

**TRIP REPORT FROM VISIT TO SRI LANKA, JANUARY 16-18, 2002,
TO REVIEW PROGRESS WITH S.R.I. -- NORMAN UPHOFF**

Following the international symposium on Sustaining Food Security and Managing Natural Resources in Southeast Asia, held in Chiangmai, Thailand, January 8-11, where I presented a plenary paper on the System of Rice Intensification (SRI) written with Southeast Asian colleagues, and then visited Bangladesh January 13-15 to review progress with SRI evaluations in that country, I visited Sri Lanka for three days to see how the assessment and dissemination of SRI is proceeding in that country. (Reports from the Chiangmai symposium and a Bangladesh workshop on SRI are available upon request.)

January 16 -- FIELD VISITS: The first day was spent with Gamini Batuwitage, Additional Secretary for Export Crop Promotion in the Ministry of Agriculture, who has taken the lead in getting SRI evaluated in Sri Lanka; Abeygunawardene, also an official in the MOA who has been helping with SRI promotion; and Karunaratna, a senior lecturer at Sri Jayawardenapura University, who together with Gamini is cultivating two acres of SRI rice this season for their own experience and learning about the methods.

The first visit was to **Kirimetiya**, a village near Lunuwila, where a Young Farmers Association, has been working with SRI for two years. The chairman of the association, M. A. Rasika, met us, together with Chandana Ranasinghe, a village official (Grama Niladari), and Sarath Chandrawansa, the local poverty program (Samurdhi) coordinator. They are using SRI on three acres of land, having tried it last year on a smaller area. The whole tract, except for the SRI plots, failed last year because of a lack of water. While the SRI yields were not as high as expected, at least they got some harvest, which encouraged other farmers to try the methods this year.

They are using SRI methods with "wild" (indigenous) varieties of rice and are presenting this as "ecological rice" since it is grown without any use of chemicals. The following Tuesday they were sending off their first consignment of "eco-rice" to Italy and expect to develop this as an export crop with potential markets already identified in Italy and Germany. Rasika and Sarath showed me a display with 12 varieties of "wild rice" displayed. This is not the American kind of "wild rice" which is really a different grain. Rather these are different varieties of *Oryza sativa*, red, brown, yellow, orange, black, can be grown locally. They are beautiful to look at, and Gamini assured me that they all have very good taste. So with aesthetics, taste and chemical-free traits, these should be successful in European and eventually American markets. They are not high-yielding, so they become economically attractive only with the doubled or tripled yield they can get with SRI methods.

This is also a water-short season, and a number of the fields look pretty pathetic. The SRI fields are not great but are at least filling with grain. One adaptation of SRI methods has been to plant 25-day-old seedlings, well beyond the age recommended with SRI, when plants are 7-8 inches, but with wide spacing and other SRI practices. These quickly shade out any weeds, so that they require little weeding and also have less evaporation from the soil, which is a problem in drought conditions. While the SRI plots we see are not going to have very high yield per acre, they are at

least going to provide some harvest, and the production of high-value rice varieties raises the economic returns for the young farmers taking up SRI methods. Rasika and Sarath travel with us for the rest of the day, so we will learn more about their experience.

The next stop was at the home and farm of Nimal Darshan in **Dunkannaewa**. He is chairman of a local farmers' association that he says is increasingly interested in SRI now that they have seen his results. We walked to look at his fields, coming to a path between paddies. On the left was Nimal's field, with grain filling nicely on green plants; on the right was a field with stunted plants, having some grain and turning yellow. The one on the right belongs to Nimal's neighbor, using conventional methods. The fields were planted at the same time with the same seed. Nimal says he knows because he provided his neighbor's seed.

I have seen better SRI plots than Nimal's, but he says this year with water shortages, all farmers are having difficulty. He is pleased that, with the deeper rooting of SRI-raised plants, his fields are surviving. The effect may not be just rooting but also the effects of soil organic matter and biological activity. One plot that Nimal planted with SRI methods last year has this year a conventional rice crop on it doing fairly well. Abey is very interested in this "residual effect" of SRI methods.

We discuss the value of doing more rather than fewer weedings with a mechanical hand weeder. I suggest that farmers experiment on their own fields, doing at least two weedings for their whole SRI plot, but then doing a third weeding on a smaller section, and a fourth weeding on an even smaller section. This should show whether, on their soils, an additional weeding raises yield enough to justify the extra weeding(s). We have estimated that the benefit-cost returns could be 10:1, but this needs to be demonstrated to farmers' satisfaction and the benefit may not be so great everywhere.

Nimal says that he knows the benefit of additional weedings. He says that he get 6-7 t/ha with more weedings, compared to 3 t/ha otherwise. It takes 10 person-days to weed one hectare in one direction; 20 days to weed in both directions (perpendicularly). The cost is 600 or 1,200 rupees for a weeding. An additional ton of rice can earn 14,000 rupees.

Back at Nimal's house, his wife serves coconut juice and kiribath (milk rice) sweets. We look at a 20-year-old mechanical hand weeder in his yard, known as "a Japanese weeder." Nimal says that now that he has mastered the techniques of SRI transplanting, it takes less time per hectare than the conventional method of rice production. The only additional labor is for weeding, and this pays off. He also shows us the insecticide that he manufactures from plant extracts and sells locally. There is growing demand for this as farmers are trying to get away from chemical use.

As we drive to our next visit, at the Batalagoda rice research station, Gamini tells us that one of the farmers using SRI methods south of Colombo came to see him recently, to tell him about a strange visit that he received. This farmer was in his SRI field when a man in a large new car stopped on the road and called for him to come over to the car. The farmer being proud invited the man to join him in the field, which he did. The visitor asked about the rice crop, looking rather splendid compared to other crops in the area, and the farmer said it was SRI.

Then the visitor said something quite remarkable. He offered to give the farmer a "card worth three years of free inputs" (fertilizer, pesticides) if he will give up SRI. The farmer said he would have to think about it and suggested the visitor come back in a few days. In the mean time, the farmer has made arrangements with his neighbors to quietly photograph the visitor and get his car's license plate number if he returns. The farmer is obviously quite incensed by the offer. Gamini will keep us informed of the developments in this case, which seems to point to active opposition from agrochemical companies.

At **Batalagoda**, we find the director, Sumith, is in Colombo. We walk to the fields of Salinda Dissanake adjoining the station. Dissanayake has recently left the cabinet with a change in government from the SLFP coalition government to a UNP-led one, having served as Deputy Minister of Agriculture, then Minister of Lands, and then Deputy Minister for Poverty Reduction. He started using SRI methods after Joelibarison visited Sri Lanka in January 2000. He had three of his plots' yield measured by the Department of Census and Statistics at the end of last season, yields were calculated as 9.3 t/ha for Rathhel, a traditional variety, 13.3 t/ha for another traditional variety, and 17 t/ha for BG-358, an improved variety developed at the Batalagoda station.

Dissanayake is growing 25 varieties of rice on his small farm this year. All are doing very well with practically no signs of disease (I see only a few deadheads here and there due to stem-borer attack). His cost of production last season was 3.36 rupees/kg, very low compared to that of most Sri Lankan farmers, who usually need to spend 6 rupees/kg or more, much of this for fertilizer and agrochemicals.

Back on the station, we find the researcher in charge of its SRI trials this season. We drive to a set of 24 plots, about 3 by 4 meters each, for 8 different treatments, with three replications. Half of the plots are using SRI methods (young seedlings, singly planted, wide spaced, and water control) testing different combinations of compost and/or chemical fertilizer or no fertilization, while the other half are the same variety grown by conventional methods.

The SRI plots look to me like they are doing better, but this is still mid-season. We will only know exact results after harvest. I tell the researcher that in our experience in a number of countries, on-station trials with SRI managed by researchers give lower yields than what farmers are able to get on their fields, an inversion of the usual situation, where researchers get better results than can be achieved by farmers.

By now we are about two hours behind schedule, so we cut short a planned visit to an NGO near the Batalagoda station and drive to the west, to the **Nature Farming Centre at Mellawalana** run by **H. M. Premaratna**, a farmer who has become a national leader for organic farming methods and who has been promoting SRI after getting 10-15 t/ha yields on his farm. He is at present in the Philippines on an Asia-wide farmer-to-farmer exchange program that will bring other Asian farmers to Sri Lanka next December.

There are more than 20 persons waiting for us in the large house that has been converted into a training facility with meal and dormitory accommodations. After a quick rice-and-curry meal, we sit down with the rest of the group, and self-introductions are made all around a large circle.

We start with **G. S. Perera**, who donated this house to the Centre and has helped operate it since joining up with his neighbor Premaratna whose farm is next door. Perera explains that he was for many years a telecommunications engineer living in Colombo, eventually becoming a superintendent in the government's telecommunications department. In the 1980s, he took employment in the Middle East, and with the money he saved from that job he bought this house and surrounding land in Mellawalana to grow bananas and pineapple as a retirement occupation.

In 1992 he and Premaratna began discussing indigenous methods of agriculture. Though not a farmer by profession, Perera came from a farming family with rice, home garden and cattle. He recalled that they did not use any agrochemicals and had little problem with production or with pests and diseases. He and Premaratna went to a course at the Organic Farming Centre run by Dr. Upawansa which trains people in very practical methods. Thereafter he started reading more about the theory of organic farming on his own. The more he learned, the more convinced he became that this knowledge needed to be spread in Sri Lanka, so he and Premaratna established this Centre here in Mellawalana. They run 3-5 day courses for farmers and for schoolchildren. Since 2001, they have been providing training on SRI. Perera notes that they teach more by discussion and demonstration than by lectures. Everything is voluntary, and farmers only pay much as they can afford, like providing food as an in-kind contribution.

The **next person**, whose name I cannot make out, was a researcher in Colombo at the Rural Development Training and Research Institute from the 1970s, now retired. He worked with the "change agent" program that I had some acquaintance with in the 1980s. His parents were farmers, and he became interested in SRI "through the MP." This is the woman sitting with us, Mrs. Padma Waettaewa, who is a member of the Provincial Council and would better be referred to as "the MPP," being a member of the provincial parliament, not the national one.

He says that he has problems with water control because his field is at the tail end of the distribution canal. Using SRI methods he got a crop last season when others in his paddy tract did not. He thinks that SRI methods are very beneficial and is concerned with the problem of dissemination. "Small farmers need to get together to promote SRI," is his concluding comment.

The next is an **older farmer**, who starts by saying that he has learned that "to protect the environment is an obligation." He has been an organic farmer not using chemicals for 13 years (26 seasons) since he retired and went into full-time agriculture. (He doesn't say what was his occupation before.) He learned about SRI from Premaratna and sent someone to the Centre here to learn about the methods. He has gotten good results, with visits from a television crew and from Salinda Dissanayake when he was still a minister. Department of Agriculture officers told him not to use SRI. "They were discouraging." But he has used SRI for a year and a half now.

The main problems he has with SRI are its labor requirements. He is an old man, he says. He uses the "rake" to lay out lines for planting in a square pattern but only in one direction. He can maintain spacing in the other direction just by sight. He does two weedings and uses chicken manure and straw in his compost. He got more than 250 bushels per acre (>12.5 t/ha). His big concern is that in the market, the same price is paid for organically-grown SRI rice as for any other rice (which he refers to as "rubbish"). He concludes by saying SRI is good for the country.

Pemasena, a Divisional Officer with the government's Agrarian Services Department, introduces himself next. He also learned about SRI from Premaratna and realized that by working with these methods he could contribute both to protecting nature and helping farmers. He has had no time to practice SRI himself because of his job, but he is satisfied with seeing what others can do with SRI, trying to help with advice. (As the introductions continue, I learn that he has been helping a number of those present.) He says that 46 farmers are doing SRI around his Agrarian Services Centre at Mahaarachchimulla. He wants to improve the marketing situation for his division. There are already 20 farmer organizations with which his centre works.

Kulkanta, who it turns out is Premasena's son, is a teacher who never did farming before he learned about SRI. He was curious and started with a small parcel, getting rice seedlings from his father. Now he cultivates half an acre. He has had rice plants with 30-40 tillers and panicles with 380-400 grains each. So he is very pleased with the results from SRI so far.

Samarakumara is a young farmer now studying at the Agriculture Faculty at one of the local universities. He is in his final year and is doing research on the methods and production on Salinda Dissanayake's farm at Batalagoda. Five years ago he began working with Premaratna to learn organic farming methods, also from Dr. Upawansa. He says he wants "to give some service to society," and that "farming should not be a struggle with the environment."

Sarath Chandrawansa from Kirimetiya speaks next. In addition to his responsibilities with the Samurdhi program, he is secretary of a local environmental group and works with the Youth Service Council. It was previously promoting things like music and culture but is now focusing more on agriculture. The director of the Council approached Gamini Batuwitige about helping with agricultural improvement and Gamini made a presentation to Council staff about the new methods. Young farmers at Kirimetiya were very keen to try these. Now, out of 50 acres in the area, 8 are under SRI, and they are working on export opportunities (discussed above).

Chandana Ranasinghe, a village-level official from Kirimetiya, next says that they started cultivating rice without chemicals three years ago. Then, two years ago they heard about SRI. Their first SRI season, they got 116 bushels per acre (5.58 t/ha). Of the 53 farmers in farmer organization in his area, 35 now know about SRI, and 8 are cultivating their whole fields with it. They are promoting use of indigenous varieties for the export opportunities, making their first shipment on January 22. They also want to develop organic coconut production for the local market, also making organic vinegar and growing organic vegetables. He sees a good future in these activities. The biggest problem they have is water shortage as this and the previous year were drought years. They need to build some small reservoirs or install tubewells.

M. H. Rasika from Kirimetiya next tells the others of his experience with SRI. He first did one acre of SRI at Premaratna's suggestion and then went to Thailand to learn about the use of Effective Microorganisms (EM). He is now producing plant extracts. Twenty-five farmers have asked for training in SRI, which will be given next week.

Sugatadasa from Kandegedara in the Mahaarachchimulla area says he started with SRI last season. Five or six farmers tried it, and this season there are 10 farmers using SRI. He says that

these methods have doubled their yield. He had one panicle with 560 grains, and 10 with more than 500 grains. He had no water at the time of panicle initiation and feared that would interfere with yield, but the crop did all right. "This has inspired an increase of attention."

Hemantha Mapa, a young farmer from Mahaarachchimulla, has been farming for 7 years he says. He has two problems: water shortage and weeds. He started with SRI three seasons ago, having learned about it from Premaratna. His first season was a failure, but this last season was good, with 40-45 panicles per hill. Although there was good tillering, due to water shortage the harvest was disappointing. His field is particularly vulnerable to shortages, he says. This season the yield should be okay. Considering the difficulties he has encountered, he thinks that SRI has been 100% successful. He now has his own weeder which should help him.

Bandara, also from Mahaarachchimulla, is an officer in the Agrarian Services Department working with Pemasena. He learned about SRI through Mrs. Waettaewa and Premaratna. His tract was under the use of agrochemicals, but then 2 farms, then 4 and now 12 are using SRI. Others were very cool toward SRI efforts at first, because the seedlings looked so few and meager in the field at first, but "today they are admiring our work." He thinks it is unfortunate that the same price is paid for paddy growth with or without chemicals.

Jayasekera from Alauwwa says he has only a small parcel of land, which he cultivates half with SRI and half with conventional methods, using manure on one and agrochemicals on the other. He has gotten 40-45 tillers per plant with SRI methods. There was drought at the time of maturation last year, but he got more yield from the SRI, though it was less than he had hoped for. Those who used conventional methods got very little.

Ariyaratna from Mahaarachchimulla works in the Agrarian Services Department and also learned from Pemasena as well as Mrs. Waettaewa. Last year he couldn't get the expected yield because of lack of water, but this time the crop is doing better. He is also using EM. He divided his one acre into four plots, one cultivated by conventional methods (broadcast), one with normal transplanting, one with SRI, and one with SRI plus EM. He wants to see which will do better.

Another farmer from Alauwwa says that his information sources were the same others'. When he first planted with SRI methods, he was ridiculed, but now things are fine with other farmers. He divided his half an acre into SRI and normal methods. With SRI he got 50-60 tillers per plant, better growth and fewer diseases as well as more yield. With SRI there were some insects on the plants, but they were able to do little damage. He used 4 kg of urea on the plot and did weeding.

He asks, should he keep water on the field after panicle initiation? I say that this is recommended but some farmers' experience suggests that less water can be used after panicle initiation as well as before. This is something on which we encourage experimentation since what methods will work best depends in large part on the soil, its water-retention capacity and its biological activity. It was hard enough to get farmers to give up flooding their fields during the vegetative growth phase that Fr. de Laulanié who developed SRI methods in Madagascar did not try to get reduction also during the grain filling phase.

Kapila Amarapura from Mahaarachchiwila says that he had the same sources of information. He got to know first about SRI from the Department of Agriculture's newspaper in 2000 that carried an article (written by Gamini Batuwitage). He first got training on SRI here at the Centre from Premaratna. (In March 2001 when I first visited this Center, Premaratne told me that he had already trained over 2,000 farmers in SRI methods by that time.)

Kapila has tried SRI in five places. The Agrarian Services Department has been very helpful in his case. He did not have a weeder. The Agrarian Services Centre developed four different styles of weeder to suit different soil conditions which it lets farmers use. It had seven weeders to lend, and now has 10, thanks to a recent gift from Mrs. Waettaewa. There are now 76 farmers in his area using SRI with different varieties and lengths for maturity. They still have problems with drought though. Also, EM is getting more popular with farmers in his area.

Sarath Chandra Peramuna introduces himself as a teacher who also does some farming of fruits and paddy rice. It turns out that he is also an elected member of the Provincial Council from the Diwulapitiya electorate. He says he is always searching for new opportunities that can improve the lives of the people. He has brought 7 or 8 farmers to the Centre here for training and is practicing SRI himself. At first he was ridiculed, he says, but now all want to do SRI. He says he had difficulties doing the weeding this season as often as recommended because of the need to spend time on his election campaign. He expects to be able to do better next season.

Mrs. Padma Waettaewe, who has been referred to frequently by others, now introduces herself. She is a mathematics teacher and went through teacher training college at the same time as Mr. Peramuna. Her father was a government official and also a prominent politician in the area. His main income was from agriculture, however. (I guess that he was not a small farmer.) In her grandfather's time, there was no use of agrochemicals, and they got good yields, more in a single season than people now have been getting in two. In her father's generation everyone switched to fertilizers and insecticides.

In January 2000, she met Joelibarison when he visited Sri Lanka from Cornell and attended his demonstrations on SRI. She has given information on these methods to many people in her electorate. Premaratna has also given her training. She wants to spread SRI in her electorate, but political activity has taken time away from this. The fields on her family farm have long been demonstration areas for better agriculture in the area. She felt that she should do SRI herself before promoting it. All together she has two-and-a-half acres now in SRI, divided into parcels.

There were problems practicing SRI the first season. Many farmers came and helped her with the planting, and others helped with the weeding. The biggest problem was that one old farmer who had worked on the family farm for many years did not want to let the water be drained from the field. "But now he accepts it." She has given weeders to all of the Agrarian Service Department centres in the electorate. Top bureaucrats in the Ministry of Agriculture have been against SRI, but in her electorate there has been good support from Agriculture officials.

On the matter of not getting a better price for organically grown rice, she suggests setting up a stall at the Alauwwa junction, where roads between Colombo and Kurunegala meet. She tells us next about one young member of the Provincial Council who did SRI this past season, planting

his field very carefully and neatly. Unfortunately, for lack of water, the crop was ruined, so cattle were let in to graze on the plot. Later when the rains came, a crop sprouted from the stubble (natural ratooning), and he got a good harvest of rice without any replanting. (This is testimony to the depth and vigor of roots of rice that have been planted carefully with SRI methods.)

Another member of the Provincial Council, she tells us, wants to have all uncultivated ("abandoned") paddy lands divided up into quarter-acre plots to be made available to the landless for cultivation since benefic yields can be obtained even from small plots using SRI methods.

By this time, after more than three hours of individual reports, it is getting late. (I have not been able to write down all the details given.) Although there are still three young farmers who have not spoken, I ask whether we need to conclude the meeting so that people can return home. There is no disposition to adjourn, so we continue.

Sumanaratna also works with Pemasena in the Agrarian Services Department. He learned about SRI through Premaratna, but adds that there is another person like Premaratna in the Mahaweli System H, at Thambuttegama, who has been training a lot of people in SRI methods. (I met this farmer at a seminar in March 2001.) At first Sumanaratna could not persuade his father to let him use the family's land for SRI, so he started working with Premaratna. When his father saw how determined he was, he agreed to let Sumanaratna use the land for SRI. But the father was again unhappy when he saw the field transplanted, how pitiful the plants looked. However, once the tillering began, the father changes his mind, and now he is so satisfied with it that he is more enthusiastic than Sumanaratna. Actually, Sumanaratna is very enthusiastic because he assists in the training programs at the Centre here and also in the Mahaweli systems.

Mahinda Dissanayake, who is a friend of the former minister Salinda Dissanayake, says that he is actively promoting SRI. He was appointed as a driver for Dissanayake when he was Minister and helped with his campaign. When he saw the kind of crop that Premaratna was getting, from just 150 grams of seed, he went and planted his own field with these methods, less than one-quarter acre. Because of his job, he had to have his wife do most of the methods. He got 22 bushels from a field that had previously produced only 7 or 8 bushels. (This works out to be about 100 bushels per acre, or about 5 t/ha.)

His crop had profuse tillering without use of chemical fertilizers or pesticides. He did use 8 kg of urea. He noticed that the plant leaves are much rougher, and this may be why the insects don't have much success. When he planted the same variety the next season with the normal methods but no fertilizer, he got only 3 bushels, and he noticed that the plant leaves were less rough, and there was a lot of shedding of seeds before the harvest. With SRI, there is no lodging and fewer empty grains. His wife now tells him, "if we had been doing SRI all these years, we would have been better off."

I see that some of the farmers are getting up to leave, so I ask whether they can stay long enough to give some answers to two questions that are very much on my mind: How much **additional labor** is required to use SRI methods? And what are their **costs of production**, in rupees/kg?

Mahinda Dissanayake, who has just spoken, challenges my suggestion that SRI requires more labor. He says it requires less, at least less hired labor, though maybe more family labor. His wife transplanted their half acre with 14 days of labor previously; with SRI she needed only 8 days. The second farmer who spoke says SRI can take twice as much labor, but many say less.

I say that a recent study in Madagascar, with 108 farmers who are using both SRI and conventional methods on their farmers -- so that differences in both farmers and in farms were controlled for, found a 26% increase in labor required per hectare. One farmer insists that his labor is less. He only needs to plough once, there is no labor spent to clean and plaster the bunds. His transplanting operation with SRI takes only about half as much time as before. There is more labor required for weed control. But there is saving of time because no pesticides are used. He used to spray his field four times, which takes a lot of labor. Even harvesting takes less labor, he says, because the panicles are so large and easy to reach, and they do not drop their grains as happens with conventionally-grown rice. He says that on balance SRI requires less labor.

So, I say, maybe SRI is not -- or need not be -- more labor-intensive after all? This has been the main objection to it by many farmers and many researchers. About one-third of the farmers agree that SRI methods are easier, though I sense that most of the others have experienced some increase in labor requirement. What is important is that **SRI methods have the potential to be labor-saving** once they have been mastered and both capital (weeders) and infrastructure (irrigation systems) are appropriate.

I decide it will take too long to get cost of production information and it is already dark, so I thank all for coming, and the meeting breaks up. Gamini is collecting cost of production data from dozens of farmers in written form, so this should answer my question better than we can here in a discussion. He says that calculations from last year's season showed cost of production with SRI to average 3.92 rupees/hectare, with still quite a wide range, from about 2 to 8 rupees.

Sunil Shanta from Medawachchiya has still not spoken, so Gamini and I interview him. He is the brother of the SRI promoter in Thambuttegama whom Sumanaratna spoke about. He trained for six months in the Centre here and got some land in Pul Eliya, a village that is famous around the world for the monograph that the noted English anthropologist E. R. Leach wrote in the 1950s about the indigenous system of irrigation management found in the north-central region of Sri Lanka.

Sunil purchased half an acre of land that had some adequate water supply. With a tractor he transported two loads of compost to his field. Farmers there were very surprised to see an "outsider" doing this. He used only 500 grams of seed and got 78 bushels from the half acre. (Since a bushel is about 21 kg, this means his half kilogram of seed produced 1,638 kilograms of rice, a 3200-fold multiplication.) He says that he did six weedings, more than I have heard of any farmer doing previously, but this extra effort was well repaid.

He has been working with the schools in his area. One hundred schoolchildren have visited his field coming from Vavuniya district, organized by the Samurdhi program. The principal of one school that has 3,000 children who came to his field was so impressed that he planted a one-acre demonstration plot with SRI methods on the school grounds.

Sunil has used no chemicals on his fields and had 15 to 55 tillers per plant. He says that those who ridiculed his use of SRI methods at first "protected the field later." He was able to sell his harvest at a higher price, 23 rupees/kg, as seed paddy. This season he has planted 3 acres with SRI. He says that for him, the methods still require more labor, but the effort is worthwhile. He says that one can see insects but they can't damage the crop.

Gamini tells me that Sunil has taken over the operation of the Centre and its training activities while Premaratna is in the Philippines. Sunil has been doing SRI training in Mahaweli systems. It is now after 8, and we have a long drive to get back to Colombo. Mrs. Premaratna and others insist that we have a light supper before leaving, which we enjoy. I thank her for her support of the Centre and its SRI work. Gamini shows me a small plaque that a farmers' association presented to her before we started the afternoon meeting, in appreciation for her great kindness and support in cooking meals for, by now, thousands of persons visiting the Centre. I get back to my hotel in Colombo at 10:30.

January 17 -- LECTURE AND MEETINGS: The day started with a chance meeting over breakfast at the hotel with Dr. U Winn Kyi, head of an FAO team recently arrived in Sri Lanka for a food security assessment. He is Deputy General Manager in the **Ministry of Agriculture and Irrigation in Myanmar** and expressed strong interest in SRI after we discussed it. He gave me the name and e-mail address of the Ministry of Agriculture's director-general to send him information on SRI. He invited me to visit Myanmar if possible to present this method to the Ministry directly.

I told him that there was already someone quite expert on SRI in Myanmar, Humayun Kabir, a Bangladeshi serving as agricultural advisor to the Metta Development Foundation, which is working with farmers in northern Myanmar, on the Chinese border. Farmers in the Kachin area have learned about SRI through a network of 50 farmer field schools promoting integrated pest management (IPM) and other innovations. This past season, farmer SRI trials averaged 6 t/ha where the usual production level is just 2 t/ha.

A previously scheduled meeting with the Secretary of Agriculture had to be cancelled because of another meeting that came up for him, so I spent the morning writing up the minutes from our Bangladesh workshop. At noon, I had lunch with Frank Rijsberman, director-general of the **International Water Management Institute (IWMI)**, which is headquartered at Battaramulla near Colombo, and IWMI senior scientist, Dr. Hammond Murray-Rust. Hammond has been a good friend ever since he studied at Cornell and did his thesis research on the Gal Oya irrigation system in the early 1980s.

The director-general has asked Hammond to oversee IWMI involvement with SRI in terms of evaluating its potential for water savings at system or watershed levels. IWMI will not address agronomic issues as these fall within the purview of the International Rice Research Institute (IRRI) within the Consultative Group on International Agricultural Research (CGIAR) system. Frank expressed real interest in assessing potential benefits from SRI, and IWMI will have someone attend our international conference on SRI in China in April.

In the afternoon, at 3:30 there was a symposium on rice intensification at the **Sri Lanka Association for the Advancement of Science (SLAAS)**, with about 60 persons attending. My presentation on SRI was preceded by short talks on soil potentials and limitations for rice production in Sri Lanka and on biodiversity within paddy fields, which SRI might enhance. It was followed by a review by Gamini Batuwitage on the current status of SRI in Sri Lanka.

Gamini reported that there are farmers in 18 districts who have begun working with SRI methods, all without government extension support. This has been farmer-to-farmer with some support from published articles and television reports. He presented data from 12 farmers in six districts, who averaged 8.6 t/ha, with a range of 5.36 to 12.79 t/ha. From Badulla district, he had data on 112 farmers associated with the Samurdhi program. Their average yield was 5.7 t/ha, with the top yields in Badulla's eight subdistricts ranging between 7.7 and 15.2 t/ha. In Kurunegala district, 10 farmers had averaged 177.9 bushels per acre (8.9 t/ha) on a total of 6 acres. These results were based on crop-cuttings done by the Department of Census and Statistics, certified October 17, 2001.

The session lasted until about 6:45, when the daily power-cut in Colombo forced the session to end. We drove to the Ministry of Irrigation where we met for half an hour with the new **Minister of Irrigation**, The Hon. Jayawickrama Perera. He remembered me from several meetings with him in 1978-79 when I was conducting village studies during a sabbatical year in Sri Lanka. He was at the time District Minister for Kurunegala District where eight of the study villages were located.

The Minister expressed strong interest in SRI, particularly because of its water-saving possibilities. (SRI uses half to a third as much water as conventional methods which require continuous flooding of rice paddies.) He and Gamini set up an appointment to meet again to discuss practical next steps to promote the evaluation of SRI within the many irrigation systems operating under the Mahaweli Authority, which now comes under the Ministry of Irrigation.

January 18 – MINISTRY OF AGRICULTURE: The next morning, I gave a seminar on SRI to the staff of the **Agrarian Research and Training Institute (ARTI)**, a research arm of the Ministry of Agriculture. During 1978-79 I was a visiting fellow at ARTI, and I then worked with the Institute on introducing participatory management into the Gal Oya irrigation project from 1980 to 1985. There was much interest in undertaking some socio-economic evaluations of SRI and its various practices such as water management and weeding.

At 2 o'clock, Gamini Batuwitage and I met with The Hon. S. B. Dissanayake, the new **Minister of Agriculture**, along with Dr. Lionel Weerakoon, director for agricultural development in the Samurdhi Authority (the poverty reduction agency of Sri Lanka). The Minister knew about SRI already but was interested in knowing more about it. When staff of the Department of Agriculture previously objected to giving Ministry support to SRI on the grounds that it was labor-intensive and not suitable for large-scale production,

the Minister responded that Sri Lanka had many thousands of farmers who needed the benefits of higher production from their small holdings.

The Minister was very interested in the export possibilities for SRI-grown "wild rice" and said he would support further efforts to evaluate and utilize SRI. He is known to be a very vigorous leader willing to champion new ideas and challenge the bureaucracy if satisfied those ideas will be advantageous for the middle and poorer segments of society. Although the new government is considered to be right-of-center, there is a strong populist thrust in its rhetoric and certainly in the disposition of this Minister.

Given the enthusiasm for SRI expressed by those farmers with whom I spoke who have begun to use these methods, so long as top leaders are willing to listen to farmers, it is unlikely that researchers and officials in the Department of Agriculture who are opposed to SRI will be able to block it with government action. What chemical companies can do to slow its acceptance is uncertain.

There is a growing resistance to use of agrochemicals among farmers who are experiencing skin irritation and other problems that they associate with high levels of chemical application. Buddhist priests are also speaking out against the use of "biocides" as unwarranted taking of life. If higher yields and lower costs of production can be achieved without such use, SRI should become quite attractive, the more so if farmers eventually can also reduce their labor thereby.

Attaining and maintaining better water control through modified infrastructure and greater farmer cooperation will probably become the main requirement for widespread use of SRI methods. The prospect of water saving should make such investment of funds and effort more attractive.

That SRI methods promote deeper plant root growth and can make rice more drought-resistant is something we have not seen before but which was commented on by a number of farmers in Sri Lanka. This could also become an important factor in favor of the System of Rice Intensification.