compatible, and the much lower seeding rate with SRI greatly reduces the cost for farmers of using hybrid seed, which is a major stumbling block for its adoption. At the same time, farmers with SRI methods can often get yields comparable to those they would get with hybrid seed but using whatever varieties they currently plant, not needing to purchase new seeds, and with fewer costly inputs. SRI is thus an option to use of hybrid seeds.

A farmer said that he supported what had been said about this "Madagascar technology." He had himself tried single seedlings, spaced 25x25 cm, but in a small area, only about 1,000 seeds. He didn't have exact yield results to report but said that the performance was good. He advised others to use their rice straw as compost or mulch. "We should return everything to the soil, not burning straw." He described how a mixture of manure with rice hulls enabled him to get 40 cavans from one-quarter hectare, which would be an 8 ton yield.

Many participants were interested in this matter of how best to improve soil fertility. One farmer told how he had been getting a yield of 70-80 cavans (3.5-4 tons), and when he stopped using chemical fertilizer, his yield dropped, as often happens when soil has had continuous applications of fertilizer for some time. But he kept on putting straw back into the soil, and within three years he was back to 80-cavan yields. "Don’t be in a hurry," he advised. "Once you

have made the transition, your farming will become much better. If you can't afford to do this all at once, don't start with the whole field, but just on a portion and expand it year by year."

Next, Ms. Maria Lourdes (Malou) Edaño, assistant professor from the Agronomy Department at the University of the Philippines, Los Baños, reported on dissertation research on SRI done by a UPLB student, Oswald Marbun, who could not be present. This research was done in 2001 comparing three systems of cultivation: conventional management, SRI, and the Masipag system promoted by a farmer NGO. Unfortunately, the SRI spacings he used were 20x20 cm (too close in our experience) and 40x40 and 50x50 cm, which is too wide for best results with SRI methods until soil quality has been built up. He used neither 25x25 nor 30x30 cm which we recommend as the starting distances. The Masipag spacing was 10x40 cm; conventional was 20x20 cm.

SRI methods gave a significant gain in number of tillers per plant and grain yield, but the sparse spacing was not, in my view, a good test of SRI, and gave only a 3 t/ha yield. Also, this was an on-station result, and we often find that yields from such trails, because of soil conditions, are lower than those obtained with SRI methods on farmers' fields. Marbun's results at the UPLB station in Los Baños were surpassed by the 5 t/ha yield on farmers' fields in Laguna that he reported from a second set of SRI trials reported in his thesis, and by the 8 t/ha obtained with SRI methods in subsequent UPLB student research.

Next, Rene Jaranilla, a farmer from Guimaras in the Western Visayas and a member of the Pabinhi board of directors, gave a powerpoint presentation on his experience with SRI. He started with a picture of some of his SRI plants, a traditional variety, towering over his head, 6 feet tall. He used only 6-8 kg of seed/ha, and 8-day seedlings. He showed pictures of how the seedlings were removed carefully from the nursery on pans, inserting the words "with tender, loving care, to avoid damage to the roots" into his Tagalog narrative. Seedlings were laid gently into the ground to keep the root horizontal, not with tip inverted upward. "The root should be like an L, not a J," he said, using one of the expressions found in many of our SRI manuals. He tried 25x25, 30x30 and 40x40 cm spacings, and found that 30x30 cm gave best results. He started weeding with a rotary weeder at 10 days after transplanting, "to oxygenate the roots of the plants," he explained, then doing 3 more weedings, until the canopy closed.

His pictures were graphic and beautiful and the explanation was clear. He included a case study of a neighboring farmer, Dionito Eñano, who had used 11 varieties and staggered planting to optimize labor demands. He had undertaken soil improvement using ash and charcoal, peanut shells and coffee hulls, cow and carabao manure, and rice straw. To facilitate the movement of seedlings to the field for planting without root damage, Dionito used container lids and metal basins, shown in a slide.

Rene reported that his yield with SRI methods was 4.1 t/ha compared with 1.8 t/ha using conventional methods and chemical inputs. He presented detailed figures on costs of production: 12,310 pesos/ha with conventional methods, and 7,510 pesos/ha with SRI. The gross income from conventional production was 9,000 pesos/ha and from SRI, 17,400 pesos/ha. So his net income from conventional methods was a loss of 3,310 pesos/ha, while with SRI he had a profit of 9,890 pesos/ha. He added that these figures were from 2002. In 2003, his SRI yield was higher -- 7 t/ha -- so his profit was now much higher, though he couldn't give us exact figures. However,

with 70% more output per hectare, his profit could have even doubled because there would have been a less than proportional rise in his costs of production.

Rene provided detailed data from each of the 28 *kahons* (parcels) that made up his rice farm: on area, the variety planted, dates of planting and harvesting, and yield. His closing slides echoed the theme of my earlier presentation:

Natural Law of Parsimony -- a qualitative maximum from a quantitative minimum: Less = More

> *Minimum No. of Days after Germination ⇒ Maximum of Vitality and of Stalks*
> *Minimum Use of Water ⇒ Maximum of Root Oxygenation*
> *Minimum No. of Seed ⇒ Maximum of Light and Vital Space*
> *Minimum No. of Weeds ⇒ Maximum Nourishment for Rice*

Clearly Rene had read carefully our papers on SRI 'theory.' Here he was presenting it to the group in his own words, with impressive productivity and profitability gains to back them up. Hearing a rice farmer who has only 1.5 acres of his own land to cultivate presenting SRI so clearly and persuasively, with both humor and quantification, was quite inspiring. If farmers everywhere in the Philippines could hear Rene present his experience and ideas, SRI would surely spread rapidly. (He gave me his powerpoint presentation to make available upon request.)

Next, Dobech Mulu, who had recently completed her master's degree in agronomy at the University of the Philippines, Los Baños (UPLB) reported on her thesis research, on Effect of Seedling Age, Spacing and Season on Phyllochrons, Yield and Components of Yield with SRI. It had been supervised by Prof. Oscar Zamora, who had sponsored my talks on SRI at UPLB in February 1999 and again last year. Fortunately, we were holding the workshop before Mulu returned to her home in Ethiopia so we could hear the results of her research on how the length of phyllochron varies according to seedling age and spacing. Phyllochrons are periods during with one or more leaves, together with stalks and roots, emerge in a physiologically regular and mathematically interesting pattern of plan growth.

This particular research has not been done before as far as I know. Mulu considered the influences of both season (wet vs. dry season 2003) and variety (local vs. improved -- specifically, Elon-Elon vs. PSBRc-82) on phyllochron length, tillering, yield, etc. The ages of seedlings evaluated were 8, 15, 20 or 25 days, with 8 and 15 being ages preceding the plants entering its fourth phyllochron of growth. The spacing effects considered were for 20x20, 30x30 and 45x45 cm, with 20x20 cm spacing being closer than recommended with SRI and thus a baseline distance. Mulu's data confirmed much of what we already understand about the effects of seedling age and spacing, but they showed the relationships with a specificity and regularity that has not been known before.

The length of phyllochrons was seen to be definitely shorter for younger plants, 8 days and 15 day days old, than for 20-day or 25-day plants, and shorter in the wet season than in the dry season (Table 1). Mulu noted that the dry season in 2003 was a very water-stressed one, however, the relationship observed would probably hold for a more normal dry season. Table 2

shows that phyllochrons are somewhat shorter for the improved variety (PSBRc-82) than the traditional one (Elon-Elon) in both seasons.

Table 1. Length of phyllochron (days) according to age of seedlings and season

Season	8 days	15 days	20 days	25 days
Dry season	5.3	4.9	6.0	6.5
Wet season	4.7	4.5	5.6	6.2

Table 2. Length of phyllochron (days) according to variety and season

Season	Elon-Elon	PSBR 82
Dry season	5.7	5.5
Wet season	5.5	5.1

Both varieties of rice had more tillering and grain filling when seedlings had been transplanted at 8 days or 15 days, with little difference between these two ages in most comparisons (Tables 3 and 4).

Table 3. Number of tillers per hill according to age of seedling and variety by season

	Season	8 days	15 days	20 days	25 days
Elon-Elon	Dry season	**30.5**	30.1	29.6	16.6
	Wet season	68.0	**68.6**	40.4	38.0
PSBRc-82	Dry season	**27.0**	22.2	21.6	18.2
	Wet season	**53.6**	49.7	42.4	35.6

Table 4. Filled spikelets (number) according to age of seedling and season

	Season	8 days	15 days	20 days	25 days
Elon-Elon	Dry season	**265.7**	234.9	233.5	212.9
	Wet season	**290.8**	288.3	263.4	249.2
PSBR 82	Dry season	98.8	**112.8**	99.9	94.3
	Wet season	**109.2**	108.9	107.3	102.4

Then, as seen from Table 5 below, grain weight per panicle and per hectare were higher for 8 or 15-day seedlings than for 20 or 25-day seedlings. Plants from younger vs. older seedlings yielded 4.0 vs. 3. 4 grams per panicle, and 5.9 vs. 4.5 tons per hectare, about one-third more.

Table 5. Grain weight per panicle (grams) and yield (t/ha)
according to age of seedling and season

	Season	8 days	15 days	20 days	25 days
Grain weight	Dry season	**4.0**	3.7	3.7	3.4

	Wet season	4.1	**4.2**	3.5	3.1
Yield	Dry season	**3.9**	3.8	3.6	2.5
	Wet season	7.8	**8.1**	6.1	5.9

With regarded to spacing, wider distances between plants shortened the length of phyllochrons. As seen in Table 6, there was little difference between 30x30 and 45x45 cm spacing, but close spacing, 20x20 cm, lengthened phyllochrons by 13-17%.

Table 6. Length of phyllochron (days) according to spacing and season

Season	20x20 cm	30x30 cm	45x45 cm
Dry season	6.1	5.5	5.4
Wet season	5.6	4.9	4.8

There was a definite varietal difference in the plants' response to wider spacing. The traditional variety, Elon-Elon, increased its tillering by 83% when spaced 45x45 cm vs. 20x 20 cm, while the improved variety, PBSR 82, had only 45% more tillers at the wider spacing (see Table 7).

Table 7. Tillers per hill according to according to spacing and variety, in wet season

Variety	20x20 cm	30x30 cm	45x45 cm
Elon-Elon	16.2	28.6	29.7
PBSR 82	16.0	21.8	23.3

Filled spikelets went up 20% in the dry season with wider spacing (in a water-stressed season) and 32% in the wet season (Table 8). This is consistent with what we have often observed with SRI, that with the root systems functioning better there can be both more tillers per plant (per hill) and larger panicle size (i.e., filled spikelets), which contributed to higher yield.

Table 8. Filled spikelets (number of grains) according to spacing and season

Season	20x20 cm	30x30 cm	45x45 cm
Dry season	146.6	174.5	176.7
Wet season	178.7	217.0	234.1

The ultimate effect is to have higher grain weight and higher yield, as seen in Table 9. The increases, combining wet and dry seasons, were, respectively, 27% and 61%. No single study of SRI will prove or disprove its merits since specific numbers will always vary according to soil, climate, variety, etc., as well as how adeptly and fully the practices are used. But Mulu's results are consistent with both on-farm and experimental observations. They add to our understanding of the contingent physiological interactions that contribute to higher SRI performance.

Table 9. Grain weight (grams) and yield (t/ha) according to spacing and season

		20x20 cm	30x30cm	45x45cm
Grain weight	Dry season	3.0	3.4	3.6

	Wet season	3.6	4.6	4.8
Yield	Dry season	2.8	3.9	4.4
	Wet season	4.5	6.1	7.3

When Mulu finished, an open forum began. The first to speak was Manny Lahoz, who said that he had been detained during the Marcos repression and then lived in the U.S. for 20 years after his release. "I joined the rat race over there," he said in English. After two decades, he decided to return to the Philippines because he didn't want to retire in the U.S. When he tried to persuade his wife and youngest child to relocate in 2001, they asked: "What will you do?" "Go back to farming," he responded, to which they replied: "But you don't know anything about farming." Shortly after returning, he happened to meet Obet and learned about SRI from a leaflet and then learned more about it from the CIIFAD website on SRI.

His family farm had been neglected for years, so it took a lot of effort to rehabilitate it. Farmers living around him were observing him and asking, what is this guy doing here? "I was perceived like a fool. Everything I did was contrary, almost the opposite, to their own practices: one seedling per hill, tiny seedlings, wide spacing, etc." The laborers he hired didn't like to transplant in the SRI method. "Only one?" they asked. Planting in a square they also didn't like. "I had to pay extra," he said. "They were laughing at me. They could not believe what I was doing."

"But then when the SRI plants started to grow, and produced many more tillers, they became more respectful. And when harvest time came, I had 20 sacks more grain from my half hectare than if I had used conventional means. The other farmers didn't want to believe that this was just due to SRI, however. They said it was 'just luck.' But now that I am in my third cycle, they see that it is more than a matter of luck."

Manny said that the second time he used SRI, it did not perform as well because of a virus attack. The panicles did not fill. He had unfortunately planted a variety that is susceptible to virus. "Others' crops failed too." Last year, he expanded his SRI with the help of his friends. They are collecting rice varieties, particularly native cultivars, and have 500 now, which are available to anyone. He uses both SRI and Masipag methods (the latter method spaces plants 10x40 cm, and aligns the rows east-to-west for best sunlight exposure). He also does some direct seeding. "I have seen for myself that SRI works," he concluded.

The vice-chairman of Pabinhi spoke next, saying that he is also president of a local farmer federation. Formerly he was a chemical farmer, before he found out about organic methods. As pests increased and more chemicals were used, his harvest went down, and he could see that his soil was "getting hardened." He attended a seminar where scientists explained about soil health, and he stopped using chemicals abruptly. His harvest dropped from 80 cavans to 30 the first year. But by the third year, he was back to 80 cavans, and with much less cost of production.

He is now using SRI methods and finds that using one seedling gives more tillering, 60-75 per hill, than using many plants together. Sometimes with chemical methods before he would get no harvest at all because of bad seed or pest attacks. With organic methods the lowest that he has gotten is 35 cavans. When he learned about SRI, from a leaflet from Obet, he got 90 cavans per hectare with SRI, and then up to 130 cavans using the same variety as before. He manages weeds

and snails in his field by flooding at particular times. People were amazed to see that he could have no weeds without doing hand weeding. "From what I have heard now from Norman, it is possible to raise my yield still more. This is a challenge to me," he said in closing.

There ensued a long discussion on control of snails, probably the most tangible obstacle to the adoption of SRI in the Philippines, as very young seedlings are easily eaten by the golden apple snail (*kuhol*), an endemic pest. Some farmers at the workshop considered snails a serious barrier to the spread of SRI, while others said that this pest could be controlled by various means: controlled flooding, spreading rice husks on the field, keeping ducks in the field, screening the field's irrigation inflows and outflows, hiring children to remove them, etc.

I suggested that SRI farmers get together to share their methods and to evaluate the effectiveness of these to be able to recommend various practices that can be reasonably effective against this pest. (A successful SRI farmer whom I visited five days later in Bohol smiled when I asked him why he did not remove the many clusters of snail eggs that I saw on his rice plants; snails are no problem, he said -- when the eggs hatch, he collects the snails and feeds them to his ducks, so they have value to him.)

After a lunch break, participants divided into three geographic groups to discuss plans for activities in different regions on behalf of SRI. The group from north of Manila suggested:

1. Get government to adopt SRI as part of a national program.
2. Organize ourselves to promote and advocate SRI, including farmer associations.
3. Provide and disseminate information through the media: press, radio and television.
4. Organize and conduct seminars and training around the region.
5. Connect SRI with the growing movement for organic agriculture.

Participants south of Manila proposed:

1. Organize farmers and advocates for SRI on a regional and a national basis
2. Share experience with SRI among farmers and organizations, spreading this to remote areas.
3. Evaluate the responsiveness of different varieties, local and improved, to SRI practices.
4. Use media to popularize SRI and develop educational materials.
5. Organize cross-visits among farmers doing SRI so they can learn from each other and so new farmers can see SRI for themselves.
6. Link SRI to the fight against poverty.

Those coming from the Visayas and Mindanao suggested:

1. Disseminate information after the workshops planned in the region (one had been set up in northern Mindanao on Saturday and another in the Visayas the following Thursday).
2. Help NGOs and others working on SRI to begin cooperating, because they are fragmented, especially on Mindanao.
3. Provide materials in local languages, although for Visayas and Mindanao, English is better than Tagalog.
4. Make SRI available as an alternative to hybrid rice, because of its economic benefits and it lessens farmers' seed dependency.
5. Support more exchanges among farmers.

6. Document and disseminate innovations being made in SRI, how the principles are being applied in different ways.

Obet discussed how people can get SRI brochures, in several languages, for just 20 pesos. I suggested in closing that they do more systematic evaluations of the economics of using SRI here in the Philippines. Yield is simple and impressive to talk about, but what really counts is the productivity of the resources used in production: land, labor, water and capital. Data on increases in resource productivity and on profitability will be most impressive for policy-makes as well as for farmers. I also commented that attention be paid to varietal differences in response to SRI. Farmers should always know and have access to the best genetic material for their own farm. To use less than the most appropriate planting material means that they will get less return from the other resources they invest in rice production. I also endorsed the idea of farmer-exchanges, because 'seeing is believing,' and systematically disseminatng innovations, because SRI is still evolving and we expect it to change and improve as farmers get more experience with it.

Ernie Ordoñez got up and said that farmers have a right to expect that the government will help with the dissemination of SRI, since it is 'our taxes' that are being spent by the Department of Agriculture. He announced that the DA's Bureau of Agricultural Research had agreed to reinstate the SRI seminar previously scheduled for Tuesday morning, and then cancelled. He spoke also about a new organization, The Rice Farmers' Council of the Philippines, which he is working with, and said that it could help to spread SRI.

Sister Aida, who works with farmers on sustainable agriculture as her mission, and who had attended the two previous national workshops, gave a 'vote of thanks' on behalf of workshop participants. Wigberto Tañada as chair commented on how the participation and substance of the three workshops had improved each time, and presented me with a beautiful straw peasant hat brought from northern Luzon. Leopoldo Guilaran, chairman of the farmer organization Pabinhi, was then asked to give the closing remarks.

Leopoldo introduced himself as a farmer in Negros who started organic gardening of vegetables in 1987 but continued using pesticides with his rice production until 1991, when he joined the farmer organization Masipag. (He subsequently served as its president.) After attending a seminar on organic rice farming, he started a sustainable agriculture program in Negros, working with Fr. Brian Gore (who was attending the workshop; at lunch I had talked with Fr. Gore, who is from Australia but has lived in the Philippines for many years, including three years in prison during the Marcos years on bogus charges, because he was working with progressive farmers.)

We need to sustain our land, Leopoldo said, and to have ownership over our land and our seeds. When he shifted to organic farming, he felt free for the first time, with no need to borrow money and able to have control over his own resources. He said that farmers should never say they are "just farmers. We are conditioned to think we don't have a chance to improve our lives because we are 'just farmers'. With these new methods we can have a new freedom, and we are technologically empowered by this new thinking." He added, "However, we could make more progress if this initiative were supported by the government."

He said he he has been a farmer-breeder for many years. He has bred 60 varieties and gives them away as a service to other farmers. The Cambodian government has even sent farmers to his farm to learn his methods. He said to the farmers in attendance, "We should 'demystify' science and do our own breeding, teaching techniques to others." I could see why his remarks had been saved for the valedictory.

He concluded by saying that although farmers are already doing better with their new spirit of independence, SRI is showing them that there are still things to learn. He has been averaging 3 t/ha increase with SRI, but "even 1 t/ha increase will make us self-sufficient." SRI is now a big component in Pabinhi's sustainable agriculture program. "We have seen that it will be useful to farmers. So let's all work with farmer groups." Such closing remarks reflected the kind of civil-society orientation that has taken root in the Philippines since the Marcos years. These comments might make some researchers uncomfortable, but not the ones who came to the workshop, where participatory approaches were strongly supported by a wide variety of persons coming from government, academia, NGOs and farming communities.