

Round-table Discussion on

Upscaling SRI Strategy in the XII Plan

Summary of Proceedings

Organized by the
National Consortium of SRI (NCS)

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Council of Social Development
New Delhi

Introduction and Special Remarks

The round table was organized by the NCS to discuss the role of SRI in XIIth plan with a focus on the recommendations submitted by various working groups to the Planning Commission and to discuss future course of action for including SRI in the XIIth plan. The round table started with a welcome note by Mr. D. Narendranath from NCS. Dr. Rita Sharma, member secretary, NAC, who chaired the meeting, laid out the background for the round table and reviewed the agenda for discussion during the round table. She emphasized that SRI is climate-smart agriculture; it saves inputs and enhances the productivity of the land. Commenting on SRI as an important water-efficient technology in the present context, she urged the NCS to play a greater role in bringing together various stakeholders.

Dr. Abhijit Sen, Member (Agriculture), Planning Commission, in his opening remarks said that there is enough evidence that SRI has great potential to increase productivity and also offers several bio-physical advantages besides providing enabling conditions for mitigation of the impact of climate change. There are certain architectural/institutional issues concerning the promotion of SRI within the country which require urgent attention. Few states are taking on SRI in big way, and at the same time there are mixed reactions from some states regarding SRI. On the scientific side, the Directorate of Rice Research (DRR) is quite positive on SRI, and the scientific view is moving towards a favorable outlook to SRI. There is a need of some ways to put SRI into more government programmes and within the mainstream policy framework.

Dr. S. Ayyapan, DG, ICAR, in his special remarks said that SRI is one thing that has been incorporated recently into the mainstream research system rather quickly. Belatedly though, ICAR has accepted it as an agro-ecological innovation and lots of work has been initiated. Nevertheless, SRI is still facing some issues like drainage problems, weeds, etc. and more importantly, many of these are location-specific. He said that there is a need to note that farmers have made various modifications in SRI practice based on their respective situations and have thrown up many modified systems. We need to look into these and work further on these modified systems.

The need of the hour is to have adequate capacity building and more awareness, and most important, extensive training is required. However, at the same time we also lack any long-term data on the effect of SRI on soils and many other parameters. A positive thing is that the NCS is coming up, and SRI is catching the imagination of a large number of researchers and policy makers across the country, which is an achievement. Dr. Ayyappan insisted that there is a need to generate awareness on SRI and develop training as important components for the promotion of SRI. Around 50 or 60 KVKs can be identified for a period of three years in order to do this. He also said that there is a need to develop a long-term database of the farmers practicing SRI across the country. SRI should be deliberated and discussed within the XIIth plan, and planning components should be decentralized at the district level.

Dr. H. S. Gupta, Director IARI, in his remarks said that one of the major advantages of implementing SRI is on the saving of seeds and water. Scarcity of water for agriculture is emerging as a serious problem in many prime agricultural lands. How it can be adopted in a large scale is an issue. Another important question is that large-scale mechanization is not yet feasible. This is likely to adversely affect SRI scale-up. One question to be looked at right now is root biomass. How much root biomass is created by traditional and SRI methods needs to be looked at and compared systematically.

International Experiences on SRI

Dr. Norman Uphoff said that he is a strong believer in evaluation of SRI as a basis and a precondition for promotion. He said that we should best use SRI not as a noun but as an adjective. Countries like

Myanmar and Cambodia are mainly rainfed, so SRI is not only for irrigated areas. Farmers are making various adjustments to SRI. He added that System of Root Intensification, a derived version of SRI, is being used now in a variety of crops. Putting SRI into a box, which defines it as irrigated, small-scale and labour-intensive, is creating misunderstandings and limitations. By defining SRI only as it was originally developed in Madagascar, we are missing a big opportunity to understand its real potential. He added that an inspiring example of SRI uptake is that of Vietnam, where more than 1 million farmers are using SRI methods. Vietnam is now the world's second largest exporter of rice after Thailand.

He observed that in India, Tamil Nadu has taken up SRI in a big way, and Bihar is picking up fast as well, and that remarkable performances on yield increase are being seen in many regions. He said that we should be clear that there is no contradiction between modern technology and SRI. Root growth and soil biota are the extremely important aspects of SRI; we must bear in mind that soil biology and soil ecology are very crucial for soil health and productivity. Dr. Uphoff said that there has been Chinese research showing how the presence vs. absence of soil microbes in leaves affects photosynthesis, and how their presence inside plant roots and leaves contributes to productivity.

He said that regarding the question of 'whether SRI works' we should remember that SRI is not only about productivity but also about how it positively affects the environment. Greenhouse gases can be reduced with SRI management, certainly methane but possibly also nitrous oxide emission. A study in Korea found GHGs reduced by more than two-thirds due to SRI. However, the GHG reduction effect applies more in organically-managed systems since adding inorganic N to rice paddies enhances GHG emissions. He added that the idea of introducing new varieties usually dominates when we talk about productivity enhancement; the potentials from different and better management are usually ignored. Putting management back onto the agenda is and should be a top priority; we need to keep pushing the fact that successfully implementing SRI is more about management than anything else is. He concluded with the reiteration that SRI is not a technology and hence varied ideas should be constantly tested. The biggest impact of SRI is on the farmers themselves.

Experience sharing: SRI achievements in XI Plan under NFSM and outlook for XII Plan

Mr. Mukesh Khullar, JS (Crops) and Mission Director, NFSM, shared SRI achievements in the XIth Plan. He said in 2007, NFSM first took up SRI as a promotional activity. NFSM had a target of around 5 million hectares of rice land under SRI in the year 2012. A demonstration plot of a quarter-hectare was to be done for every 100 ha of land. He said that 50,000 such demonstration were organized in the year 2010-11, and so far NFSM has organized a total of 70,000 demonstrations with an investment of Rs 21 crores. One million cono-weeders and markers were distributed among farmers in order to achieve the target. About 200 crores were allocated for the promotion of SRI in the XI Five Year Plan.

Mr. Khullar said that when looking at specific states, there is often enthusiasm but the effort is not being fulfilled as one does not know for sure whether the farmers are continuing or not. He said that we have had a mixed response. Bihar has had good results, but one needs to see in Tamil Nadu whether the results expected are being achieved. He added that production there has decreased over the last 4 years, hence there must be something in the practice there which is going wrong. He said that what we need to understand and evaluate issues on production enhancement in Tamil Nadu to do this more scientifically.

Mr. Khullar said that management is a sizeable effort, and it takes time for farmers to shift from conventional methods of practice to SRI. This transition needs a longer time and handholding, and sometimes the demonstrations themselves have problems. He added that Tamil Nadu is using SRI for

its seed production program successfully, which is a positive development. **Clusters of plots** are usually needed to create a big impact and to provide backward and forward linkages. He said that we did similar things in pulses intensification and this accelerated the pulses programme.

Mr. Khullar highlighted some of the key concerns during the round table discussion such as: how do we define SRI, and how many of the six principles followed under SRI are crucial. Early seedlings have been received with mixed reactions among farmers. SRI involves a range of practices which exist, of which only some are working. Labour shortage is a crucial issue, and so labour support for the adoption of SRI under MGNREGA is very crucial. Promotion of SRI among large farmers is another important issue. He said that there is a need to work on the technology part of the SRI and to improve and make available the implements used for SRI. Productivity of SRI is high in Bihar; we should propagate this and other positive findings associated with SRI.

He suggested that providing incentives to farmers adopting SRI could be put into practice. If SRI is free from chemicals, then branding and marketing its rice as an organic product for getting better price for the farmers can also be explored. On the suitability of land selection, he said that we could adopt the PRADAN-innovated 5% farm pond model to ensure moisture control and to develop confidence among the farmers.

He said that we need to understand the reasons as to why SRI has not picked up in some places. SRI demonstration plots might not be sufficient, and farmers probably need longer-term hand-holding support to adopt SRI. In the XIITH plan, Mr. Khullar said there is a need to adopt a block-level approach for the promotion of SRI. Suggestions from the states can be sought on this issue and they should be involved in the planning process of implementing SRI.

Update on current thinking on SRI across various initiatives envisaged under the XII Plan

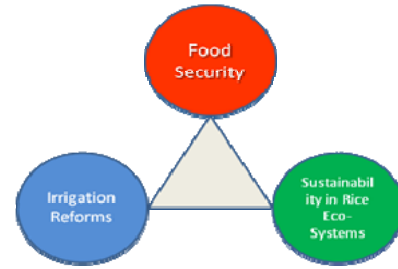
Dr. V. V. Sadamate, Adviser (Agriculture), Planning Commission, said that encompassing SRI through the CDAP (Comprehensive District Action Plan) is important. NFSM could be another possible way to do this. He has observed that there is mechanization in many locations, but it is not adequate. He said that there is a mixed kind of response towards SRI; some states like Tamil Nadu, Tripura, Andhra Pradesh, and Jharkhand have positive results, while some other states do not.

He said that Planning Commission appreciates the efforts of NGOs, who have clearly brought out common negative feedback that points to need for land leveling, lack of mechanization, lack of awareness, too little training, inadequate support for organizations, and lack of implements as common impediments. He added that training of resource persons at village level, the compact demonstration approach, and use of Rashtriya Krishi Vikas Yojana (RKVY) funds through CDAP, etc. will be crucial.

He added that the need to link with MGNREGS is important, and DRR needs to evaluate varietal performance. He said that the sub-group has greatly debated on SRI inclusion during the XIIth Plan period. There is a need to adopt a farmer field school approach for the promotion and wide spread of SRI among the farmers. Research program should also be developed to extend the outreach of SRI.

Presentation by National Consortium on SRI

Prof. Shambu Prasad, XIMB put forth the perspective of the National Consortium on SRI, focusing on three 'policy pivots' for SRI:

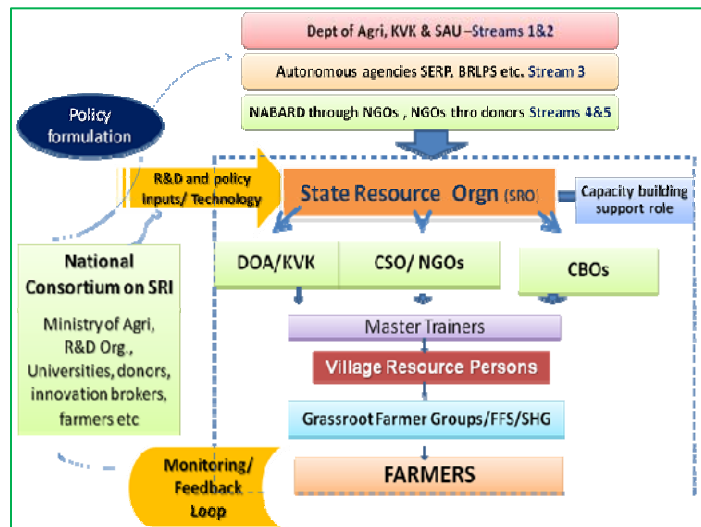


Each pivot has different objectives, geographical locations, actors/ departments, programs to be converged, and research needs, but the requirements for extension of SRI are common. Therefore, it is important to establish a common institutional architecture for realizing SRI potential as well as to have a nodal institution to channel program funding from multiple sources.

Extension Requirements of SRI

Extension mechanism requires working on a cluster approach rather than on scattered

demonstrations. We need to work directly with labourers and farmers and to provide them with handholding support for a minimum period of at least three years. This program should be implemented through community-based organisations (CBOs) facilitated by some nodal agencies such as NGO/KVK/ATMA, etc. Dedicated field level facilitators should be there at community level who in turn will work directly with the farmers in support with a pool of trainers. An implement-developing pool would be groomed at the field level by training and with development of local-level fabricators. Investing on NRM (soils and irrigation systems) through convergence of programs (MGNREGS & Irrigation) gives the best result.



Why a national consortium

NCS denotes the coming together of a variety of stakeholders, having strength or competence in relevant areas for enhancing the scale of SRI practice and policy in the country. The NCS seeks to work towards promoting science, practice and policy engagement on System of Rice Intensification (SRI) and its principles to empower rice farmers to meet household and national food security even as they save water and other inputs.

The NCS aims at striving around three major pillars: Science, Policy, and Practice. NCS is working on enhancing **scientific** understanding of SRI through (a) establishing a research network for sharing and learning about the science of SRI, encouraging collaborative research; (b) both experimental (research station) and on-farm research (Farmers fields) on SRI and its principles; and (c) building partnership with national and international research agencies, individuals, and networks.

The NCS aims to improve the understanding of cultivation **practices** by (a) promoting innovations; (b) synthesizing experiences from the field in different states; (c) facilitating and supporting

establishment of knowledge-sharing platforms at national and state levels; and (d) connecting various actors to promote partnership for developing capacities and competencies on SRI at various levels.

NCS has also the mandate to promote **policy** engagement at state and national levels by (a) supporting participatory monitoring, evaluation and learning; (b) encouraging policy discourses; and (c) advocacy promotion of institutional mechanisms that can further agro-ecological innovations at the state and national levels; and (d) also supporting large-scale mainstream programmes on promotion of SRI through convergence of resources.

SRI Experience in Scaling Up from Various States' Innovative Extension Models

The CEO, Bihar Rural Livelihood Promotion Society (BRLPS) shared during the round table that the Government is very pro-active within this state to promote SRI. Community-based systems have been developed in order to provide hand-holding support to the farmers and to extend its outreach. During this year, BRLPS is planning to have more than one lakh farmers using SRI. The role of Community Resource Person (CRP) has been paying rich dividends, and a substantial amount of money and time has been spent on grooming these CRPs. Now they are answerable to the community, and payment for their services is done through the community-based organizations.

Mr. Chaudhary said that we have tried SRI principles in rice and wheat and in green gram, ginger and sugarcane. He said that small farmers have applied SRI in other crops, but data are available only for rice and wheat. He said that around 1.10 lakh farmers have taken up SRI across state, but there might be a variance of around 10% in the number of farmers who actually practiced. He added that the traditional method of demonstration and then expecting farmer to take up this does not work. He said that close to 60% in the state are small and marginal farmers, and they do cultivation themselves. They are more able to adopt SRI. Focusing on big farmers may not move quickly, but one must note that in Bihar large farmers are learning from small farmers, which is a positive indication.

He said that there is a change in habit, but this change cannot happen in one season, and this also does not happen just by telling or training. Need to have an end-to-end method (seed-to-harvest). Extension work in this entire gamut is a big challenge. Strategy should be of having village resource persons who are practicing farmers, and then they hand-hold up to 50 farmers (with task-based payments) monitored by a village organisation (Federation of SHGs).

Dr. S.M. Hassan, State Level Consultant Rice, NFSM, Andhra Pradesh shared about the experience of Andhra Pradesh in the promotion of SRI. Acharya NG Ranga Agricultural University (ANGRAU) initiated SRI in the state in the year 2003. ANGRAU followed an extensive process for spreading SRI within the state, which involved active campaign by all the extension staff, providing training to the farmers and regular monitoring by State level steering committee constituted under Commissioner & Directorate of Agriculture. In the year 2011-12, 68467 farmers have been identified for SRI out of which 29443 farmers have been trained. 840 drum seeders and 2200 cono-weeders have been supplied to the farmers on 50% subsidy within the state. He said that a collaborative project has been launched with the support of NABARD along with CSOs for a period of three years in 4 districts of AP.

Dr. Hassan also said that for overcoming the labour problem and to meet the increased cost, a "Slightly Modified System of Rice Intensification" has been initiated where the focus is on complete mechanization of farm operations.

Mr. Anibrata Biswas shared his experience in a unique model for spreading SRI across the country. Sir Dorabji Tata Trust (SDTT), which supports Livolink's work on SRI, has been engaged in the promotion of SRI with around 127 NGO partners reaching out to around 109,996 farmers in this year. The broad objective of this intervention is to reach out to the poor and marginal farmers in the rain-fed areas for spreading SRI. They are also involved in collaborative research with Bidhan Chandra Krishi Viswa Vidyalaya (BCKV).

Remarks and Open Discussion

Dr. J.S. Samra, CEO, National Rainfed Area Authority (NRAA), opened the discussion. He said that we need to focus on comparing the 'dramatic approach vs. pragmatic approach,' and that we must note that there have been no presentations from Punjab or Haryana. He said that we could draw up a list of places where SRI is not possible due to the availability of large farmers. He also said that mechanization is a very serious issue associated with the adoption of SRI in these regions.

Dr. Swapan Datta, DDG, ICAR, in his remarks said that whether there are dis-adoption of SRI among farmers needs to be understood. There are some water management issues that are affecting the spread of SRI. We need to have a database of all the farmers practicing SRI across the country, and a centralized database and monitoring system is required to monitor the effects and adoption of SRI. He also said that SRI has been introduced without much scientific research, and so institutions such as ICAR should take up research programs to know the impact of SRI.

Dr. N.K. Sanghi from WASSAN his remarks said that reforms in delivery mechanisms are crucial if SRI is to be up scaled. For this purpose, two aspects are critical namely, (i) adoption of open advertisement system for partnership with experienced GO & NGO regarding facilitation of programme and (ii) involvement of sustainable CBOs (Community Based Organizations) for participatory implementation of programme. Currently the above delivery mechanisms are being adopted in some of the project by ICAR (e.g. NAIP, NICRA, etc) and by Ministry of Rural Development (e.g. NRLM). The above reforms in delivery mechanism may be considered even by Ministry of Agriculture for promoting SRI. It is also crucial to recognize that SRI is not an external input based development, but it requires a new knowledge (at all levels) and a new management system (at farmer level) a new set of skills (at labours level). Hence the incentives should be re-designed accordingly which may include a partial support for labour component during the initial 3-4 years for carrying out critical operations like transplanting and weeding as well as for preparation and application of biomass based organic manner.

Dr. T. M. Thiyagarajan, former Director of Research, Tamil Nadu Agricultural University, said that we must note that SRI changes phenotypic plasticity of the plant and that management can manipulate gene expression. He said that SRI enhances the genetic potentiality of the plants. There are many positive issues associated with SRI such as there is no rat damage and SRI plants become lodging-resistant, etc. amongst others. Even though we do not have a scientifically-validated explanations for these things, we cannot ignore them. At last, he said that SRI makes the rice plants behave differently.

Dr. Mahendra Kumar, Directorate of Rice Research (DRR), said that we have to collectively agree to move further as there are many advantages of SRI. He said that seed saving and 30% water saving are vital advantages that cannot be ignored, and that water control is an important aspect, and the question of weed control is a research issue. He said that advocating use of organic ways of doing SRI is important, even though farmers find it difficult. It is important and a must to support farmers to use organic matter. In addition, most important, there must be adequate funding for research on SRI.

Mr. Subir Ghosh, NABARD/Ranchi, said that 70% of small and marginal farmers are there, and food security is major issue. States are producing less than what is required. He said that coping up with

the drought situation is much easier with SRI adoption. He said that NABARD targeted to cover 30,000 farmers in around 7,500 acres in 22 districts in Jharkhand. He said that NABARD has taken up demonstration plots for the promotion of SRI, but it yielded results as expected. There are a huge number of implementing agencies engaged in the promotion of SRI, and this model can be used for its promotion across the country. Support from the Government is very crucial for the promotion of SRI, he added. Storage facilities and procurement of paddy are the issues, which the farmers are facing now. He suggested that a strong monitoring system should be in place in order to assess the impact and progress of SRI. Lastly, Mr Ghosh said that if we are able to link all the existing schemes with SRI then we could meet the food requirements of the country.

Dr. B. J. Pandian, Tamil Nadu Agricultural University (TNAU), said during the discussion that there is lots of flexibility in the adoption of SRI. We need to ensure the essential elements such as weeding, wider spacing, young seedling, etc. SRI leads to reduction in the seed rate.

Mr. Anil Verma from PRADAN in Bihar said that management of SRI affects the genomic potential of the crop and helps the plant reach its potential. He added that SRI needs to have a pool of local resource persons who should be provided with extensive training in various phases. He also said that there is an urgent need to develop a community-based control and monitoring mechanism. Lastly, he said that we should also invest and encourage local artisans and blacksmith for manufacturing low-cost implements for SRI.

Dr. Amod Thakur, Directorate of Water Management (ICAR), Bhubaneswar, said that first we all must understand what exactly is SRI and its underlying principles. He said that every aspect of SRI must be standardized as per the suitability of the local situation. He said that there is need for more research on SRI. In conclusion, he said that on the questions pertaining to the existence of weeds and the usage of water, we need to see if water is a major problem or weed is a problem. He said that we must remember that SRI is not possible for all areas.

SRI in the XIIth FYP: Reflections, Prospects and Possibilities

On a positive note, Dr. Abhijit Sen, member of Planning Commission, looked at the prospects and possibilities of SRI in the XIIth plan. He said that the architectural problems are the graver and more important problems concerning SRI. Some organisations have started SRI enthusiastically, but some have been also backtracking. Is there dis-adoption? He added that willingness of state governments to implement SRI differed widely, and that Tamil Nadu's taking to SRI in a big way is great, but this cannot be said about all states, and there is sort of a mixed reaction from different states overall. On the scientific side, DRR is now quite positive, and the scientific view is moving towards a positive outlook to SRI; yet we cannot afford to become SRI fundamentalists. He said that SRI would be there in XIIth Plan in some form, and SRI will continue to be a component of NFSM. Lastly, Dr. Sen said that he thought the real scope of SRI lies within Rural Development Departments.

Summary on Key Ideas, Issues Emerging, and Closing Remarks

Dr. Rita Sharma, Secretary of National Advisory Council, said that IRRI is more accepting of SRI as it is not as much a technology as it is a management practice coming from farmers and spreading from farmer to farmer. She said that it is easy to mainstream a standard technology, but it depends upon the management system of the region. There are many variations in the management system across regions and so a different architecture is required for mainstreaming the technology. In addition, she said that different kinds of architecture lend themselves to accommodating a diversity of adoption.

Dr. Sharma in her closing remarks said that where evidence is there, we should fast track SRI activities. It is important to take the management practice not simply as a matter of productivity or water saving, but to look at adaptations and at outliers – where future variations may be assessed

and built on. She said that in the extension processes, multiple extension players exist. She added that open competitive research methodology at the district level is promising, but it takes a huge effort to get to the universe outside. Lastly, Dr. Sharma said that both NCS and state consortiums are good initiatives, but the question is that how to support such consortiums at this juncture.

Participants

S. No.	Organisation	Name
1	Planning Commission	Prof. Abhijit Sen
2	Indian Council of Agricultural Research (ICAR)	Dr. S. Ayyapan
3	Indian Agricultural Research Institute (IARI)	Dr. H. S. Gupta
4	National Advisory Council (NAC)	Dr. Rita Sharma
5	National Rainfed Area Authority (NRAA)	Dr. J. S. Samra
6	National Food Security Mission (NFSM)	Mr. Mukesh Khullar
7	Indian Council of Agricultural Research (ICAR)	Dr. Swapan Kumar Datta
8	Council for Social Development (CSD)	Dr. T. Haque
9	Directorate of Water Management (ICAR)	Dr. Amod Kumar Thakur
10	Directorate of Rice Research (DRR)	Dr. B.C. Viraktamath
11	Directorate of Rice Research (DRR)	Dr. Mahendra Kumar
12	Bihar Rural livelihoods Promotion Society (BRLPS)	Mr. Arvind Chaudhary
13	Planning Commission	Mr. V.V. Sadamate
14	Department of Agriculture, Andhra Pradesh	Dr. S. M. Hassan
15	NABARD	Mr. Subir Ghosh
16	Tamil Nadu Agricultural University (TNAU)	Dr. B. J. Pandian
17	Tamil Nadu Agricultural University (TNAU)	Dr. T. M Thiyagarajan
18	Watershed Support Services and Activities Network (WASSAN)	Mr. A. Ravindra
19	Watershed Support Services and Activities Network (WASSAN)	Dr. N K Sanghi
20	Xavier Institute of Management, Bhubaneswar (XIMB)	Prof. Shambhu Prasad
21	Aga Khan Foundation (AKF)	Mr. Chandrakant Pradhan
22	Aga Khan Foundation (AKF)	Ms. Ranu Bhogal
23	Aga Khan Foundation (AKF)	Mr. Suneel Padale
24	Caritas India, Ernakulam	Dr. V. R. Haridas
25	Livolink Foundation, Bhubaneswar	Mr. Anibrata Biswas
26	Professional Assistance for Development Action (PRADAN)	Mr. Anil Verma
27	Professional Assistance for Development Action (PRADAN)	Mr. D. Narendranath
28	Cornell University	Dr. Norman Uphoff
29		Dr. Marguerite Uphoff