

**National Consultation**  
**on**  
**System of Rice Intensification for**  
**Increased Productivity and Ecological Security**  
**at**  
**G. B. Pant Social Science Institute, Allahabad**  
**April 6-7, 2015**

## **Background**

Rice is the major source of food for half of the world's population. Paddy production entails use of costly resources a quarter to one third of world's annual fresh water supply, fossil fuels and synthetic fertilizers leading to high ecological foot prints. Paddy fields also emit greenhouse gases to global warming, soil and water pollution. The system of Rice Intensification (SRI) is an answer to all these problems and it reverses the trends responsible for climate change. Around 40 countries of the world today are reaping the benefits of SRI.

India's focus for improving food security over the years has relied on intensive agriculture by improving yield per unit area using suitable varieties and improved input management. Such highly intensive agriculture dependent on fossil fuels, damaging to soil and fresh water and crop diversity is becoming questionable today. It is also discriminatory against the resource poor rain-fed areas and small and marginal farmers. The real challenge today is perhaps to develop/adopt strategies based on ecological principles and integrating traditional farming practices and biodiversity with scientific knowledge.

## **Problems in Current Method of Rice Cultivation**

Problems confronted in rice production particularly by resource deficient small and marginal farmers and rain-fed areas are well known:

- High input costs and high doses of water for irrigation in paddy cultivation leading to multiplicity of problems in terms of the economy and environment;
- Small and marginal farmers are not able to afford high input costs;
- The additional inputs particularly synthetic fertilizers to increase in paddy production is leading to diminishing or constant returns over the years;
- Stock of fresh water resources for irrigation limited and polluted by excessive use of chemical fertilizers used in rice fields;
- High level of greenhouse gas emissions from flooded rice fields leading to global warming;
- Existing method of rice cultivation not suitable for rain-fed areas

However, until recent years no worthwhile farm community based innovative method was experimented to increase yield with reduced inputs, although the System of Rice Intensification (SRI) was known to Tamil Nadu farmers as single seedling planting a century ago and was tried in limited areas during second decade of the twentieth century. The available evidence clearly shows that the

rice farmers of Tamil Nadu obtained a yield of 6 t/ha by the application of SRI without any chemical fertilizers during those days when country's average yield was about 1.5 t/ha. Unfortunately, it was forgotten with the initiation of Green Revolution which laid thrust on improved varieties, better nutrient supply, soil and water management, increased use of chemical fertilizers and plant protection chemicals. In this process the country ignored traditional varieties and use of organic fertilizers. Some scholars estimate that 2,00,000 varieties of rice still exist in India as against 4,00,000 during Vedic period. Almost half of India's paddy area is irrigated consuming 50-60 per cent freshwater and about 70 per cent population rely on rice for food.

## **Initiating SRI in India**

In recent times, SRI in India was introduced in 2000 in Tamil Nadu, Puduchery and Tripura and considered as a major breakthrough with reduced water use, lesser fossil fuel based inputs, increasing yields and environment friendly. The innovation is basically farmer centric. Today SRI has become a national phenomenon spreading from farmer to farmer improving productivity and profits, reducing water inputs and challenging high input driven post Green Revolution agricultural practice. About one million farmers are reported to have tested SRI in more than 350 rice growing districts in the country. SRI became part of the National Food Security Mission in 2007. Now the core practices of SRI are also being applied to sugarcane, wheat, ragi, mustard and vegetable production. These farm based approaches clearly offer a ray of hope for small, marginal, resource poor farmers and food security of the nation.

Norman Uphoff argues that SRI is not a technology, tool or new variety but a methodology, a phenomenon, a philosophy, a paradigm shift, a social movement in a verifiable biophysical relationship. It focuses on changing and improving the environment for rice and other plants. It evolved and advanced from civil society innovation and support of agricultural scientists. SRI means less water use; two-thirds reduction in per square meter or per hectare number of plants; single seedling per hill or at the most two seedlings for greater root and canopy growth; wider spacing between hills in square, rectangular or triangular planting; transplanting younger seedlings at 2-3 leaf stage or 8 to 12 days and; increasing organic soil matter. These practices contribute to deeper longer root system; abundant and diverse soil biota; resistance to pests, diseases, drought, storm damage, cold snaps; reduction in greenhouse gases; higher outturn of milled rice and; more productive phenotypes from given rice genotypes. SRI assists farmers and their households through higher productivity, resource saving and environmental buffering; benefits consumers with food quality, better for their health and; conserve the environment, enhancing soil and water quality and conserving biodiversity.

## The Proposed Consultation

The proposed Consultation shall explore the alternatives ways of resource efficient SRI for paddy cultivation in comparison to the existing resource intensive post Green Revolution conventional method. It will focus to Review efforts so far made by all stakeholders to promote SRI, share experiences and learn lessons for the future.

### Sub-Themes

In brief, the deliberations of the Consultation may be divided in three Sub-themes:

#### I. SRI Method, Technology, Resource Use Efficiency and Productivity

- Mobilizing organic matter/resources for improving productivity;
- Indigenous varieties of rice giving higher yields;
- Responses of soil microbes with and without organic on multi-location trials;
- Resource use efficiency and cost-benefit ratio from a rice cluster investment; and
- Labour use efficiency and productivity.

#### II. SRI, Biodiversity and Ecological Security

- Ecological security, food security and agricultural security of the nation;
- Conservation of environment and biodiversity and enhancement of soil and water quality;
- Reworking irrigation and drainage systems to maintain aerobic soil conditions; and
- Ensuring control over land, water, agricultural bio-diversity, livelihood, food and their natural resources with decentralized agricultural communities.

#### III. SRI Future Area Expansion and Policy Concerns.

- Transforming into SRI areas and prioritizing development blocks in the country ;
- Reorienting farmers and labour skills;
- Proposing institutional structures for facilitating SRI;
- Policies for scaling up production and research on SRI;

### Participants

Academia, government organizations, NGOs and practitioners are welcome to participate in the Consultation. Please send the abstract of your paper relating to any sub-theme mentioned above by February 15, 2015 and full paper by March 15, 2015. The Institute plans to publish some selected revised papers in a journal or a book form after the Consultation.

Organizers:

Dr. K.N. Bhatt  
Coordinator  
G.B. Pant Social Science Institute  
University of Allahabad  
Jhusi,  
Allahabad-211 019  
(U.P., India)  
Mobile: 09454951081  
Email: knbhatt1@rediffmail.com

Professor Pradeep Bhargava  
Director  
G.B. Pant Social Science Institute  
University of Allahabad  
Jhusi,  
Allahabad-211 019  
(U.P., India)  
Phone: 0532-2569206  
Email: pradeep@gbpsii.org.in