

Event Report

Workshop on Climate-Resilient Smart Farming Solutions

Enabling FPOs through Sustainable Green and Clean Energy Initiatives

- **Date:** December 17, 2024
- **Time:** 10:30-5:30
- **Venue:** IISHM global campus , Kolkata ([google map](#))
- **No. of Participants :** 100 (84 males, 16 females)

About the Project

Grameen is implementing MANDI II project across 47 FPOs in Eastern Uttar Pradesh and West Bengal to impact the lives and livelihoods of **35,000 farmers including 50% women**. In this project, Grameen is closely collaborating with 10 FPOs to develop the **Hub and Spoke (H&S)** FPO model (in Mirzapur, Varanasi and Sondrabadra district) to develop a **proof of concept (PoC)**. Additionally, Grameen is working with the remaining **non-PoC FPOs** (32 in Eastern Uttar Pradesh and 5 in West Bengal) to promote gender mainstreaming, aggregation, economies of scale, and timely linkages with markets, finance, and technology.

The two core objectives of the project are as follows :

1. Growing incomes of smallholder farming households through improved technology-led market access for gender-inclusive, high-value, and climate-resilient value chains.
2. Increase the resilience of smallholder farming households by managing climate, enterprise, and business risks

About the workshop

The agricultural sector is at the crossroads of a transformation, where sustainable energy solutions and advanced technologies are poised to redefine traditional practices. Solar energy, clean and green technologies, and the introduction of **CHA Tech (Climate-smart, High-yielding, and Affordable technologies)** present unique opportunities for Farmer Producer Organizations (FPOs) to boost productivity, reduce costs, and minimize environmental impact.

FPOs play a critical role in addressing smallholder farmers' challenges by aggregating resources, enhancing market access, and fostering economic resilience. However, energy dependency and inefficiencies in post-harvest management, irrigation, and processing hinder their potential. The adoption of sustainable green and clean energy solutions offers a pathway to overcome these challenges, ensuring economic growth while reducing environmental footprints. For FPOs, adopting these technologies can enable smallholder farmers, especially women in agriculture by improving operational efficiency, lowering carbon footprints, and fostering resilience against climate challenges.

As a part of the second phase of project MANDI, this workshop aims to connect FPOs, technology providers, and policymakers (Govt officials) to explore and implement these solutions to promote sustainable agriculture and seeks to bridge the gap between technology providers and FPOs, fostering collaborations that enable the adoption of solar-powered solutions for irrigation, processing, and other agri-value chain activities.

Event Proceedings

The event started with a lamp lighting ceremony with introduction to Grameen Foundation for Social Impact (GFSI) and the MANDI II project by the Anita Yadav, Associate Project Director, MANDI II, lined up with the following eminent guests from different institutions including :

S.NO	Guests	Key Highlights
1	<p>Dr. R.K. Singh</p> <p>Additional Director, Agriculture Department Uttar Pradesh</p>	<ul style="list-style-type: none"> ● Uttar Pradesh is a leader in FPO registration, with over 3,600 FPOs listed on the UP Shakti portal. The portal provides ratings and key details such as value addition, number of shareholders, and primary crops. ● Agriculture is central to UP's economy, and FPOs play a vital role in strengthening diverse value chains, including Kala Namak rice, millets, and vegetables. Their contributions are crucial in enhancing farmers' income and resilience. ● BIRD has been instrumental in training farmers across multiple crops, supporting the growth and sustainability of FPOs. Notably, several FPOs in UP have achieved turnovers between ₹5 crore and ₹10 crore, with three FPOs recently recognized for their performance based on UP Shakti portal ratings. ● As a knowledge partner, BIRD is well-positioned to help FPOs leverage government schemes, enabling their long-term development and success.

2	Dr Panjak Tripathi, MD, UP Seed Corporation	<ul style="list-style-type: none"> • Climate Change & Agriculture: Climate change poses a major challenge to agriculture, impacting productivity and sustainability. Given the vulnerability of agriculture and allied sectors, equipping smallholder farmers with agri-tech solutions for water management, irrigation, seed and soil health, and responsible fertilizer and pesticide use is essential. • Technology for Farm Efficiency: With a rising population and increasing land fragmentation, adopting technology-driven solutions is key to enhancing farm productivity. FPOs play a crucial role in this transition and must be empowered with the skills and knowledge to strengthen their businesses and benefit their shareholder farmers. • Soil Health & Sustainable Practices: Soil degradation is a growing challenge due to excessive use of cultivators, rotavators, seed drills, and high urea application. These practices must be regulated to restore soil health. • Water Management & Sustainable Irrigation: Despite Uttar Pradesh's abundant water resources, inefficient flood irrigation remains a concern. Sprinkler and drip irrigation technologies should be promoted for water conservation, along with controlled fertilizer and pesticide use for sustainable farming. • Post-Harvest & Financial Support: Encouraging post-harvest management technologies will improve farm productivity and reduce losses. NABARD can play a key role by strengthening FPOs' working capital, enabling them to adopt advanced agro-technologies. • Seed Availability & FPO Linkages: UP Seed Corporation can support FPOs by providing quality breeder and foundation seeds, helping farmers develop certified seed varieties. Adoption can be further enhanced through capacity-building programs and exposure visits. • MoU with UP Seed Corporation: FPOs can be linked with UP Seed Corporation through an MoU facilitated by GFSI. Two types of FPOs can benefit: <ul style="list-style-type: none"> ○ FPOs under the DRISHTI scheme, where UP Seed Corporation can procure processed seeds. ○ FPOs outside the DRISHTI scheme, which can procure raw seeds. • Expanding Seed Production: With such an MoU, FPOs can engage farmers in seed production across various crops, particularly pulses (Dalhani) and oilseeds (Tilhani), which offer high profitability. This initiative will enhance seed availability, improve quality, and increase farmers' income. • Women's Role in Agriculture: The active participation of women in seed processing was emphasized, encouraging FPOs to engage and empower women in this value chain.
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3	Dr. R Vishwanathan, Director, Indian Institute of Sugarcane Research	<ul style="list-style-type: none"> • Rising Temperatures & Crop Impact: Climate change is adversely affecting crop growth, with IMD data recording the highest temperatures in January and October. • Sugarcane Production Challenges: Once cultivated year-round, sugarcane is now facing productivity issues due to rising temperatures. • Sustainable Jaggery Production: Pollution control measures are modernizing jaggery-making by replacing the fuel-intensive single-pan method, which harms the environment. • UP's Leadership in Sugarcane & Jaggery: Uttar Pradesh remains the largest producer of sugarcane and jaggery, with numerous production units driving the sector. • IISR's Role in Sustainability: <ul style="list-style-type: none"> ○ Promoting energy-efficient technologies to reduce CO₂ emissions. ○ Supporting startups in developing value-added jaggery products. • Agricultural Mechanization & Capacity Building: Recognized as the birthplace of agricultural mechanization, IISR is training rural youth and FPOs to reduce production costs and improve efficiency. • Future of Sugarcane Farming: Given its profitability, IISR is developing climate-resilient sugarcane varieties to sustain farmer incomes.
4	Dr RC Srivastava, Ex Vice Chancellor, Pusa University	<ul style="list-style-type: none"> • Crop Planning Challenges: Poor crop planning leads to income loss and reduced resilience for farmers. • Strategic Crop Planning: FPOs, in consultation with expert organizations, should assess and estimate the land area and quantity of crops to be grown to optimize production. • Technology-Driven Business Models: <ul style="list-style-type: none"> ○ Solar-Powered Irrigation Pumps: Suitable for areas with groundwater availability, ensuring a steady income source for FPOs. ○ Boat-Based Solar Power Systems: Ideal for riverine regions like the Khadar area, facilitating vegetable cultivation. ○ Groundwater Table Management: Technologies exist to raise groundwater levels, reducing power consumption for irrigation. ○ Solar-Powered Cold Storage: Prevents distress selling, preserves produce quality, and promotes green energy savings. • Agri-Waste Monetization: Can boost farmers' income by 25-30% through the utilization of cow/buffalo dung. The <i>SUKET</i> scheme, which exchanges 20 kg of dung for an LPG cylinder refill, has also improved soil health. • FPC as a Profitable Enterprise: FPCs should operate as companies rather than socialist models, ensuring profitability and improving smallholder farmers' income and resilience.

5	Dr Vinod Vidyarthi, GM, NABARD	<ul style="list-style-type: none"> • Small & Marginal Farmers (SMFs): 86% of farmers in India and 96% in UP are SMFs, making agriculture unviable for them. FPOs were introduced to address this challenge. • FPO Formation Progress: Under the Central Sector Scheme for 10,000 FPOs, 9,600 FPOs have been formed so far, including 200 in UP. • NABARD's Contribution: NABARD has promoted 481 FPOs in UP, including 15 all-women FPOs engaged in millet production, dairy, and potato seed production. • Soil Health Concern: The ideal NPK ratio is 4:2:1, but due to subsidized urea, farmers overuse it, leading to an imbalanced 7:2:1 ratio. Soil testing is crucial to determine actual nutrient requirements. <ul style="list-style-type: none"> ○ UP's Contribution to Agriculture: <ul style="list-style-type: none"> ○ 31% of India's wheat production ○ 12% of India's tur (pigeon pea) production ○ 48% of India's sugarcane production ○ An integrated value chain is essential for farmers to receive fair prices. • Collective Selling for Better Prices: Individual farmers have low marketable surplus, but selling collectively through FPOs ensures better prices. • Custom Hiring Centres (CHCs): FPOs can provide farm machinery on demand, reducing input costs for farmers. • Seed Replacement Rate (SRR): Increasing SRR is critical for ensuring food security and boosting agricultural productivity. • Agri Exports: Agriculture contributes 10-12% of total exports in India. • New NABARD Guidelines: ₹39 lakh grant assistance is now available for FPO formation and promotion. • Path to a \$1 Trillion Economy by 2030: Formalizing strategies for smallholder farmers is essential to achieve this goal.
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6	Dr Nirupam Mehrotra, Director, BIRD	<ul style="list-style-type: none"> • Recognition of Women in Agriculture: Women have played a crucial role in agriculture, yet their contributions remain largely unrecognized. • Challenges for Women-Led FPOs: Training sessions at BIRD have highlighted the unique challenges faced by women FPOs, requiring tailored strategies and solutions. • Declining Landholding Size: <ul style="list-style-type: none"> ○ Average landholding (Ausat Jyot) in India: <ul style="list-style-type: none"> ▪ 1970-71: 2.28 hectares ▪ 2015-16: 1.28 hectares ▪ Future projections: Expected to drop below 1 hectare ○ Despite this decline, production continues to rise. • Rising Food & Horticulture Production: <ul style="list-style-type: none"> ○ Total food grain production: 330 million tonnes ○ Horticulture production: 350 million tonnes (exceeding food grain production) ○ Since 2012-13, horticulture production has surpassed food grain production. • The Income Challenge: Increased production and productivity have not translated into proportional income growth for farmers. FPOs should move from single to multi commodity business to enhance profits. • Role of FPOs in Income & Resilience: <ul style="list-style-type: none"> ○ FPOs bridge the gap between production and income generation by improving both input and output management. ○ Seeds offer higher profit margins, while fertilizers have the lowest margins. • Government Support for FPOs: <ul style="list-style-type: none"> ○ All Indian government schemes include FPOs as eligible beneficiaries. ○ NABKISAN has addressed bank credit access for FPOs. ○ Kisan Credit Card (KCC): Farmers can avail up to ₹5 lakh credit limit under this scheme. FPO should oversee that all the farmers have a KCC. • Climate resilient technologies should be adopted in FPOs, BIRD can act as a knowledge partner for the same.
<p>Up next, Shatarupa Kashyap, Senior Director of institutional Relations and Partnerships, shared insights on Grameen's G-FIT strategy, which focuses on leading through gender and driving transformation through finance, innovative partnerships, and technology. She further invited the technology providers for their presentations.</p>		

Presentation from Technology Service Providers :

Session 1	Promoting Gender Inclusion through Green and Clean Technologies: Enabling Women in Farmer Producer Organizations (FPOs)
Speakers	<ul style="list-style-type: none"> • Abhishek Singh, EF Polymer • Atul Kumar, New Leaf Dynamics • Veer Pal Singh, Shaktiman • Praveen Singh, Daksha drone
Session	Adaptation of Solar-Powered Agritech Solutions

2	
Speakers	<ul style="list-style-type: none"> • Vimal Kumar, CEO, Agrivijay
Session 3	Strengthening Farmer Producer Organizations (FPOs): Unlocking Green and Clean Technologies for Enhanced Income and Sustainable Growth"
Speakers	<ul style="list-style-type: none"> • Kaushesh, Grain Pro • Gaur Hari Guru, Drip Tech India • Santosh Singh, Grow Indigo • Suyash Mishra, Mitti Labs • Manoj Uniyal, Bonhoeffer Machines • Shikhar, Ecosight

The event ended with a vote of thanks to all the participants. Through such platforms, in this project, we aim to enable the FPOs and smallholder farmers, especially women, with climate-friendly, high-yielding, and affordable ([CHA](#)) solutions by bridging technology, policy, and grassroots implementation.

Group Photograph :



More Details :

Photos :

- <https://www.linkedin.com/feed/update/urn:li:activity:7295075200180592640>
- https://drive.google.com/drive/folders/1jrJ-25YxQG1W-Gc2_qqxgozsm8ChcluQ?usp=drive_link
- https://drive.google.com/drive/folders/1g200hPXL38ZMGs5v0qnrqW-EABhqZOrM?usp=drive_link

Video testimonials :

- https://drive.google.com/file/d/1VGhbn6OTRAGUJ7OEeJeutmzxuUhHr2Ik/view?usp=drive_link
- https://drive.google.com/file/d/1I8sD4NIoQGvVVCaCHPdrVrAACtiT2CT0/view?usp=drive_link
- https://drive.google.com/file/d/1iR1qHtLfZhydK9HgnCeL4DosyZ-DKgVH/view?usp=drive_link
- https://drive.google.com/file/d/15cGbsn0S0C7N4ddDL0RK9vB3JtIfVIQE/view?usp=drive_link
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