

REPORT ON VISIT TO CAMBODIA TO REVIEW SRI PROGRESS, January 13-20, 2006

Norman Uphoff, CIIFAD

SYNOPSIS

These are the main observations from a visit to Cambodia to keep abreast with what farmers and various institutions working with SRI are doing and learning. Details expanding on these observations are given in the following report:

- Because the rains were delayed in many parts of the country at the start of the 2005 season, the number of farmers using SRI methods was less than had been expected. Even so, at least 40,000 farmers used them, and possibly as many as 50,000, about 2,000 times more than five years ago. Given the high levels of farmer satisfaction and institutional support, this number could be 100,000-200,000 in 2006.
- The Cambodian government is now actively supporting SRI, having made its promotion part of the new national development plan for 2006-2010. The Minister of Agriculture, Minister of Environment, and Minister of Foreign Affairs are all talking about SRI and encouraging farmers to take up the methods. The prime minister has also endorsed the promotion of SRI in Cambodia. There is a Secretariat for promoting SRI now functioning in the Ministry of Agriculture. Details are given in the following trip report.
- The strategy mapped out five years ago by CEDAC, the NGO that has spearheaded SRI demonstration and dissemination in Cambodia, seems to be working well. A strong set of supporting institutions, both NGO and government (Provincial Departments of Agriculture), is beginning to cooperate and communicate. Refinement and acceleration of the diffusion efforts are still needed, so that this promotion does not become routine and purely top-down. But the foundations for commendable spread are well laid, thanks very much to the efforts and thinking of CEDAC and its director, Koma Yang Saing.
- Farmers' assumption of responsibility for SRI dissemination is impressive. So are farmer efforts to derive more benefit from SRI by using its productivity increases to redeploy resources and diversify their smallholder farming systems. This will contribute still more to rural household incomes and also greatly enhance Cambodians' nutritional status.
- GTZ, Oxfam America and Oxfam GB have taken the lead among NGOs in supporting the spread of SRI, and other donors are getting closer to providing significant assistance.
- Population growth in Cambodia is contributing to continuous subdivision of small-farm landholdings to give land to the next generation. So there are strong, objective pressures for 'intensification.' SRI is showing that farmers can maintain their rice production levels with half their rice land, or less. That opens up many positive possibilities for the future.
- Climate and weather remain a major factor in Cambodian agriculture. SRI can adjust to this to some extent, but not completely. Also, attention and experimentation should be given to how SRI practices can be adjusted and adapted to more abiotic stresses. There is indication that this is possible, but it should be a focus of farmer and research efforts.

Introduction

After a productive 10-day visit to Vietnam, reported separately, I arrived in Phnom Penh shortly before noon on Friday the 13th. **Chey Tech** from CEDAC, the Center for Study and Development of Agriculture in Cambodia, met me at the airport. This NGO has played a leading role in demonstrating and spreading SRI within Cambodia since 2000. Last year, Tech became the co-director of a small SRI Secretariat within the Ministry of Agriculture, Forestry and Fisheries, with a co-director from MAFF. Their efforts are being supported by GTZ, the German development cooperation agency. As we drove into the city, Tech gave me a quick update on the status of SRI in Cambodia.

The main change since my last visit (March 2005) is that the government is now giving very visible support to the spread of SRI. Indicative of this, he told me, was the invitation just received by CEDAC's director, **Yang Saing Koma**, to participate in ceremonies on Sunday to give awards to SRI farmers who had gotten the highest yields in Takeo province, events organized by the Minister of the Environment and the Minister of Agriculture. I was also invited, he said, so that I could meet the Ministers and they also meet me. Tech said also that SRI is now included in the government's National Development Plan for 2005-2010 as a major thrust for the agricultural sector.

Tech noted further that the Minister of Agriculture, in his thesis recently completed for a PhD from the national university, cited fairly extensively the evaluation report that Tech prepared for CEDAC in 2004. This had surveyed 120 farmers who had used SRI methods for three years (2002, 2003 and 2004), to assess the longer-term impacts of using SRI, so the Minister knows much about SRI (see <http://ciifad.cornell.edu/sri/countries/cambodia/cambimpascdc.pdf> for this evaluation). The Provincial Departments of Agriculture in 16 of Cambodia's 24 provinces, including all of the major rice-growing ones, are now supporting farmer-exchange visits to help disseminate SRI, and they are promoting the new methods through their staff and programs.

I asked how many farmers used SRI methods in 2005, remembering that CEDAC started SRI in 2000 with just 28 farmers. This number went up to 400 the next year, and to 2,100 the next, reaching at least 9,100 in 2003 and 16,844 in 2004. The SRI Secretariat thinks that at least 40,000 farmers used SRI in 2005, Tech said, and possibly as many as 50,000; maybe even more. Now that SRI has begun spreading quickly, it is no longer possible to have as complete and precise knowledge as before, he added.

CEDAC knows of at least 30,000 households using SRI methods in the 1,300 villages in which it has rural development programs (this is out of a total of 130,000 households). Probably another 15,000 households used SRI last year through the activities of GTZ-RDP and various NGOs in Cambodia. Then as many as another 5,000 households may be participating in government SRI programs. So a number as high as 50,000 is quite defensible, Tech thinks, but the SRI Secretariat can identify only about 40,000 specific households.

In 2004, there were 32 institutions (NGOs, donor projects, government agencies) working on SRI in a dozen provinces. Last year, that number rose to 53 institutions in 16 provinces. So the spread of SRI continues to gain momentum. In 2002, Koma told me he had a strategy for getting

SRI taken up by half the rice farmers in Cambodia by 2010, enough to make a major impact on the whole agricultural sector, not just on rice production. That target appears quite reachable.

That evening, Koma and I had supper together at a congenial local restaurant, enjoying ‘Khmer hot-pot,’ which is usually just called ‘soup.’ We discussed many things, but particularly how the opportunities that SRI is opening up can be used for social as well as economic advances in the agricultural sector as a whole.

The next day, Saturday, Koma had arranged for me to resume my role as a social scientist by giving a seminar on ‘Participation and Empowerment’ for the Rural Development Department in the International University, a new and growing private institution in Phnom Penh. Koma, who had served as first head of that Department, had more of a workout than I did since he did the concurrent translation into Khmer of my presentation and then the ensuing discussion that together lasted almost three hours.

At breakfast that day I had a chance to meet for the first time Abha Mishra, a PhD student from the Asian Institute of Technology (AIT) in Bangkok, who is doing her thesis research on SRI. Part of her field research is being done in Prey Veng province of Cambodia, so she came up to Phnom Penh from Bangkok the previous evening to overlap with my visit for a day before she went off to her field site on Sunday. We had been corresponding by email for about two years, so it was great to finally have a direct meeting. Abha brings to her doctoral studies broad training in the natural sciences, having done a master’s degree in environmental sciences in India and some graduate study in plant breeding in Australia before enrolling at AIT. Several times during the day we had a chance discuss her research as well as various scientific aspects of SRI.

SRI Awards and Village Visits

Sunday morning, Koma and I left at 6:15 for Takeo province, arriving an hour and a half later in **Ro Veang commune center**, at what turned out to be the CPP party headquarters along the main road. The Minister of Environment, **Dr. Mok Mareth**, was already there waiting for us, with about 600 assembled farmers sitting on plastic chairs in a large courtyard. I had previously met Dr. Mareth in New York when CIIFAD, CEDAC and partners from Madagascar and Sri Lanka were given one of the first awards from the SEED Initiative, launched by IUCN, UNDP and UNEP. The SEED selection committee liked our proposal to support development and environmental conservation through entrepreneurial activities, in our case by promoting the growing of indigenous, local rice varieties by SRI methods. These can make rice production more benign for the environment, while helping farmers to get higher incomes from producing and selling high-quality ‘organic’ rice, and at the same time enhancing the conservation of rice biodiversity.

The Minister was attending a meeting of the Commission on Sustainable Development at the United Nations in April 2004 and came to the SEED Award ceremony. After meeting Koma and me there and seeing the interest that others were showing in SRI, he began to take a personal interest in it. He has become a strong supporter of its spread, especially in his home province of Takeo, which has emerged as the main leading province for SRI development.



Ro Veang CPP headquarters, awaiting the arrival of the Ministers



Minister of Environment Dr. Mok Mareth and CEDAC director Dr. Yang Saing Koma talking before the award ceremony.

It was the Minister of Environment's idea to promote SRI by giving awards to the most successful SRI farmers in different communes (the originally-French name used for sub-district local government units in Cambodia). He mobilized funds from the party and its contributors to support this promotion effort, which was surely good politics as well as development incentive.

While waiting for the ceremony to commence, Koma and I looked at several large picture displays with the Minister. One was a CEDAC picture comparing the huge roots of a SRI rice plant with the truncated roots of a 'normal' rice plant grown under flooded conditions. We duly inspected and admired the prizes: a TV set for the farmer with the highest yield in the commune, a bicycle as a second prize, and portable radios for the third, fourth and fifth place winners. There was also a table piled high with colorful printed cloths (sarongs) to be given out to each of the farmers attending the ceremony by invitation. This was a big affair.

At 8:15, the Minister of Agriculture, **Dr. Chan Saeun**, arrived and the ceremony commenced. First, there was a long report in Khmer read by a local official, which I could not understand. (Koma was sitting at the other end of the dais, so he could not translate.) Before the ceremony we were told that one of the crop-cuts on the winning SRI field had produced 2 kg of rice from one square meter of crop, representing a yield of 20 t/ha. The other two cuts were 17 t/ha and 7 t/ha, so the calculated average yield was 14.7 t/ha, more than 7 times the national average.

It was gratifying to see SRI results here in Cambodia beginning to reach the very high yields occasionally seen in Madagascar on the best-managed soils. This confirms the attainment of SRI yields that are beyond what some scientists have considered 'the biological maximum,' needing to be increased by plant breeding. I favor further plant breeding efforts, but have become persuaded that there is much more potential productivity in rice plants than is being utilized. Instead it is constrained by adverse management practices like flooding and crowding.

After the official finished, Koma was invited to speak, and he gave what sounded to me a very nice explication on the principles of SRI, describing also the active role that farmers are expected to play in further development and dissemination of SRI. Several times during the ceremony, the Minister of Agriculture, beside whom I was sitting on the dais, said to me: 'Farmers are very happy with SRI.' My response was: "Surely when farmers are happy, the government is happy."

During the Minister of Environment's talk, the Minister of Agriculture told me that Koma was being introduced as 'the father of SRI in Cambodia,' and I, as 'the father of SRI in the world.' I corrected this by saying: "The real father of SRI was a real father," pointing out the name of Fr. Henri de Laulanié in the illustrated ***SRI Field Guide*** that being distributed at the ceremony. This name was one of the few English words in the Khmer-language document, the others being: Field Guide, System of Rice Intensification, Cornell International Institute for Food and Agriculture Development (sic), and my own name.

On the front cover of the guide was a picture of the Minister of Agriculture inspecting a lush SRI field. The guide had been published by the Minister of Agriculture with private contributions, I was told. Since SRI has not been, and cannot be, patented, it is in the public domain, where anyone can use its ideas. We have no control over its use. CIIFAD has provided information on SRI, upon request, to both Greenpeace and Syngenta, for example, completely different kinds of organizations. If the CPP can speed the spread of SRI in Cambodia, this will be good for the country's farmers, for the urban poor, and for the environment -- as well as for itself.

The handing out of prizes was what the attendees had all been waiting for. There was, it appeared, more pride than envy in the audience as the farmer with the highest yield,

unquestionably the best in the commune, carried away his big boxed TV and its aluminum antenna. The farmer who wheeled away his bicycle was also grinning widely with approving smiles all around. Because we were behind schedule, there was a symbolic handing out of the sarongs and SRI Field Guides, and then the guests of honor, including Koma and myself, departed for the next event before these had been given out to the hundreds of farmers present.

The Minister of Agriculture had to head off to meet with farmers in another district, but the Minister of Environment, being in his home district, had four more ceremonies to preside over that day. I understood better his willingness to give support to SRI when he gave me his business card at the next stop. It identified him as an agronomist by profession, as well as senior minister in the cabinet. (He is also a member of the party's central committee.)

Dr. Mareth told me that he has had good experience when using a soil-additive developed in Japan and known as 'EM' (Effective Microorganisms), now being promoted in a number of countries. Because it is a patented product, nobody knows exactly what this 'cocktail' of microbes contains. Opinions about EM are divided among my SRI colleagues; some are very approving, while others are dismissive. The Minister's attitude was very positive having gotten good results with EM applications. He said that this prepared him to accept what Koma or I said about the value of promoting soil microbial populations for better plant growth and performance.

Reaching the next commune, **Chum Reah Pen**, required a 20-minute drive over rougher roads than the ones we had traveled to reach Ro Veang. About 400 farmers were assembled under a huge tent at the next stop, with an impressive public-address system set up on what was otherwise a field. A separate tent for the guests of honor had been set up about 30 feet in front of the main tent. This 'gulf' between visitors and locals is 'traditional,' I was told. When I was asked to say a few words about SRI after Koma had finished speaking, I took a portable microphone in hand and walked over to the farmers' tent to speak to them from closer up, saying that "my eyesight is no longer so good" and I wanted to be able to see the farmers better.

I limited myself to 'one comment, two requests, and a piece of advice.' The comment was that "SRI is not finished... it is not a technology... it is still developing, evolving, changing.' I gave some examples of farmer innovation, including direct-seeding, raised beds, and extending SRI concepts to other crops, such as wheat, sugar cane, cotton, and even to chickens. A lot of interest was evident when I reported how farmers in one village that I had visited in Takeo province were now using SRI ideas to improve their chicken production. They get more eggs and more meat by raising fewer well-managed birds within the fence around their compost piles. The birds are better fed and watered, there are fewer losses to death or thieves, and the chickens' manure improves the compost.

The two requests were: (1) do not just do what we tell you about SRI: think about what we say, try to understand it, experiment with the practices, fit them to your local conditions, and make innovations and improvements wherever possible; and (2) if the new methods are beneficial, please share them with other farmers, spreading the innovation farmer-to-farmer. NGOs like CEDAC and government personnel are able to help in this process, but we want to see farmers working together on this.

The advice was: do not be preoccupied with yield. We were honoring farmers who have used the new methods most successfully to increase their yield. But yield is not the most important thing for farmers; improving their incomes is more beneficial. Getting high production with high costs does not help farmers very much. SRI lowers production costs at the same time that it increases yield; this boosts profitability for farmers even more than it raises yield. Records should be kept on these amounts and relationships.

I told them about some women farmers whom I had recently visited in Vietnam, who with SRI methods have raised their yield by 21%, not so much. But by reducing their costs of production by 24%, they are able increase in their net income per hectare by 65%, thanks to SRI methods.

SRI is intended to raise the *productivity* of farmers' land, their labor, their water, and their capital, I emphasized. This should enable them to diversify their agricultural production, putting more of their land, labor, water and capital into the production of vegetables, fruits, legumes, beans and other products that can increase their incomes and also improve their nutrition.

As we drove away after the prize-giving, Koma told me that the highest yield in this commune had averaged 10 t/ha, with the runners-up all around 8 t/ha. Since farmers' previous yields average around 2 t/ha, this was a great improvement, even if not as high in absolute terms as some SRI yields attained elsewhere.

Koma and I had planned after this second ceremony to spend the rest of the day visiting some villages in the province to talk to SRI users in small groups there about their experience. But Dr. Mareth said that he would like us to continue with him and to talk to the other groups as well. So we stayed with his small caravan of vehicles a while longer. I was impressed that there was not the same kind of 'security' contingent around him as there would have been when traveling with a minister in Indonesia or India, for example.

As we pulled out of the village, there was a row of children watching us through impassive eyes. Their hair, skin, teeth and limbs indicated poor nutrition. I regretted not having stressed the importance of diversified agricultural production for the sake of children's health and well-being. I had a chance at the next two award ceremonies to make a strong plea on this point. Rice is very important as a staple crop, for calories. But human bodies, and especially young growing bodies, need vitamins and minerals from other sources as well. If farmers can grow enough to meet basic staple needs by using less land, labor, water and capital for rice, then they can put more of these resources into growing other crops that give especially their children a more balanced diet.

Another 20-minute ride over even rougher roads brought us to the third ceremony, organized at a commune named **Kwav**, where somewhere between 300 and 400 farmers were sitting on blue plastic chairs in an open-air setting, no tents this time. This time the audience sat in the shade and the guests' table was in the sunlight. In this group there were more women and more children, a crowd more like "the real Cambodia," I thought. The banner behind us read, in Khmer, "Award Ceremony for Best Farmer in Agricultural Intensification." In my comments, I stressed that 'intensification' should lead to 'diversification,' following this point up with a strong message for growing and consuming more vegetables, fruits and legumes.

The Minister of Environment picked up this theme in his talk to the group. I could make out the words ‘vitamins and minerals’ in the midst of his quizzing one farmer in the front row about what other crops he grows besides rice. In this commune too, the top SRI yield was 10 t/ha, while the runner-up was 8 t/ha. I asked what usual yields are, and Koma said about 2 t/ha; almost always less than 3 t/ha, and often less than 2 t/ha.

After another 15-minute drive, we reached a private farm house, where a large and fine lunch had been prepared for the Minister and his traveling companions. The meal included a number of ‘typical Khmer dishes,’ but also boiled crabs and shrimps that were quite splendid, and the most snake-like eels I have encountered, not as pleasant a treat. I told the Minister that I was impressed to see him spending this much time in direct communication with farmers. He said that he normally spends two Sundays a month like this outside Phnom Penh, trying to keep in touch with the grassroots. This approach to politics distinguishes the CPP from its rival parties, which are less inclined to work in the countryside. In a country where the population is still 85% rural, such attention to rural communities surely pays political dividends.

After lunch, we drove over more rough roads to another ceremony, this one organized in the commune of **Boeng Tranh Khang Choerng** also in Samrong District which is the Minister’s own parliamentary constituency. When Koma and I were introduced to the elected head of the commune, **Nhep Leng**, a shy fellow with a charming smile, we were told that he had actually gotten the best SRI yield when measurements were made. One of the crop-cuts on his field was 2 kg/m² (20 t/ha), but he withdrew from the competition because it would not seem fair if he were to be the winner of the TV set (probably he already has one).

There were about 300 farmers gathered on the large verandah of the commune’s assembly hall, sitting on chairs and spilling over on all sides. The Minister said he had gotten the funds for this building. The speaker who presented the summary report said that in this commune, 72% of the rice fields are now under SRI management. At an earlier ceremony, the figure of 56% had been given.

During the presentation, the Minister mentioned that he had previously been involved in setting up Vietnam’s IPM program with farmer field schools. He had visited Indonesia and spent time with the IPM program there, which is now the main organizational base for SRI spread in that country, and he is well acquainted with Peter Kenmore, FAO’s leader on IPM and a proponent of participatory approaches. At this ceremony, before prizes were given out, the Minister had a long question-and-answer period, this being a place where he is well-known and knows a large number of the farmers.

When the prize-giving was over, the Minister headed off for his fifth ceremony of the day while Koma and I stayed behind to have some interaction with farmers. We talked first with Nhep Leng, the commune head. I was curious to know how many years he had been using SRI methods? This was his first year, he said. He had been promoting SRI before to other farmers, but he had not actually used the methods himself before 2005. This year even he was surprised at the way that his crop responded to the recommended practices. He was not sure about what variety he used, since it was secured from another farmer. It sounded like a good variety of seed had been gained surreptitiously.

Leng had used 30x30 cm spacing, and got 19-25 panicles per plant. The panicles themselves had been very heavy, with 440-480 grains. With 10 plants/m², the number of grains/m² would be between 83,600 and 120,000. If the number of grains was 100,000, the grain weight for a 20 t/ha yield would be about 20 grams/1,000 grains. This is a plausible number.

For Leng, the most difficult part of SRI practice was controlling weeds. This was possible but took a lot of work. For soil fertilization, he had used composted human waste, composted for a long time, he said. He noticed particularly the abundance of earthworms in the soil which he had not seen before. In the previous season, the field had been cropped with watermelon, he said.

Before SRI, Leng had gotten 120 tang from his 2 hectares of rice land. (A tang is a local unit of measure, equal here to 24 kg, so his yield was 2.88 t/ha.) He gave 1.4 ha of this to his children, so that they can have some rice land of their own, so now he has only 0.6 ha. But last season, using SRI on just half of this, he was nevertheless able to harvest 120 tang. So if he practices SRI on all his land, he should be able to produce more rice than before, from just 30% as much land.

A woman farmer who had caught my attention during the ceremony because she had the broadest smile I could recall seeing, with beautifully symmetrical teeth, joined us. **Chhun Sareth** said that over 70% of the farmers in her village, Bey Pey, are now using SRI methods. She is a member of the commune council. She said that she uses compost to ‘loosen the soil.’ Last season, she practiced SRI on 20 ares, getting 30-40 tang. This works out to a yield of 4.2 t/ha, double what she was getting before. I asked her if SRI requires more labor, and she said no; with SRI her labor requirements are less. She clarified that because transplanting fewer plants is quicker and easier, she no longer has to hire labor for this and can do all the transplanting herself.

A farmer named **Oum Ou** introduced himself as the first farmer in the area to use SRI. He said that when he and his wife set out their SRI seedlings for the first time three years ago, all their neighbors said they “wouldn’t get anything.” They cut their seed rate by 2/3 the first year, and now they are reducing it by more than 3/4, but getting a higher yield in the process. He could not give us any precise figures on his yield, but he said it was “definitely more.”

We took our leave at this point to head back toward Phnom Penh, stopping at **Toul Tachen** village along the road where the CEDAC intern traveling with us said that we might find a meeting of an SRI farmer ‘steering committee’ going on. We found four farmers, fairly young, meeting at the village’s wayside inn. This is a structure built according to Buddhist tradition to accommodate pilgrims and generally serve as a public facility. When they greeted us they, apologized that a fifth member of the committee, a woman farmer, had already left to go home.

They said that of the 148 families in their village, 90 are now using SRI (61%). In Toul Tachen, yield increases have averaged about 50%, even with a long dry season. Some SRI plants reached as many as 70 tillers. I asked what they have learned about SRI so far, and they said first, that weeding needs to be done seriously. Second, they appreciate now the value of organic manure. Previously they put on 3-4 bags (150-200 kg) of fertilizer per hectare, but now they use just 1 bag, or even less, putting on as much organic matter as they can, and get more yield.

One farmer said that he got 2 tons from 0.7 ha (2.85 t/ha). Another had increased his production on 0.5 ha from 35 tang to 45 tang (2.16 t/ha). He explained that he has very poor soil. A third farmer said that he had gone from 45 tang from 0.7 ha to 30 tang from just 0.3 ha (2.4 t/ha). Like Leng in the other village, had given up more than half of his paddy land to his children. This would have put him and his wife in a very bad position without the increased achieved with SRI. A fourth had gone from 40 tang to 60 tang from his 0.6 ha (also 2.4 t/ha). These are not super-yields, but the increases were much needed by these households and thus much appreciated.

I asked the farmers: Why are you willing to spend some of your time on efforts to spread SRI within your community? One said: “The ideas of CEDAC are very good.” Another said: “We want to help other people get more production.” Another said: “CEDAC is completely different from other NGOs.” To support this statement, he said that it encourages farmers to save instead of just giving out credit, which later has to be repaid.

“But why are you willing to sacrifice some of your own time for this?” I asked again. They agreed that yes, it is a sacrifice, but reiterated: “We want to bring about progress for development, and every month, CEDAC brings us some good new ideas.” It is hard to evaluate such statements, possibly offered to please (or appease) Koma and to impress me as a visitor. But the tone of their discussion was one of ‘activist optimism,’ different from the more passive demeanor of the 1,500+ farmers we had seen during the day seated in large assemblies, listening rather than speaking. These farmers’ economic situation is very constraining, even precarious. But they are very hopeful, based on what they have experienced so far with SRI, that there can be some improvement.

Discussions in Phnom Penh

That evening, Koma and I had dinner with **Georg Deichert**, the GTZ staff member in Cambodia who has been most supportive of work on SRI. He had invited three GTZ colleagues to join us for dinner, and also two staff members of the German NGO, Agro-Action. The discussions covered many subjects, but the most memorable one was about the credibility of ‘science’ as currently practiced. One of the German advisors had a difficult time ‘accepting’ SRI, she said, because it is still ‘controversial’ within scientific circles. She knew about its good performance in Cambodia, and her program was giving some support to SRI. Still, until there was consensus within the scientific community, meaning particularly agreement on SRI from IRRI, she could not ‘accept’ it.

My response that there is agreement on the merits of SRI among Chinese rice scientists, who have done more, longer and better evaluations of SRI than have IRRI or other Western scientists, did not satisfy her. My pointing out significant errors in the articles ‘debunking’ SRI published in *Field Crops Research* and *Agricultural Systems* (their data bases, protocols and analyses) which have formed negative ‘mainstream’ scientific opinion, also did not diminish her reservations. Faults in these articles just showed that they were “not good science,” something we could agree.

When I cited positive evaluations of SRI done by scientists for her agency GTZ and the International Water Management Institute (IWMI), and by senior researchers at leading institutions in China and India, she put those too aside. She maintained that she did not personally have the time or interest to fully inform herself about SRI, so she felt obliged to

accept the ‘majority’ opinion. She even acknowledged that in the past, ‘majority’ opinion among scientists has often turned out to be wrong, contradicted by the work of a more diligent and open-minded minority. The discussion made clearer the kind of mindset that we must deal with to get acceptance of SRI in some circles, fortunately not all.

The next day, Monday, was spent at CEDAC, meeting with staff to discuss rural development experience in other countries that could be relevant to rural development efforts in Cambodia, and to CEDAC’s strategies for rural development and its own institutional development. CEDAC has found SRI to be a very good ‘entry point’ for getting farmers involved in rethinking their current agricultural practices, and in remedying their lack of organization to manage local resources better. We have continually regarded SRI not as an end in itself, but as part of larger efforts to improve life chances and security for rural people, sharing the vision of Fr. de Laulanié for humanistic rural development.

National SRI Working Group Meeting

A meeting of the National SRI Working Group had been scheduled for Tuesday morning. But as of Saturday, only one person had confirmed his attendance. Then on Monday, confirmations of participation had come in for 16 persons, so the meeting was held as planned. It started at 8:30 a.m. in the Department of Agronomy and Land Improvement (DAALI) of the Ministry of Agriculture, Forestry and Fisheries, and was chaired by the deputy director of DAALI, **Ngin Chhay**, who is also head of the national IPM program. Actual participation ended up being 8, actually a good number for discussion.

A new member of the Working Group, representing Oxfam-Great Britain, one of the early supporters of SRI in Cambodia, was there ahead of time so we had a chance to chat. Shortly thereafter, **Dr. Sin Sovith**, senior program officer for the Australian aid agency, came. Having done his Ph.D. at Iowa State, he had good command of English and we had lively discussion. He said AusAID is now taking SRI more seriously and is funding evaluation research. Georg Deichert was there representing GTZ, and Chey Tech (CEDAC) and Heang Rattana (DAALI), co-heads of the SRI Secretariat in MAFF, were present, as was Koma representing CEDAC. I was introduced as a guest participant.

Chey Tech presented an annual report for 2005 from the SRI Secretariat. It provided information like the number of leaflets, VDCs, and poster sets produced for dissemination, 20,000, 200 and 60, respectively, and on workshops, meetings, field visits, etc. Under the heading “Impact of SRI Secretariat,” Tech reported the following:

- Integration of SRI into the National Strategic Development Plan and policy frameworks to reduce food insecurity and poverty of rural household.
- Inter-provincial workshops involving 11 Provincial Departments of Agriculture (PDAs) plus numerous international organizations, NGOs and farmers.
- National forum on SRI at the Royal University of Agriculture, preparation of a spot on SRI for broadcast on TV, its distribution and screening in the provinces, and ‘high demand’ for the SRI Secretariat’s technical assistance in preparing activities, speeches, supporting documents, etc. were all noted as positive accomplishments.
- Launching of long-term research studies on SRI by the Royal University of Agriculture in Phnom Penh and the Maharishi Vedic University in Prey Veng.

- Cooperation and information-sharing among donors, policy-makers and stakeholders with regular meetings of the SRI Working Group, field visits, workshops, reports, etc.
- An SRI website has also been set up, but its impact is not known because use statistics are not yet available.
- Support from the Ministers of Agriculture, Environment and Foreign Affairs plus other top officials. “SRI received strong support from the Prime Minister, who recommended that SRI field visits continue to be organized to further promote SRI to farmers.”
- The Secretariat documented and compiled farmers’ best SRI practices and printed and distributed documents with such information.
- The number of farmers implementing SRI in Cambodia in 2005 was said to be “more than 34,000.” In presenting this orally, Chey Tech said there were “nearly 40,000 SRI farmers in 2005,” and in our previous discussion, he had thought with some justification that the number could be “as many as 50,000.” The exact number will never be known, but everyone agreed that efforts should be made to get more certain numbers in 2006.

Sin Sovith suggested the Secretariat give more attention to monitoring socio-economic impacts, going beyond the numbers of farmers taking up SRI and yields. Its most attractive effect is often its impact on net incomes since costs of production are reduced. This prompted the chair to suggest further that the accomplishments listed in the report might be more appropriately listed as the results of Secretariat activity, or better as outputs rather than as impacts. These remain to be determined.

The most substantive discussion was on ‘lessons learned.’ The chair wanted clarification of the third point: “Many people still misunderstand the SRI concept – they tend to focus mainly on single-seedling transplanting.” A number of ideas were offered on how SRI can be presented to farmers more in terms of the objectives, thinking and reasons behind the recommended techniques rather than in terms of the techniques themselves. A national workshop for staff of the Provincial Departments of Agriculture was proposed, to improve understanding of government staff who are now promoting SRI since much of the responsibility for SRI dissemination is being given to them. NGOs and others could be included in such a workshop.

There was in the report a reference to “removing dependency on hybrid seeds for productivity gains.” This was questioned by Sovith as there is little use of hybrids in Cambodia now, he said, and given farmers’ poverty and their reluctance to purchase seed, it is unlikely there will be much use of hybrids for some years. It was agreed that the reference should be to “improved seeds” generally, not specifically to hybrids.

A proposal for the next year’s program of work was considered, with a budget of \$18,250. This was, however, a rather narrow budget, not reflecting the total activity going on among the various organizations represented in the Working Group. It was agreed that an overall budget should be prepared, reflecting the various efforts being supported, such as AusAID and GTZ support of SRI research, with a specific budget within this framework for the Secretariat. GTZ has already committed \$7,500 to support its inter-provincial workshops and training-of-trainers materials. DAALI has budgeted funds for material support to Secretariat operations, and CEDAC is contributing Chey Tech’s time. Oxfam GB can probably support a national conference in 2006. More work needs to be done to put all of the pieces together, but everyone expected this

can be done with approaches to JICA, the French aid agency, and others, especially since now there is unequivocal support from the government. (Oxfam America has since agreed to contribute to the Secretariat's work so that there is no more problem with funding for 2006).

The field guide that we had seen on Sunday was passed out. The pictures of the Minister of Agriculture on the front and back covers made the government's support clear. When I asked who prepared the material, Koma and Ngin Chhay said they helped by giving comments on the text, indicating a good working relationship. The guide was requested by the Minister himself.

The concluding words from Chhay as chair of the Working Group were that SRI needs to avoid some of the mistakes seen in the IPM experience around the world, where people paid more attention to program numbers than to quality. He cited one IPM program in India where they pushed to very fast in the first year; but by the third year it was dead. He cautioned that when spreading SRI, "we must avoid diluting quality," good advice. Also it was agreed that the message has to be better designed and communicated so that SRI does not get reduced in farmers' minds to just a few techniques, since SRI is certainly much more than this.

Village Visits in Takeo Province

After lunch, Koma and I returned to the province where we were on Sunday, a 1.5-hour drive from Phnom Penh, to talk with farmers who had SRI experience. Our first visit was to the farm of **Prak Chres** in Tasouin village in Tramkok district. Koma described him as the first SRI farmer in the province. To reach the workshed where Chres was waiting for us, we walked across an irrigation channel on a coconut log. The shed was Chres' base of operation, located some distance from his homestead, full of implements and sacks of rice, beans and other materials, reflecting the intensification of his current management practices.

As we walked around his farm, Chres said that he used to get 1.5 tons of rice from his one hectare of paddy land, before using SRI. With SRI methods, he could get 5 tons yield of rice from it, so he has reduced the paddy area by 15 areas (1,500 m², i.e., 0.15 ha), for water channels to control water levels better and to raise fish and for other cropping. He still gets 5 tons from the 0.85 hectares (5.87 t/ha, almost 4 times more than before). Chres had tomatoes, bean, eggplant and other vegetable crops growing all around the place. I observed that his tomatoes might grow better if the soil around them were mulched, using a metaphor that argues for mulching: "The earth is our mother, so we should keep her well covered up and not leave her naked."

Chres said that he agreed and had planned to do this, pointing out the many other crops that he had already mulched carefully. He described himself as "a most happy man," who has now achieved "everything to satisfy his life." Jackbeans were growing all around, climbing up trees and trellises. He said they are one of his best crops to improve the soil as well as for produce food. He has 20 different kinds of beans on his farm, most serving these dual purposes.

We walked by a large homemade wooden implement that I had never seen before. It was a 'crusher' used for no-till cultivation; its roughly ridged roller carved from a log when pulled by an ox across the field knocks down and crumples the rice stalks so that they decompose faster. They form a mulch layer through which he plants the next crop. He showed me a field of

jackbean interplanted with watermelon on slightly raised beds; after he harvests the melons, the jackbean keeps the ground covered and continues growing.

As we walked, Koma said there is “money everywhere” on the farm, with so many different crops growing. He was elated to show me this example of ‘intensification with diversification’ since several years before he learned about SRI in 1999, he had started working with farmers along these lines as an NGO agronomist. Chres said that of the 98 households in his village, 96 will be using SRI next season.

Koma commended Chres’ efforts to spread SRI, recalling how he had “started alone.” In the beginning it was difficult, Chres responded. The local authorities became critical of him when they saw so many farmers visiting him, thinking that something political might be going on. But once he received a silver medal from Prime Minister Hun Sen for his work, there was no more harassment.

As we walked further, Chres pointed out a field where he now plants SRI rice and jackbean in rotation and gets about 6 t/ha yields without any use of chemical fertilizer. He also pointed out the cattle grazing on the post-harvest regrowth of SRI rice. This was another advantage of SRI, he said, its more vigorous ratoon growth due to better root systems. He now has five cattle, which provide him with 5 ton of manure to contribute to enhanced soil fertility. He also has 20 ducks, 5 hens and a rooster. His poultry earned him 140,000 riels (\$35) last year.

When we reached his homestead, his wife brought us coconuts for refreshment. There were huge sacks of stored rice all around. Koma said that any Cambodian household that has 2 tons of rice is “happy,” feeling secure. Chres has around 5 tons, plus all the income from other sources. Koma said that that he is very generous, giving away rice seed to many of his visitors.

The Tasouin village association has accumulated savings of 1.7 million riel (\$425) which can be loaned to members, at 3% per month interest. This sounds very high, but is low compared to the 10% monthly interest rate charged by private moneylenders. An NGO microcredit program in the area charges 4 to 5%. The association takes in 20,000 riel (\$5) a month in interest repayment. After three years, members have agreed that they will consider sharing out the earning as dividends or they can use the money for community purposes. Of the 242 villages in Tramkok district, largely thanks to CEDAC’s efforts, there are 123 village associations like Tasouin’s, although this is one of the best. Getting them started was difficult, Chres said, because previous farmer associations had collapsed.

He then described, at Koma’s suggestion, an interesting ‘uplift’ program. First, the association identified the five poorest households in the village and then it met with them to see how their situation could be improved. As they were landless, their greatest need was for access to land, so several members with larger holdings offered a share-cropping arrangement. These people had previously been regarded by others as ‘lazy,’ Chres said, and that is why they had not been given this opportunity before. Through personal contact, rapport and confidence was built up. One of the households entering into a share-cropping arrangement (and using SRI) had gotten 1 ton of rice last season, transforming its prospects.

Chres said that he got the idea for this when he returned from a farmer workshop in Malaysia, to which CEDAC had sent him. When he returned through immigration, a customs official asked him whether he (Chres) would like to work the officer's land. This made him realize that having labor and skills could be something in demand. One condition for this assistance is that the poor households send their children to school, so they can become educated. They are also encouraged to grow vegetables and raise chickens on even small parcels of land.

Other poor households seeing these improvements are also anxious to become part of the association's program. Such an uplift program has been started in 50 villages in 3 provinces, Koma said. A Japanese businessman, Mr. Fukushima, after visiting CEDAC's program in Trankok offered to give some financial support to this effort. The school teacher and commune head assist the program by monitoring and certifying school attendance.

We walked over to the home of a neighboring farmer, Tuy Phan, passing intercropped mungbean and maize on the way. That there is some 'social capital' in this area was evident from the volleyball and badminton courts near Phan's house. Phan started by describing experiments he had conducted with a fewer number of seedlings and row planting compared to normal practice. The figures in tau (a different measure from tang) were hard to convert to standard numbers, but the best combination of new practices was 4 tau compared to 1.5 tau from the older methods.

Phan has a total of 1.5 hectares of paddy land. He started SRI in 2001 on 24 ares, raising his yield on that area by one-third. In 2002, he planted SRI rice on 1 hectare, and his crop cuts were 0.4 to 0.7 kg/m² (4-7 t/ha). Before, he had gotten a harvest of 110 tang; in 2001 it was 160 tang, and since then, his SRI yield has increased to 180 tang. Before he used 6 bags of fertilizer (300 kg); now he uses less than 1 bag. Also, he has reduced his seed use from 60 kg to 20 kg; this is still too much, so he gives his excess seedlings to neighbors.

Before we left, he brought a big bundle of panicles that had been cut from just 1 m². He was saving this as seed for the next harvest, a wise practice, as seed selection along can add 20-30% to yield. When we walked back to the road, we passed the sign for this village's farmer association. The symbol it had chosen as its logo was, appropriately, a compost pile. As we drove to the next village, we passed farmer association signboards with a chicken, a chicken and a tree, and a chicken and a plant as logos. Each decides on its own symbol.

The last of these signboards was in the village of **Pak Bang Oeun**, which I had visited with Koma the previous March. We visited the home of **Im Saran**, head of the village association. Her neighbor, Im Sarin, whose picture holding a huge SRI plant has been used in various SRI publications and powerpoint presentations -- and on the cover of *Food and Nutrition Security in the Process of Globalization and Urbanization* by Kracht and Schulz (Lit-Verlag, Münster, 2005), was not there. The first thing I noticed as we sat down was a chart with times and Khmer script that looked like a schedule. Koma confirmed this. Im Saran's day starts at 5:30.

Of the 274 households in this village, 240 are now using SRI methods, she reported, and most others have modified their practices in many SRI directions. In 2005, they expected more yield, but it was only 10-15% more than in 2004. The income effects of SRI are more important, for example, Im Saran has reduced her own fertilizer use from 300 kg to 30 kg. Before, she got 140

tang from 2 ha with conventional methods. Now she uses only 1.4 ha for rice, half of this cultivated with SRI methods, and she gets 130 tang, using the rest of the rice land for other purposes (to allocate to her children after they get married). She figures that now she gets at least 50% more income.

The savings program of the association is going well, she said. They have over 5 million riel (\$1,250) between their 3 savings groups, which have 131 members. The interest rate for member is 3% per month. When I asked about the private lending rate in this village, Im Saran said that they did not have moneylenders in Pak Bang Oeun. When people needed money, there was lending within or among families, with no interest paid. They do not patronize the microfinance program in the area, which charges 4% a month, partly because they want to “keep all interest in the village.” This is a good indication that this is a village with considerable ‘social capital.’

I asked what new things are being done since my last visit. She said that their fish culture is progressing very well, and they are growing more vegetables. Work has been completed on a reservoir on the other side of the road that will help them irrigate more vegetables and rice. I asked about the ‘chicken SRI’ idea they told me about on my previous visit. She says that 17 families are combining compost-making and chicken-raising, and showed us her own pen. Lots of people are coming to visit this village from other provinces, she said.

I asked whether Pak Bang Oeun has an ‘uplift’ program like the one I learned about in Tasouin village. Im Saran said no. “In this village all children already go to school,” another indication that this community has its act together. “We all try to be self-reliant,” Im Saran added. “In this village, we have tried to help each other.” (This is a quintessential indication of social capital.) “Before there were two parts of the village, and one part was not so good. But now all are good.” I asked how she can explain such spirit of solidarity. Im Saran shrugged and smiled, “Others also ask the same question. We don’t know. We have some poor farmers here, but even they can do something (meaning, they find income opportunities, nobody is left behind).”

The reservoir was rehabilitated mostly with village resources. The villagers had asked the government for seven years to restore it to workable condition, but there was no action. So they mobilized 10,000 rials (\$2.50) from each household for construction costs. CEDAC then gave some matching funds, and they did all the labor to restore the reservoir themselves. When some politicians then wanted to inaugurate the facility, villagers insisted it was their own creation. The Minister of Agriculture put up a sign announcing that the government had constructed the concrete bridge over the canal, but the association then put up a sign on the reservoir bund explaining that the villagers had also restored the reservoir itself.

As we were leaving, Im Saran said that there is also a youth association working with the village organization. It has 28 members, ages 15 to 20. This attention to the opportunities for the next generation is also an indication of social capital, a feeling of mutual interest and concern for others’ well-being. As with the previous visit to Pak Bang Oeun, I left feeling rather uplifted by the encounter with rural self-help and self-governance. We stopped and looked at the reservoir and signs on the way out of the village. That night we spent in the provincial capital of Takeo.

More SRI Award Ceremonies

Next morning, we left at 6:45 to join the Minister of Environment at the first of six ceremonies set up that day in different communes of Takeo province by local branches of the ruling party. At **Sla**, there were about 250 farmers assembled under colorful canopies, with rice, coconuts, fruit and woven articles displayed on tables. Two young women were sitting at large looms in the front next to the dais, weaving silk scarves while the proceedings went on. Dr. Mok Mareth explained to me as we got seated with him that Sla is most known for its silk handicrafts.

The program was the same as on Sunday, with a formal report, then Koma speaking, then me, then the Minister, then the handing out of prizes: TV set, bicycle, and radios. Here SRI had just introduced the preceding season, and the Provincial Department of Agriculture was explaining SRI to farmers, rather than CEDAC staff or other farmers, with the top yield being only 4.9 t/ha. But the prospect of prizes being given out again next year should increase willingness to use SRI methods, plus the fact that average yields here are less than 2 t/ha. Also, the best field had plants with as many as 80 tillers, a dramatic increase.

When it was my turn to speak, I commented on the pleasure that I had gotten from seeing so many hundreds, indeed maybe several thousand children, walking or biking along the road that morning, on their way to school as we drove to the ceremony. This was a positive sign for the future. But I had been hearing also from farmers about how they were having to subdivide their rice land to share with the next generation, which is growing with so many children all around. This growth makes it very necessary to intensify agricultural production, to be able to feed and support all Cambodians. SRI has come at a very opportune time, I said, giving the agricultural sector a chance to meet more people's needs for food and income.

In his talk, the Minister reviewed the government's rural development strategy: intensification (including SRI), better choice of varieties (short- and medium-term rather than long-term), diversification of production (to include more vegetables and fruits), and fish culture. He talked about the rising costs of chemical fertilizer and the environmental problems it can create, and about improving the soil, and particularly about making and using compost. He talked about the chicken-compost system from Pak Bang Oeun that I had described on Sunday and said that he would himself visit the household here in Sla with the best compost system next year.

Dr. Mareth said that he was talking in more detail here in Sla because progress in this community has been slower. Who will make compost next year? he asked. Hands went up. Who wants to raise fish? Again, hands. By my and Koma's reckoning, however, the largest number of hands went up when he asked about practicing SRI.

As before, after the prizes were handed out, we got into the vehicles and headed off to the next stop. The Minister was traveling in a white, unmarked SUV with three staff. There was a festive welcome at **Choeing Kuon**, with about 300 persons assembled. This was also an area where CEDAC has not done any work. Here there were three women seated on the dais with us, which I noted to the Minister. I was pleased to learn that the three top yields were 12, 12 and 10 t/ha.

When my turn came to talk, I stressed that SRI is “not a technology,” and farmers’ contributions to further improving it are welcomed. While intensification is needed, this should lead to diversification, with the goal of increasing farmers’ income and everyone’s nutrition.

The Minister talked about the SEED Award which had been given to CEDAC along with Cornell University and other partners, to grow rice with less reliance on chemicals. He also commented on my noticing that in this community there were women on the dais. This brought approving murmurs, at least from the women in the audience. He engaged the farmers assembled in a discussion of compost, fish culture and SRI, and then gave out the awards, with several women among the five winners. Again we headed off on dusty roads.

The third stop that morning was at **Khum Seong** on the edge of a large reservoir. Dr. Mareth said that it had been built by the Prime Minister in 1997, for about \$600,000. This was the most pleasant location we encountered, with people seated under mango trees and a cool breeze blowing. There were over 200 farmers, seated in a big semi-circle rather than a square, so people were spread out around us in an informal atmosphere. There were big sheaves of rice on one table, one from a field where the yield had been measured as 15 t/ha. In this area, the average rice yield is only 1-1.5 t/ha, the Minister said, much less than the 7-9 t/ha reached with SRI.

As before, during his talk, Koma held up a picture of a pair of rice plant roots, one SRI and the other ‘normal.’ But not all could see it under the speakers’ canopy, so when I spoke, I walked around holding the picture up for everyone to see. This was a good lead into a discussion of the role and importance of roots as well as of soil organisms for rice production. The Minister also seemed to be enjoying the informality of the situation; in his remarks he mentioned that I had a daughter, Elisabeth, who had lived in Cambodia for four years and could speak Khmer.

When he finished, the Minister invited questions and had farmers come up to a microphone to be heard better. One farmer explained in detail and with enthusiasm how he makes compost. The minister suggested a competition next year for best compost. He then asked for showed of hands on making compost, making ‘chicken-compost,’ and finally practicing SRI. The latter elicited about an 80% response. We then handed out the prizes, I handing out the fourth prize, a quartz clock, to a woman farmer this time.

The fourth ceremony of the morning, as noon approached, was in **Khum Samrong** at the CPP party headquarters. This setting was much more formal, like at Ro Veang, with admission tickets pinned to shirts or blouses and a 25-foot gap between speakers and audience. It was a hot location, not pleasant like Khum Soeung. Here the top SRI yield was 10 t/ha, with the fifth place farmer getting 6 t/ha. This was a new area for SRI, where only 36 families tried it last season.

Koma’s and my presentations were like the ones earlier in the morning. The Minister echoed my remark about SRI’s advent being “well-timed” for Cambodia since it must raise the productivity of its land and water to be able to feed a growing population with less of these resources per capita in the future. He said that SRI is “in line with government policy,” making the link between intensification and diversification, also stressing the importance of nutritional outcomes. He noted that children’s learning ability is affected by the quality of their diet, a good point that I had neglected to make previously. When he did his informal ‘survey’ by raising of hands, about

60% said they would try SRI next season. This time when we handed out prizes, the 3rd, 4th and 5th place winners were all women.

We could not continue with this program for the rest of the day, so while the Minister drove on to the next ceremony, we drove to Koma's home, where his mother had prepared a wonderful 'typical' rural Khmer meal for us. We then stopped by the **Pupel Farmer Resource Center** nearby, a facility built by CEDAC with JICA financial assistance. It was coincidence that there was a farmer association meeting going on, with 32 representatives from 11 villages assembled. They were discussing how to keep their associations functioning now that the external funding had come to an end (December 31). The discussion was facilitated by a young CEDAC staff member. This question had been raised at a previous meeting, and the representatives had been asked to have discussions with their respective memberships. Now they were reporting back.

The first issue was how to pay the costs of representatives attending larger area meetings like this. The first farmer said that his association considered itself "too poor" to pay representatives to attend, so they will have to pay their own expenses. A second said that there was no need to bother CEDAC further for this assistance; his group will use membership fees to cover the costs of travel. They want to encourage self-financing, he said. A third said his is a new association, only 3 months old, but it will support its own costs. A fourth said they will reimburse part of the costs of participating in meetings, 1,000 riels (25 cents) per meeting as there is no more money from JICA. A fifth said each participants would be reimbursed 1,000 riels by the association for local meetings, and 4,000 riels (\$1.00) for meetings in Phnom Penh. A seventh said that her association will not use its funds this way, with representatives each paying their own way. And so on. Koma suggested we leave the discussion and make a farm visit, so we excused ourselves.

The farm of **Ros Mao** was about a kilometer away. Koma said he was almost always working on the farm, but today he was not there. We walked around, seeing his rice field, ducks, chickens, vegetable plots, etc. Then, while walking through the pagoda compound on the way back to our vehicle, we met him, coming back from a neighbor's house. His pre-SRI yields had been only 240 kg from 30 ares, 0.8 t/ha, he said, noting that his soil was not very good to begin with. Now that he has increased its organic matter and uses SRI methods, his average yield is 3.5 t/ha. The crop-cuts in some now-fertile areas are 0.8-0.9 kg/m², i.e., 8-9 t/ha, a ten-fold increase.

Mao estimated that in 2004, his other crops brought in 1.5 million riels (\$375). He had not totaled up this past year's vegetable income, but it was probably about 2 million riels (\$500). He had sold fish fingerlings from his canals for about 1 million riel (\$250), and he was about to begin harvesting and selling the mature fish, which he estimated would reach 400 kg. At the going price of \$1.50/kg, this would bring in another \$600.

What is the most important SRI practice? I asked. Compost, Mao replied, given the initial infertile condition of his soil. He uses both liquid and solid materials, including cow manure enriched by the shoots of young green plants. Koma and I speculated whether the latter might have some phytohormone effect. The leaves of neem trees he considered particularly beneficial. As we were talking, I saw four young girls, ages probably 4 to 10, sweeping up leaves and dead grass on the ground around us with the hand-held, straw-bundle 'brooms' used in much of Asia, and then stuffing the material into big burlap bags that they dragged behind them. I wondered if

this was some kind of service expected of them to keep the pagoda grounds clean. I asked about this, and Mao explained that they were collecting any and all organic matter that could be acquired for adding to their families' compost piles. "This never happened before." Once others saw the fine results of his own composting, they became active in gathering and using organic matter, he said proudly.

We did not add up all the money that Mao identified coming in from his diversified activities, but thus much from such a small area of land is a more than satisfactory income in Cambodia. This combination of SRI rice with other complementary activities, as on Chres' farm, opens up new possibilities for better livelihoods and for more secure and dignified rural lives. Mao and Chres are engaged in modern agriculture, but with very limited capital, their knowledge and skill compensating for what they lack in land and wealth. They are benefiting from what a Nigerian economist, Clement Onyemelukwe, once called "economies of detail" taking the place of "economies of scale."

That evening after the drive back to Phnom Penh, Koma and I had dinner with local and US-based staff of Oxfam America. Oxfam GB was one of the first international NGOs to support CEDAC's SRI work and has been assisting other local NGOs to use the new methods. Oxfam America has also given some support and may well expand its involvement with SRI in Cambodia. The next day, Le Nguyen Minh, the Oxfam America staff member responsible for its program in Vietnam and Cambodia, asked to discuss my recent visit to Vietnam, anticipating that possibly her organization could assist the SRI expansion there. NGO support, by being very flexible, can be of more value than larger amounts of aid that are provided in a conventional 'project' mode.

National SRI Farmer Workshop

On Thursday, January 19, CEDAC convened a national workshop of SRI 'key-farmers' from all around the country at its office in Phnom Penh. Starting at 8 o'clock, there were about 60 farmers assembled, together with CEDAC staff and a few donor representatives, to review the status of SRI work in Cambodia.

The workshop went on until almost 6 o'clock with a two-hour lunch break, so its report is very long. This will be attached as a separate annex. The results reported, the enthusiasm of SRI users, and the good 'fit' of SRI methods with a broader strategy of agricultural intensification and diversification, which CEDAC began promoting some years ago and which is now built into the government's national development plan, all bode well for the future of SRI in Cambodia.

The main problem is no longer how to get people – farmers, government officials and donor agencies – to pay attention to SRI. The public efforts of the Ministers of Agriculture and of Environment are reducing that problem. Now attention needs to be paid to the question that Ngin Chhay posed to the National SRI Working Group: how to spread knowledge and use of SRI 'diluting' it. This is a challenge which CEDAC and others working with SRI are cognizant of and are thinking about. This is a more gratifying problem to wrestle with than the first one.