National Consortium on the System of Rice Intensification: A Summary

Summarizing two National level consortiums on the System of Rice Intensification that were held in New Delhi in October 2010 and March 2011. This article highlights the way forward for spreading the use of SRI in the country.

BACKGROUND

India is the world's second largest rice producer, accounting for more than 20 per cent of the global production. The System of Rice Intensification (SRI) may help substantially in reducing the embedded subsidies in every grain of rice and result in a yield increase of 15 per cent to 40 per cent.

Through the adoption of a technique such as the SRI, the country's rice production could be increased by more than five million tonnes annually, which will help in meeting the food security requirements in the coming years. In addition to fertilizer and price subsidies, electricity subsidies on rice have reached an untenable level and it is estimated that on a per hectare basis, SRI could reduce about 3,151 kwh of electricity and about Rs 12,607 on subsidies.

At present, about 42 countries have adopted SRI worldwide. In India, about 1.5 lakh farmers have adopted the technique, covering 12,000 ha across 160 districts. Tamil Nadu and Tripura are the leading states that have adopted SRI. It is now realized that remodelling the extention system in the framework of strengthening the 'innovation systems' would promote SRI."

SRI focuses on planting single seedlings instead of multiple seedlings in a clump, and not keeping irrigated paddy fields flooded during the rice plants' vegetative growth stage. This results in the reduction of the water required for irrigation by about 30 to 50 per cent and a substantial reduction in the application of chemical fertilizers and pesticides. Whereas civil society has played an important role in taking SRI forward, government agencies in Tripura, Tamil Nadu, Orissa, Bihar, Madhya Pradesh and Andhra Pradesh have innovated their extension strategies and have been able to take SRI further. "SRI is a bankable technology approved by NABARD, and it can enhance farmers' incomes and improve soil health and has the potential to become a leader in agro-ecological innovations."

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WHY A NATIONAL CONSORTIUM?

1. So much is happening in the area of the SRI, SCI. That there is need to form national-level policies.
2. The poor positioning of SRI, despite its enor-mous spread. India can be a world leader if SRI is brought into the mainstream.
3. Scaling up SRI requires working together and applying different institutional mechanisms for its extension.
4. Stronger research needs support. Not all ICAR and agricultural universities are on board.
5. Field-level agencies on SRI need greater support

RAPID SPREAD OF SRI IN SELECT STATES

- Nearly 7.5 lakh ha under National Food Security Mission and non-NFSM—Tamil Nadu (6.5 lakh ha), Tripura (75,976 ha) in 2009–10.
- Bihar through Jeevika or BRLP 19,111 farmers in SRI and 48,251 in System of Wheat Intensification (SWI), with a total of 1,412 acres. There is a plan to cover 3.5 lakh ha.
- One lakh farmers and 20,000 ha in 2010 through CSOs
- Strong small farmer focus in rain-fed and tribal areas of CSOs

IMPORTANT CONJECTURES, ISSUES AND QUESTIONS RAISED

Several issues were raised in the consortuim. These were:

1. SRI as a technology not only saves water but also increases the yield of the plant. The SRI technology can also be applied to wheat to increase productivity. Experiments using this technology with other crops such as mustard, rape seed as well as brinjals, have shown great results.

2. There is urgent need to focus on this issue. It is not the farmers who are 'against' SRI; instead, it is the scientists. This mindset needs to change. One can see the 'SRI glass' as either half-empty or half-full. In India, until now, the trend has been to see the 'glass' half-empty. This must be seen as the 'glass' as half-full now. SRI has brought together government officials, NGOs and many experts from different fields, who are all now interacting with and influencing each other. The most important aspect of this movement is that it should be propelled not only by civil society but by the government as well. Civil society is, in fact, a continuum of the government.

3. A sad aspect of scientific research is that when it comes to farming, it invariably rallies around the issues of genes. Everything is always very gene-centric. The most common misconception that one faces about SRI is when farmers ask what 'variety' the SRI is. SRI is not a variety; it is just a different approach to farming and farming methods.

4. SRI is even more valuable now than before because the effects of climate change is becoming evident now and it is time to buffer our crops against it. With SRI, farmers can be protected against climate change. Let us not only think of yield, money and income. Let us look at SRI from the perspective of food security—because India needs to be

made more food secure.

5. In addition, from the perspective of a human resource development initiative, there is need to work towards informed farmers and not just producers to whom 'technology transfers' are made. There is need for valuable partners. Therefore, in this sense it is a pro-poor initiative over and above the income perspective.
6. SRI works for both high and low yielding varieties. It works for large-scale and small-scale farmlands. It works well in mechanized farms and for hybrid varieties. Hence, it is adaptable and works for all models of agriculture. Farmers in Cambodia increased their yield five times and are working with vegetables such as squash, melon, etc. Hence, intensification can happen crop by crop. Once the method is applied to our staple foods, it can then be applied to other crops as well.
7. The thrust towards SRI has steadily grown and, in the recent past, the thrust towards hybridization is even more. We have to contextualize SRI and related efforts we make for its promotion within this larger context.
8. If in a certain area SRI has worked really well, specific characteristics of that area, water management conditions and what variety was used must be understood—and it must be seen whether these can be replicated to larger areas or even identify those conditions and areas where SRI can be practised. Location-specific success needs to be understood well so that it can be replicated with similar management practices.
9. SRI works everywhere except where the soil cannot be drained. It has worked in Afghanistan, in Iraq and almost everywhere except in the soil conditions where drainage is an issue. Farmers who are educated equip themselves with information and new practice techniques. The point is to reach the farmers who are small, marginal, uninformed and difficult to reach. That is when human welfare will be the greatest through SRI. The question really is how to make SRI more accessible.
10. There was a consensus on the critical role of SRI and/or SCI, which can act as a vehicle to increase crop productivity and farm income among small holders. These practices have proven the ability to increase productivity in a sustainable way, and are gaining the acceptance of farmers, particularly from those of the vulnerable section. The proposition is that public policy should be better informed by practices and analyses from the field.
11. There is need to develop clearer understanding of the adaptation of the SRI principles and practices to various circumstances (soil types, varieties, climatic conditions, socio-economic factors and constraints) so that these opportunities can be most productively used in a range of conditions and for those most in need. Evidence and experiences that have emerged from enabling the institutional framework at the grass-roots level show that SRI is

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good only in some conditions —for the *rabi* crop, only where there can be assured irrigation, and the best way to take hybrids further. It is important to study environmental settings that have enabled SRI to be effective and efficient so that it can be replicated and promoted for wider adoption and impact.

12. A better institutional framework is needed for scaling up SRI for wider adoption and adaptation, involving innovative partnerships among public institutions, financial institutions, civil society organizations, and the private sector in a consortium mode. BRLPS and the Orissa Learning Alliance are examples of such collaborative efforts, which have resulted in an unprecedented scale of adoption of SRI within a short span of time. Such collaboration is required for acceleration on a wider scale to more areas, farmers and crops, specifically targeting the vulnerable section of the farming community.
    - An operationable cluster strategy is suggested when considering scaling up SRI.
    - An implementable schema for scaling up SRI is required, which can serve as a starting point for discussions, based on the strategy for developing operational SRI clusters.
13. Farmer participatory local research needs to be encouraged to provide meaningful feedback for technology generation.
14. The quantitative impact of innovative practices should be documented and evaluated more systematically than in the past. Establishing support systems for sharing, learning, monitoring and evaluation, including forums for participation at the district, state and national levels are important. Socio-economic evaluations need to be made that compute the savings not just on water but reduced inputs.
15. The sustainable adoption and use of SRI and other agro-ecological methods should receive attention.
16. The need for harmonizing the mix of priority is essential. "What the central government thinks is a priority may be entirely different from what the thinking is at the state level. Therefore, the states should have the flexibility to implement what they think is right for the state at any point of time. State governments can play an important role in promoting the SRI, and therefore, the need for sensitization is crucial. The proposed working group on SRI can suggest mechanisms and guidelines on the matter.
17. The group suggested a specific place for SRI to be addressed in the 12th Five Year Plan formulation. A separate working group for SRI could be constituted to provide realistic and grass-roots level information for developing concrete strategies and mechanisms, in consultation with the concerned government and NGOs.
18. SRI requires more comprehensive research and evaluation and a deeper understanding of the biology of ecosystems. A detailed socio-economic

and technological research, based on the consortium concept, could provide a think-tank support for the promotion of SRI and for developing implementable monitoring and evaluation mechanisms.

19. Concretizing the structure of NCS as a think-tank of SRI and enhancing policy advocacy and communication among stakeholders requires urgent attention.
20. Members unanimously agreed that there was a need to identify a dedicated person/worker for the overall management of the consortium, work with various organizations, including the regional-level consortiums that have come up in recent times.
21. The NABARD representative suggested the need for strengthening the data base management system of SRI and other aspects of the MIS.
22. The need for core resource support for NCS was discussed at length. Subsequently, PRADAN has already agreed to provide support and office space to NCS. Various funding agencies such as the SDTT, NABARD, PRADAN, Watershed Support Services and Activities Network (WASSAN), Aga Khan Rural Support Programme (AKRSP) and the government departments were also urged to contribute to the core resource. PRADAN may be requested to take responsibility for resource management.
23. The Natural Resource Management Center (NRMC) may be approached for supporting the project on standardizing the data sheet for SRI (for all NABARD SRI programmes). This will include performance assessment, adoption issues and developing appropriate templates. This data can also have 'scientific' aspects.

ROUND TABLE DISCUSSION

1. There was a consensus on the critical role of SRI and/or SCI as a vehicle for increasing crop productivity and farm income among the small-holders.
2. To enhance knowledge of accounts and ensure continuity among various stakeholders, a need was felt for effective research by scientific organizations to provide technical support.
3. The criteria for identifying suitable/selected areas for the promotion of SRI was discussed at length. Simple typology and/or characterization of the SRI areas needs to be compiled.
4. Time was also spent in the meeting, discussing an effective mechanism for capacity strengthening and knowledge delivery among stakeholders. Sensitizing the state for efficient governance of SRI was considered the most important driver for a wider adoption of the technology. Future strategy must also consider this aspect as a pre-requisite for sustainable adoption.
5. There were discussions on technical issues that were addressed appropriately with empirical evidence. Consequently, there is more accumulated technical as well as socio-economic evidence available now than before, and this will help strengthen the policy thrust. There is also urgent need to summarize and disseminate existing knowledge. It may be inferred that at the experimental stations, individual aspects such as alternate wetting and drying (AWD), wide spacing, single seedling transplantation, nutrient analysis (micro- as well as macro-nutrient status in soil) show satisfactory results; however, it has been demonstrated that rather than the

individual effect, the synergy of all the principles resulted in full bloom genetic expression of the plant in SRI and SCI.

6. There was also an elaborate discussion on the critical role of the states in the promotion of SRI activities. The question of what would be an appropriate framework to identify a government agency best equipped to scale up SRI/SCI—the Ministry of Rural Development or the Ministry of Agriculture—was also discussed. This decision, it was felt, would be particularly important given that there is special focus on small and marginal farmers.
7. The need for an institutional framework to scale up in order to accelerate the wider adoption of SRI was a central issue for discussion. In addition to the success stories, it was agreed that there should also be a systematic documentation of the stories of failure, to help identify the conditions of geo-ecology, production systems and other constraints that cause failure or dis-adoption.
8. An important way forward that emerged was that NCS must engage with the Planning Commission to explore the possibility of setting up a working group/task force on SRI/SCI in the 12th Five Year Plan (FYP) formulation. The final statement on the active participation of the consultative process of the 12th FYP is an important outcome of the round table. On account of the potentiality of increased production as well as the conservation of natural resources: land and water, it was thought that it is inevitable that there be a new thrust towards implementing an innovative policy framework on SRI/SCI in the 12th FYP. It has thus become essential that NCS should strategically push for the constitution of a specific working group on SRI by the Planning Commission, and the representatives of NCS should participate actively in the working group. The expert task force, including NCS, will help design regionally differentiated action strategy for a wider adoption of SRI and SCI. A list of SRI literate experts is to be prepared from among the basic and strategic researchers, grass-roots SRI activists and policy experts.

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MAJOR ACHIEVEMENTS AND WAY FORWARD

a. Challenges for a National Programme/Policy on SRI

1. Re-orienting the farmers towards 'management'
2. Reorienting their knowledge on rice agro-ecology
3. Establishing SRI labour markets with new skills and contractual wage rates
4. Reforming the irrigation systems towards a better control at the farmers' level
5. Establishing decentralized manufacturing of SRI implements
6. Building cadres of the SRI Resource Farmers

7. Mobilizing organic matter/resources for improving soil productivity
8. Establishing research back-up/support

b. Strategy for SRI in the 12th FYP

Recommendations of the National Consortium on SRI evolved after:

a) Analyzing SRI experiences across the country, led by both the government and civil society organizations.
b) Many deliberations over a period of nearly five years.

c. Key Policy Questions

How Can selected areas be transformed to SRI over a period of time?

Demonstration approach area-focused approach

1. Labour markets, knowledge and behavioural changes of farmers and irrigation reforms take place in collectives on the basis of geography
2. Tipping points come after some time.
3. Changes need to be embedded into local economies.

d. Pre-requisites of Scaling-up

- Working over a period of time in a defined area at a scale with facilitation and with support structures creating a large number of farmer-resource persons.

e. Strategy: SRI Clusters as a Unit

- Establish SRI clusters in the prioritized rice growing (administration) blocks in the country.
- An SRI cluster is about 100 ha of rice area transformed to SRI with all (or many) of its principles.
- Build a programme around identified SRI clusters with an agency and with full-time facilitation

f. Phasing of the programme in the 12th FYP

Phase 1

- Start block-wise SRI clusters—initially in all the blocks where experience exists and in rain-fed areas, to have control over the irrigation and drainage
- Start in a small way to build agency capacities in the rest of the blocks
- Pilot SRI with irrigation system reforms in select canal irrigated areas

Phase 2

- Expand to all blocks
- Initiate a larger programme on the SRI as well as irrigation sector reforms, building on the experience from the pilots.