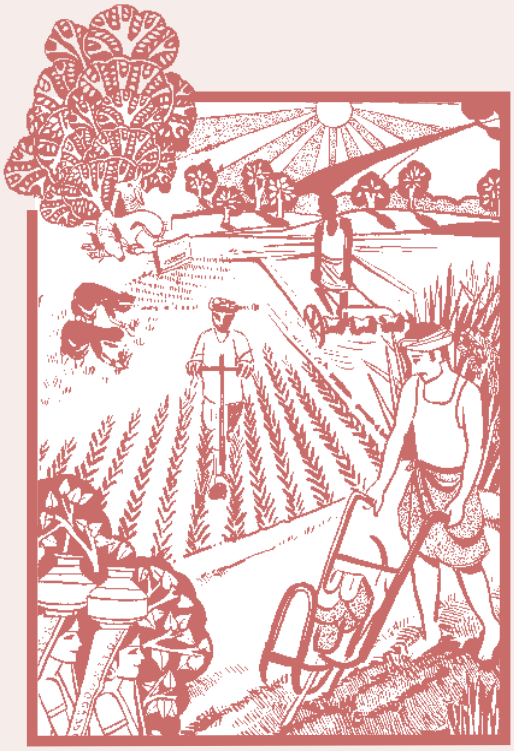

System of Rice Intensification (SRI) represents a package of agronomic practices aimed at increasing irrigated paddy yields with minimal cash inputs. Proponents of SRI claim that adoption enhances the productivity of land, labor, water and capital. Since 2006-07, Sir Dorabji Tata Trust and the Allied Trusts have been supporting adoption of SRI through its various partners in more than 100 districts under the SDTT-SRI initiative. This highlight presents results from intensive monitoring and data collection across four cropping seasons in the Nayagadh district of Odisha.

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2012

IWMI-TATA
Water Policy Program

Water Policy Research

HIGHLIGHT

Experience of Sir Dorabji Tata Trust and the Allied Trusts in Promoting System of Rice Intensification (SRI)

What the Results Indicate

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Experience of Sir Dorabji Tata Trust and the Allied Trusts in Promoting System of Rice Intensification (SRI) what the Results Indicate[1]

Research highlight based on a paper with the same title[2]

In India rice is produced in 534 districts of 30 states of India. Being the staple food of more than 2/3rd of Indians, its demand is ever increasing. But, the production and productivity of paddy crop has not been increasing in a significant way over years. The per capita land availability has been decreased from 0.37 ha (1951) to 0.19 ha (2001) and expected to reach 0.13 ha/capita in 2051. The rice availability per capita (gm/day) has declined from 221.7 in 1991 to 206.4 in 2000, affecting the food security of the rural masses in general and the poor and marginal communities in particular – leading to distress migration.

All these trends are indicative that future food grain deficit is possible, as population continues to grow while the technological, biophysical and institutional foundations for food security are weakening. India exhibits incongruous coexistence of overflowing buffer stocks with widespread hunger and malnutrition. This reflects lack of access to food and deficiencies in purchasing power; to the extent that the poor and hungry, who themselves produce to meet their food needs, countered the mismatch of basic needs and means to fulfill the needs.

Past policies have ignored resource poor areas, which are dominated by small and marginal farmers, creating a distinct production divide between irrigated tracts and rainfed areas. Incidentally these bypassed areas are home to majority of the poor as nearly 79 percent of India's poor live in rain fed areas (NRAA 2011).

This has serious implications for the country having the world's largest numbers of hungry people. There are many areas, where household production has reduced to a level sufficient for only about 64 days of consumption requirement annually (NRAA 2011). At the national level, the per capita availability of rice touched the lowest level of 64 kg/capita/year in 2008, about 20 kg short of the standard requirement for a normal person. In addition, district level analysis shows a disappointing picture of productivity performance of rice. The productivity of rice is 30 percent less than the national average in 66 percent rice growing districts.

While current strategies to enhance productivity in rice such as the National Food Security Mission (2007-12) to augment production by 10 million tonnes are in place, the focus has remained mostly at ensuring service delivery and not so much on technological knowledge enhancement or capacity building of farmers and implementing agencies. For example, for 'SRI demonstration' component of the National Food Security Mission, the emphasis is given only on distribution of weeders and markers to farmers (NFSM 2007).

Sir Dorabji Tata Trust and the Allied Trusts (SDTT) started experimenting with System of Rice Intensification (SRI) with two NGOs in Jharkhand and West Bengal in 2006. Looking at the encouraging results from the field, SDTT launched a dedicated program in 2008. The first phase of the SRI program was launched in March 2008 with a budget allocation of Rs.109.40 million over three years. The SRI work undertaken in these years was up-scaled through SRI Symposiums, state level meetings, district and basin level training and exposure visits, etc. A large number of master trainers were also trained for SRI promotion. In 2010, the second phase of the program was launched with additional allocation of Rs 239.10 million over three years. In the same year, National Bank for Agriculture and Rural Development (NABARD) supplemented this by putting additional amount of Rs.240 million for NGOs to popularise SRI. The NABARD program follows the SDTT model with emphasis on knowledge based extension support.

The application of SRI principles was also extended to other crops like wheat, kidney bean, sugar cane and rapeseeds. However, the major focus has remained on SRI. During the *kharif* season of 2011-12, about 1.1 lakh[3] farmers adopted SRI in 11 states. By the end of *rabi* 2011-12 the figure has touched 1.5 lakh. The year-wise progress details in term of partners, districts, farmers, acreage etc. are provided in Table 1.

[1]This IWMI-Tata Highlight is not externally peer-reviewed and the views expressed are of the authors alone and not of IWMI or its funding partners.

[2]This report is available on request from p.reghu@cgiar.org

[3]One lakh = 0.1 million

Table 1 Year wise progress of the SDTT-SRI Program

Sl. No	Particulars	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12 (Kharif)
1	States Covered	2	7	8	10	11	11
2	Districts Covered	14	18	82	104	109	94
3	No. of Partners	2	5	127	161	143	127
4	No. of Farmers	11000	14000	37000	65043	90436	109996
5	Total Area in Acre			8140	21544	27184	38206
6	Average Area coverage(Acre)			0.22	0.33	0.3	0.35

Field Study

To understand the impact of the SDTT-SRI program. a detailed study has been carried out in Nayagarh district of Odisha. The study covered five administrative blocks: Daspalla, Nuagoan, Nayagarh, Odagaon and Ranpur. The data has been collected across four seasons (2008-2011) in a uniform management information system (MIS) developed in the SDTT-SRI Program. *Bruksho O Jibor Bandhu Parishad* (BoJBP) literally meaning 'Friends of Trees and Aminals' is the local implementation agency. They have the distinction of starting the first ever self-initiated forest protection group in Odisha. The total number of farmers covered under this study is 1685[4].

The study area

The district of Nayagarh is situated between hill ranges in the west and north eastern parts, formingsmall, well–cultivated and fertile valleys intersected by small streams. This district is situated 90 meter above mean sea level. The Mahanadi River flows along its eastern boundary. The district comes under East and South eastern Coastal Plains (OR-4) and East Coast Plain and Hill Region (XI) having mixed red and black soil. The climate is hot, moist and sub humid with mean annual rainfall of 1354.3 mm (with 75 normal rainy days/year), mean maximum summer temperature of 39^0C and mean minimum winter temperature of 11.5^0C (source: Govt of Odisha nd).

The economy of the district is mainly dependent upon agriculture. 62.55 percent workers are engaged in the agricultural sector. Out of total geographical area of 3.89lakh ha, only 1.34 lakh ha is cultivable. The average rice production of the district is 9.66 q/acre as compared to the state average of 20.30 q/acre.

Materials and Methods Used in the Study

The adoption pattern, farmers adherence to various SRI practices, economics of rice cultivation through SRI method and problems faced by the farmers to adopt all the six principles[5] under field conditions were analyzed through informal discussions with the farmers and data collected directly from field level for three consecutive years by BOJBP through a systematic MIS developed by

[4]For major analysis, upto 2011 *kharif* data has been used. However, for overall growth of the program at Nayagarh we have also included coverage in 2012 *kharif* too.

[5]These are (i) Moist soil conditions but well drained and aerated; (ii) Transplanting rice seedlings at a very young age (8-12 days old); (iii) Planting one seedling per hill; (iv) Wider spacing of plants (25 cmx25 cm); v. Compost or chemical fertilizers for nutrient amendments and (vi) Frequent weeding usually 2-3 times during the growing season

the SRI Secretariat, Livolink Foundation under SDTT sponsored program. Some secondary data related to agriculture of the area was also collected for 2010 and 2011. The study covers the BOJBP experience of promoting SRI in Nayagarh. Based on number of years of experience of adopting the methodology, percentage adherence by the SRI farmers with key SRI principles was calculated. An analysis of cost benefit data was done and analyzed for factors responsible for scaling up SRI in the district.

Result and Discussion

Adoption of SRI in Nayagarh district

Out of 776 farmers adopting SRI in Nayagarh district promoted by BOJBP during 2009, 444 are new and rest have one year experience. During 2010, 37 farmers dropped out and another 354 new farmers adopted the methodology. During 2011, only 2 farmers dropped out and 601 new farmers joined in the program. During 2012, the number of SRI farmers has reached to 3300 compared to 776 in 2009. The area under SRI per household has also increased from 0.56 acres in 2009 to 1.00 acre in 2012 *kharif* (Figure 1).

Figure 1 Trend of adoption pattern

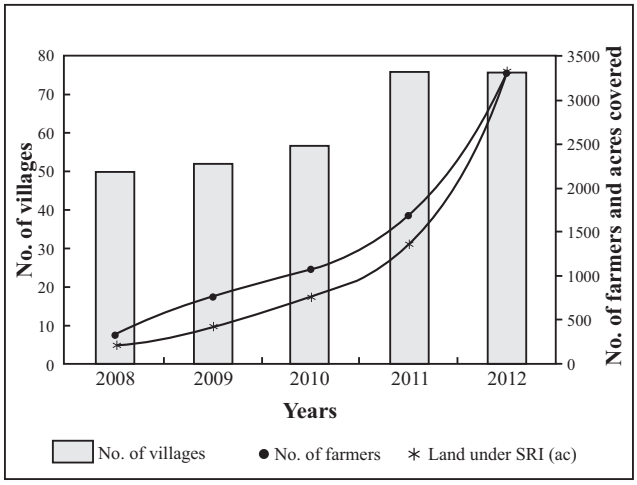
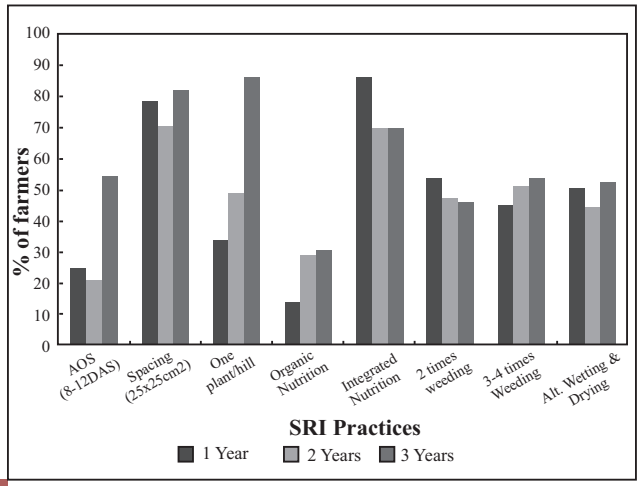


Figure 2 Percentage of farmers following SRI practices basing on their years of experience



Adherence to SRI principles/practices

The levels of adoption for the different components of SRI depending upon the years of experience are given in the Table 2. From the table, it is clear that 54.33 percent of the farmers practising SRI for the third year (in 2011) have used 12 day-old seedlings, while the rest transplanted 16–22 day-old seedlings due to scarcity of rainfall at the time of transplanting. 81.89 per cent farmers have transplanted in square method maintaining 25x25cm spacing. For number of seedlings planted, 86.28 per cent of the farmers transplanted a single seedling per hill, while 13.11 per cent planted two-three seedlings per hill. The recommended three-four times weeding was adopted by 53.53 per cent of the respondents and rest have done 2 times weeding. Around 2/3rd (69.51 percent) farmers have adopted integrated nutrient management rather than purely organic manuring due to lack of sufficient quantity of farm yard manure. Only 52.46 percent farmers could maintain the soil saturation level (alternative wetting and drying).

Overall, the new farmers, due to lack of awareness and low level of risk bearing ability, are less concerned about adhering to the SRI practices. However, looking at the figure of 2011, it can be inferred that percentage of farmers adopting different SRI practices increases with years of experience.

Reasons for adoption of SRI

Attempts have been made to understand the farmers' perspective about the adherence to the SRI principles. For this, all the 1685 farmers' opinion was sought. The data collected suggests that some of the innovative farmers modified the components according to their felt needs like fabricating their own markers to suit local conditions. The advantages of SRI methods as perceived by farmers of this study includes easy crop cutting (22 percent), less seed requirement (62 percent), less water requirement (34 percent), more grain and straw yield (38 percent), area expansion under rice (34 percent), less requirements of both plant nutrients and plant protection chemicals (31 percent), soil fertility retained after a bumper harvest (28 percent) and ultimately reduced cost of cultivation (25 percent). This is illustrated in figure 3.

The data collected from SRI farmers was analysed to understand the attributes which are responsible for higher yield in SRI method. These attributes are illustrated in Table 3:

Table 2 Adoption of the SRI methodology by farmers based on years of experience:

Years of Experience→	One	Two	Three			
Particulars ↓	**2011**	**2010**	**2011**	**2009**	**2010**	**2011**
No. of farmers	608	326	326	751	751	751
Total land (own land in acre)	1259.75	660.33	660.33	1791.2	1791.2	1791.2
Total land per household (own land in acre)	2.07	2.03	2.03	2.39	2.39	2.39
Percentage of land dedicated for SRI	33.51	26.88	39.07	24.64	31.8	39.73
Avg. land size under SRI per household (acre)	0.69	0.53	0.78	0.56	0.73	0.91
No. of additional days of food security ensured	26	13	28	31	69	119
Percentage of total farmers adhering to SRI practices						
Early Transplanting (10-12 days)	24.92	14.42	21	25.03	33.42	54.33
Square transplanting (at spacing of 25 x 25 cm)	78.45	70.14	79.55	38.08	78.83	81.89
Single seedling per hill)	33.84	16.87	48.77	49.13	76.96	86.28
Nutrient Management						
Purely organic fertilization	13.64	17.18	28.93	68.18	26.36	30.49
Integrated fertilization	86.36	81.29	69.63	31.82	71.77	69.51
Weed Management						
Two times weeding	53.71	65.95	46.93	52.2	42.21	45.81
Three-Four times weeding	44.97	25.46	51.42	46.47	50.33	53.53
Water Management (alternative wetting and drying)	50.34	23.31	44.36	37.42	40.08	52.46
Average grain yield (q/ac)	21.82	22.96	23.7	23.95	24.67	25.29
Improvement in grain over conventional from same plot(s)	26.78	28.23	29.45	21.02	21.65	22.20

Figure 3 Adoption of SRI methodology perceived by farmers

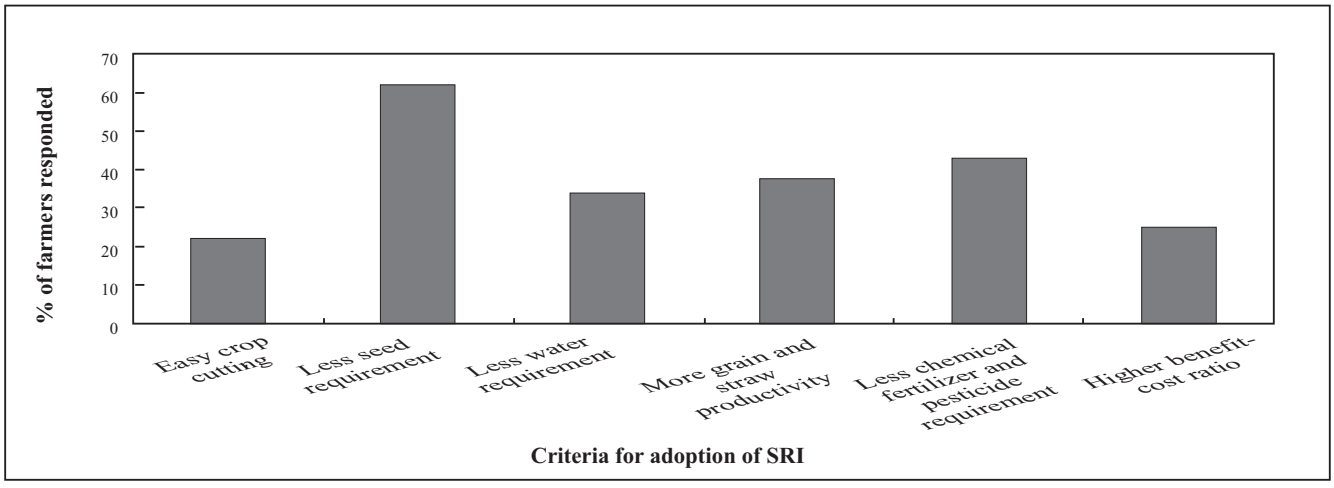


Table 3 Comparative features of yield attributes under SRI and conventional method of paddy cultivation during kharif 2011

So. No.	Details	Conventional Method	SRI Method	Difference in per cent
1	Average Plant height (cm)	110	114	12.7
2	Average number of Tillers/Hill	16	24	50
3	Average No of Productive Tillers/Hill	8	18	125
4	Average Panicle length (cm)	22	23.5	6.8
5	Average no. of filled Grains/Panicle	140	161	15
6	Average no. of chaffy Grains/Panicle	35	19	-45.7
8	Grain Productivity (q/ac)	15	28	86.6
10	Straw Productivity (q/ac)	20	23	15

Source: MIS of Kharif 2011 of BOJBP.

Table 4 Comparative financial statement for 1 acre of SRI paddy cultivation

Sl. No.	Particulars	Conventional Method		SRI Method	
	A. Operation	**Expenditure (Rs/acre)**	**`age**	**Expenditure (Rs/acre)**	**Percentage**
1	Seed	385	2.87	35	0.29
	Nursery raising	300	2.23	200	1.68
	Field Preparation	800	5.95	800	6.71
2	Ploughing	2700	20.10	2950	24.75
3	Weeding	2400	17.86	1000	8.39
4	Irrigation	600	4.47	750	6.29
5	Fertilizer	2850	21.21	2085	17.49
6	Plant protection chemical	200	1.49	100	0.84
7	Harvesting. Thrashing & transportation	3200	23.82	4000	33.56
	Total Investment	**13435**	**100.00**	**11920**	**100.00**
	B. Yield and Income				
1	Grain Yield (q/ac)	15		28	
2	Straw Yield(q/ac)	20		20	
3	Income from grain(@Rs.1000/q)	15000		28000	
4	Income from straw (@Rs.100/q)	2000		2000	
5	Gross income (Rs.)	17000		30000	
6	**Net Income (Rs)**	**3565**		**18080**	
7	**Cost of production (Rs/qntl. of grain)**	**896**		**426**	
8	**B:C ratio**	**1.27**		**2.52**	

Source: Sample MIS of kharif-2011

The results revealed that adoption of SRI favourably influenced all the yield attributes of rice viz., number of productive tillers per m^2, length of panicle and numbers of grains per panicle[1]. Significant superiority of SRI in terms of grain yield was also evident due to around 87 percent yield increment vis-à-vis conventional method of rice cultivation.

Financial viability of SRI:

The economic analysis was done by taking a case study of a farmer named Ananda Mohaptra of Gambharidihi village under Odogaon block of Nayagarh district during *kharif* 2011.

Higher gross income, net profit and benefit cost ratio were also associated with SRI than conventional method of rice cultivation. The cost of cultivation was comparatively lesser in SRI which resulted in gaining an additional net profit of Rs.18,080 per acre in SRI as compared to conventional method of rice cultivation.

The return over cost was calculated for rice cultivation in both conventional and SRI methods and the results are presented in the Table 4. The gross returns were higher in SRI (Rs. 30000) than conventional method (Rs.18000), which implies that in SRI method the efficiency of production is superior, which may be due to the higher yields obtained by practising farmers. It has shown that BC Ratio is higher in SRI (2.52) than conventional method (1.27).

We attempted to understand the budget of a farmer for one acre of land who adopts SRI. This helps in understanding the comparative advantages on various components of SRI. This is presented in the following table.

The additional costs and returns in the rice cultivation were analysed and presented in Table 5. The incremental profit realized in rice cultivated through SRI method was Rs.17430/ac. From the above table, it is clear that the adoption of SRI methodology would provide an additional profit to the farmers.

Agriculture Extension adopted in SDTT SRI Program

The spread of SRI in this project has been characterized by innovation in its extension education. This can be further investigated as a successful alternative model of agriculture extension. In the BoJBP project, one Village Resource Person (VRP) is engaged with 50-60 farmers directly. There is a local Skilled Extension Worker (SEW) who works with 15-20 VRPs (thus working with 750-1200 farmers depending on the topography and population density). In addition, there is a Subject Matter Specialist (SMS) who oversees 2 or 3 SEWs for quality control and skills up-gradation. Though modelled on the SRI Program, this can be replicated for any agricultural extension and state governments like Bihar have already taken this up for their National Rural Livelihood Mission (NRLM) Program. Thus, it is believed that the scope of the SRI Program extends to influencing the agricultural extension work in the country. The differences in extension work in SDTT-SRI Program and traditional government approach are illustrated in Table 6.

Table 5 Budgeting of SRI paddy (1 acre)

Debit	Amount (Rs.)	Credit	Amount (Rs.)
A. Increase in cost		A. Decrease in cost	
(i) Ploughing	250	(i) Seed cost	350
(ii) Irrigation	150	(ii) Labour cost	1500
(iii) Harvesting, threshing and transportation	800	(iii) Weeding	1400
		(iv) Fertilizer and plant protection	865
Total	1200	Total	4115
B. Decrease in returns	-	B. Increase in returns	14515
Total debit	1200	Total Credit	18630
Profit	**17430**		

Source: Sample MIS of kharif-2011

Table 6 The difference in extension work in SDTT SRI Program and traditional government approach

Extension Model by Government Agencies	Extension Model in SDTT SRI Programme
In the government run extension program the approach is top-down. A general package of practice (POP) is developed/thought of at the state level and the entire department is instructed to promote the same irrespective of topography, soil condition, agriculture practice, socio-economic condition and population density, etc of the farmers.	In the SDTT SRI Program a bottom up approach is promoted. Practise suitable for a particular area is promoted.
SRI is demonstrated in the field of better-off farmers and is expected to be replicated automatically in the field of n number of farmers during the next year.	Demonstration is done in the field of small farmers. The nearby farmers are exposed to the field. They were updated about the practices followed and the outcome through regular meetings.
Distribution of inputs is given the most importance in this approach. Strategy is made in the same manner for entire state/nation.	Only critical input like weeders and markers are supplied for the new adopters. These are again innovated as per the local needs.
No handholding support is provided. The technical knowhow is shared typically in thrown in a workshop. The extension workers hardly visit the farmers plot.	The VRP is chosen from amongst the farmers of the village. He personally knows all the farmers and their fields. He provides handholding support to the farmers at the time of every critical operation.
Normally MIS is maintained. Farmers' list is prepared for a particular year. There is no information whether a particular farmer who has done SRI in the previous year is continuing or not.	A robust MIS is maintained to track all these things.
In this approach is planning is done on a short-term basis- for one season or maximum for one year.	A long-term plan is accorded. The promoting agency remains with the farmers at least for three years.
The extension programme is conducted in a scatter approach.	A cluster/patch level approach is adopted.

Dis-adoption and problems in scaling up

Involvement of various actors like CSOs, financial institutions and governments in promotion of SRI has resulted in increase in the number of farmers practicing SRI. But it has not scaled up at the expected rate. However, with the MIS developed by SDTT it is now possible to trace out the figures for farmers dis-adopting SRI in subsequent years.

The analysis of the data collected from Nayagarh reveals that 2 to 5 percent of the farmers who adopted SRI, later discontinued. The decision to drop out may be attributed to factors like difficulty in getting labor at critical period, inputs and implements (i.e. weeder), maintenance of weeders, water management problems owing to erratic rainfall etc. The laborers were not trained to uproot tender seedlings and thus transporting them from the nursery to the main field and planting them with specified spacing and shallow planting was sometimes found to be difficult.

Major issues related to scaling up of SRI are as follows:

1) **Delayed rainfall:** In rainfed conditions, a farmer practicing SRI during initial years gets discouraged when rainfall is not received during critical growth stages. Moreover, if a region receives delayed rain during transplanting, farmers get impatient. Due to irregular rainfall, sometimes farmers are unable to adjust the seedling age while transplanting.
2) **Unavailability of skilled laborers:** In rainfed conditions, transplantation is done only after receiving rainfall. There is a heavy demand for labor during that particular period of the season.
3) **Difficulty in getting implements:** During the initial years, availability of quality weeders was a serious issue and the government supplied weeders were found to be of poor quality.
4) **Small piece of land:** Although adoption of SRI may increase productivity, the increment in production from a small piece of land is too little to create an impact and convince the farmer to continue the method. So, dedication of certain minimum land is critical for sustaining the farmer's interest in SRI.
5) **Small land holding:** Marginal farmers having a small piece of paddy land sometimes are afraid to take risk in

the absence of handholding support and guidance.

6) **High expectations of the farmer:** During extension process, the farmers are mostly briefed about the positive aspects of SRI and are cited examples of farmers who have obtained exceptionally high yields. These results are not obtained universally. Thus, there is a need for moderation while briefing farmers about the benefits of SRI.

7) **Lack of awareness:** Due to lack of trust at the beginning, many-a-times farmers devote their worst piece of land for SRI. Sometimes this does not work out for better yield.

8) **Forced to follow strict practices:** When farmers are forced to adopt all the recommended SRI principles strictly - irrespective of agro-ecological conditions, it becomes a troublesome proposition for the farmers. Thus, gradually promoting all the SRI principles, rather than becoming very rigid at the beginning itself is a better strategy for SRI up-scaling.

Conclusions

SRI is gaining popularity among the farming community because the practice involves little capital investment during the initial adoption stage. We observed a wide variation in the way farmers practiced SRI, with the majority of the adopters using the system on only a portion of their farms. The main advantages of SRI include yield increase, reduced number of irrigations per unit area (i.e., increase in water productivity), reduced demand for cash inputs and improved seed quality. In addition to these private benefits, SRI embodies added societal or environmental benefits due to reduction in the use of environment-unfriendly inputs such as herbicides and fertilizers.

The main problems associated with the SRI practice are the high demand for skills and labor for transplanting, non-availability of organic manure and limited availability of rotary weeders.

Up-scaling SRI across the country would require a change in the mindset of farmers, who need exposure to best practices, technology transfer through community approach in raising nurseries, skill up-gradation of labor, and adequate and timely availability of simple mechanical implements such as markers and weeders. Any new technology when introduced for the first time in the farmer's field will face lot of hindrances. Farmers who have practiced SRI for two to three seasons could easily overcome these difficulties. Further, delineating the areas suitable for SRI cultivation should be done to avoid failure. Training of farmers and agricultural professionals is the need of the hour and a special drive is necessary from the planners to prepare an SRI map of India giving location specific recommendations to make SRI a culture in paddy cultivation.

References

Government of Orissa n.d. The district portal of Nayagrah. http://ordistricts.nic.in/district_home.php?did=ngh

National Food Security Mission. 2007. Operational Guidelines. 2007. New Delhi, Ministry of Agriculture, Government of India.

National Rainfed Area Authority. 2011. Challenges of food security and its management:2011. New Delhi, Planning Commission, Government of India. http://nraa.gov.in/Challenges_Food%20Security.pdf (cited Oct 23, 2012).

About the IWMI-Tata Program and Water Policy Highlights

The IWMI-Tata Water Policy Program (ITP) was launched in 2000 as a co-equal partnership between the International Water Management Institute (IWMI), Colombo and Sir Ratan Tata Trust (SRTT), Mumbai. The program presents new perspectives and practical solutions derived from the wealth of research done in India on water resource management. Its objective is to help policy makers at the central, state and local levels address their water challenges – in areas such as sustainable groundwater management, water scarcity, and rural poverty – by translating research findings into practical policy recommendations. Through this program, IWMI collaborates with a range of partners across India to identify, analyze and document relevant water-management approaches and current practices. These practices are assessed and synthesized for maximum policy impact in the series on Water Policy Highlights and IWMI-Tata Comments.

Water Policy Highlights are pre-publication discussion papers developed primarily as the basis for discussion during ITP's Annual Partners' Meet. The research underlying these Highlights was funded with support from IWMI, Colombo and SRTT, Mumbai. However, the Highlights are not externally peer-reviewed and the views expressed are of the author/s alone and not of ITP or either of its funding partners.

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