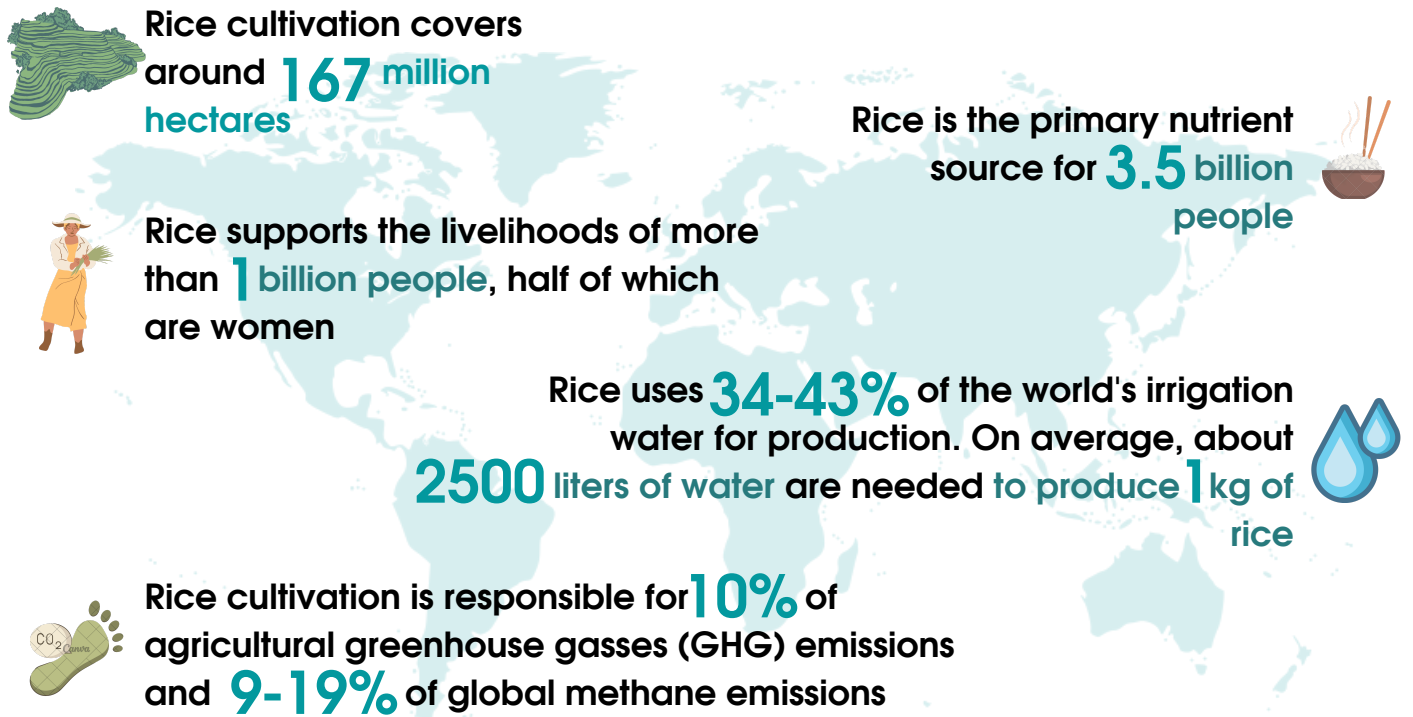


THE SYSTEM OF RICE INTENSIFICATION (SRI)

A Management Strategy for a More Sustainable and Productive Rice Sector

The numbers of rice on the global scale







Rice production needs to grow by **25%** over the next **25 years** to meet projected future demands. But its pressure on water resources and its contribution to GHG emissions must be reduced

SRI provides an answer to this problem

WHAT IS SRI?

SRI is an agroecological approach to growing rice that achieves greater yields from reduced inputs, while simultaneously minimising GHG emissions, particularly methane.

SRI is based on the following principles:

-  **1. START WITH YOUNG HEALTHY PLANTS**
-  **2. OPTIMISE SPACING TO MINIMISE COMPETITION BETWEEN PLANTS**
-  **3. BUILD UP HEALTHY FERTILE SOIL**
-  **4. APPLY ONLY THE MINIMUM AMOUNT OF WATER NEEDED**

Only robust seeds, directly seeded or carefully transplanted before the 4th phyllochron (8-12 days old) are used. This conserves the rice plant's innate potential to develop larger tillers and roots.

By not overcrowding the rice plants are better able to fully express their genetic potential by producing more tillers and larger panicles, supported by larger root systems.

Spacing should be optimised according to the rice variety and soil fertility so that sunlight and soil nutrients are better absorbed and utilised by plants.

Fertile soil stimulates the growth of healthy plants and allows the agricultural system to be more sustainable and resilient to stresses in the long term

Rice plants can survive in standing water, but they are not aquatic plants and do not perform best under flooded conditions as anaerobic soil suffocates the plant roots and the beneficial soil organisms that boost plant health and growth.

SRI Benefits



Increased Yield

SRI increases rice yield on average **by 25-50%**, with many examples of **over 50%** and even up to **200%**

Improved Nutrition and Increased Food Security



Increased and more stable rice yields **contribute to food security** while also allowing small-scale farmers to **diversify** their crop system. SRI rice panicles have fewer unfilled or broken grains which increases the amount of milled rice from harvested paddy by up to 15%. SRI methods also **increase the micronutrient uptake** by the plant, resulting in **improved nutritional qualities** in the grain. Beneficial nutrients such as Iron, Zinc, Copper and Manganese are all found to increase in SRI rice when compared with traditionally cultivated rice. Levels of heavy metals, such as arsenic and lead, are shown to decrease.



Reduced GHG emissions

SRI reduces methane emissions by up to 70% due to aerobic soil condition achieved by using Alternate Wetting and Drying (AWD) water management instead of the traditional continuous flooding. **SRI also enhances carbon sequestration** and it **reduces net GHG emissions per hectare** on average **by 20-40% and even up to 73%**. Because of the increased yields, net GHG emissions per Kg of rice are reduced by an average of 60%.

Increased Farmers' Income



Yield increases are achieved with less inputs: seeds are reduced by 80-90%; dependence on synthetic fertilizers and pesticides is lessened and instead a more integrated approach based on healthy soil and optimised environments for rice plants is followed.



Reduced Water Usage

SRI improves total water use efficiency by 52% and irrigation water use efficiency by 78%. **SRI reduces irrigation water application by 3.9 million litres per hectare**.

Gender Implications



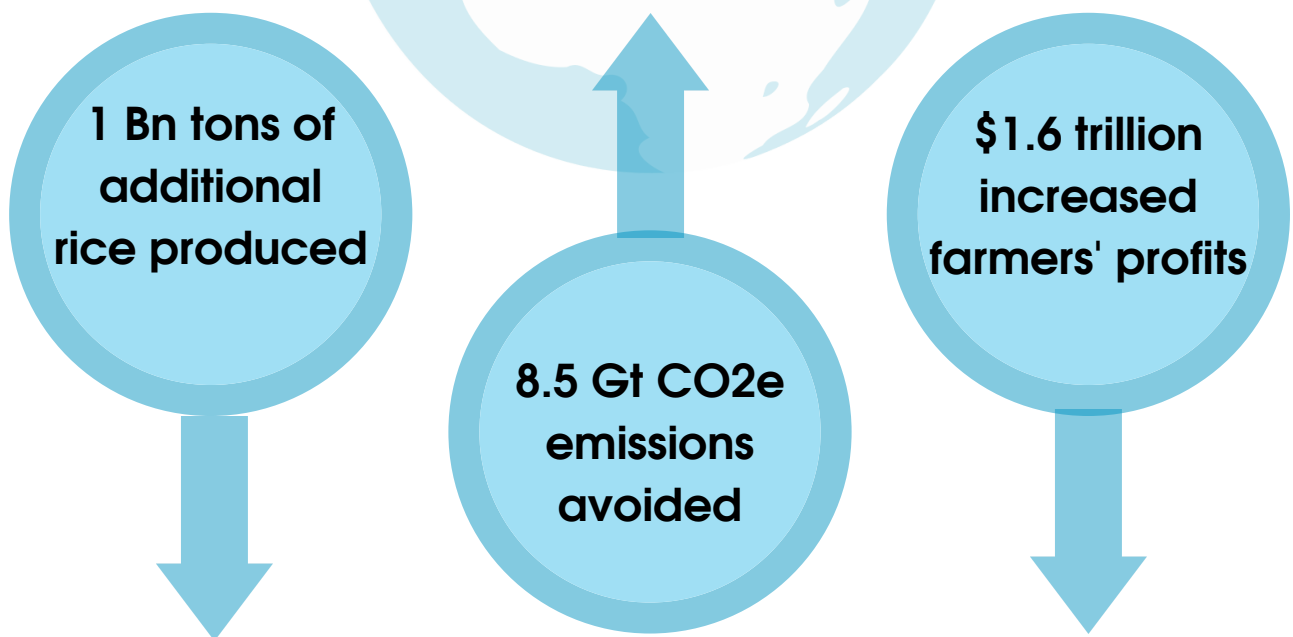
SRI presents many benefits for women who provide up to 80% of rice cultivation labour. SRI reduces the burden of labour with smaller nurseries and fewer plants to manage. By not flooding the fields, water-borne illnesses are reduced.

SRI +

SRI methods can be merged with other **agroecological practices** such as **agroforestry**, **conservation agriculture**, **organic farming**. Combining diverse agroecological approaches **enhances the beneficial effects** of SRI both for the rice production and for the sustainability of the entire farming system. For example, SRI has been successfully combined with Conservation Agriculture (CA) resulting in higher rice yields and reduced labour and water requirements. Merging SRI methods with other agro ecological approaches also enhances the sustainability and the resilience of the entire farming system, implementing nature-based principles in rice cultivation and beyond..

A look at the future ...

SRI practices are currently adopted on **6.7** out of the **167 million hectares** under rice cultivation
Upscaling SRI to **50** million hectares would achieve



...but what is needed to expand SRI?

SRI has mostly spread through farmer-to-farmer networks and grassroots movements. **Stronger institutional support can** provide the foundation to **scale SRI rapidly**



Include SRI in mitigation and adaptation Nationally Determined Contributions (**NDCs**). **11 countries** currently include SRI in their NDCs



Provide **supportive policies** for **SRI** uptake: **financial incentives**; **participatory irrigation management and infrastructure**; **training and education** in agricultural extension work



Build on previous and current **SRI projects**



Prioritise research and data gathering on SRI solutions during projects: farmers' innovations, without shared research, remain overlooked by policymakers



Incentivise the private sector to develop and lead SRI

