



REPORT ON

**THE PROGRESS OF SYSTEM OF RICE
INTENSIFICATION IN CAMBODIA -- 2007**



**Department of Agronomy and Agricultural Land Improvement (DAALI)
in cooperation with Centre d'Étude et de Développement Agricole Cambodgien /
Cambodian Center for Study and Development in Agriculture (CEDAC)**

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Acronyms

No.	Acronym	Full Name
1	ADB	Asian Development Bank
2	ADOVIR	Association for Development and Our Villagers' Rights
3	AS	Aphiwat Strei
4	AustCARE	AustCARE
5	BDASE	Buddhist Development Association and Supporting Environment
6	BS	Banteay Srei
7	CCK	Chamroeun Cheat Khmer
8	CT	Chet Thor
9	CEDAC	Centre d'Étude et de Développement Agricole Cambodgien
10	CRS	Catholic Relief Services
11	DAALI	Department of Agronomy and Agricultural Land Improvement
12	DAE	Department of Agricultural Extension
13	DKC	Development Khmer Community
14	FIDAC	Federation Integrated Development Agriculture in Cambodia
15	FLD	Farmer Livelihood Development
16	FLI	Farmer Livelihood Improvement
17	FODA	Farmer Organic Development Association
18	HEKS	Hilfswerk der Evangelischen Kirchen Schweiz
19	JVC	Japan International Volunteer Center
20	KAWP	Krom Aphiwat Phum
21	KFA	Khmer Farmer Association
22	KNKS	Koma Ney Kdey Sangkhem
23	KNT	Kunathor
24	LWF	Lutheran World Federation
25	MB	Mlup Baitong
26	NAPA	National Prosperity Association
27	NAS	Neak Aphiwat Sahakum
28	PADEK	Partnership for Development in Kampuchea
29	PDA	Provincial Department of Agriculture
30	PDAO	Peace and Development Aid Organization
31	PNKS	Ponleu Ney Khdey Sangkhem
32	PTEA	Po Thom Elder Association
33	RDA	Rural Development Association
34	SRI	System of Rice Intensification
35	SS	Sante Sena
36	Srer Khmer	Srer Khmer
37	VSG	Village Support Group
38	NH	New Human

1. SRI background

The System of Rice Intensification (SRI) is a set of innovative rice cultivation techniques or practices that can help rice plants to achieve their natural potentials for growth and yield.

SRI was initially developed by Fr. Henri de Laulanié in Madagascar in the 1980s. With the support of the Cornell International Institute for Food, Agriculture and Development (CIIFAD), particularly the support of Prof. Norman Uphoff, from 1999 SRI began to be promoted in many countries in Asia, Africa and Latin America.

In Cambodia, the innovative idea was first introduced by CEDAC in 1999. In 2000, there were only 28 farmers in 18 villages who volunteered to test the idea. By 2006, the total number of SRI-using households had reached 60,000 across all 24 provinces/municipalities. By the end of 2007, a firm is expected to reach 82,386 households, while probably a larger number are using some or many of the methods advantageously.

In January 2005, the SRI Secretariat was set up within MAFF, under the coordination of DAALI and in cooperation with CEDAC. Two staff members have been assigned full-time to the Secretariat – one from DAALI and the other one from CEDAC. The Secretariat has the following responsibilities:

- Coordination of work of the SRI Working Group associated with the Secretariat;
- Management of SRI-related knowledge and techniques for dissemination; and
- Provision of SRI training-of-trainers to concerned institutions so that they can further develop and promote SRI.

In early 2006, SRI was included in the MAFF's National Strategic Development Plan (NSDP) and policy frameworks for 2006-2010 to improve rice production and contribute to poverty reduction of farmers in Cambodia.

2. Method of data collection

2.1. Collecting data from farmers who practice SRI

With regard to this task, we collected data from the Provincial Departments of Agronomy (PDAs) of 24 provinces-municipalities and from organizations whose work programs are related to SRI. In this report, we sum up all of the farmers who have adopted SRI in these 24 provinces-municipalities and compare the data with data originating from PDAs and NGOs. This is a firm number, not including a larger number who are not formally involved with SRI programs.

2.2. SRI production at national level

For national SRI production, we collected data from each province based on the project implemented by CEDAC. The following provinces were selected for production samples as representative for the rice-growing regions. Those provinces are Kampong Chhnang, Kampot, Takeo, Siem Reap, Kampong Thom, Kampong Cham, Kampong Speu, Kandal and Pursat. The total number of samples is 1,799.

Table 1: Number of samples selected in each province

No	Name of Provinces	Number of sample
1	Kampot	130
2	Takeo	200
3	Siem Reap	73
4	Kampong Chhnang	1,000
5	kampong Speu	195
6	Kampong Cham	73
7	Kampong Thom	65
8	Kandal	60
9	Pursat	3

3. SRI progress in the world

The spread of the System of Rice Intensification (SRI) has proceeded around the world with support from CIIFAD at Cornell University. The uptake of SRI varies widely from country to country, but over 30 countries are at some stage of testing, evaluation, promotion and adaptation of SRI. The most extensive adoption is in Tamil Nadu state of India, where in the 2007-08 main season, there were 430,000 hectares of SRI cultivation according to the Minister of Agriculture (*The Hindu*, Jan. 1, 2008), who announced a target of 750,000 hectares for this current year.

Table 2: Countries where SRI is being promoted/has been demonstrated

E. & S.E. ASIA	SO. & CENT. ASIA MIDDLE EAST	AFRICA	AMERICAS
China	Afghanistan	Benin	Brazil
Cambodia	Bangladesh	Burkina Faso	Cuba
Indonesia	Bhutan	Gambia	Peru
Japan	India	Ghana	
Laos	Iran	Guinea	
Myanmar	Iraq	Madagascar	
Philippines	Nepal	Mali	
Thailand	Pakistan	Mozambique	
Vietnam	Sri Lanka	Nigeria	
		Senegal	
		Sierra Leone	
		Zambia	

More information on specific countries is available at:
<http://ciifad.cornell.edu/sri/countries/index>

4. SRI progress in Cambodia for the year 2007

4.1. Institutions and organizations promoting SRI in Cambodia

Acceptance of the formers increased rapidly from 28 households in 2000 to at least 82,476 households in 24 province-municipalities in 2007. This is due to the promotion and dissemination of the concept through a variety of organizations and institutions in Cambodia, probably at least 71. Oxfam Great Britain (OGB), Oxfam America, and GTZ have played a leading role in supporting local NGOs to promote SRI in Cambodia. With cooperation and support from both national and international organizations, especially the SRI Secretariat within the Department of Agronomy and Agricultural Land Improvement (DAALI), MAFF and other government institutions, the number of farmers adopting SRI practice has increased rapidly from year to year, especially in 2007.

A. Local NGOs and IOs that are spreading SRI:

- | | | |
|------------------|---------------------|--------------|
| 1. CEDAC | 17. BDASE | 33. LWF |
| 2. Aphiwat Strey | 18. FLD | 34. NTFP |
| 3. Banteay Srei | 19. PTEA | 35. IED |
| 4. CCK | 20. Sante Sena | 36. PADEK |
| 5. NAS | 21. Rachana | 37. CARITAS |
| 6. VSG | 22. PDAO | 38. AustCARE |
| 7. RDA | 23. Wathanak Pheap | 39. YWAM |
| 8. KNT | 24. FIDAC | 40. HEKS |
| 9. PNKS | 25. KNKS | 41. PADEK |
| 10. FLI | 26. NAPA | 42. CRS |
| 11. Srer Khmer | 27. KAWP | 43. SAEDO |
| 12. FODA | 28. ADHOC | 44. PFD |
| 13. DKC | 29. Oxfam Australia | 45. DPA |
| 14. Chethor | 30. GTZ | 46. NH |
| 15. Mlup Baitang | 31. ADRA | 47. SOFDEC |
| 16. ADOVIR | 32. CARE | |

B. PDAs that are spreading SRI:

- | | |
|-------------------------|-----------------------|
| 1. PDA-Banteay Meanchey | 10. PDA-Battambang |
| 2. PDA-Kapong Chhnang | 11. PDA-Takeo |
| 3. PDA-Kampong Cham | 12. PDA-Siem Reap |
| 4. PDA-Kampong Thom | 13. PDA-Kratie |
| 5. PDA-Kampong Speu | 14. PDA-Svay Rieng |
| 6. PDA-Kampot | 15. PDA-Prey Veng |
| 7. PDA-Kandal | 16. PDA-Koh Kong |
| 8. PDA-Preah Vihea | 17. PDA-Odor Meanchey |
| 9. PDA-Pursat | 18. PDA-Phnom Penh |

- 19. PDA-Stung Treng**
- 20. PDA-Ratanakiri**
- 21. PDA- Sihanouk Ville**
- 22. PDA-Krong Keb**
- 23. PDA-Pailin**
- 24. PDA-Mondul Kiri**

4.2. Results of SRI progress in Cambodia

The last seven years of experience have shown that even when a farming place is located in a low-rain area with lack of irrigation system, SRI practices produce higher economic benefit than traditional practice. For instance,

- Average rice production with SRI methods has increased from 1.5-1.8 tons/hectare to 2.5-4 tons/hectare, an increase of between 50% and 150%.
- Seed utilization is decreased from 70%-80%.
- Chemical fertilizer utilization is decreased by up to 50%, reducing from 150 kg/hectare to 75 kg/hectare.
- A majority of SRI farmers have stopped using pesticides for their rice plants.
- According to data from 120 farmer households, collected by CEDAC every year since 2003, with SRI practices, farmers can increase their incomes by USD 58-172 per hectare.

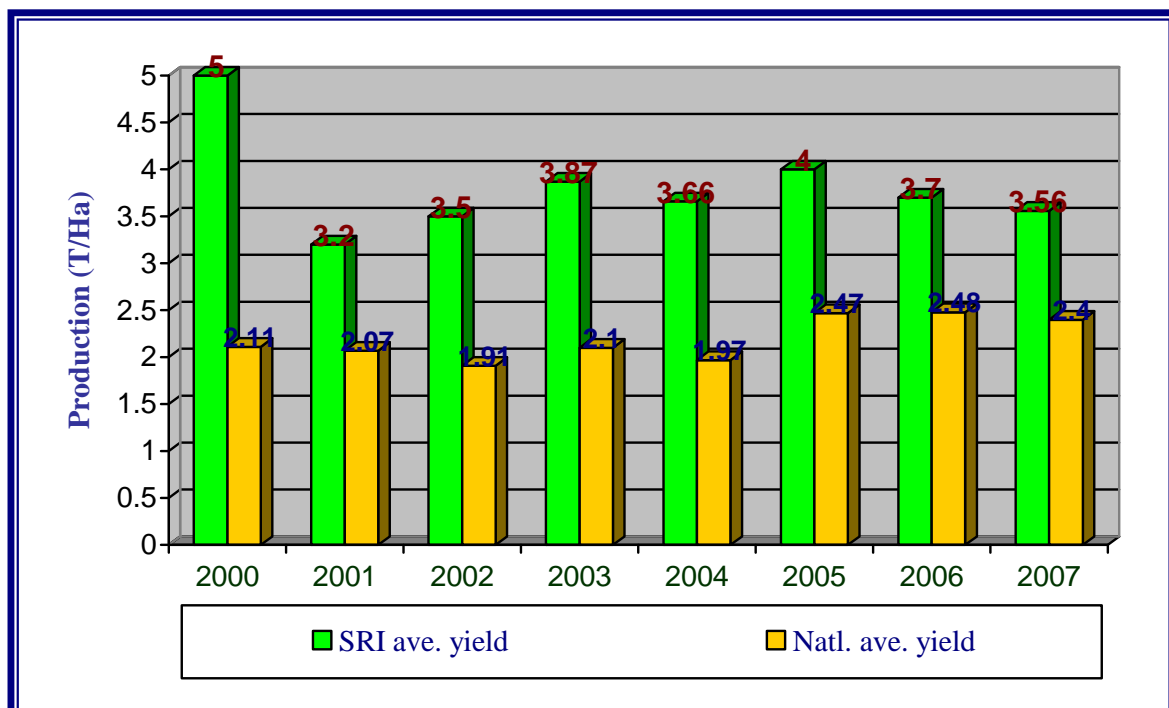
Through 2007, the number of farmers who practice SRI has increased, due to the experience of farmers who practice SRI becoming more skillful, and their success in production has made farmers to have more confidence.

Even though the number of farmers practising SRI has increased from year to year, the average land area per household practising SRI for the years 2005 and 2006 (0.28 hectare/hh) has decreased. The first reason was due to nearly all provinces-municipalities of Cambodia experiencing drought; for instance, there was a serious drought at the beginning and end of 2006 which induced a number of farmers to decrease their rice planting or to plant just on a small area located near their water source. Another reason was that the number of farmers was substantial in the initial years who tested SRI practises on just a small part of their land. In 2007, the average SRI land area was almost double previous years, increasing to 0.57 hectare per household.

The Royal Government has included SRI in its National Strategic Plan for 2006-2010 of MAFF in order to increase national rice production and reduce the poverty of Cambodian farmers. The distribution of farmers practising SRI has spread up to 24 provinces-municipalities. In 2006, farmers in 2,685 villages, i.e., 20% of the total number of villages in Cambodia, had adopted SRI practise. In 2007, there were 3,020 villages where SRI was practiced, equal to 22.5% of the total of villages.

Table 3: Information on farmers' SRI practice

	2000	2001	2002	2003	2004	2005	2006	2007
Number of SRI farmers	28	500	3000	10,000	17,092	40,000	60,000	82,386
Number of villages	18	122	350	815	1,397	2,500	2,685	3,023
Number of provinces	4	7	11	14	17	20	24	24
Average SRI yield (t/ha)	5	3.2	3.5	3.87	3.66	4 ¹	3.7	3.56
National average yield (t/ha)	2.11	2.07	1.91	2.10	1.97	2.47 ²	2.48 ²	2.4 ²
Average SRI land area (ha/HH)	0.06	0.07	0.30	0.47	0.28	0.28	0.33	0.57
Total SRI land area (ha)	1.6	28.7	900	4,700	4,786	11,200	16,386	47,039

Table 1: Difference between SRI yield and national-level yield

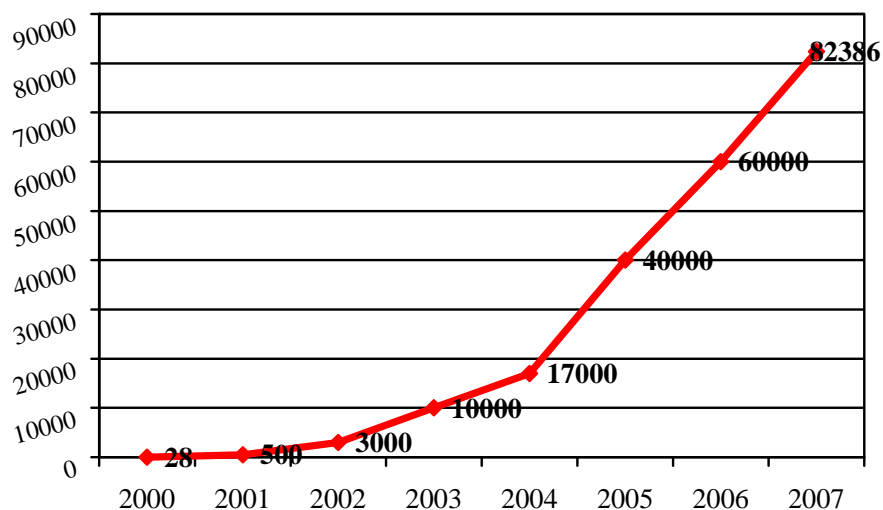
In 2006, average yield with SRI methods was 3.7 tons per hectare, while yield from ordinary practice averaged 2.48 tons per hectare.² In 2007, average SRI yield was 3.56 tons per hectare,¹ while yield from usual farmer practice was 2.40 tons per hectare. SRI production is thus about 50% greater than current farmers' practices. Because with SRI practice, farmers besides receiving higher output can reduce their costs. Minimizing their expenses for rice production such as for seed, chemical fertilizer, hired labor, etc., enables farmers to increase their net profit

¹ Data collected from NGOs and institutes by reporting and phone calls.

² Annual Reports for 2005 and 2006 and draft report for 2007 of MAFF.

from rice production by even more than their increase in yield. With respect to seed requirements, for example, ordinary practice needs on average 90 kg of seed per hectare; this input was decreased to 35.8 kg per hectare with SRI practice.

Table 2: Annual growth of farmers practicing SRI in Cambodia



This table shows how the number of SRI farmers increased from 28 households in 2000 to 60,000 households six years later, and it has increased to 82,386 households as of 2007.

Table 3: Comparison of SRI progress to land size and area

	Total in Cambodia	2007		2006	
		SRI practice	Percent (%)	SRI practice	Percent (%)
Number of provinces	24	24	100	24	100
Number of districts	183	130	71.04	129	70.49
Number of communes	1,609	683	42.45	637	39.59
Number of villeges	13,406	3,020	22.53	2,685	20.03
Number of households	2,188,663	82,386	3.76	6,000	2.72
Total rice land (ha)	2,241,020	47,039	2.09	16,386	0.74

Source: General Population Census of Cambodia 1998: Result of collection of rice in 2007 (updated to 30 January, 2007)

Table 5 : Percentage comparison of SRI land size in each province, 2006

1	Takeo	175,153	1,116	155,030	7,637.87	510	20,634	4.36	45.70
2	Kampot	119,371	477	104,993	907.46	137	4,796	0.76	28.72
3	Kandal	42,670	1,087	206,189	192.79	47	733	0.45	4.32
4	Kampong Speu	84,456	1,319	115,728	1,927.32	299	6,800	2.28	22.67
5	Prey Veng	244,825	1,136	194,185	1,749.08	346	4,301	0.71	30.46
6	Svay Rieng	135,919	690	98,244	172.1	164	1,828	0.13	23.77
7	Kampong Cham	165,057	1,748	312,841	487.15	55	1,940	0.30	3.15
8	Kampong Thom	147,031	737	106,908	2,368.00	343	11,990	1.61	46.54
9	Siem Reap	177,195	882	127,215	142.95	145	474	0.08	16.44
10	Battambang	236,775	611	148,356	96.93	154	1,580	0.04	25.20
11	Bontey Menchey	201,165	604	111,856	4.04	14	210	0.00	2.32
12	Kampong Chhnang	100,091	546	82,638	352.19	201	2,090	0.35	36.81
13	Pursat	90,546	495	68,235	156.9	122	811	0.17	24.65
14	Stung Treng	22,451	128	14,323	23.71	28	270	0.11	21.88
15	Kratie	27,221	257	49,326	23.99	18	177	0.09	7.00
16	Preas Vihear	31,163	204	21,491	2.08	4	4	0.01	1.96
17	Ratanakiri	23,147	240	16,758	15.13	22	156	0.07	9.17
18	Koh Kong	9,110	127	24,964	5.61	8	33	0.06	6.30
19	Sihanouk Ville	12,020	85	28,015	11.27	7	31	0.09	8.24
20	Krong Keb	2,910	16	5,369	43	5	110	1.48	31.25
21	Pailin	1,500	58	4,133	3	3	4	0.20	5.17
22	Phnom Penh	5,433	637	173,678	1	1	2	0.02	0.16
23	Udor Meanchey	44,940	108	12,531	59	43	477	0.13	39.81
24	Mondolkiri	15,949	98	5,657	3	9	25	0.02	9.18

5 Annual Reports for 2005 and 2006, and draft report for 2007 of MAFF 6 General Population Census of Cambodian 1998

Table 5 : Percentage comparison of SRI land size in each province, 2007

No.	Provinces/Cities	Total in Cambodia			SRI			SRI land as percent of wet season rice land	SRI villages as percent of rice-producing village
		Cultivated land ² (ha)	No. of villages ³	Households ³	Cultivated area (ha)	No. of villages	Households		
1	Takeo	173,407	1,116	155,030	17040.08	517	27,644	9.83	46.33
2	Kampot	122,850	477	104,993	3259.23	303	10745	2.65	63.52
3	Kandal	45,089	1,087	206,189	354.42	96	1042	0.79	8.83
4	Kampong Speu	109,010	1,319	115,728	3509.68	438	8676	3.22	33.21
5	Prey Veng	254,984	1,136	194,185	698.68	217	2459	0.27	19.10
6	Svay Rieng	161,902	690	98,244	1836.4	220	13055	1.13	31.88
7	Kampong Cham	168,105	1,748	312,841	1,782.32	75	796	1.06	4.29
8	Kampong Thom	162,041	737	106,908	9514.92	351	11,168	5.87	47.63
9	Siem Reap	178,910	882	127,215	228	171	877	0.13	19.39
10	Battambang	240,353	611	148,356	7011.1	43	55	2.92	7.04
11	Bontey Menchey	208,815	604	111,856	8.4	20	43	0.00	3.31
12	Kampong Chhnang	106,034	546	82,638	1394.32	200	3,049	1.31	36.63
13	Pursat	94,905	495	68,235	112	70	526	0.12	14.14
14	Stung Treng	22,998	128	14,323	27.45	43	350	0.12	33.59
15	Kratie	29,938	257	49,326	32.53	42	227	0.11	16.34
16	Preas Vihear	35,306	204	21,491	20.52	28	199	0.06	13.73
17	Ratanakiri	27,483	240	16,758	6.57	62	637	0.02	25.83
18	Koh Kong	9,606	127	24,964	18.36	11	36	0.19	8.66
19	Sihanouk Ville	35,306	85	28,015	25	17	40	0.07	20.00
20	Krong Keb	3,000	16	5,369	62.5	6	88	2.08	37.50
21	Pailin	2,108	58	4,133	12.6	8	16	0.60	13.79
22	Phnom Penh	5,043	637	173,678	14.3	16	34	0.28	2.51
23	Udor Meanchey	49,370	108	12,531	56.5	60	584	0.11	55.56
24	Mondolkiri	17,263	98	5,657	13	9	40	0.08	9.18

³ General population Census of Cambodian 1998

Table 6: Number of farmers practicing SRI in provinces in 2006

N°	Province/city	Cultivated area (ha)	Districts	Communes	Villages	Households
1	Takeo (PDA, CEDAC, CCK, Rachana, PDAO)	7,637.87	10	74	510	20,634
2	Kampot (PDA, GTZ, CEDAC, PDAO)	907.46	8	44	137	4,796
3	Kandal (PDA, CEDAC, FLD)	192.79	8	20	47	733
4	Kampong Speu (PDA, CEDAC, NAPA, PNKS)	1,927.32	8	50	299	6,800
5	Prey Veng (PDA,PNKS, Chet Thor, CEDAC, PADEK)	1,749.08	9	54	346	4,301
6	Svay Rieng (PDA, CRS, CEDAC, IDE, Chet Thor, PADEK)	172.10	7	25	164	1,828
7	Kampong Cham (PDA, CEDAC, NAS)	487.15	3	13	55	1,940
8	Kampong Thom (PDA, CEDAC, GTZ, CWS, World Vision, CARITAS)	2,368.00	8	53	343	11,990
9	Siem Reap (PDA, BS, CEDAC-JVC, PADEK)	142.95	12	79	145	474
10	Battambang (PDA, AS, RDA, Kunathor, VSG, KAWP)	96.93	7	42	154	1,580
11	Bontey Menchey (PDA, SAEDO)	4.04	3	9	14	210
12	Kampong Chhnang (PDA, CEDAC, IPM)	352.19	7	40	201	2,090
13	Pursat (PDA, CEDAC, KNKS, BDASE)	156.90	5	47	122	811
14	Stung Treng (PDA)	23.71	5	16	28	270
15	Kratie (PDA)	23.99	3	18	18	177
16	Preas Vihear (PDA)	2.08	2	3	4	4
17	Ratanakiri (PDA, CEDAC)	15.13	9	13	22	156
18	Koh Kong (PDA, CEDAC)	5.61	3	5	8	33
19	Sihanouk Ville (PDA)	11.27	1	5	7	31
20	Krong Keb (PDA)	43.00	2	4	5	110
21	Pailin (PDA)	3.00	1	1	3	4
22	Phnom Penh (DAE, MDA)	1.00	1	1	1	2
23	Udor Meanchey (PDA)	59.00	5	17	43	477
24	Mondolkiri (PDA)	3.00	2	4	9	25
Total		16,385.57	129	637	2,685	59,476
Statistics from 2005		11,200				40,000
Comparison (increase from 2005)		5,185.57				19,476

Table 7: Number of farmers practicing SRI in provinces in 2007

N°	Province/city	Cultivated area (ha)	Dis-tricts	Com-munes	Villages	Households	Average yield of paddy	Yield of SRI paddy
1	Takeo	17,040.08	10	65	517	27,644	2.91	3.7
2	Kampot	3,259.23	7	72	303	10,745	2.56	3.86
3	Kandal	354.42	6	19	96	1,042	2.88	3.5
4	Kampong Speu	3,509.68	8	69	438	8,676	2.38	3.39
5	Prey Veng	698.68	5	32	217	2,459	2.69	3.1
6	Svay Rieng	1,836.40	7	48	220	13,055	2.11	3.95
7	Kampong Cham	1,782.32	9	30	75	796	3.26	3.73
8	Kampong Thom	9,514.92	8	59	351	11,168	2.26	3.3
9	Siem Reap	228.00	12	64	171	877	1.67	2.76
10	Battambang	7011.10	5	25	43	55	2.3	3.6
11	Bontey Menchey	8.40	5	11	20	43	2.11	4.79
12	Kampong Chhnang	1,394.32	6	35	200	3,049	2.15	4.18
13	Pursat	112.00	6	27	70	526	2.5	4.42
14	Stung Treng	27.45	5	21	43	350	2.75	4.5
15	Kratie	32.53	4	18	42	227	2.69	3.36
16	Preas Vihear	20.52	3	11	28	199	2.4	3.52
17	Ratanakiri	6.57	6	23	62	637	1.7	2.76
18	Koh Kong	18.36	5	9	11	36	2.4	3.42
19	Sihanouk Ville	25.00	1	10	17	40	2.5	2.55
20	Krong Keb	62.50	2	4	6	88	1.75	1.92
21	Pailin	12.60	2	4	8	16	3.5	5
22	Phnom Penh	14.30	1	7	16	34	2.6	4
23	Udor Meanchey	56.50	5	16	60	584	1.6	3.54
24	Mondolkiri	13.00	2	4	9	40	1.77	4.07
Total for 2007		47,038.88	130	683	3,023	82,386	2.40	3.56
Statistics from 2006		16,385.57	129	637	2,685	59,476.00	2.48	3.7

4.3. Farmers' viewpoints on utilization of labor force for SRI practice

Farmers who are adopting SRI practises commented that SRI techniques use less labour force and are easier than customary methods of cultivation, including transport, seeding, removal from nursery, transplanting, and preparation of soil. They, however, mentioned that this new method also has some difficulties, such as maintaining good water management, and removal of weeds. Farmers noted that SRI methods are similar to customary practise with regard to harvesting and

saving natural biomass for making inorganic fertilizer. We have evaluated the two practices by summing up the points assigned by 113 farmers in terms of difficulty. The two techniques were scored on a scale of 0 to 5, with -5 indicating much less labour and 5 indicating much more labour, and 0 meaning no difference. An indication of the distribution of responses is that the scores for much more labor (4 + 5) totaled 77, while those for much less labor (-4 + -5) added up to 157, the latter being more than double the total of the former responses.

Table 7³ Evaluation by farmers of SRI labour force utilization requirements

	-5	-4	-3	-2	-1	0	1	2	3	4	5
Land preparation	2	9	16	18	12	98	2	8	6	0	0
Sowing seedbed	9	21	22	21	14	13	2	1	0	0	0
Uprooting seedlings	14	25	26	21	8	3	1	1	2	1	0
Seedling transport	23	21	26	12	9	8	1	3	0	0	0
Transplanting	6	11	15	22	7	20	4	10	8	0	0
Water management	0	6	6	5	9	11	9	23	15	6	3
Weeding	0	1	6	4	5	13	10	15	25	17	7
Making and using natural fertilisers	1	2	1	5	2	10	8	18	18	22	16
Harvesting	2	4	4	4	2	51	7	9	11	9	0
Total	57	100	122	112	68	227	44	88	85	55	26

Source: Direct survey on 113 households in 2006.

5. Conclusions and recommendations

5.1. Conclusions

The number of farmers who practiced SRI techniques has increased rapidly, especially in 2006 and 2007. Moreover, SRI has become known among officials and governmental institutions and projects of national NGOs and international organizations as being a successful method of rice production, with 92% output higher on average than usual practice.

In order to ensure that more farmers to involve in utilizing SRI, there is a need to give them more opportunity to see and meet with farmers who are practicing SRI and to encourage them to try out the techniques for themselves. This is a major step to contribute in promoting farmers to practice SRI successfully.

Based on the results of SRI for the past 5 years, we expect that by the end of 2008, there will be 110,000 households practicing SRI in the Kingdom of Cambodia.

5.2. Recommendations

To encourage the implementation and promotion of SRI more effectively, the study indicated and recommended as follows:

a. For relevant institutions

- Should promote and disseminate SRI widely through merging it into national strategic plan, especially promoting and disseminating this technique in provincial and municipal departments;
- Should minimize or prevent the support to chemical fertilizer and agricultural chemicals that cause hindrance to SRI practice;
- Develop good cooperation with village-commune-district authorities through making tailored plans; encourage and evaluate the achievements obtained by farmers; develop promotion methods and strengthen wider knowledge of SRI to relevant officials;
- Should urge local seed conservation through SRI promotion; and store the existing rice seed of farmers with development of better knowledge among farmers on producing and storing seed.

b. For promotion staff

- Increase the number of meetings with farmers every month, especially at the first year, in order to encourage and promote SRI new ideas in targeted villages, especially to non-practicing farmers and local authorities;
- Prepare trials managed by farmers in order to carry out all principles with the purpose to find out yield changes by comparing to the yield with customary practice;
- Encourage SRI with natural agriculture techniques, such as raising animals and fish under natural methods, preparation of multi-system rice fields, and developing to use natural fertilizer;
- SRI technical system can be applicable as a starting point for combination of new ideas and the start of a project; this technique can be combined with a technical system in raising and planting crops;

- Develop support to farmers in producing bio-products, especially rice produced under natural methods, in order to obtain new ideas of SRI practice;
- Continue to study more deeply on SRI potential and the acceptable recommendations and promote SRI. Keep on studying the changeable influences after practicing SRI so that the case study is continued widely in dissemination;
- Farmers trust each other by using their simple language, easy to understand and know the obvious experience, avoidable points and noticeable points, and lessons received for good practice.
- The project should strengthen the capacity of farmers who work as promoters; particularly focus should be made on techniques, methods of new idea development through participation, monitoring, visiting villages where farmer are doing promotion (every month or every 3 months).

C. For farmers

- In general, SRI practice by farmers has yet to pay attention on selection, production and good seed selection for mixing with SRI techniques. So, in order to develop SRI output and good quality food, farmers should develop seed selection, especially local high-quality seed selection;
- Preparing land and changing soil quality is a factor that farmers should be careful about, especially by increasing to divide small rice fields, leveling and planting additional area; avoid keeping the land vacant;
- SRI by itself is not enough to increase rice output, so farmers should prepare multi-system on rice field or mix techniques, such as raising animal, fish, planting crops and alternative crops. In doing so, farmers can increase their output in addition to SRI technique;
- With deep-rice fields, farmer can practice SRI, only adjusting some practices, such as planting at early season, starting to plant early, reducing seeding age, planting fresh seed and selection of suitable seed for deep-rice field. For rice fields without water source or facing drought, SRI can be applicable to excavating multi-system on rice field, excavating canal around rice field to keep water, as well as irrigation during drought season;
- Create bio-producing team by applying SRI techniques in order to provide assistance to each other and maintain biodiversity, environment and health;
- If there is a fear of any risk, farmers should start a trial basis on a small spot of land and increase the planting land size in the following years as results warrant;
- Farmers should try to increase cooperation and accept new ideas, and then apply these new ideas for implementation, making any adjustments if necessary.

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