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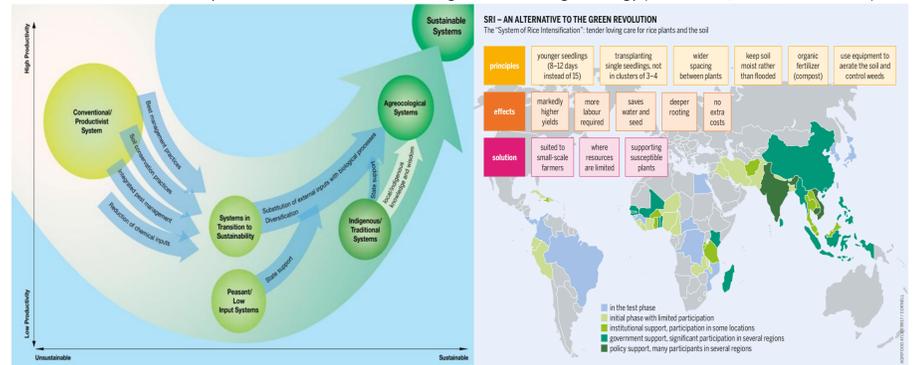
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Motivation/Challenge Description

- Water and food security are vital to sustain the humanity.
- UN SDG 2: “to end hunger, achieve food security and improved nutrition, and promote sustainable agriculture”.
- Agriculture lies at the intersection of three main current global challenges—food security, climate change mitigation, adaptation.
- Soil is an irreplaceable natural resource; provides >90% food. Due to soil degradation, 12 million hectares of agricultural land are lost every year around the world; about 20 million tonnes of grain.
- Current agribusiness model consumes up to 90 % of total freshwater withdrawals.
- Existent use of agro-chemicals affects soil as well as water quality.
- Unsustainable practices have reduced the water holding capacity of the soil, leading to frequent flooding.
- Floods in late summer and dry spells during winter lead to colossal damages to farmers, resulting in food insecurity and destroyed livelihoods.



UN Sustainable Development Goal 2: the switch from Agribusiness to Agroecology (Photos: UN, Flickr/Pablo Peiker)



Conventional to Sustainable Agri-systems: the System of Rice Intensification (Photos: IAASTD, Heinrich Böll Foundation)

Agroecological Approach

- Need to rethink and revise our agricultural practices; make adjustments to new paradigms of water scarcity, soil security, changes in weather patterns.
- Agroecology is a systems strategy, focussing on diversity, synergy, recycling and integration.
- UN suggests a fundamental shift to agroecology to feed the world in a 2050 scenario.
- Rice is the staple for billions of people worldwide, a number that is predicted to increase to 2 billion by 2030 in South Asia alone.

The System of Rice Intensification

- The System of Rice Intensification is an agro-ecological method of growing rice.
- Highlights: Less water consumption, better soil conditions, less material inputs, lesser emissions and groundwater contamination, and higher yields with a marginal increase in labour.
- SRI is already in practice with millions of rice farmers worldwide, having been synthesized as a set of practices by Fr. Henri de Laulanié in Madagascar in the early 1980s.
- Adding value to SRI: Intercropping rice with other crops can be a valuable addition. SRI provides a unique opportunity for intercropping with rice; wider spacing and non-flooded conditions.

Results Till Now

- Increased photosynthetic activity under SRI with intercropping.
- Increased NPK-nutrient uptake by the plants.
- Significant improvement in different physiological growth parameters with intercropping.



From seedlings to plants: SRI with intercropped beans. (Photos: Tavseef Shah)



A view of the experimental setup at the greenhouse chamber level. (Photo: Tavseef Shah)

Search/Offer

- Offer: Partnership and consulting services in agro-ecological initiatives, especially with the System of Rice Intensification.
- Search: Project partners to implement the research results at farmer's field level.

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