

REPORT ON VISIT TO SRI LANKA TO OBSERVE SRI PROGRESS

March 14-19, 2008 – Norman Uphoff, CIIFAD

SUMMARY

This was my first return visit to Sri Lanka since December 2003, when a first national SRI workshop was held at the Agrarian Research and Training Institute (ARTI), organized by Gamini Batuwitage, who served as a volunteer coordinator for SRI activities in Sri Lanka. I made this trip on rather short notice to participate in the second national SRI workshop, again at ARTI, this time organized by W. G. Somaratne (Oxfam/Australia) with Gamini's cooperation.

A SRI Network has been formally launched at Somaratne's initiative, and a combination of NGOs and government agencies were now prepared to collaborate in SRI evaluation and promotion. The impetus was based both upon good demonstrated results of SRI methods and upon evident need for SRI's benefits. This report sketches the current situation and status of SRI activities in Sri Lanka. It includes personal observations and noted personal connections (not just my own but the rich network of connections among Sri Lankans that is undergirding SRI initiatives.) While there are myriad objective factors and facts that support the spread of SRI, it is also evident that what Robert Chambers calls "the personal factor" is intrinsic to SRI success. Some summary observations include:

- SRI now has more high-level political support than before. During the brief visit I was able to meet with and get encouragement from the Minister of Agriculture and two Ministers of Nation Building having regional responsibilities for one-third of the country. One of the latter has himself been a successful and vocal SRI farmer since 2001.
- There is still resistance from some, maybe many, persons who are considered experts on rice. The opposition encountered from rice specialists has been evident since 2000, although there are some indications now that negative attitudes are now subsiding. Since the rice scientists in China, India, Indonesia and Vietnam have all begun to support SRI very visibly, based on multi-year evaluations, it is increasingly dubious for Sri Lankan rice experts to object to SRI.
- More and more NGOs, both international NGOs and local NGOs, and also more community-based organizations are integrating SRI into their rural development programs. They are also increasingly professional and well organized, so their engagement with SRI has more impact. SRI initiatives have been linked in a number of places to post-tsunami recovery programs as alternative livelihood development programs and eco-friendly farming approaches.
- Farmer interest in SRI is getting stronger year by year. It was estimated, perhaps with rather generous criteria, that there are at least 25,000 farmers using SRI methods, to some extent or fully. There are no reliable data on this because the Department of Agriculture has previously been unwilling to take SRI seriously. That will probably change now.
- One of the most interesting developments is the program of World Vision to introduce an organic version of SRI to farmers to be used with indigenous varieties that are very popular with consumers and that command a very favorable market price. Major food store chains are selling or wanting to sell organic/indigenous SRI, which could affect the whole market.

Even with many merits and advantages, SRI does not disseminate itself. This requires personal and organizational efforts, which are now multiplying in Sri Lanka.

Friday, March 14th

This trip was made at the suggestion of **Dr. W. G. Somaratne**, an agricultural economist working with Oxfam/Australia, who took initiative with Sri Lankan colleagues to establish an **SRI Network (SRIN)** for Sri Lanka. His responsibility in the Oxfam program in Sri Lanka is Advocacy and Policy Management, reflecting Oxfam's commitment to making systemic changes to reduce poverty and hunger -- beyond the grassroots efforts for which Oxfam is well-known, through the work of its affiliated organizations in Great Britain, America, Canada, Quebec, Singapore, etc. Somaratne and I first met over 25 years ago, when he joined the staff of the Agrarian Research and Training Institute (ARTI) in Colombo while I was working there with ARTI staff to introduce participatory irrigation management in the Gal Oya irrigation scheme.

We had had no contact in the intervening years, and then in early February we got reconnected through an e-mail he sent, with several reports published in 2007 on Oxfam/Australia's activities supporting SRI.¹ Somaratne then wrote to me about the SRI Network stated to promote SRI in Sri Lanka. This included two government agencies (the Gemidiriya Foundation, and the Freedom from Hunger Campaign) and seven NGOs (Oxfam/Australia, Oxfam/Great Britain, World Vision, plus four indigenous NGOs: the Jana Aruna Foundation, the Cooperative Environmental Foundation, the Vikalpanee Women's Organization, and the Ecological Farming Training Center). These organizations are together working with almost 1,000 farmers (963) using SRI methods on almost 1,000 acres, approximately 400 hectares. They want to collaborate in expanding and improving their respective programs with SRI, and also to draw other agencies and NGOs into a broader national SRI campaign. Such an effort certainly deserves support.

When Somaratne had heard that I might be able to visit Sri Lanka some time during March, during Cornell's spring break, he suggested convening a national SRI workshop to coincide with such a visit. This could make SRIN better known and bring in new affiliates. This was sufficient reason to plan a visit, so one was arranged with only 9 days' lead time, seizing the moment. The field trip started at 5:30 Friday morning when Somaratne picked me up at Colombo airport.

As we headed toward Hambantota on the tsunami-affected southern coast of Sri Lanka, we got a cell-phone call from Oxfam/Australia's program officer for South Asia **Ms. Nalini Kasynathan**. She was herself leaving that morning to return to Melbourne, so we could not meet, given our respective travel plans, but she wanted to wish us a safe journey. In the mid-1980s, Nalini served as a training consultant for our participatory irrigation management program based at ARTI while she was a faculty member at the University of Peradeniya in Kandy. Nalini assisted our team with the formation and monitoring of the Tamil section of our cadre of Institutional Organizers (IOs) who were introducing farmer organizations in Gal Oya. She is one of several colleagues from the past who have coalesced in support of the SRI effort in Sri Lanka. This coming together was not at all planned or foreseen, but it was probably not a really random occurrence either as like-mindedness is an important factor affecting individual and group action.

En route, Somaratne and I discussed the opposition that SRI has been encountering from the agricultural research establishment in Sri Lanka. It seems that there has been some combination

¹ The reports are posted on SRI website: <http://ciifad.cornell.edu/sri/countries/srilanka/SLOxfamResearch1107.pdf> <http://ciifad.cornell.edu/sri/countries/srilanka/SLOxfamPercep0207.pdf> and <http://ciifad.cornell.edu/sri/countries/srilanka/SLmarketOxfam1107.pdf>

of suspicion and jealousy prompting the attacks. Somaratne noted that there has been an apparent change in the attitude of Dr. Sumith Abeysiriwardene, formerly a director at the government's Institute of Rice Research at Bathalagoda. Sumith has previously been very negative toward SRI. However, after retirement from government service, like many agricultural researchers Sumith joined an agrochemical company, CIC. Close connections between agricultural researchers and the companies that benefit from scientists' approval of agrochemical control of pests and diseases are understandable and common in Sri Lanka. This particular company seems to have anticipated that the 'climate' is becoming less favorable for agrochemical production and sales, and it is getting more involved with seed multiplication which makes SRI attractive. In Bangladesh, a branch company of Syngenta has been a good supporter of SRI because of the improvements these methods can make in the amount and quality of paddy seed produced. When Sumith was invited to the national SRI workshop planned for Monday, he expressed interest in attending, although as it turned out, he did not attend.

Somaratne explained that **Sarath Wijesiri**, with whom I had worked some 25 years ago when he was an Institutional Organizer with our participatory irrigation management program in Gal Oya, has had some health problems and has had to cut back his work commitments with Oxfam to half time. It would be quite a set-back to lose Sarath from the program since even part time, he is more effective than many other people full time.

We arrived at the Oxfam/Australia field office in Ambalantota about 11:00 am. The office, located only 2 kilometers from the ocean, serves as Oxfam's center of operations for post-tsunami activities that include SRI promotion to restore food security. There we were met by Sarath and by **Premaratne**, the first farmer in Sri Lanka to use SRI and probably its most effective trainer and proponent. Prema has worked with Oxfam since 2003 to help introduce SRI methods to farmers involved in Oxfam programs, even in areas of the Batticaloa region under LTTE control.²

By driving directly from the airport and not going through Colombo, we had gained several hours in the planned schedule, so we drove to **Lunugamwehere**, 20 minutes inland, to join a Project Management Committee (PMC) meeting in progress. It was chaired by another former Institutional Organizer with the Gal Oya program back in the early 1980s as **Kularatna** is now Project Manager for part of the Kirindi Oya irrigation scheme served by the Lunugamwehere reservoir. This PMC like those managing other irrigation schemes in Sri Lanka is an outgrowth of our Gal Oya initiative 25 years ago, facilitating participatory irrigation management. Farmer-representatives chosen by their water user associations sit together with government officials to make decisions about the allocation and distribution of irrigation water as well as the operation and maintenance of the irrigation system and beyond this, in policy direction and oversight of all aspects of irrigated agricultural production.

² The Liberation Tigers of Tamil Eelam (LTTE) have been conducting an armed campaign to create a 'homeland' (Tamil Eelam) for Sri Lankans of Tamil ethnicity since the late 70s, claiming 40% of the country's territory, even though Tamils are less than 20% of the country's population and it is not clear that even a majority of Tamils support secession. Huge human and economic losses have resulted from the conflict, and a cease fire brokered by the Norwegian government in 2002 has unraveled over the past year.

When Kularatne learned of my planned visit, he asked Sarath to arrange for me to attend this PMC meeting if at all possible to talk about experience with SRI. His staff with support from Oxfam/Australia are trying to introduce SRI methods in the irrigation scheme but have met with some resistance. On our drive to the meeting, I was given some information on this system.

Like most irrigation systems in Sri Lanka, Kirindi Oya is of ancient origin, having been constructed during the rule of Sinhalese kings who reigned over most of the island from the fifth century B.C. until British forces defeated the Kandyan king in 1815, establishing colonial rule. Already before British hegemony, but particularly during its early years, many of the tanks (reservoirs) that had been constructed to capture rainwater during the monsoons and release it for crop production after the rains had stopped, fell into disuse and were not maintained. Some were even destroyed by the British forces, as I learned the next day.

From the start of the 20th century, many tanks, large and small, were reconstructed to reestablish irrigated agriculture in Sri Lanka. Unfortunately, with the population becoming larger, the relative abundance of land and water was reduced, and many conflicts over land and water rights and access to them emerged. In the case of Kirindi Oya, in the 1980s ago the government wanted to extend its irrigated area to serve more farmers, and the Asian Development Bank (ADB) financed a new dam that could permit expansion of the service area. However, the amount of water that the main reservoir can accumulate and distribute under current climatic conditions has proved to be insufficient for the whole area.

In order to get agreement for the construction of a new reservoir, the government made a commitment that water supply would go preferentially to four 'ancient' smaller tanks, whose cultivators had established prior water rights. This means that the extension area seldom if ever gets sufficient water for its crops. Over 5,000 households were resettled by the government into this area with a promise of irrigation water (and even domestic supply) that has not been kept for all.

Oxfam staff saw this as a good opportunity for introducing SRI, enabling farmers to get a better rice crop with reduced water requirements. However, there have been difficulties, including the general unprofitability of rice production in Sri Lanka. The low market price that farmers receive for rice has been, at least until recently, low relative to the costs of inputs. Because of the water shortage and a good market price for bananas, many farmers have given up rice and shifted to banana production.

When we arrived at the Irrigation Department office in Lunugamwehere, we were ushered into the PMC meeting in session. Kularatne welcomed us, and introductions were made. About half of those present were farmer-representatives, while the others were staff from various government agencies: Irrigation, Agriculture, Agrarian Services, etc. I was invited to make a presentation on SRI, which I kept to half an hour, to lead into group discussion.

The first response was from a farmer who has already been using SRI methods, having been trained some years ago by Premaratna at his farm in Kurunegala district.³ He said that he has

³ Premaratna started using SRI methods in 1999 after reading about the new production system in the *LEISA* magazine from the Netherlands. Being an organic farmer and having built up his soil fertility already, he got 10-15

been able to reduce his seed rate to 10 kg per hectare, transplanting seedlings at 7 days, 10 by 10 inches, with reduced water use and using the mechanical weeder. The results are good, he said, with a yield 25% higher than before, but it does require more labor, and this is a limiting factor. Somaratne asked about the economic returns. If he reduced seed costs, and no longer has to purchase chemical fertilizer, instead using compost and organic matter, doesn't this compensate for the increased labor costs?

The farmer had no definite answer to this question, underscoring the need for Oxfam and others to pay more attention to the economics of SRI, not just to its agronomics. The farmer said that, as I had been told, banana production is becoming more attractive than rice production. I said that if bananas are more profitable, farmers should take advantage of them. We are not promoting the production of rice, only trying to give farmers more and better options -- to be able to grow rice with less water and get more output if they want to grow rice. Our role, I said, is an informational one, not that of 'extension.' (Unfortunately, many 'critics' of SRI have conflated these roles, regarding the provision of information about SRI as being advocacy; so-called 'proponents' of SRI have not been trying to promote the uptake of SRI so much as encouraging farmers to try out the alternative methods, to see if these can improve productivity and environmental conditions.)

A second farmer said that transplanting in rows and using a mechanical weeder had been common practice in the 1980s. But in recent years, as the economy has changed, and as women have gotten opportunities in industry and the service sector, there is labor shortage in agriculture, especially at transplanting time. So that is why many farmers have taken up broadcasting of seed to establish their crops. They know that transplanting can give higher yield, but it is not feasible. I responded that evaluations of SRI in China, India and Cambodia have shown that once farmers gain skill and confidence in SRI transplanting, they can save labor on this operation because so many fewer plants are used. However, I also said that within the framework of SRI, there are now a variety of options for crop establishment, including direct-seeding.

I described an option developed by Ariyaratne Subasinghe in System 'H' in the Mahaweli system in the north of Sri Lanka. He prepares his paddy field as usual and then broadcasts germinated seed onto the muddy soil. He uses five times the seed rate that he would use if sowing a nursery and then transplanting with wide spacing (25 kg/ha, instead of 5 kg/ha). Then after 10 days and the seedlings have emerged, he 'weeds' the field in the usual SRI manner, making perpendicular passes with the mechanical weeder *as if* he had transplanted at 25x25 cm spacing. This eliminates 80% of the plants growing at random on the field and leaves seedlings just as the intersections of his weeding lines, creating a 'grid' distribution of plants. Usually there is just one plant at each intersection, but sometimes there are more, and sometimes none.

This method of crop establishment is not as precise as with transplanting, but it is systematic enough to achieve the SRI effect of wide and even spacing. Ariyaratne reports that he can usually get a yield of 7.5 t/ha, which is quite respectable, and he does this with a big reduction in his labor costs, since there is no need to construct and manage a nursery and there is no

tons/hectare from the start. Being impressed with the results, he began training other farmers at his own initiative and with his own resources, assisted thereafter by a neighbor interested in organic agriculture. Several thousand Sri Lankan farmers have learned about SRI from Premaratne at his Ecological Farming Training Center in Mellawalana.

transplanting. Dr. S. Ramasamy at Tamil Nadu Agricultural University in India has evaluated this methodology and reports a 40% reduction in labor requirements -- without significant sacrifice of yield (<http://ciifad.cornell.edu/sri/countries/india/intnramasapster06.pdf>). A number of farmers listened intently as Somaratne translated this description.

Other questions pertained to how to combine chemical fertilizers and organic material, and how to acquire more organic matter for improving soil fertility. Some farmers who had tried SRI said that it did not give them much increase in yield, but they are still using fairly heavy applications of chemical fertilizer, which could have an inhibitory effect on the soil organisms which are essential for SRI improvements. It was clear that more evaluations need to be done with the soils in Lunugamwehere, to see how suitable they are for SRI methods, and whether the limitations on organic matter production and application can be dealt with.

One farmer-representative expressed some negative views toward SRI and also toward the system of participatory irrigation management of which he is a part. He spoke favorably of the previous management arrangements where a government-appointed 'water headman' (*vel vidane*) had authority to regulate farmer irrigation practices. This role had been superseded by a farmer chosen by consensus to coordinate water management down to the field-channel level. This person seemed to be a one-man opposition, not representing majority opinion within the farming community.

As we got ready to leave and let the Committee return to its other items for discussion, one of the farmer-representatives stood and said that he knew about the work that I had done in Gal Oya in the 1980s to support the establishment of farmer organizations there, noting that these became the model for farmer organization in all major irrigation schemes of Sri Lanka. He wanted to thank me for this effort. He added that he knows the problems that overuse of chemical fertilizer can create for the soil, and he affirmed that he and others need to use more organic fertilization.

It was interesting to see the correlation in his remarks, approving both farmer organization and SRI, whereas these were both opposed in the remarks of the previous speaker. This farmer, who spoke first and last during our visit, appeared to be the most active and respected among those present. Possibly his positive attitude toward the mobilization of soil biological processes will encourage others to try out SRI methods and adjust them to their local conditions.

After lunch in Tissamaharama nearby, we drove to a Grama Niladhari (village official) office in Hambantota. Farmers and Oxfam staff, as well as some local technicians and officials had been waiting there for an hour. (Adding the PMC meeting in Lunugamwehere to our schedule had put us behind more than anticipated.) Some of these farmers present were been practicing SRI methods and had brought examples of rice plants, SRI and regular, to display at the back of the meeting hall, along with hand-made posters in Sinhala script.

There were no facilities for powerpoint, so we had a discussion rather than a formal presentation, focusing particularly on soils and roots. There was concern about root-feeding nematodes, which can present a problem when the soil was not kept always flooded. This has been encountered and documented in northern Thailand. There should be ways to control these soil pests, however, by doing some early intermittent flooding of the rice crop, not aerating the root zone as much as

ideal but with enough aeration to maintain better root health and functioning than with continuous flooding. This can control the nematode populations that require oxygen supply.

We talked also about how snails, sometimes a pest in this area, can be controlled by intermittent flooding. A methodology devised by a Filipino farmer can convert snails from being a pest into an asset. If their emergence can be delayed by as much as 20 days, through intermittent flooding, when they do emerge they will feast on the new-growing weeds as they come up, because these are tender and succulent. The snails leave the now-older rice plants, tougher and stronger, alone. This idea the farmers found intriguing.

One of the women farmers had brought samples of her newly-harvested SRI paddy to show us. She had done crop-cuttings to estimate yield, and she calculated an SRI yield of 7 t/ha compared to 4.7 t/ha with regular methods. This was a great benefit for her since she had also reduced her costs of production considerably. From Hambantota, we drove to the Economic Resource Center at Weerawila where a similar group of farmers and staff were waiting for us.

The first response to my opening remarks about SRI was from a farmer who said that they know the benefits of the new methods already. The problem is that there is still resistance 'from above,' meaning from staff of the Department of Agriculture. He wanted to know how this can be countered.

Somararatne explained that during this coming week, there will be a national workshop to discuss the island-wide promotion of SRI. Also we will be a meeting with several prominent political figures, including the Minister of Agriculture. We are trying also to arrange a meeting with technical leaders of the Department. He said that this problem is recognized, and the new SRI Network is trying to address it. I added that the strongest arguments in favor of a more positive official attitude toward SRI will be the good results that farmers get with the methods, so their work contributes to creating a more favorable climate for SRI dissemination in Sri Lanka.

One woman farmer said that she had done her own comparison trials with four methods, including transplanting, two versions of broadcasting, and SRI. "SRI was the best," she reported. I explained the methodology of Ariyaratne Subasinghe, which I had described to the PMC at Lunugamwehere. One woman farmer said that she has already tried something very similar, and it gave her good results.

Another woman had done direct-seeding in rows, and then criss-crossed the rows with a weeder to create a square grid pattern. This worked well, she said, a nice variation on Subasinghe's method for crop establishment. She added that because she did all of the operations herself, however, from land preparation through to harvesting, there was some negative reaction from men. They consider plowing and harrowing to be men's work, not suitable for women. "But women can do this," she said. "I demonstrated this." Once the men saw her SRI crop results, she added, they have become more positive toward her doing complete farming, not just women's work of transplanting, weeding and harvesting according to tradition.

The most difficult question raised was how to practice SRI within an irrigation system that is not being managed for reduced water supply. Continuous water supply keeps the level in fields and

in the soil higher than is desirable for SRI. I discussed how Indonesian farmers, under the guidance of a Nippon Koei technical assistance team, have constructed water drainage channels around the inside of their paddy fields and have put parallel drainage channels every few meters across their fields. They also raise the level of the remaining cultivated area so that they create, in effect, raised beds. This has proved to be a satisfactory way to maintain a sufficient degree of soil aeration even within an irrigation system that has continuous water supply. This adaptation must work fairly well since the average yield increase with SRI methods is 3.3 t/ha according to Nippon Koei monitoring.

There was considerable interest in the slide that I showed on my laptop of how SRI concepts and methods are being used in India to increase the production of finger millet (*kurakkan* in Sinhala language), an important grain crop that is reasonably drought-resistant. NGO partners working with farmers in India are able to get doubled and even tripled yield with adaptations of SRI practices. With this discussion, we ended a long day at about 7 p.m.

Saturday, March 15th

Next morning, Somaratna, Sarath, Premaratna and I got underway at 6:45, driving inland to the town of Tanamalwila where **World Vision (WV)** has an expanding SRI program. Along the way we saw a lot of paddy fields, some of which had already been harvested, but many of which were badly lodged -- blown over by the heavy rain and winds in the last few days. At the previous day's evening meeting at Hambantota, one women SRI farmer had commented that her neighbors had lost most of their crop due to the unusual stormy weather at the end of this season. Her SRI crop, she said, had withstood the damage, however, just as I had said in my presentation that SRI plants can do.

As we drove through the Kirindi Oya irrigation scheme, Prema told me about one farmer in its extension area, known as Sonny Mahattea (Sir Sonny), who had used SRI methods successfully. He did three weedings starting soon after transplanting and using 9 x 9 inch spacing got a yield of 7.8 tons per hectare. This made his efforts quite profitable. Still, in this area, SRI has to compete with banana growing, so it may not catch on very quickly. Farmers know that they are putting their food security at risk by not growing rice. The high price for bananas can collapse quickly if and when some other source of supply becomes more efficient. Farmers know that households cannot subsist just on bananas. Somaratne said that Oxfam will keep trying to promote SRI here because of food security concerns. However, there may not be very rapid uptake as short-term opportunities commonly take precedence over long-term interests.

Somaratne briefed me about World Vision's work in this area around Tanamalwila. Although most households here are presently poor, they live in an area that was quite productive in a previous era -- and it has potential to revive economically through its agriculture. The soils here are reasonably good provided they are served by irrigation water. Before the British came, this was a well-irrigated area with an elaborate system of thousands of inter-connected tanks (reservoirs) which collected monsoon rainwater for supporting subsequent crop production.

The name for this area, Wellassa, means literally '100,000 paddy fields.' The people here were very prosperous and also well-organized in ancient times. When the British tried to subdue this area after 1815, there was resistance, leading to an armed rebellion that was put down brutally in

1818. Instead of ‘scorching the earth’ or despoiling it with salt, as Roman and other conquering armies have done in the past, the British army simply demolished the indigenous system of irrigation, destroying the retaining bunds of 7,800 tanks and damaging their canal systems. Without irrigation, much of the area was abandoned and became depopulated.

In the 20th century, as land hunger grew, the area was resettled, however, without reliable water supply as before, and families here subsisted at a low level. Fortunately, the area’s traditions of solidarity and pride still exist, and World Vision has tried to capitalize on these. The farmer organization established here is known as the **Wellassa Farmers’ Company**, taking pride in pre-colonial accomplishments. Its members are growing and selling organic SRI rice and other farm products quite successfully.

In Tanamalwila, we were met by **Sudesh Rodrigo**, who now heads up World Vision’s Area Development Program (ADP) in Puttalam district in the north, but who previously helped get WV activities started in this southern area. He had returned to Tanamalwila for the day to meet me and brief me about WV’s program and progress here. We drove to the Wellassa Farmers’ Company organic products sales center outside of town where we were met by center staff, including the manager of World Vision’s ADP here, **Manjula Tillakesekera**, and **Sirisena**, the manager of the Wellassa Farmers’ Company. Sirisena is himself a farmer who has been given more and more responsibility as he and the other farmers gain experience in commercial, eco-friendly agriculture and marketing.

The World Vision program has assisted communities to rehabilitate 514 tanks in the area, so that there is now a growing extent of irrigation. The tanks, 5 to 12 feet deep, can each irrigate an area of 3 to 10 acres. The program has gotten assistance from the U.S. Department of Agriculture to expand farmers’ marketing capacities, and considerable expansion is anticipated in the next few years. As I learned more about the program, I could see why USDA would be attracted to it, because it combines commendable goals and innovative ideas with a very well-run organization.

Upon entering the center, I could see a number of rice varieties, organically grown, on display. Most were red rice, which is popular in southern Sri Lanka and more nutritious, but some were white rice. All were in sealed plastic pouches or in attractive, colorful boxes with ‘see-through’ plastic windows. The brand name used is *Apee Sahal*, which means ‘Our Rice.’ Sudesh noted that demand for their organic rice has been growing faster than supply. One interesting variety on display is called *Haete Da Wii* (60-Day Rice) because it matures in such a short time. It is very tasty as well as fast-growing, I was told.

Manjula said that they have done market research on packaging and brand names, to meet consumer expectations. One indication of success is that a supermarket chain based in Colombo with 120 outlets in Sri Lanka, Cargills, has copied their package design and brand name. Another supermarket chain, Food City, has asked the Company to develop a product line specifically for its many stores. One label not been impinged upon -- “From Wellassa to the whole country” which can be said very simply in Sinhala language --- because it is obviously unique to the area.

World Vision’s indigenous paddy cultivation program started in 2006 with 16 families using SRI methods. From the outset, it was decided to use organic methods of production to respond to the

growing demand for organic food products and also to proceed in an environmentally-benign way. The more demanding SRI cultivation were at first not popular because farmers were used to easier methods. However, with good results and good training, plus the rewards of a marketing program which farmers take pride in, the program now has 200 families participating.

The higher price received for their rice is obviously a strong incentive. The usual price for paddy is 10-15 rupees per kg, while organically grown local varieties earn 20-35 rupees per kg. Usual yields in the area are around 85 bushels per acre, but SRI yields are usually about 100 bushels, with some farmers getting up to 120 bushels. The most popular traditional varieties are *Rathel* and *Suvandel*, the latter being aromatic. *Pachchaperumal* is also a popular local variety, giving the highest yield by weight. Farmers are very attached to their traditional varieties, Manjula said, and want to preserve them for their children.

The company has been able to break into organic vegetable marketing as well, now delivering three tons of vegetables a day to the Colombo market. Cargills pays the Company 46 rupees/kg for its organic bitter gourds, compared with 40 rupees in the general market. Also, 50 cents per kilo is paid directly to the Company as a commission for handling the transactions. It is now starting to plan for processing facilities so that it can capture more value-added for its members. There are plans to build a processing plant in Tanamalwila with USDA support. Already USDA has helped construct a small-scale paddy mill nearby. Since World Vision's work recently received an award from the government's Department of Agriculture, it is getting more cooperation from Agriculture Department personnel.

Sudesh told me that he first became interested in SRI back in 2000, when he first read about it in an article by Gamini Batuwitige. However, when he tried to get some help from Agriculture Department staff, they dismissed it as a hoax. So World Vision did not pursue SRI at that time. However, later in 2006 with further information from Batuwitige and Premaratna, WV started working with SRI methods, not using that name 'SRI' because it anticipated official resistance. With positive and evident results now in hand, there is no hesitation to use the term 'SRI,' and WV has joined SRIN as a full and active member.

We left about 9:30 on a four-hour drive to Ampara district in the southeast of Sri Lanka. There were army personnel posted along the road for most of the trip because LTTE guerrillas have infiltrated some of the jungle areas. Just recently, there was an attack upon a village about 10 kilometers from Tanamalwila which left 10 villagers dead. We had to pass through numerous road blocks and occasional inspections during the trip. I talked with Premaratne about his experience in introducing SRI to Tamil farmers in Batticaloa district on the east coast. This was the only activity of Oxfam/Australia that the LTTE local authorities had permitted at the time. Because chemical fertilizer is not available in the area, SRI makes more sense than other approaches to increasing and sustaining rice production. There are as many as 200,000 internally-displaced persons in eastern Sri Lanka, so humanitarian needs are acute here.

Premaratne recalled having once been traveling in Batticaloa on his motorbike, to a training program that had been scheduled with farmers outside the town, when some LTTE armed guards along the road, instead of letting him pass as usual, detained him in a bunker for questioning. They did not know that his work had tacit approval from LTTE authorities, so they would not let

him travel farther. Fortunately, some passengers in a passing bus saw him, recognized him, and got the bus to stop. They came over to the bunker and asked the guards to release him. When the guards hesitated, Prema said he would give them SRI training if he couldn't go train the farmers. This seemed to satisfy the guards that he was genuine, so they let him proceed.

Oxfam/Australia has been working with sixteen community-based organizations in Sri Lanka, eight of which are in Ampara and Batticaloa districts. Six of the groups are working with SRI. I was given a handbook for 'diversified alternative agricultural technology' published by Oxfam/Great Britain for Ampara district. This features SRI for improving rice cultivation along with recommendations for soil fertility enhancement through sowing a mixture of seeds (oil seeds, grains, pulses and green manures) ahead of the main crop (20 kg/ha); applying compost, vermicompost and other organic materials; selecting and treating good-quality seeds; weed management with cono weeders; water conservation through mulching; integrated plant protection using organic materials; and animal-tree-crop integration. It showed costs of production with chemical farming as 14,500 Rs/ha, while organic farming costs 9,800 Rs/ha and organic SRI only 6,430 Rs/ha

Prema had some tables showing the spread of SRI training in the area. As of January 2008, there were 184 SRI participants cultivating 148.75 acres, about 60 hectares. There are 29 model fields demonstrating SRI throughout the region. Women, Prema said, have been particularly interested in SRI because they have most responsibility for household food security, so SRI training is now focused mostly on women.

By the time we got to the town of Ampara, the district center, the rain which was adversely affecting the ripening crop here as elsewhere in Sri Lanka had resumed, so it was a soggy visit than I was used to having here in the dry zone. After a quick lunch, we went to the Agricultural Extension office in Ampara, where the District Director of Agriculture met us. A combination of Oxfam staff, farmer-representatives, and government officers was gathered in a large room on the office's second story.

After I gave a short presentation on SRI, the first question concerned SRI experience with traditional varieties. The farmer who asked the question was himself using SRI methods with a number of local varieties. He wanted me to give more emphasis to these. I was glad to report on SRI results with 'unimproved' varieties that give higher yield with SRI practices but affirmed that yields with high-yielding varieties and hybrids are also increased. The farmer said that some traditional rice varieties have demonstrated medicinal qualities, citing one that he recommended from personal experience for curing piles.

The Deputy Director said that some elements of SRI are fairly easily implemented and other elements are not. He asked farmers and me which are the most difficult practices. Farmers who had done SRI did not identify any particular practices as presenting obstacles, though they acknowledged that at first, there is usually reluctance to adopt the full set of practices. I reported on factorial trial results in Madagascar which showed each practice to be beneficial, but also that the combination has synergistic benefits. Farmers need to decide for themselves to what extent they will take up the new practices. They can start with a few and then expand their use.

One farmer who has SRI experience through Sewa Lanka, an NGO working with Oxfam/Great Britain, said that he had found wider spacing to be very successful and now everyone can see the difference. The Department officials in his area are now supporting SRI. But he felt that SRI could not be practiced on a large scale. I pointed out that in China, SRI is being taken up most rapidly by larger farmers, rather than smaller ones, because they have adapted the practices to make SRI labor-saving for themselves, as well as saving seeds, water and cost. I described the methodology of Ariyaratne Subasinghe in System H, broadcasting germinated seeds and then thinning the resulting plants out by 'weeding' 10 days later as would have been done with transplanting. A Department official liked the idea that Ariyaratne has built and uses a motorized weeder, as this could make remaining in agriculture more attractive to young persons.

Before the session ended, Premaratne took initiative, standing by the whiteboard, to put together a coordinating group for SRI in Ampara district, posting phone numbers as well names and organizational affiliations. There were enough willing volunteers that this looked likely to be a successful effort. I was asked to make some final comments, and I stressed that SRI concepts and practices should always be adapted to local conditions. What we are seeing is that SRI can make rice production more 'modern,' more profitable, and more ecologically acceptable. Ampara had been a pioneering district for participatory irrigation management in the 1980s, and I was hopeful that it would also be pioneering for SRI adaptation and uptake in Sri Lanka.

Before participants broke up to return to their homes in the rain, one farmer stood to give me a 'plaque' woven out of rice panicles, with a statement that "This token is a symbol of gratitude" for the initiative that I was involved with, starting in 1981, for introducing farmer organizations that "expanded throughout Sri Lanka and [were] accepted by the Sri Lankan Government that implemented major irrigation projects that benefitted farmers organisations in this Country." The 'plaque' added: "(This token was awarded on 15th of March 2008 by the members of farmer organisations at the District Agrarian Extension office of Ampara)" No fancy plaque could have been received with more appreciation, brightening a damp, dark afternoon.

Sunday, March 16th

Because the rains continued most of the afternoon and evening and through the night, we found next morning when we awoke that the water level in the reservoir beside which our hotel was located had risen about two feet. One more foot and the hotel yard would have become flooded, and our vehicle would have had to drive through water to get back onto the road. Prema had gone early that morning to get a security pass for us to travel back to Colombo via Maha Oya.

We were able to get onto the road by 8:30, and stopped at a training center at Digamedulla six kilometers north of Ampara, where Oxfam was engaged in capacity building with a community-based organization known as FRED, the Foundation for Rural Empowerment for Development. We could see a meeting center and training hall in addition to two dormitories that can lodge 50 persons, build with funds for post-tsunami work in the area. Prema said that SRI was being taken up very well in this area, mostly by women farmers.

The drive to Colombo was long and uneventful, with a lunch stop mid-afternoon in Kandy. Between Kandy and Colombo, we stopped at a machinist's workshop along the road to meet Gaous, an artisan who had been building metal weeders for Premaratne. He was working on a

Sunday afternoon with two sons. We discussed possible designs for a shredder that could cut up biomass into small pieces to accelerate decomposition for making large amounts of compost. Gaous had an impressive variety of metal implements and machines in his workshop, including ones for rice milling.

Farther on, we drove by an organic restaurant in Warakapola that was supplied with SRI rice. The Development Community Foundation (DCF) which is active here is the biggest organization with which Oxfam/Australia is working on SRI. The farmers working with DCF have 96 acres under SRI, almost 40 hectares. The core group is four women and one man, but 120 other farmers have become involved. Oxfam has supported establishment of rice mills at Warakapola and also Deniyaya, which are the best centers for SRI in the wet zone. There are also dry-zone centers of SRI dissemination in Polonnaruwa, Anuradhapura and Ampara districts.

Somaratne said that in the dry zone, SRI yields are about 30% higher than with conventional methods. In the wet zone, yields in the yala (dry) season are not as high as in the dry zone, where sun exposure is greater; in the maha (wet) season, wet-zone performance with SRI is higher. In general, SRI yields are almost always higher than conventional practice, by 5- 10 bushels per acre, Somaratne said (i.e., 250-500 kg/hectare as a bushel of paddy weighs, officially, 20.86 kg). For Sri Lankan farmers, being able to reduce production costs and water is as important as yield enhancement, Somaratne said. We got into Colombo a little after 7 o'clock, leaving time to prepare for next day's workshop.

Monday, March 17th

By the time that the national workshop on SRI started the next morning about 9 o'clock at the **Hector Kobbekaduwa Agrarian Research and Training Institute (HARTI)** in Colombo, about 80 participants were on hand. Many were staff from the **Gemidiriya Foundation**, which provided financing for the workshop, along with Oxfam and other NGO representative and some government personnel. The executive director of Gemidiriya, **Dr. Gamini Batuwitige**, has been the most visible proponent of SRI, seeking to get SRI methods tried, evaluated and publicized ever since he hosted a visit to Sri Lanka by Joeli Barison in January 2000. Barison knew more about SRI in technical terms than probably anyone, having done his thesis on SRI for a baccalaureate degree in agronomy at the University of Antananarivo, providing the first systematic scientific evidence on SRI methods, before he embarked on a M.S. program in crop and soil sciences at Cornell. His knowledge was, however, not sufficient to satisfy Sri Lankan rice scientists, who took a hostile attitude toward SRI almost immediately.

Gamini subsequently became executive director of Gemidiriya Foundation, a government program backed with World Bank funding assisting villages with high concentrations of poverty. The first phase launched in 2004 covers 1,000 village communities, with plans to cover 4,000-5,000 villages and about 7 million population by 2016. SRI has been one of the programmatic focuses of Gemidiriya to raise incomes of poor Sri Lankan households.

Attending the workshop was the **Hon. Salinda Dissanayake**, a Minister for Nation Building and the Minister for Coconut Industries.⁴ Relevant for the workshop was the fact that he was one of

⁴ The latter is a position which gives him membership in the Cabinet; the former is a coordinating position not carrying Cabinet rank. There are six Ministers for Nation Building, each responsible for cluster of four districts,

the first persons in Sri Lanka to cultivate rice with SRI methods, while he was Deputy Minister of Agriculture when Barison visited Sri Lanka in 2000. He was one of the few Ministers who actually continued to farm himself after being elected to Parliament. Dissanayake attended and spoke to the first international SRI conference held in China in 2002 and has been a vocal proponent for SRI. Unfortunately for us as well as for him, in 2004 he was ousted from the Cabinet and jailed for 'contempt of court' in what was widely considered a political prosecution. Now that the Sri Lanka Freedom Party is again leading the governing coalition, Dissanayake once again has Cabinet responsibilities. He is able to introduce SRI to farmers within his Ministry's coconut rehabilitation program and also as a Nation-Building Minister.

The director of ARTI, **V. K. Nanayakkara**, chaired the morning session and spoke very positively about SRI. After my keynote presentation on SRI, the first question came from someone who described himself as a part-time farmer using SRI. He observed that all of the practices recommended for SRI have favorable results, which makes it hard to understand why there had been so little spread of SRI since it was introduced in 2000. He asked Minister Dissanayake why the spread been so slow, acknowledging that there has been opposition to SRI from rice specialists in the Department of Agriculture.

The Minister said that there has been, actually, significant expansion of SRI use. He estimated that the number of farmers using SRI methods in Sri Lanka was probably about 25,000, although this would be an inclusive number, covering farmers who do not use only all of the methods or use all as recommended. To a question about whether the Department of Agriculture would object to NGOs promoting SRI if the government is reluctant to do this, he said there should be no impediment. A number of the NGOs represented in the workshop are already working with SRI methods with 100s of farmers, most of the time with cooperation from local-level officials.

A question was asked about weed control: whether other methods than the labor-demanding mechanical weeding can be successful. I reported on data from Nepal and Madagascar which show that additional mechanical (soil-aerating) weedings add 1-3 tons/hectare to yield. So while one can employ herbicides or hand weeding with the other SRI methods, it was economically quite profitable to do this kind of 'weeding plus.' Another participant wanted to know how to achieve a 50% reduction in chemical fertilizer use. We discussed how current tools and implements could be improved upon to raise the productivity of labor for collecting and transporting biomass, and for processing and applying it once decomposed. Also asked about was how chemical and organic sources of nutrients can be combined and optimized.

After tea break, as the group was reconvening, **K. Jinapala**, an institutions specialist with the **International Water Management Institute (IWMI)**, introduced himself as a part-time farmer, cultivating 6 hectares of rice land, who has become 'infected' by SRI having found the methods to be quite satisfactory. He comes from the same village in Anuradhapura district from which my former ARTI colleague who headed up the Gal Oya farmer organization work C. M. Wijayarathna also comes. What a small world it is. Also, Mal Simmons, office manager for Oxfam/Australia, introduced himself as a friend of my daughter (Elisabeth) from the time when they both worked

focusing on coordination of efforts to promote livelihoods and cooperation among social groups. Dissanayake is responsible for these activities in Kurunegala, Matale, Polonnaruwa and Puttalam districts.

with NGOs in Cambodia. He co-authored the Oxfam/Australia publications cited in footnote 1 above. So, even more evidence that it is indeed ‘a small world.’

Gamini Batuwitage made a powerpoint presentation after the tea break on the dissemination of SRI in Sri Lanka. He has taken many splendid pictures of SRI practices and productive fields that he worked into the presentation. Some of these have been widely used by SRI colleagues in other countries in their powerpoints and publications. Already by 2001, yields as high as 15 tons/hectare were being achieved with SRI methods in Sri Lanka. But no interest was elicited from the agricultural research system. Even when Salinda Dissanayake while Deputy Minister of Agriculture got such yields on his farm (which adjoins the government’s rice research station at Bathalagoda), there was no interest, only disparagement. Gamini showed several pictures of Dissanayake’s SRI fields and his impressive SRI plants.

Of particular significance was the doubling of yield for traditional varieties like *Rathhel* which have a very high market price. There was a picture of the cover of German magazine *Chrismon* which showed Premaratne holding up a huge SRI plant with the cover headline: “Revolution ins Reisfeld” (Revolution in the Ricefield). In the first year he practiced SRI, Prema got yields of 10.5 and 15.8 tons/hectare with the new methods. The Agricultural Division of the Department of Census and Statistics, which collects the official data for the government, using its standard methods to assess rice yields, certified an average yield of 9.2 tons/hectare from 10 SRI plots that it surveyed in 2001. Still, little official interest was elicited.

Gamini commented on how valuable it was that Barison, when he came to Sri Lanka in 2000, brought with him a mechanical weeder, which could be studied and replicated. He also cited the conclusions of an evaluation recently published by IWMI scientists in the *Quarterly Journal of International Agriculture* (Namara et al., 2008). This study was based on random samples in two districts, Kurunegala and Ratnapura, of 60 SRI farmers and 60 non-users of SRI methods. The article reported that SRI reduced irrigation applications by 24%, seed requirements by 85%, and herbicide use by 95%. While SRI yields were variable, they were consistently and significantly higher than farmer practice. Soil-available phosphorus and potassium were both increased in soils where SRI methods were practiced, the article reported, as was rice plants’ tolerance of low soil moisture (i.e., drought stress). Gamini did not comment that this article was based on the same data set from which an earlier IWMI study, Research Report No. 75, was written. That report’s text presented a less favorable assessment of SRI methods than did the data in its tables.

Salinda Dissanayake followed up Gamini’s presentation with a number of comments, focusing on the relevance of SRI methods to small farmers, and looking at environmental implications. There is considerable interest in the ‘organic’ aspects of SRI, he said, although SRI is not necessarily or always ‘organic.’ It was initially developed by Fr. de Laulanie with chemical fertilizer. He switched to recommending compost when the government removed its subsidy for fertilizer use, and small farmers could no longer afford to buy it. What was thought to be a second-best accommodation (compost) turned out to contribute to greater agronomic success.

The chair observed that the Department of Agriculture is currently committed to promoting hybrid rice and at the same time is promoting high-input-based production systems. For it to now promote SRI, a low-input strategy, would appear incongruous. I agreed but noted that use of SRI

and hybrid varieties is quite compatible. Prof. Yuan Long-ping, known around the world as ‘the father of hybrid rice,’ hosted the first international SRI conference in China in 2002 because of the good results he obtained when using SRI methods with his hybrid rice. By reducing seed requirements as much as 90%, SRI makes the adoption of hybrids more economically attractive.

I reported that the extension service in Zhejiang province of China told me in August that the productivity of SRI methods when used with hybrid varieties is now propelling the spread of hybrids there. The Agriculture Department in Sri Lanka may find it difficult to change its presentation on high-input production systems, but its efforts to promote the use of hybrids can gain from accepting SRI. I further observed that it is surprising that the Sri Lankan Department of Agriculture is still holding out against SRI while its counterparts in India, China, Indonesia and Vietnam, all with larger rice research establishments, have concluded, after many years of evaluation, that SRI offers their farmers many advantages. Researchers and governments in these countries are actively and financially supporting the spread of SRI, in rice sectors larger than Sri Lanka’s.

Premaratne addressed the question of why farmers are not accepting and practicing all of the SRI methods as recommended. He reminded participants that all Buddhists are enjoined to practice all of the five basic precepts of Buddhism, rules of right conduct known as the *Pancha Sila*: no taking of life, no stealing, no lying no misuse of the senses, and no self-intoxication. Yet few followers of the Buddha live up to all five expectations, he noted. All Buddhists should strive to practice all five practices fully, but it is better to follow each as far as possible than to give up on these ideals. Like monks, we should continually advise people to do as many of these good things as much of the time as possible, without being surprised if there is incomplete adherence.

W. G. Somaratne made a powerpoint presentation on the SRI experience of **Oxfam/Australia** based on the publications noted in footnote 1. Already in 2003, he said, Oxfam/Aus identified SRI as an important opportunity for improving household food security: increasing incomes, reducing dependence on costly inputs, reducing water use, and promoting eco-friendly practices. For the first evaluation, the experiences of 151 farmers (71 conventional producers of rice, and 80 SRI producers) were surveyed. The reasons that users gave for adopting SRI were, in order of importance: family consumption needs, income generation, lack of other profitable alternatives, costs of fertilizer, knowledge and skills were provided, SRI had lower input requirements than other crops, easy to do, and ability to get production loans. SRI users were found to have somewhat larger household size than conventional farmers and somewhat smaller land holdings, so they had less marketable surplus on average and lived in relatively greater poverty. However, SRI methods properly used can countervail poverty by increasing marketable surplus, he noted.

This first study, based on retrospective data, was followed by a farmer-participatory study to compare SRI with alternative production methods under more controlled circumstances, working with 19 farmers in Matara, Anuradhapura, Kegalle and Ampara districts. Seven did broadcasting, five did transplanting, and seven used SRI methods. Yields and components of yield were both carefully measured. As the components of yield followed the pattern of yield fairly closely, just the latter is shown below, in tons/hectare. The return on seed invested, a consideration very important for poor households, is shown in the bottom row:

Variety	Broadcasting (BC)	Transplanting (TP)	TP as % of BC	SRI	SRI as % of BC
BG-358	4.25	5.15	122%	6.06	143%
BG-352	3.57	4.22	115%	5.34	146%
Tons of paddy produced per 50 kg of seed	3.35	7.80	231%	33.16	989%

Somararatne summarized also the results of a marketing study assessing the potential advantages and difficulties of selling organic SRI rice in Kegalle district. This indicated favorable prospects. In the discussion, I asked about milling output from SRI paddy – how many kg of finished rice can be turned out from a bushel of unmilled paddy? This has not been evaluated precisely, in Sri Lanka. Already in 2002, I was told that rice millers in Mahaweli System H were offering to pay SRI farmers 10% more per bushel for their paddy while the ripening crop was still standing in the field. This means that millers must have calculated they could get more than 10% more outturn of polished rice from SRI paddy because of less chaff (fewer unfilled grains) and less shattering (fewer broken grains).

Premaratne said that SRI farmers already know that their harvested paddy is heavier than that grown with regular methods. He reported that a gunny sack of regular rice usually weighs about 62 kg, he said, while a gunny sack of SRI paddy weighs about 70 kg, an increase in density of about 12%. This should provide the basis for farmers getting a higher price for their SRI paddy, over and above the fact that it can be chemical-free.

Ernangi Fernando then reported on the experience of **Oxfam Great Britain** with SRI under its Ampara Integrated Rehabilitation Program. This operates in what is considered a tsunami-affected area. Oxfam GB works with a number of NGO partners in Ampara: the Social Welfare Organization in Ampara District (SWOAD), Sarvodaya Shramadana, the Affected Women's Forum, FRED (which I had learned about the day before), the Sewa Lanka Foundation, and the government's District Administration. SRI is one of the methods being promoted because it has high output with low-cost inputs (see page 11 for discussion of Oxfam GB's manual).

Oxfam GB is working with 882 paddy farmers in Ampare, 329 men and 553 women. It has brought in technical assistance on SRI from Tamil Nadu state of India, the Tamil Nadu Organic Farming Movement, known as TOFarM. The program is intent upon raising productivity without adding to farmers' indebtedness. The strategy is to introduce low-cost farming technologies, greater cost-effectiveness of inputs, soil fertility enhancement, revitalizing the environment, and using resources effectively.

It is not surprising that SRI fits easily into such a program, along with things like seed selection and weed management. The program is working with upland rice production as well as in irrigated situations. Upland SRI, on plots less than half an acre, involve direct seeding (55kg/acre), mulching, occasional watering, and use of the conoweeder to aerate the soil. In the past maha (major) season, 38 farmer groups used SRI methods on 24.58 acres, and they are now awaiting results. Farmers have expressed their happiness about the growth of the rice, the reduction in water requirements, and the pest resistance. There are plans to expand SRI area in

the next season now that they have gained experience on demonstration plots. It was noted that in other places, government personnel have not been supportive of SRI efforts, but here in Ampara the response has been good.

The main challenges faced in promoting SRI is the perception that it requires more labor and time. “This is what farmers are talking about, that you have to be in the field a lot. For intensified management, you can’t just plant the crop and forget it.” The self-help groups have been good for ensuring that there is enough labor since members can help each other. The first conoweeder provided was not of good design, so that was an initial hindrance. But farmers have figured out how to solve the conoweeder problem. Also, the ingredients for making biofertilizers have been scarce in some areas. Most farmers are able to reduce their costs of production with SRI. Usually, farmers spend Rs. 25,000 per acre for paddy cultivation; those in the program have been keeping track of their costs, and so far, up to harvest, the costs have been Rs. 11,000 to 30,000, quite a range.

Next, **Sudesh Rodrigo** reported on **World Vision** experience with organic production of indigenous paddy varieties using SRI methods, focusing first on the Wellassa area that I had visited on two days before. They planned to start in the village that was the home of Sri Lanka’s president, and were told by the government’s Agricultural Instructor working there: “Don’t do SRI, it’s a failure.” This caused them to start SRI under another name, ‘organic agriculture,’ but it has been quite successful. For one thing, by not using agrochemicals, the water in the tanks (reservoirs) is purer and thus they are more productive for fish and shrimp.

The first step was to appeal to the pride of the Wellassa people by emphasizing self-reliance. Then there was an awareness program on indigenous cultural traditions, without highlighting SRI. Third, there was a field visit by farmers to Thangalu Weliyaya to see organic production. Fourth, fifteen farmers were trained in a pilot project on ‘organic agriculture.’ Then after that first season, there was a participatory evaluation done as a fifth step, taking 200 farmers into the program for the following maha (main) season. Now they are in the sixth stage, developing initiatives for marketing. The main problem currently encountered is that households don’t want to sell their organic (SRI) rice, preferring to keep it for themselves.

Now the World Vision program is introducing SRI in its Puttalam ADP in the north, aiming to uplift the circumstances of 300 households over the next three years. Farmers are getting higher yields even with partial adoption of SRI recommendations, particularly wider spacing, reduced water applications, and organic fertilization. Farmers like being able to produce their own seed, and they can incorporate traditional knowledge and traditional varieties with SRI practices, to increase their productivity. They can minimize costs by going to 100% organic production. Also, the storage qualities of the rice are enhanced with SRI practices, making chemical means of protection unnecessary.

There is an emerging new paddy farming culture, Sudesh said, based on in-field research and multiple sources of innovation, involving different varieties and different methods, with growing grassroots awareness. “The collective skills of the household are directed to their own development.” There has been some resistance in a few cases, however, he reported. In one case, the wife was against trying SRI methods and let the family cow go into the field to spoil the crop.

But because very young seedlings are used, the field could be replanted without much delay, and now the couple, separated for a while, are back together again.

Farmers are recognizing that the paddy farming system has to change, and farmers should move away from their old practices. By the end of 2011, in the Puttalam project area, the aim is to transform a minimum of 500 acres of paddy production, with many farmers trained to become promoters of SRI in the wider area. The presentation ended with showing of a video that World Vision had made on the Puttalam SRI program, which we should be able to post on the SRI website. The workshop concluded, about an hour later than scheduled, with Somaratne and Gamini discussing the newly-formed SRI Network (SRIN). As with most such SRI get-togethers, interest had remained high, with few leaving on schedule. Gamini then spent another hour talking with Gemidiriya Foundation staff who had come, to consolidate what has been learned.

Tuesday, March 18th

This day started with a short meeting at 9 o'clock with the Minister of Agricultural Development and Agrarian Services, **Hon. Maithreepala Sirisena**. His residence, conveniently, is just across the street from the Agrarian Research and Training Institute where we had met on Monday, so it was easy to get there. Because the Minister is also General Secretary of the ruling SLFP party, there have been a number of threats made against him by LTTE sources (and more than one assassination attempt). This meant that security for getting into his residence was rather rigorous.

The Minister had only 20 minutes to meet with Gamini, Somaratne and me because a previously unplanned meeting at Parliament had been called for that morning. But the powerpoint that I had put together the night before was flexible and, I think, effective. It focused on the support that governments in India, China, Indonesia, Cambodia and Vietnam are giving to SRI, and the rapid spread of SRI in those countries, showing also SRI results in terms of yield, water-saving, seed-saving, cost-reduction, environmental impacts, enhancement of farmers' income, higher milling outturn, and resistance to pests and diseases, as well as tolerance for storm damage and drought.

The Minister knew about the serious lodging that we had seen on Saturday and Sunday driving through the southern provinces. This was of much concern to him because what was going to be a very good rice crop this season, something that would benefit the government as well as farmers and consumers, was being diminished all over the country by bad weather just at harvest time. From extensive SRI experience, we know that much of the crop lodging could have been avoided if farmers had used SRI methods of production.

The Minister instructed his personal assistant to set up a meeting with leadership of the Ministry and Department, the policy and technical personnel responsible for agriculture in Sri Lanka, for Gamini and Somaratne to give a high-level briefing on SRI. Although the meeting was short, it served the intended purpose of communicating to the top level of government the opportunities that SRI methods offer to farmers, consumers, government and environment in Sri Lanka.

Later that morning, Gamini, Somaratne and I drove to Battaramulla east of Colombo where government buildings have been consolidated over the past 25 years to deconcentrate the capital city. Security arrangements controlling entry into the Parliament complex and into the building itself were really thorough. There, we met with **Hon. A. P. Jagath Pushpakumara**, one of the

country's six Ministers for Nation Building. He is responsible for four districts in south-central Sri Lanka: Moneragala, Badulla, Ratnapura and Nuwara Eliya. He had learned about SRI from Gamini, who had for almost a decade been a top civil servant in Moneragala district, and he was now interested in promoting SRI within his area of responsibility. With him were five top staff, including the current Government Agents for Moneragala and Hambantota.

We were joined a little later by **Hon. Salinda Dissanayake**, Minister for Nation Building for Kurunegala, Puttalam, Kegalle and Mannar districts. Ministers for Nation Building are 'cluster ministers,' considered sub-cabinet in rank, but Salinda is also the Minister for Coconut Industries, which gives him a seat in the Cabinet. He has for seven years now been promoting SRI within his areas of responsibility at every opportunity.

Minister Pushpakumara and his associates showed much interest in learning about SRI as I went through the powerpoint that I had prepared for the Minister of Agriculture that morning. Salinda was a kind of resource person and corroborator since he has, like Gamini, himself cultivated with SRI methods since 2000. We had an hour's discussion on SRI and then went for lunch together in the cafeteria for Members of Parliament. Discussion continued until almost 3, as we were joined by **W. K. K Kumarasiri**, secretary to the Ministry of Nation Building and Estate Infrastructure Development, whom Gamini introduced as himself 'an SRI farmer.'

Kumarasiri and Gamini, it turned out, were batchmates from university days, and Gamini had gotten Kumarasiri to try out SRI methods on his own small paddy field in Colombo district. Neither soil nor climate are ideal for rice growing there, but in Sri Lanka, paddy is grown on almost any available land. Kumarasiri said that the usual yield of about 35 bushels per acre; with SRI methods, he had gotten 45 to 50 bushels, at reduced cost. So he considered SRI to be 'very rewarding.' Gamini, whose paddy field is in a somewhat more favorable area, has gotten yields up to 128 bushels/acre with SRI methods. It was gratifying to hear senior civil servants discussing their respective experiences with growing paddy.

We got back to the Agrarian Research and Training Institute by 3:30, where I met with ARTI research staff for an hour. Some of the time was spent in recollections from when I spent a sabbatical year at ARTI, 1978-79, and then worked with its staff in the Gal Oya project for six years, 1980-85. There was interest in knowing more about SRI, e.g., given the current policy debates going on within government, in which ARTI is involved, over fertilizer use and subsidies. There have been few thorough economic assessments of SRI use, and even fewer social impact studies. These are the kinds of analysis that ARTI staff have been doing since the Institute was established in 1975. ARTI's director, Dr. V. K. Nanayakkara, said that it would be very glad to get involved in such evaluations, and perhaps it can join the SRI Network.

En route back to the hotel, I stopped by the home of two close friends from previous years in Sri Lanka, Drs. Ananda Soysa and Priyane Soysa. Priyane, having served for many years as chair of the Pediatrics Department in the University of Colombo Medical School, in recent years has served as chairperson of the National Science Foundation and also on the board of the Sri Lanka Association for the Advancement of Science. This put her in the middle of many agricultural research discussions and, given our long-standing friendship, she has had an interest in SRI.

Over tea, she recalled the strong, even vehement rejection of SRI that she has heard from agricultural scientists in Sri Lanka. Neither of us could think of an adequate explanation for this. While financial self-interest could be a factor (because of ties to the agrochemical industry), there seems to be an almost visceral response from some agronomists. This is something that others, who are not involved in the controversy, should study in a systematic way as insights into this phenomenon could be instructive for the conduct and funding of science in the future.

Wednesday, March 19th

This morning, Somaratne and I went to the **International Water Management Institute** (IWMI) and met with its director, **Dr. Colin Chartres**, for almost an hour. Jinapala whom I had met on Monday at ARTI joined us. Since Chartres had begun his professional career as a soil scientist, before moving into the water resource sector, I was pleased that we shared many perspectives on soil systems and their role in SRI results. He said that IWMI recognized the potential contributions that SRI could make to resolving water-scarcity problems in countries where rice is an important crop. IWMI will be willing to undertake investigations that can evaluate and illuminate SRI.

In further discussions with Jinapala after the director had to leave, it was reiterated that IWMI is very open to getting more engaged in the assessment, evolution and refinement of SRI. Especially with regard to its water management recommendations, we believe that more modification and validation is needed. The recommendations at present are purely inductive, with no systematic studies testing thresholds and establishing optima for different conditions. Indian NGO colleagues think, for example, that alternative wetting and drying of the soil should continue throughout the whole crop cycle, not just up to panicle initiation. This is something that deserves thorough investigation.

As luck would have it, **Minister Salinda Dissanayake** was conducting a training program that morning at the **Coconut Cultivation Board** headquarters, just about two kilometers away from IWMI. He wanted me to come join in the program if at all possible. So Somaratne and I drove there, arriving just as Dissanayake began his powerpoint presentation to about 100 farmers from the Colombo district. These were farmer representatives from a variety of local groups, meeting under the auspices of the Nation Building ministry.

The group was very intent upon learning about SRI, and when Dissanayake finished, he asked me to make a presentation, going through the same slides I presented on Monday. Mostly familiar questions were asked, but it is always good to hear how farmers thinking about the challenges and opportunities of SRI. We had planned to leave by noon, but discussion went until one, before the group adjourned for lunch.

Among those present at the training session, I found out later, was **M. Gunaratna**, president of SANASA, the national savings and loan cooperative with over 1 million members, organized in over 100 branches all over the country. He told **Chamila**, coordinator of the **Cooperative Environmental Foundation**, an activist NGO that is a charter member of SRIN, who was also attending the training program that we should try to get training on SRI integrated into SANASA's 'organic agriculture' training that is offered to all of its branches and members. This would be a very great opportunity to expand SRI acquaintance and practice in Sri Lanka.

After checking out of the hotel and getting a quick lunch, Somaratne and I picked up Chamila back at the Coconut Cultivation Board headquarters and drove three hours north from Colombo to Chillaw, a town on the coast where World Vision has its base of operation for Puttalam district. Chamila told me that the Cooperative Environmental Foundation began its SRI activities in 2003 with 20 farmers. This number has now grown to 175, almost nine times more, however, most members are part-time farmers with competing demands on their time. Even so, there is growing interest in SRI, and many support and assist in the training of other, more full-time farmers in organic methods of cultivation.

Although the road to Chillaw was a major national highway, it was narrow and full of vehicular and foot traffic so that it was wisest ignore the continuous stream of hazards by going to sleep. At one point we stopped to pick up the wife and three daughters of Premaratne who were joining us for the evening. We reached Chillaw and the hotel where World Vision has arranged for a SRIN executive committee meeting and dinner about 6:30, half an hour late. There we were met by our host, Sudesh Rodrigo for World Vision and Premaratne from Oxfam/Aus. Unfortunately, Gemidiriya duties had kept Gamini Batuwitage from attending.

Two committee members who were with us and whom I did not know from before were **Chaminda**, coordinator for the Green Movement in Puttalam district, and **Sunanda**, coordinator for the Janaaruna Foundation in Tangalle. Somaratne and Chamila completed the committee membership for now, but it is intended that this body expand to include more organizational representatives now that the network's purpose and direction are becoming clearer. We had a good and long discussion with the sound of ocean breakers and unusual storm thunder adding a tone of drama.

Most attention focused on how to build bridges with the Department of Agriculture and Department of Agrarian Services for cooperation from researchers and also extension personnel. The evidence favoring SRI continues to grow, with now also some high-level political support. A few days later, Somaratne emailed that at a meeting on promoting food production a week after I left, government researchers had "suggested to try SRI as well with other methods. It is a new development." So, this may prove to be easier than it seemed that evening.

There are many subjects that it would be good to get proper research done on: the nutritional content of rice grains grown with SRI methods (protein content, variety of amino acids, micronutrient values); likewise, the taste qualities and keeping qualities of SRI rice; the yield response of SRI plants to additional soil-aerating weedings; improved tools and methods for collecting, transporting, processing and applying biomass to improve soil fertility; assessment of the responsiveness of different indigenous varieties to SRI methods; developing marketing channels, quality control, and trademarking for organically-grown indigenous varieties, etc. This discussion suggested trying to get Sri Lankan universities more involved in SRI work. Dr. Punchihewa and his students at Ruhunu University in Matara district in the south have been working with SRI since 2003, but it would be desirable to get faculty and students at the main agricultural faculty, at University of Peradeniya, joining in this effort.

The government is currently under much pressure to raise rice productivity. It is spending 1,500 million rupees (\$15 million) on subsidies for chemical fertilizer. If this can be reduced, it will give direct budgetary relief. With the world price of rice rising significantly, the cost of imports so long as Sri Lanka does not attain self-sufficiency in rice production is becoming more burdensome. So, there are incentives for government decision-makers to take SRI seriously after half a dozen years of equivocation. It will be up to SRIN members to follow up the openings that have been or are being created.

After a congenial dinner at 9 o'clock, Somaratne and the Oxfam driver took me back to the Colombo airport, for my early-morning return flight. It was very gratifying to see the range and depth of interest and engagement with SRI that is now evidence in Sri Lanka, coalescing at an opportune time as the rapidly rising world market price for rice, along with the many derived local prices, will become a more and more urgent subject of concern, both for governments, and for consumers.

Especially poorer households will be adversely affected by the widening gap between supply and demand. Even many farmers are in deficit when it comes to basic food supply and are net purchasers of rice, so they get no real benefit from the rising price. Holding down the market price because of gains in productivity is a win-win solution for everyone that SRI holds out for any country that -- and any farmer who -- is open to innovation.