



The International Treaty

ON PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE



# Seeds for Life – Action with Farmers in Uttar Pradesh – IGP Region to Enhance Food Security in the Context of Climate Change

Presentation by



Humana People to People India

# Overall Objective

To contribute to the development of sustainable food security in a rice and wheat producing region vulnerable to climate change in the Indo - Gangetic Plain (IGP) covering 50 villages

## Specific Objective

- I. To establish in-situ seed conservation practices with farmers
- II. To establish system of rice intensification (SRI) and improved wheat cultivation practices among farmers
- III. Diversification of the farming system in the context of climate change by introducing new crops and more varieties of rice and wheat



# Geographical Area and the People

The project is being implemented in 2 districts of Uttar Pradesh:

- ❖ Site I: 25 villages in Badaun
- ❖ Site II: 25 villages in Unnao

The People:

- ❖ 50 Farmers Clubs
- ❖ 150 women's SHGs

Implementation Teams:

- ❖ 2 project leaders and 8 field officers



# Activities

## **1. Seed Conservation**

- Establishment of gene banks
- Seed selection & conservation training
- Training of farmers to access the Protection of Plant Varieties & Farmers' Rights Authorities (PPV&FRA) – India for registration of local seed varieties

## **2. Promotion of SRI and improved wheat cultivation methods**

- Training of farmers on System of Rice Intensification and improved methods for wheat cultivation
- Training of local crafts men to produce marking and weeding tools
- Establishment of demonstration fields with progressive farmers
- Cooperation with Agricultural Technology Management Agency (ATMA) and Krishi Vigyan Kendra (KVK) for knowledge exchange and sustainability

# Activities

## ***3. Diversification of the farming system in the context of climate change by introducing new crops and more varieties of rice and wheat***

- Introduce 3 new crops: Amaranth, Moringa (Drum stick) and Quinoa (Chenopodium) and train the farmers to cultivate them
- Popularization of new varieties of pulses as per farmers' interest
- Training SHG members in preparation of edible items out of Moringa, Quinoa and Amaranth
- Training members in packaging for household level consumption, contract supply or direct sale in market
- Organization of food fairs wherein agricultural produce exhibited by the farmers
- Presentation and sharing of tasty meals to visitors



# Expected Outcomes

- On-farm seed conservation facilities and practices established, operated and maintained by farmers
- Farmers are capable of accessing the Plant Varieties Authorities – India and available schemes
- Significant increase in rice and wheat yields among the farmers due to their application of System of Rice intensification (SRI) and improved wheat cultivation methods
- New crops and more varieties of rice and wheat are being introduced by the farmers and widely known in the area as optional choices in addition to the traditional crops



# Significant Contributions Made

- 50 Farmers Clubs formed and trained
- 300 farmers participated in Rice Varietal Trials at both sites
- 1000 farmers participated in Wheat Varietal Trials at both sites
- 333 rice germplasm lines evaluated
- SRI trials were conducted by farmers
- 7 seed banks established in Unnao and Badaun
- At least 150 farmers growing green gram in summer season
- Forward and back-ward marketing linkages established
- Farmers Field School started at both project sites
- Farmers' workshops organized at both sites
- Trainings organized on seed production and postharvest management
- Moringa cultivation has become popular
- 22 farmers registered plant varieties with the PPV & FRA
- Exposure visits made at Karnal (Haryana), GBPAU&T, Pantnagar (UK), seed banks in Udaipur, and several other learning sites



# Rice & Wheat Trials – Good Performing Varieties

S. No.	Rice Variety
1	Pusa 44
2	IR-64
3	Rajashree
4	Rajendra Bhagwati
5	HKR-47
6	Sugandha-5
7	Pusa Basmati-1121
8	Rajendra Suwasini
9	Sugandha-3
10	Prabhat
11	PR-113
12	Rajendra Mansoori
13	PNR 381

S. No.	Wheat Variety
1	DPW 621-50
2	HD 2967
3	K 9107
4	K 307
5	HD 2733





# SRI - Benefits from Higher Yield

Particulars (Per Ha)	SRI	Conventional Method	% Change from Conventional Method
Average Production	51 quintals	43.62 quintals	16.9% increase
Average Expense	Rs.62,975	Rs.80,712	22% decrease
Average Profit	Rs.66,475	Rs.30,562	117.5% increase



# Wheat - Benefits from Improved Technologies

Particulars (Per Ha)	Improved Cultivation Methods	Conventional Method	% Change from Conventional Method
Average Production	54 quintals	47 quintals	14.9% increase
Average Expense	Rs.33,275	Rs.36,187	8% decrease
Average Profit	Rs.42,312	Rs.29,250	44.65% increase



# Farmer Organization - Benefits from Forward Market Linkages

Crop	Sold to Private Buyer (Rs /q)	MSP (Rs / q) (Minimum Support Price- Govt. of India)
Paddy (2013)	3100	1325
Wheat (2014)	2850	1350

The farmers were guided to sell their produce to private buyers at the farm gate, which provided an edge to the farmers by giving them the power of bargaining. Farmers saved transportation cost as well.



# Results of Other Important Activities

- 1. Training to Farmers:** The project partner Bioversity International provided trainings for 350 farmers on seed production and post harvest management.
- 2. Farmer Field Schools:** 1615 farmers participated and interacted with University of Agriculture and Technology, Pantnagar; to progressive farmers at Karnal; to community seed banks in Udaipur, and to various other locations where the farmers have benefited from meeting scientists, progressive farmers and NGOs working on similar issues.
- 3. KVK scientists** involved in 34 field sessions.
- 4. Exposure Visits have been organized to Gobind Ballabh Pant Participation in Exhibition:** The project participated in exhibition organized by State Department of Agriculture wherein SRI information was provided and also exhibited SRI tools.
- 5. Farmers Fair:** In 2014 February 20 farmers participated in Fair organized by IARI, New Delhi wherein farmers saw live demonstrations on crop production technologies , protected cultivation and also saw latest farm equipment's, agrochemicals, seeds etc.



# Meeting with the Farmers



# Rice Trials – Preparation of Seeds

- It was new experience for farmers to prepare seed for sowings.
- As the farmers normally resorted to only 1 variety, in this case it was an experiment with 14 different varieties.
- Farmers identified the varieties suiting the climatic conditions.



# Rice Trials – Preparation of Nurseries

The involved farmers are preparing nursery beds for 14 rice varieties.



# Rice Trials – Transplanting in the Field

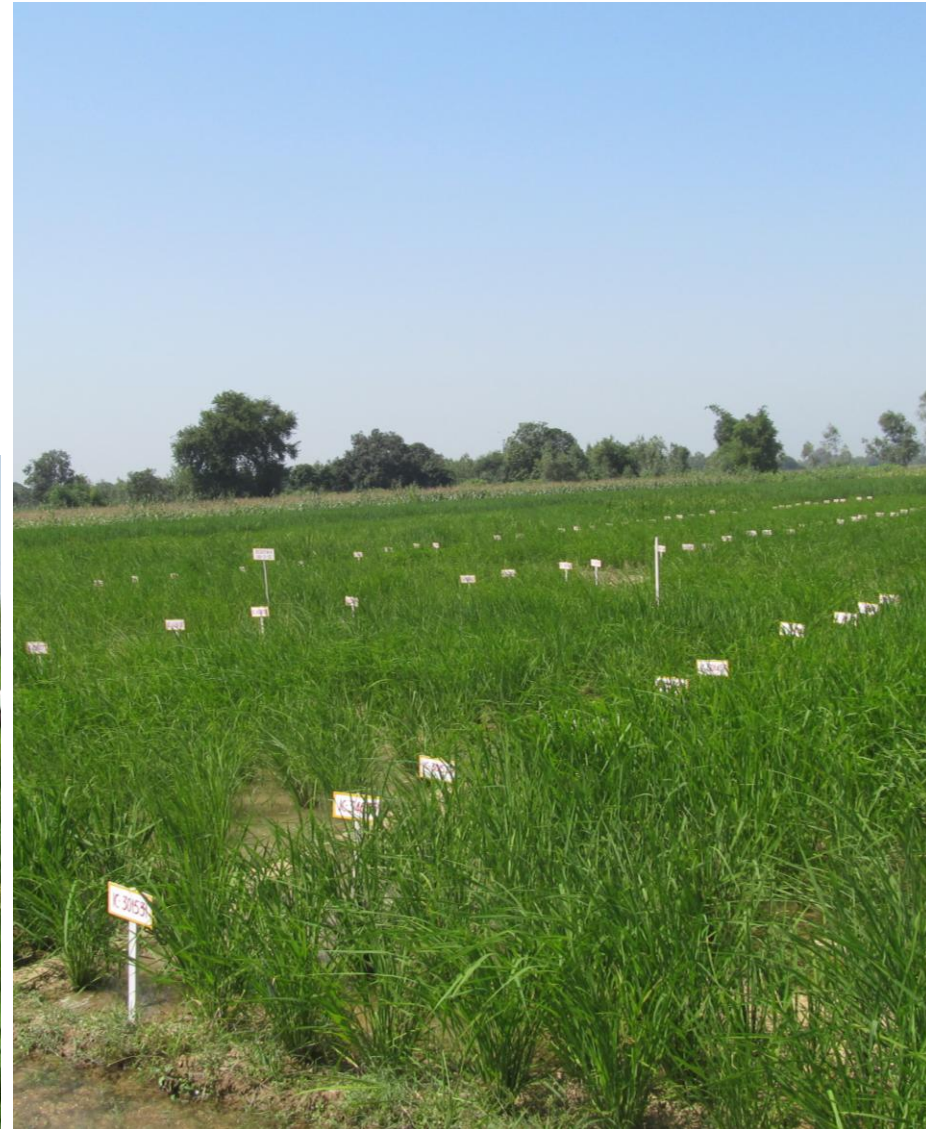
Farmers and youth involved in the transplantation of seedlings in the fields for rice trials.





# Rice Germplasm Field

- 333 germplasm lines germinated well.
- The farmers were so curious to see the variability in terms of plant color, size and shapes that they made several visits to this field during the different growth stages.



# Rice Varietal Trials Field

- A view of the rice trial field after 4-5 weeks of plantation.
- One can notice the different varieties in terms of color, size, density etc.



# Rice Varietal Trials Field

Varietal trial fields at a glance at different stages.



# SRI – Seed and Nursery Preparation

- Soak 3 Kg seed in 10 liter of water containing 1 Kg of salt for selecting healthy seeds for nursery sowing, a low cost technique introduced by the project
- The farmers were inspired to see the small piece of land (10X4 meters) used for nursery for raising seedlings for transplantation into an acre of land.
- This had never been done in the conventional type of farming.



# SRI – Transplantation

- 2 kg seeds used for making a nursery of one bigha land. Out of this only half were consumed in the SRI main field and the rest were used for the conventional method. So the farmers have understood that in future they can make a nursery out of 1 kg seeds only.
- Under SRI women farmers transplanted the seedlings from the start point to forward until the end point which is opposite to the conventional method.



# SRI – Weeding by Cono - Weeder

- The farmer is making use of cono-weeder to reduce labor and time required for weeding.
- It helps the crop for better air circulation in soil for the healthy growth of roots.



# SRI – Training Local Craftsman for Making Tools

- A local welder was trained to produce the tools such as cono-weeder and marker for SRI.
- This is a local tool for the farmers who are using it regularly with immense benefit.



# SRI Field

Project field staff along with a farmer are recording data in SRI field.





# SRI - Significant Results

On an average 40-50 tillers/plant were counted in SRI as compared to 15-20 tillers/plant in conventional method.



# Wheat Varietal Trial – After Germination

Farmers have sown wheat trials following the recommended practices such as line sowing.



# Wheat Varietal Trial

Field staff of the project busy in counting tillers per plant and collecting other data too.



As part of data collection the field staff is counting 1000 kernel and weighing seed of each variety

# Maintenance of Seed Purity

The farmers have been trained on maintaining seed purity during harvest and threshing.



# Seed Banks at Badaun and Unnao (UP)

Seven seed banks have been established, 4 in Badaun and 3 in Unnao which are being maintained and operated by committees consisting of 10-12 farmers for each seed bank



# Seed Samples

Samples of different wheat and rice varieties



# Farmers Field School

- Discussion with farmers about SRI technique resulted in widely adoption of this technique by the farming community.
- Here the farmers can share practical experiences based on results with other farmers.



# Farmers Field School

- Scientists have supported the field schools and all other works at the project sites.
- The Farmers' Field School has been effective in giving practical training on data collection





# Exposure Visit of Farmers at Local KVK

- The scientists from KVK cooperated dynamically with the project at both implementation sites.
- This has strengthened the institutional linkages.



# Exposure Visit of Farmers at Karnal (Haryana)

52 farmers and project staff visited Karnal and learned about preparation for sowing of varietal and germplasm trials fields and benefits of half residue technique.

This helped in initiating the activity at project sites.



# Project Participation in Local Events

- Introduction of the project and its results to the farming community.
- One of the farmers from the farmers club is demonstrating the use of the tool “cono-weeder” used for weeding in the paddy fields.



# Promotion of Moringa and Amaranth

- More than 2000 moringa trees have been planted.
- All SGH members have participated in nutrition & cooking workshops and learned how to make good use of moringa, amaranth and other nutritious ingredients.





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