

# National SRI Consortium: Initiatives and Proposition

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**Round table on “Status of SRI in India: Upscaling strategy and  
global experience sharing”**

IARI, New Delhi March 3<sup>rd</sup>, 2011

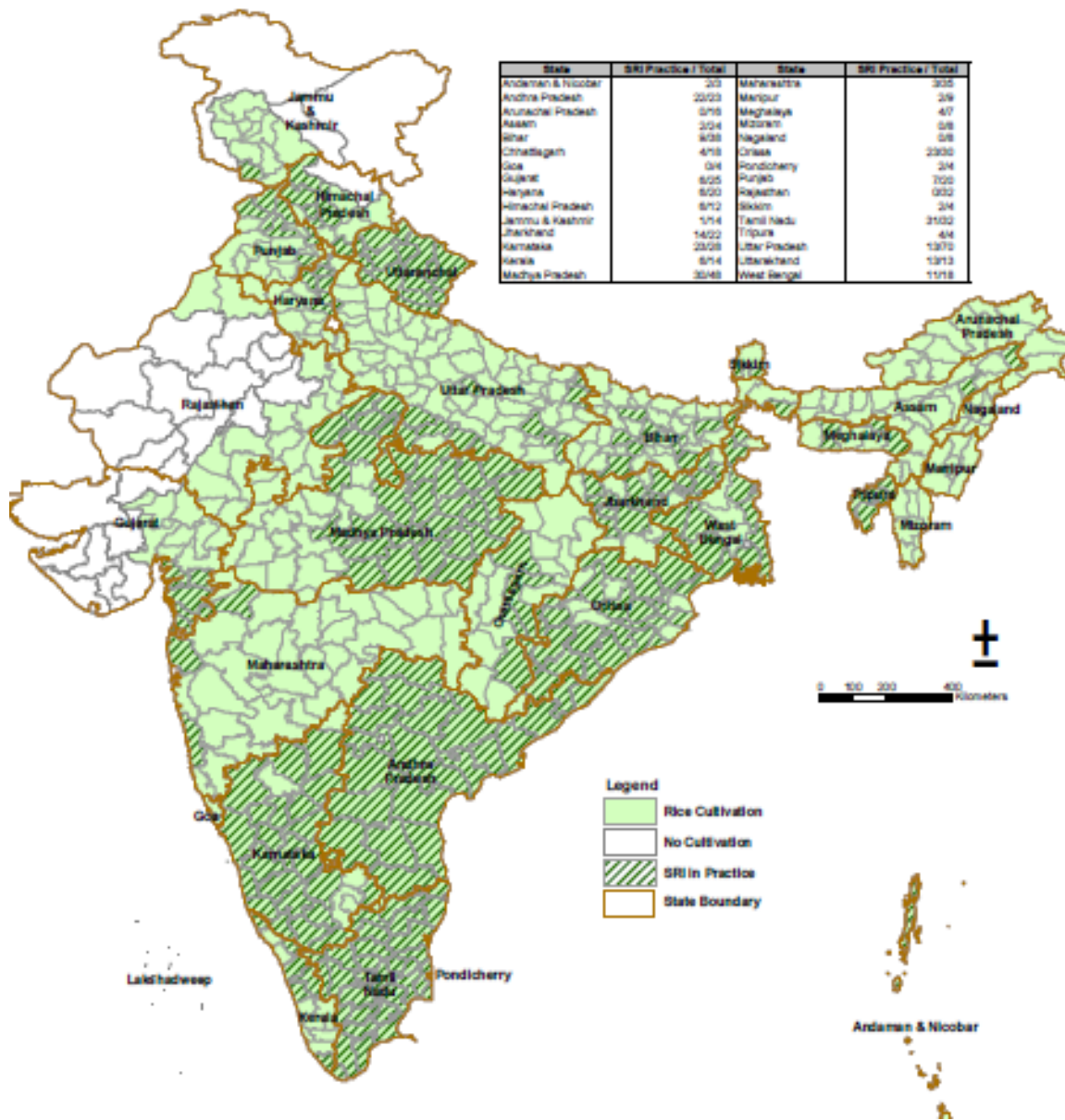
# Past efforts contributing to SRI upscaling

Nov-06	<b>1st National SRI Symposium at Hyderabad</b>
Oct-07	<b>2nd National Symposium at Agartala</b>
Dec-08	<b>3rd National Symposium at Coimbatore</b>
Feb-09	<b>SRI scaling up - future directions meeting at ICRISAT</b>
May-09	<b>Planning Commission consultation at ANGRAU, Hyderabad</b>
Dec-09	<b>Policy meeting on SRI at Delhi, PRADAN, NFSM</b>
Mar-10	<b>Presentation to NABARD and SDTT by SRI expert review team</b>
Apr-10	<b>Proposal discussion by SRI group with NFSM</b>
May-10	<b>SRI meeting in Madagascar, attended by some NCS members</b>
Jun-10	<b>Proposal submitted by NABARD to NFSM for SRI coverage through NGOs</b>
Jul-10	<b>NRMC holds national conference on SRI</b>
Jul-10	<b>National SWI workshop; AP SRI consortium formed</b>
Oct-10	<b>National SRI Consortium meeting organized by PRADAN &amp; NCAP</b>
Dec-10	<b>Planning Commission 12th plan consultation on food security Hyderabad</b>
Dec-10	<b>National SRI workshop, WWF Hyderabad</b>
Feb-11	<b>SCI workshop at Patna, Bihar</b>

Regular state-level workshops/ learning alliances in Orissa, Bengal, Uttarakhand, AP, etc.

# Why a national consortium?

- Lot is happening in the field on SRI, SCI - **need to inform national-level policies**
- Poor positioning of institutional capabilities for SRI, despite enormous spread; **India can be a world leader**, but SRI is not mainstreamed
- Upscaling SRI requires working in partnership and with **different institutional mechanisms** for extension
- **Stronger research** needs support - not all ICAR and agricultural universities are on board
- **Field level agencies** on SRI **need greater support**



SRI map draft --  
 Aug 2010  
 ICRISAT

45-50% of  
 districts  
 already doing  
 SRI in area of  
 GRER initiative

# Rapid spread of SRI in some states

- Nearly **7.5 lakh** hectares under NFSM and non NFSM activities – TN (6.5 lakh ha) Tripura (75,976 ha) in 2009-2010
- **5,068 FFS's** covering 1.52 lakh farmers
- Bihar through Jeevika (BRLP) **19,111 farmers** in SRI and **48,251 in SWI** on 1,412 acres total; plan is for 3.5 lakh ha in 2011
- **100,000 farmers and 20,000 ha** in 2010 through CSO work:
  - PRADAN: 2003 -- 4 farmers; 2010 -- eight states, 39,614 farmers 3,940 ha
  - PSI: 2006 -- 40 farmers, 2009 -- 13,000 farmers
- Strong small farmer focus in rainfed and tribal areas of CSOs

Pragati	2008-09	2009-10	2010-11
Small	195	601	<b>1,575</b>
Marginal	109	297	<b>878</b>
Medium	20	126	295
Total	324	1,024	2,748

# Select SRI Actors in India

CSOs	Govt. Agencies	Research	Other
PRADAN	NFSM	DRR	CIIFAD
PSI	IAMWARM (World Bank)	CRRRI	IWMI
CWS	MRPLP, Jeevika	DWM	IDS
SPWD	SAUs	TNAU	WUR
WASSAN	KVKs	IARI	XIMB
AME	DRD	<b>Donors</b>	<b>Private</b>
ASA	<b>Inclusive groupings</b>	NABARD	Usha Martin
AKRSP	AP SRI Consortium	SDTT	Weeder manu-
	Banglar-SRI	WWF	facturers
	Orissa Learning Alliance	AKF	

Ministry of Agriculture, research agencies, ICAR... represent large capacity, not yet fully expressed

Little government support, exceptions in Tamil Nadu and Tripura... recently Orissa, AP, and Bihar

Some inclusive groupings are led by civil society organisations....



# SRI in Other Crops: Innovation spillover



**SRI in Wheat – 49,000 + farmers**



**Rajma – 700 farmers**



**Sugar cane under SSI**



**Maize --183 farmers**



**Finger Millet -- 473 farmers**



**Soyabean --77 farmers**

# Climate and drought resilience and adaptability in drought year of 2009 in Uttarkhand

S. No	Particulars	Normal years (2006-2008)		Drought year (2009)	
		Conventional	SRI	Conventional	SRI
1	<b>Ave. no. of effective tillers/plant</b>	7	21	5	18
2	<b>Ave. plant height (cm)</b>	99	122	88	102
3	<b>Ave. panicle length (cm)</b>	18	24	19	25
4	<b>Ave. no. of grains/panicle</b>	93	177	90	174
5	<b>Grain yield (Q/ha)</b>	<b>36</b>	<b>55</b>	<b>25</b>	<b>48</b>
6	<b>Straw yield (Q/ha)</b>	<b>111</b>	<b>145</b>	<b>51</b>	<b>85</b>

In a drought year, non-SRI methods yielded 25 quintals per ha, while SRI yields were 48 quintals per ha (an average increase of 92 %).



# National Consortium Vision statement

To enable India to ***provide global/international leadership*** on agroecological innovations that reduce agrarian distress:

- by demonstrating **enhanced farmer incomes,**
- through **sustainable eco-friendly and resource conserving (and enhancing) systems of crop intensification,**
- through **novel institutional mechanisms** that build on farmers' knowledge, and that enhance local capacities with active participation of civil society, researchers, and government agencies.

# Types of organisations in Consortium

- CSOs at field level are at the forefront of extension – PSI, PRADAN, AKRSP, Orissa Learning Alliance, Banglar SRI, etc.
- Govt. agencies introducing SRI – Tripura, Tamil Nadu (IAMWARM), Andhra Pradesh, Orissa, HP...
- Researchers ... ICAR/DRR, WMC, other agencies
- Financial institutions – NABARD, SDTT
- Govt. institutions -- NFSM, NRLM, Planning Commission, NFSM, NRLM, DRD
- Consortium facilitators – NCAP, PRADAN RRC, XIMB, WASSAN, SRI Secretariat of SDTT

Way ahead for the 12<sup>th</sup> FYP

# Shifting to SRI means..

- Reorientation of farmers in rice agronomy:
  - Nursery management (farmer)
  - Organic matter addition and soil health improvement
  - Land preparation: leveling and marking (farmer)
  - Timely inter-cultivation (weeding) (farmer + labor)
  - Water management (farmer + irrigation system agencies)
  - Management of pests and diseases / agro-ecological knowledge
  - **New farm management routines & knowledge transfer**
- Reorientation in labor skills:
  - New transplantation methods
  - Mechanical weeding, in place of manual weeding
  - **New set of wage rates and work routines**
- Reworking on the irrigation and drainage systems:
  - Reduced but reliable irrigation at regular intervals (for alternate wetting & drying)
  - Proper drainage facilities to maintain aerobic soil conditions
  - **Better irrigation systems management**

## Strategy and approach : Conventional mainstream vs. CSO experiences

<b><i>Parameter</i></b>	<b><i>Conventional</i></b>	<b><i>From CSO Experience</i></b>
Approach and focus	Scattered demonstrations (0.4 ha per 100 ha)	Blocks or contiguous areas / clusters of villages
Extension strategy	Agri extension departments & scientific establishment	Farmer / community-led extension
Incentives	Input-centric, input subsidized extension; farmer field schools to a limited extent	Confidence & skill-building of farmers; labor support and skilling of labor; farmer field schools and investments on facilitation
Support	Correcting the nutrient deficiencies	Correcting and conserving soil health
Equipment	Centrally-supplied – one type for all areas	De-centralized – locally suitable design; custom hiring center



# Main challenges for a National Program/ Policy on SRI

1. How to re-orient farmers towards **management** and **increasing farmer knowledge on rice agro-ecology**?
2. How to establish **SRI labor markets** with new skills and contractual wage rates?
3. How to **reform irrigation systems** towards better control at the farmers' level?
4. Establishing **decentralised manufacturing** of SRI implements and appropriate distribution system
5. Build up cadres of **SRI resource farmers**
6. Mobilise **organic matter and resources** for improving soil productivity
7. Establish **research back-up and support**

# Strategy for SRI in the 12<sup>th</sup> FYP:

Recommendation of the National Consortium on SRI has evolved over time ..

- After analysing SRI experiences across the country, led by both government and civil society organisations.
- After many deliberations.. over a period of nearly 5 years.

# The Key Policy Question therefore, is..

→ How do we transform selected areas into SRI areas over a **period of time**?

**DEMONSTRATION  
APPROACH**



**AREA-FOCUSED  
APPROACH**

Labor markets, knowledge & behavioral changes of farmers and irrigation reforms → happen in collectives and on the basis of geography

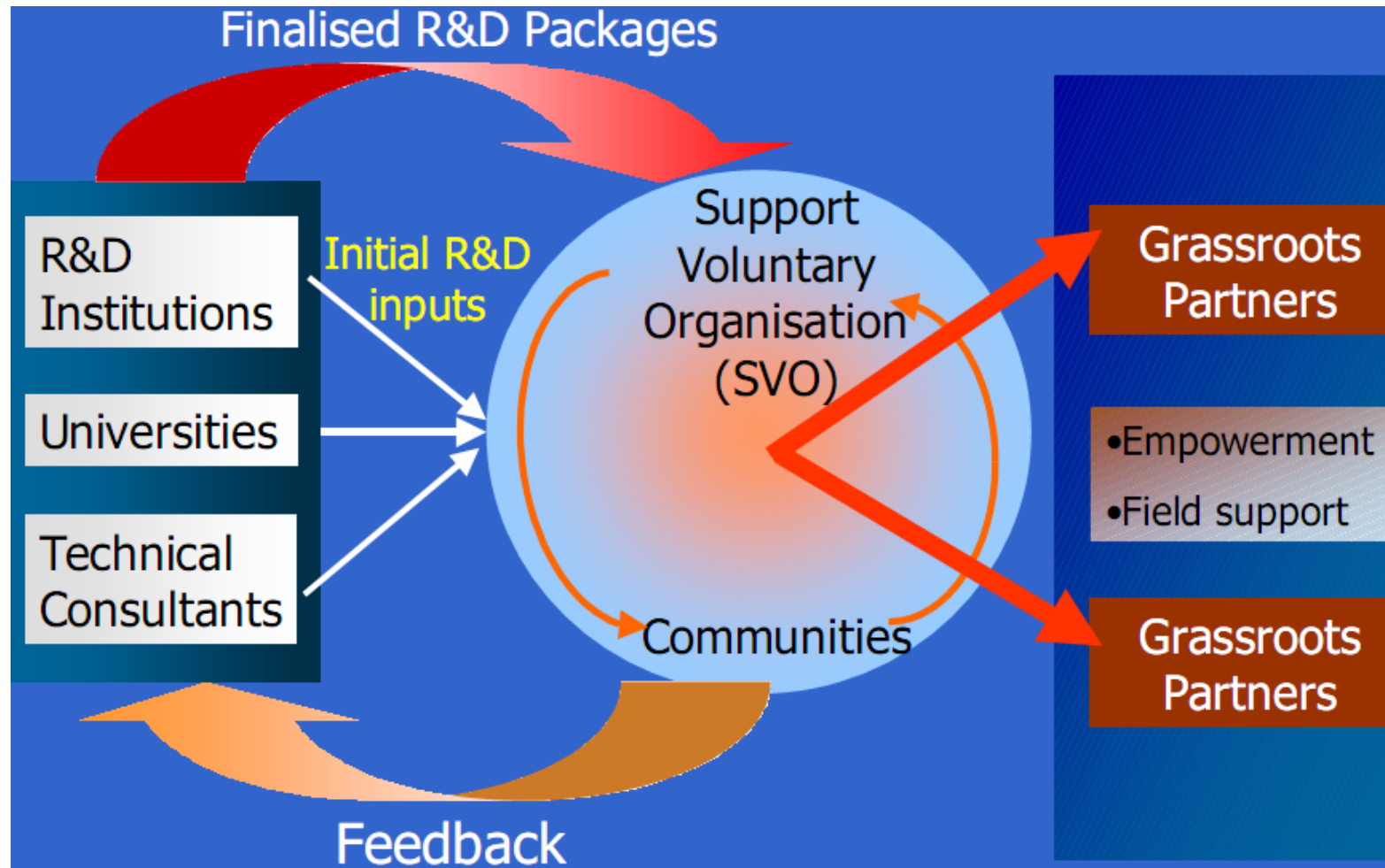
- Tipping points come after some time
- Changes need to be embedded/ habituated into local economies.
- Note that even small improvements in yield with SRI methods for poor/marginal farmers can have real impacts on food security

# Prerequisites of Scaling Up ...

- Working over a **period of time**,
- in a defined area,
- **at a significant scale**, and
- with facilitation through **support structures**
- Creating a large number of farmer -resource persons

→ Half-hearted attempts will make SRI a wasted opportunity and may lead to dis-adoption.

If 11<sup>th</sup> Plan was path breaking in domain of watersheds, can 12<sup>th</sup> do this to Min of Agriculture and rainfed areas?



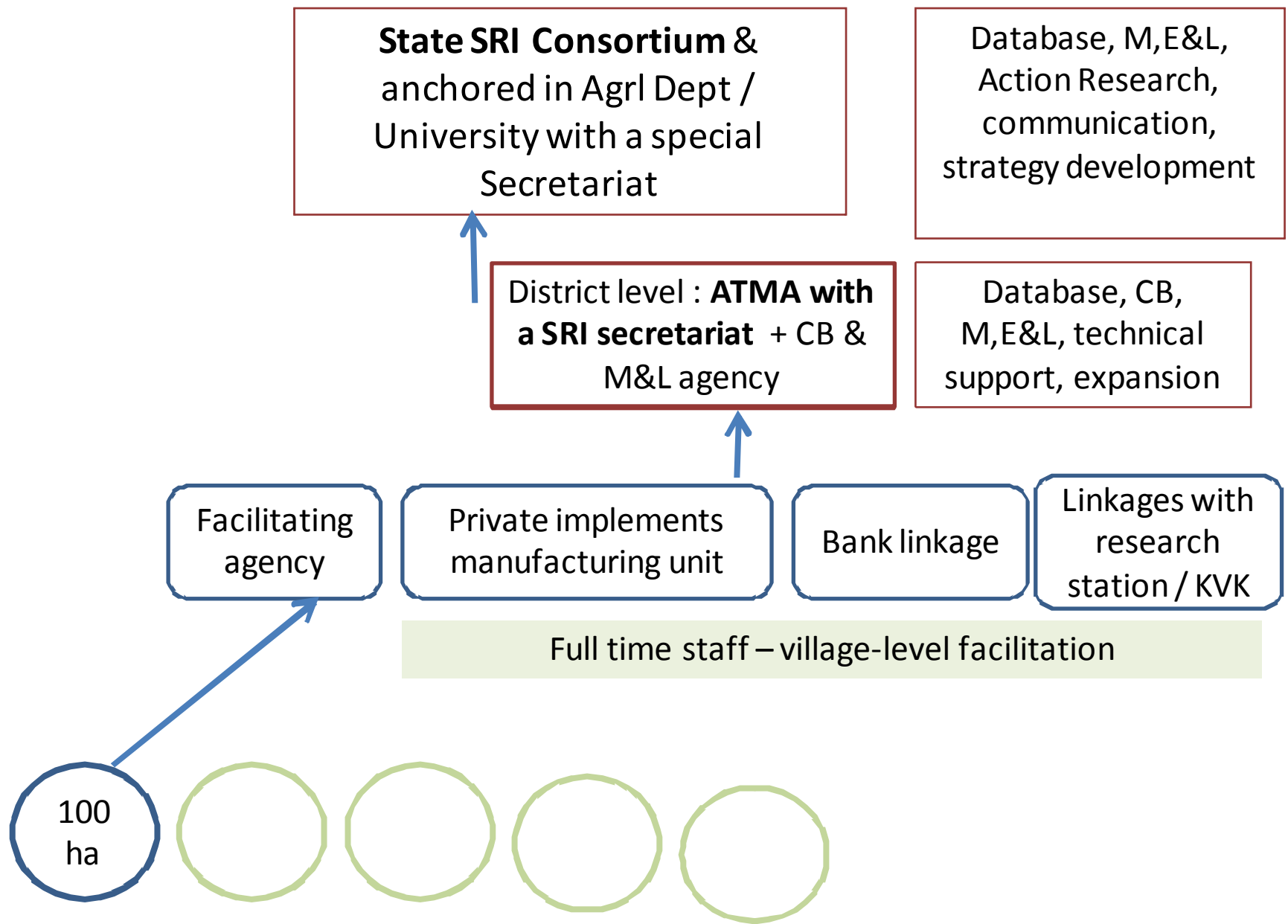
It took 5-6 meetings of CSOs to convince NFSM to invest in SRI through CSOs.. Result Rs 8 crores. Why can't they learn faster at least in 12<sup>th</sup> Plan...



# Strategy : SRI Clusters as units

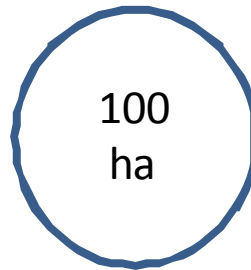
- Establish **SRI clusters** in the prioritised rice growing (admin) blocks in the country.
- An SRI Cluster would be about **100 ha of rice area transformed to SRI** with all (or many) of its principles.
- Build program around identified SRI clusters with an **agency** & with full-time **facilitation**

**Staggered target : 1<sup>st</sup> year : 30 ha; 2<sup>nd</sup> Year : 30 + 40 ha; 3<sup>rd</sup> year : 30 + 40 + 30 ha in a SRI cluster.**



**INSTITUTIONAL STRUCTURE**

# SRI CLUSTER :



## **Incentives (labor and organic matter)**

- Transplantation in the first year
- Timely 1<sup>st</sup> weeding for 2 years and 50% of first weeding in the third year
- Green manure seeds & organic matter
- (payments directly to labourers)

Two facilitators

One Implement Centre  
(owned by Panchayat and  
operated as a business)

Two facilitators

Skilled labour groups

Agreement with farmers on  
SRI for 3 years

Regular farmer field schools  
& field days

# Incentives for SRI..

**Total incentives / ha over a period of three seasons :**  
**Rs. 5820 / ha**

Mechanism of labor incentive can follow the MGNREGS mode.  
Part wage payment – adds transaction costs in administration

Operation	Labor per hectare	Season-1 (Rs)	Season-2 (Rs)	Season-3 (Rs)
Transplantation	20	2,000	0	0
First weeding (within 12 days)	10	1,000	1,000	500
Organic matter	Lumpsum			
Total incentives Rs / ha		3,000	1,000	500
	Wage rate @ Rs. 100 per ha			

# Cost Structure per SRI Cluster (100 ha)..

- Per 100 ha – over 3 years : Rs. 450,000
- SRI implements : Rs. 57,000  
(32 weeders + 25 markers)
- Organic matter addition : Rs. 75,000

TOTAL : Rs. 5.82 lakhs

- + Skill training for labor and farmers
- + Facilitation costs (agency costs)
- + Farmers' field schools



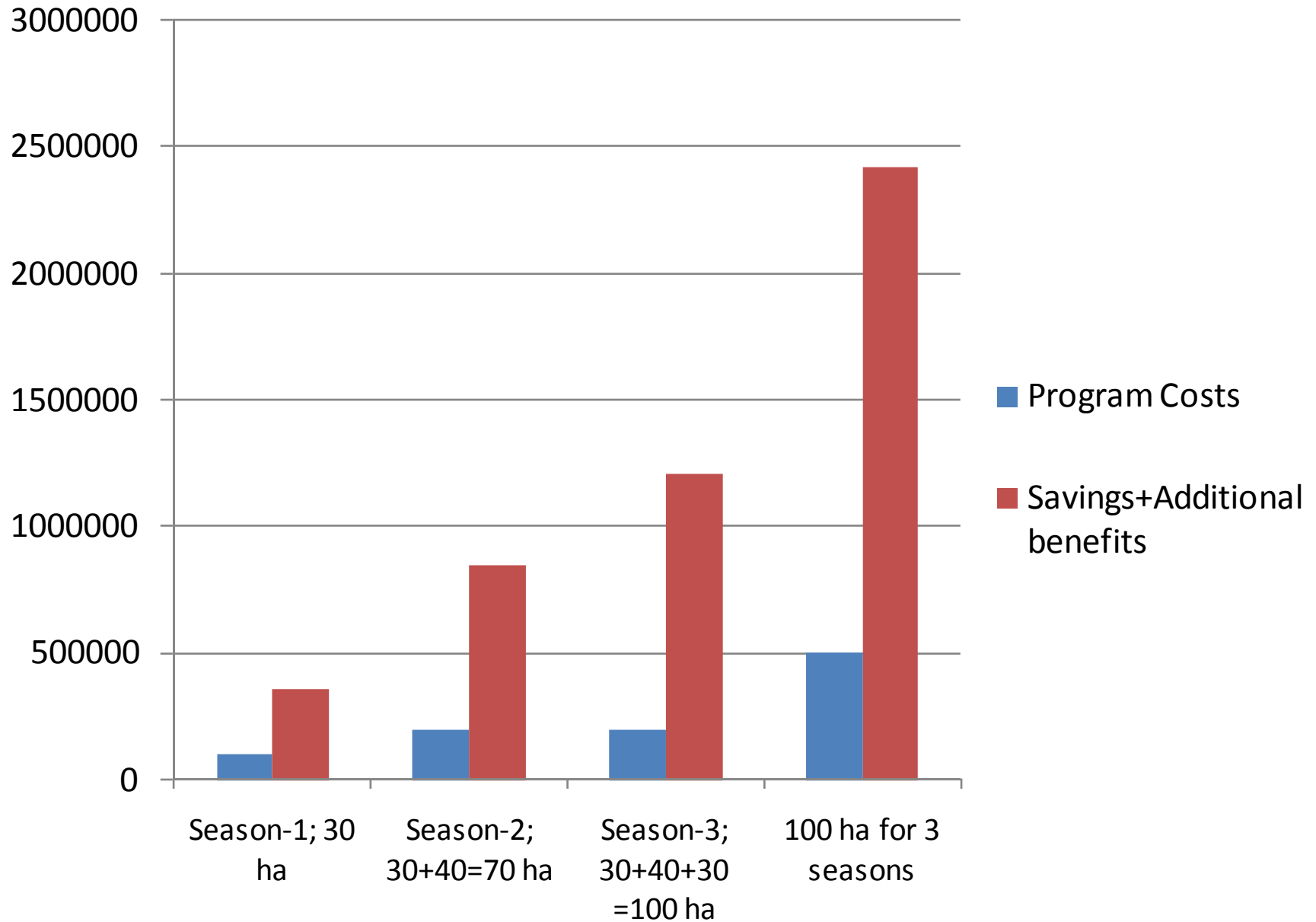
# What do we get out of the investments:

S.No	Components	Season-1; 30 ha	Season-2; 30+40 = 70 ha	Season-3; 30+40+30 = 100 ha	100 ha for 3 seasons
1	Savings in seeds –reduction of (@67.5 kg/ha) → kg.	2025	4725	6750	13,500
2	Value of reduced seeds - 67.5 kg @ Rs.35 /kg → Rs. Lakhs	0.71	1.65	2.36	4.73
3	Increased production (Q)/ 30 ha in Kharif	225	525	750	1500
4	<b>Value of Additional</b> produce (Rs) – (30+40+30) ha @ Rs.1000 / qt (lakh RS)	2.25	5.25	7.50	15.00
5	Grand total of benefits (from savings + additional produce)	2.90	6.90	9.86	19.72
6	Per hectare (Rs. Per ha)	9,862	17,259	32875	19,725
9	Savings in electricity subsidy (Rs)- saving of 140 irrigations				
10	Benefits for increased area under irrigation				

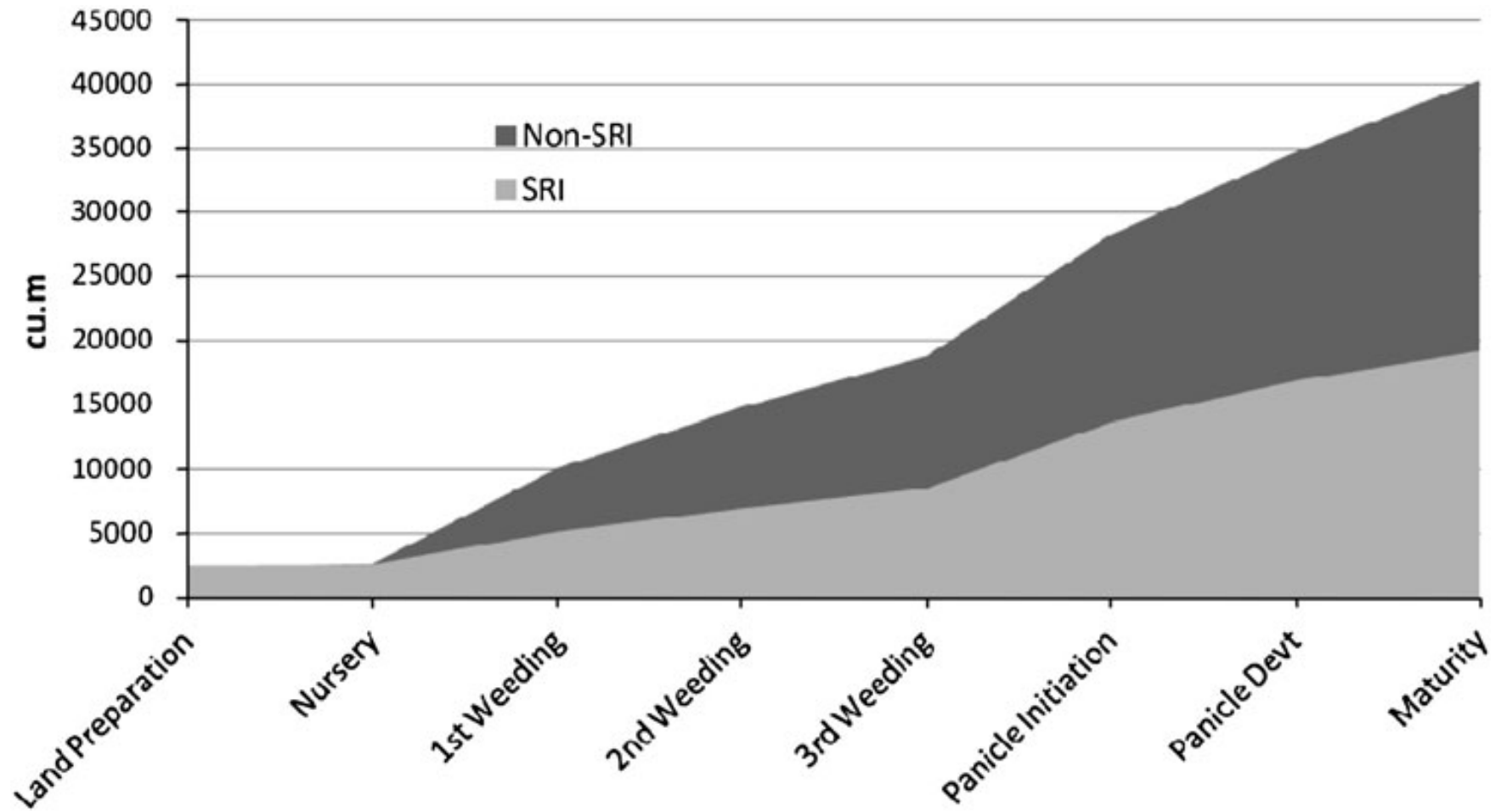
# Summary : Costs & benefits

S.No	Components	Season-1; 30 ha	Season-2; 30+40=70 ha	Season-3; 30+40+30 =100 ha	100 ha for 3 seasons
8	Grand total of benefits (from savings+additional produce)	363,375	847,875	1,211,250	2,422,500
	Per hectare	12,112.5	21,197	40,375	24,225
9	Labour incentives / Additional cost (Rs) – (30+40+30) ha	90,000	180,000	185,000	455,000
10	Equipment (weeders -1 per/3.2 ha & markers-1 per 4 ha)	17,250	23,000	17,250	51,250
11	Grand total of additional costs	107,250	203,000	202,250	5,06250
	Per ha	3,575	2,900	2,022.5	5,062.5

# Benefits – Costs per 100 ha



# Water savings with SRI (borewell situation)



# Phasing of the program in the 12<sup>th</sup> FYP:

- Large-scale experience is now available in the civil society organisations & with some government programs

## **Phase 1:**

- Start block-wise with SRI Clusters – initially in all blocks where experience exists & in areas that are rainfed & with control over irrigation and drainage
- Start in a small way to build agency capacities in rest of the blocks
- Pilot SRI with irrigation system reforms in selected canal-irrigated areas.

## **Phase 2:**

- Expand to all blocks
- Initiate a larger program on << SRI + Irrigation Sector reforms >> building on the experience from the pilots.

Scaling up in 1 lakh ha – would cost  
a direct investment of ~ Rs.52 cr +  
institutional costs

Target of 20% of rice area to be  
converted into SRI in the 12<sup>th</sup> FYP –  
Under a creative partnership among –  
Government + Research + Civil Society

**\*\* \*\***