

SDTT-CSO Collaboration in Chhattisgarh for SRI Promotion among Small & Marginal Farmers

Report by Kuntal Mukherjee for the PRADAN Team in Chhattisgarh (Feb. 7, 2012)

Background

Chhattisgarh is a new state of India, having been separated off from Madhya Pradesh in 2001. From our experience and from government statistics we can say that 60% of the rural population are marginal tribal communities. The major sources of livelihood are agriculture, forestry (timber & non-timber products), and livestock. Average land holding per family is only 1-2 hectares (ha), and households usually have 5-6 members. Most of the cultivated land is monocropped under paddy, with average productivity of 2.2 MT/ha.

Families in such marginal circumstances usually have a shortfall of 1 ton of paddy, and 60% of the families live with food grain insecurity, insufficient supply, for 6-9 months. Most of the marginal families have some members migrating out of their villages after the kharif season to find income opportunities elsewhere so that they can survive.

In this situation, PRADAN, a national level CSO with support from the Sir Dorabji Tata Trust (SDTT), one of India's oldest philanthropic organisations, undertook in collaboration with other CSO partners in the pilot project area to introduce SRI methods of paddy cultivation in the different poverty regions of Chhattisgarh state.



The purpose of the project was to demonstrate SRI opportunities in the pockets of hunger and poverty, and to prepare CSO actors for larger-scale replication following the pilot effort. In 2008-09, PRADAN in collaboration with 11 NGOs carried out field trials of SRI with 800 families on 80 ha. PRADAN provided the technical guidance in the training-cum-demonstration programme organised by the CSOs. The intervention showed encouraging results, and in 2009-10, the programme could reach to 3,200 farmers in 9 districts of Chhattisgarh, a four-fold increase in farmer participation.

The programme operates with a partnership approach, focusing on enhancing food grain security of small and marginal farmers in Chhattisgarh. By the end of three years, it is expected that the families will have at least doubled their yield and will have considerably improved their standard of living. It is also expected that this intervention will demonstrate the efficacy of SRI method to a large number of farmers in the project villages and in surrounding areas.

This project proposes to spread SRI knowledge and use to about 13,500 families, covering about 340 villages in 11 districts across three principal regions of Chhattisgarh state: the Northern hills, the Chhattisgarh plains, and the Bastar Plateau region. The project envisages enhancing paddy productivity by 75-100% from the current level of 2-3 tonnes per hectare. This will ensure year-round food sufficiency for the participating families.

Implementation Methodologies

The broad intervention strategies are listed below:

Training for partners

Centralized training events have been conducted for the CSO staff involved in the field to introduce SRI to farmers. These events have involved hands-on training to correctly carry out each critical step. A group of cadres (one for 50 families), identified by the community, has been trained and engaged to guide the community and ensure proper practices in every farmer’s field. CSO personnel, trained by the state-level forum, are responsible for these cadres’ as well as the farmers’ training.

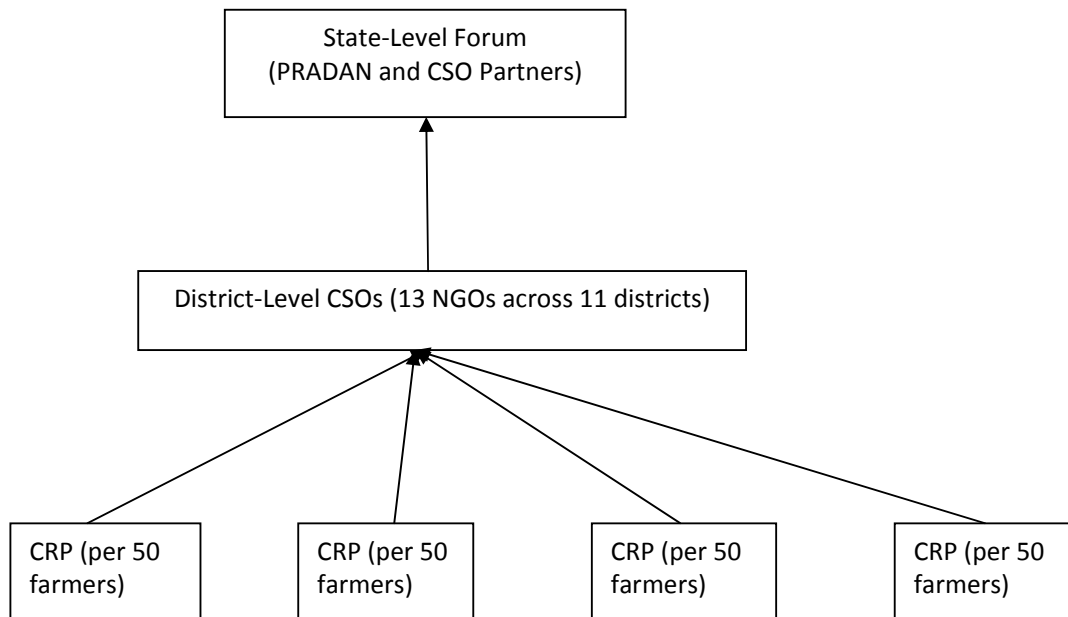
Village-level farming support

All the participating families in the programme have been provided with training, and exposure visits has also been organised for them. The implementing team facilitates the community to select a group of men and women from among themselves who has been trained to provide on-site guidance during the implementation of SRI package of practices. The selected **Community-based Resource Persons** (CRPs) have been trained by CSO staff and deployed for implementation in all the selected villages.

Constituting a state-level forum

PRADAN and partner CSOs have come together in a state-level forum. Each CSO has deputed a person to the forum who is its anchor for the SRI activity of the organization. This forum has bi-monthly meetings. All members contribute to designing the future plans for SRI in the state and to planning for its convergence with other developmental schemes of the government. It has been very proactive in monitoring of the program and in cross-learning among partners.

Overall strategy design



Roles of Various Participants in the Strategy

Coordinator/Skilled Extension Worker (CSO)

- Implementing agency at the field level
- In-field support for the farmers
- Training at the village level
- Motivating farmers for adopting SRI
- Promoting organic farmers
- Yield data collection and compilation
- Panchayat-level meetings as interface among SRI farmers and non-SRI farmers – for large-scale dissemination.
- Exposure to the line departments officials at the block level
- Conduct regular meetings and training sessions

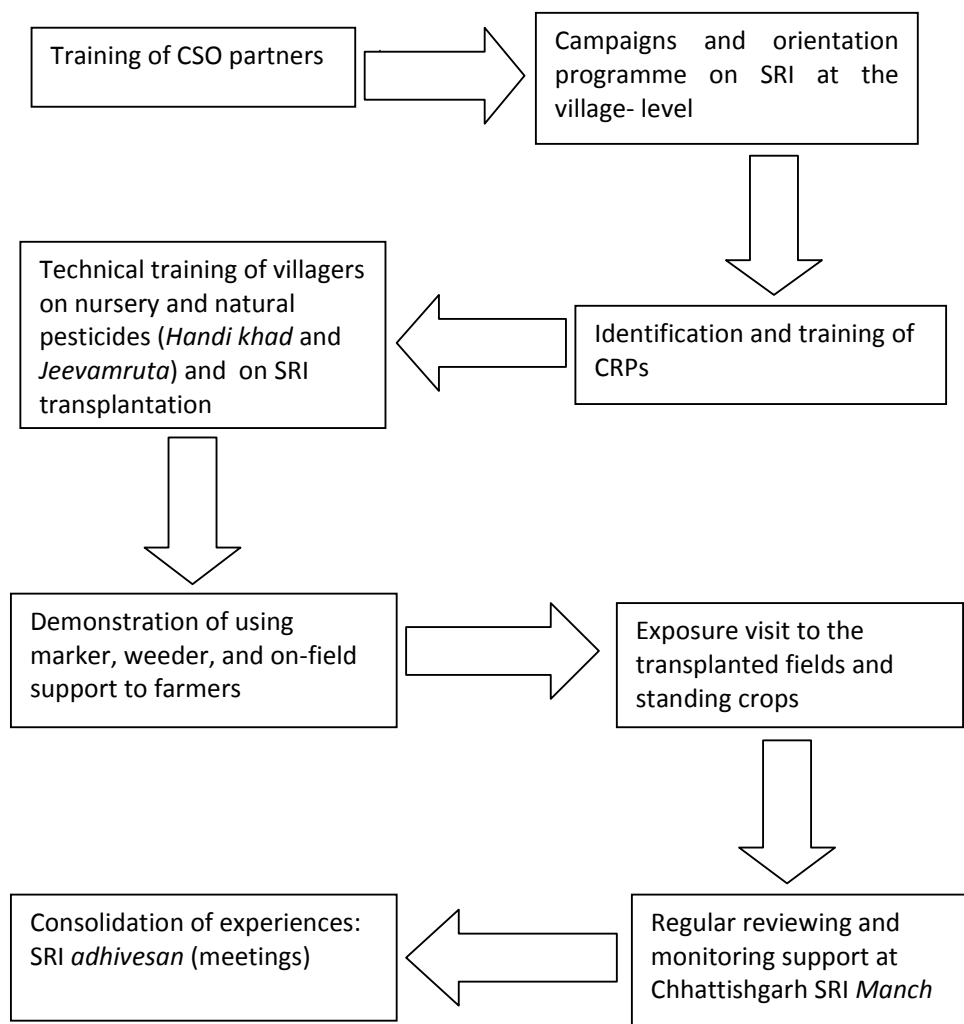
PRADAN's intervention

- Helping participant families to adopt fail-safe package of practices for SRI
- Promotion of soil health improvement practices, including green manuring, vermi-composting and other organic and sustainable techniques
- Building capacities of all participating families in adopting skills related to SRI technology
- Promoting adoption of small mechanization for weeding and post-harvest technologies reducing drudgery
- Dissemination of learning among other stakeholders

Role of Community Resource Persons (CRPs)

- Follow up on Package of Practices (POP) and scientific practices for SRI – nursery raising, line transplantation, disease and pest management, etc.
- On-farm demonstrations
- Need-based support to the farmers

Processes followed



Steps followed by the farmers:

- Seed rate reduced to 5 kg/ha
- Seed sorting (floating in brine) and treatment (Carbendazim)
- Transplantation of young seedlings (8-14 days old), at two-leaf stage.
- Single seedling transplantation with soil attached and no damage to root system
- Square transplantation, 16 -25 seedlings per sq. meter
- Thin film (< 1inch) of water maintained on the field, if possible.
- Weeding at least twice, using rotary weeders (Ambica weeder)
- Increased use of compost and organic farming materials

Major Achievements

Due to adverse seasonal condition in Kharif 2010, the Forum could only reach to 5,455 families with SRI. During 2011-12, the Forum reached 10,070 families spread over 303 villages in 11 districts, with a coverage of 2,058 ha. Mainly, the Forum has worked with paddy, mustard, millets, and wheat. For yield estimation, samples have been taken from 2,825 farmers' fields (28% of total farmers). The average yield of SRI-paddy was 6.46 MT/ha, which is nearly triple the yield of conventional paddy in

the state (2.2 MT/ha). In the coming season, the Forum has a target to reach 13,500 families on 2,255 Ha of land through SRI techniques. 81% of families are continuing SRI for a second time.

Analysis of the production data of 2011-12

Productivity Range(MT/ha)	Number of Sampled Families	% of Families
10-18	60	2.13
8-10	382	13.52
6-8	1,020	36.11
4-6	1,236	43.75
2-4	125	4.42
Up to 2	2	0.07
Total	2,825	100

Based on sample of 2,825 families which was 28% of the total participating families

From the above data, we can see that 95.5% families who adopted SRI principles in their fields have achieved yields ≥ 4 Mt/ ha, which is about double the traditional yield. The average yield for the families measured so far (almost one-fourth of the 10,070 participating households) is 6.46 Mt/ha for SRI-paddy & 2.72 Mt/ha in SRI-millet. This is much higher than the average state yield of 2.2 Mt/ha when traditional practices are used for paddy. The average paddy yield for the farmers in our sample was 2.1 Mt/ha when they used traditional paddy practices on their farms. The same techniques were used for measuring both sets of yield. Thus, it was seen that SRI yields, on the same farms for the same farmers, were more than doubled and almost tripled compared to usual rice-growing practices. The same observation was made for millets also. The highest productivity reported in Raigarh was 15.20 MT/ha for SRI-paddy.

Outreach through January 2011 in Chhattishgarh

Ser. No		Kharif 2011-12	Remarks
1	No. of districts	11	In coming 2012-13, Forum has a target of 13,500 families in 2,255 ha of land
2	No. of villages	303	
3	CSOs involved	13	
4	No. of families	10,070	
5	Coverage (ha)	2,058	
6	Average area per family (ha)	0.20	

Covered districts are: Surguja, Surajpur, Jashpur, Raigarh, Bilaspur, Korba, Gariabandh, Dhamtari, Kanker, Kondagaon, and Baster.

District-wise coverage in SRI in Kharif 2011-2012

Covered Districts	Covered Families (No.)	Covered Area (ha)	Area per family (ha)
Surguja	4,491	894.07	0.20
Surajpur	71	18.48	0.26
Jashpur	859	206.38	0.24
Raigarh	1,231	261.08	0.21
Bilaspur	909	192.96	0.21
Korba	293	46.24	0.16
Gariabandh	415	41.50	0.10
Dhamtari	87	18.79	0.22
Kanker	795	203.13	0.26
Kondagaon	70	12.21	0.17
Bastar	849	163.17	0.19
Total	10,070	2,058	0.20

CSO-wise coverage of SRI in Kharif 2011-2012

CSOs	Districts Covered	Families covered (no.)	Area covered (ha)	Area covered per family (ha)
AASHA	Surguja	1,000	191.84	0.19
APSSS	Surguja	1,207	268.51	0.22
SSGVS	Surguja, Raigarh, Jashpur	812	130.96	0.16
CGVSS	Surguja	1,000	249.26	0.25
GVK	Jashpur	729	185.85	0.25
CARMADAKSH	Bilaspur	835	181.96	0.22
NSSS	Bilaspur, Korba	367	57.24	0.16
ASORD	Raipur, Kanker	515	53.74	0.11
SSSS	Kanker, Bastar	722	190.43	0.26
BSM	Bastar, Kanker	615	119.20	0.20
DHS	Bastar	70	12.21	0.17
KARMA	Surguja	700	96.34	0.14
PRADAN	Raigarh, Damtari, Kanker, Bastar	1,498	320	0.21
TOTAL		10,070	2,058	0.20

Action plan for next six months (January 2012-July 2012)

- Follow-up of existing kharif crop; help partners in data collection through MIS and their analysis of data.
- Facilitate government officials to certify the best yield of farmers at block and district level.
- Training of partners on rabi and summer crops, and give field support on this.
- Organise exposures, *Kisan* days and workshops at gram panchayat, block, district and state levels in the presence of different government officials.
- Plan for next kharif season (2012-13) with 13,500 families in 2,255 ha of land in paddy, millets, wheat & mustard.
- Facilitate more farmers in organic-based farming approach through proper guidance; create awareness of farmers in land husbandry along with crop husbandry.
- Documentation on the learning of the project and partnership approach.
- Influence the partners to go for intensive land- and water-based activities to mitigate the risk of water scarcity for several crops in year-round basis.

Proved suitable for small & marginal farmers:

- All steps of SRI are easily manageable within the family labour availability; from the labour person-days calculation, it is evident that SRI is easily manageable by 2-3 effective family labourers on an average 1 acre of land.
- The production enhancement directly addresses the deficit food grain position of small and marginal farmers, who lack about 1 ton of grain per year for a family. From the next analysis we noticed an average increase of 6 months of food grain security per family
- The low cost of inputs and the flexibility of SRI packages is very much acceptable for this type of farmers. Several steps like time of transplantation and water management can be slightly flexible, and this makes the production enhancement technique (SRI) more acceptable to farmers.
- It also gives greater discipline and productivity to agriculture that is the major livelihood option of their lives; as for dropping out, the percentage of families among marginal farmers who did not continue with SRI was 2.74% as found in dropout study in last year

Study on food grain sufficiency from SRI:

To analyse the food-sufficiency impacts, we have done some analysis from our sample data. We found that the average per-family landholding under SRI was 0.20 ha (from sample data sheet). The average number of members in a family was about 5 (also from sample data sheet). Families were found to consume 3 kg of rice per day (from random survey). We consider that 1 kg of paddy gives 0.66 kg of polished rice after threshing and drying (reference from SDTT MIS).

	SRI practice	Traditional practice
Members/family (no.)	5	5
Average landholding (ha)	0.20	0.20
Daily rice consumption per household (kg)	3	3
Average production (Mt/ha)	6.46	2.1
Food grain sufficiency from landholding (months)	9 (9.47)	3 (2.62)

From the above table, we can see that from a landholding of 0.20 ha, in this year with SRI management a farm household could increase its sufficiency of food grain by approximately 6 months compared to its output with traditional practices.

Conclusion

Reaching out to the poor and marginalized families is a task that involves regular handholding support and extension motivation. In this work, the continuation of a family with the SRI principles is a big challenge to us. Sometimes, dropouts create anxiety among the implementers. The proper handholding support to the families for a considerable time is required to minimize the dropouts.

Another issue which is really a challenge in front of us is the diversification of SRI practices to other crops. We are now trying to take SRI from “rice” intensification to “root” intensification by adopting the concepts to several crops apart from paddy, like wheat, mustard, millet, etc. to make the family more food-grain secured on a year-round basis.

The last but not least challenge is to mitigate the risks of water unavailability at crucial times of crop development. The major portion of our kharif programme is rainfed in nature. The uncertainty and irregularity of rains creates problems in the programme at many times. For that, the integration of water-body creation with this agricultural programme, creating life-saving irrigation capacities, is very much required. It is a big challenge to us to integrate the SRI programme with water-body creation. For that, linkages with the government are very much required. Some of our partners are doing such integration from several other funds from government and other funders. However, now it is a time to undertake this integration work on a more regular basis to minimize the risk.

The above-discussed model which is being followed in Chhattisgarh with the support of SDTT and spearheaded by PRADAN has targeted 13,500 families for SRI promotion within three years only. Huge support has been received from GoCG and its Dept. of Agriculture, and Indira Gandhi Krishi Vishwa Vidyalaya (IGKV) in weeder advancement-cum-availability as well as technical help to CSOs has been essential. With this approach, we can able to reach the huge pool of poorest families having 0.5-0.75 acres of land who are basically in the bottom of the pyramid. The families in that category can easily manage the techniques of SRI with prior integration of water bodies and diversified cropping options on year-round basis. Through the integration of all and building people’s skill and capabilities, we can reach the large number of small and marginal families in our state over a reasonable period.

Annexures:



1. Concept sharing on SRI in Surguja



2. Green manuring before kharif paddy in Bastar



3. Seed treatment before seedbed in Surguja



4. Seed bed in Bastar



5. Drainage channel preparation in Surguja



6. Use of marker for sowing in Surguja



7. Scooping from seedbed in Jashpur



8. Transplantation of 12-day-old seedlings in Surguja



9. Transplanted field after 15 days in Jashpur



10. Weeding operation in Bastar



11. Standing crop in Bastar



12. Exposure programme in Surguja



13. Organised KISAN DAYS & SRI-Adhivesan in Surguja