INTERNATIONAL FOOD POLICY RESEARCH INSTITUTE

IFPRI

REPORT ON

CAPACITY STRENGTHENING TRAINING

Best Practices in Outcome Assessment, Data Interpretation, and Agricultural Policy Analysis

22-23 April 2025 | Bhubaneswar, Odisha

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Acknowledgement

On behalf of the International Food Policy Research Institute (IFPRI), we would like to express our sincere gratitude to all those who contributed to the success of the Capacity Strengthening Workshop on Best Practices in Outcome Assessment, Data Interpretation, and Agricultural Policy Analysis, held in Bhubaneswar, Odisha.

We extend our deepest appreciation to the Department of Agriculture & Farmers' Empowerment, Government of Odisha (DAFE, GoO), for their invaluable support and for providing us with the opportunity to organize this training program. We are also grateful to the various directorates for nominating officials from their respective departments, ensuring comprehensive participation.

We are thankful to the Gates Foundation for their generous financial support, which played a crucial role in organizing this capacity-building initiative. Their contribution greatly facilitated the design and delivery of this program, aimed at enhancing the skills of selected officials in Outcome Assessment, Data Interpretation, and Agricultural Policy Analysis.

We would also like to acknowledge the significant contributions of our esteemed trainers: Dr. Devesh Roy, Dr. Mamata Pradhan, Mr. Sunil Saroj, and Mr. Puskar Gaur, for their expert and effective delivery of the training sessions. We also appreciate the unwavering dedication and support of our team members: Mr. Amit Kumar Burman, Ms. Vandana Vidhani, and Mr. Devendra Kumar, whose tireless efforts were instrumental in the successful organization and management of the training program.

A special note of gratitude is due to Dr. Arabinda Kumar Padhee, Principal Secretary, Government of Odisha, Department of Agriculture & Farmers' Empowerment, for his invaluable guidance and motivation, which greatly inspired the participants. Highlighting the pivotal role of evidence, he stated, *"Data is the new currency",* and noted the critical role of such capacity-building initiatives as the government continues to scale up evidence-based interventions. We also thank Shri Subhranshu Mishra (OAS, Additional Secretary) who underscored the value of data in governance. Our heartfelt appreciation to Dr. Sangram Keshari Pattanaik (Deputy Director, Agriculture) and Sri Nagendra Kumar Malik (Assistant Director, Agriculture) for their proactive engagement and support for organizing this training program.

We are also grateful to all the officials who participated in the training. Their active involvement, valuable insights, and eagerness to learn made this program a resounding success. Finally, we express our gratitude to Swosti Premium for providing the necessary infrastructure and logistical support, ensuring the smooth execution of the training sessions.

This training program was a collaborative effort, and its success stands as a testament to the dedication and teamwork of everyone involved.

Executive Summary

The Capacity Strengthening Workshop on Best Practices in Impact Evaluation, Data Interpretation, and Agricultural Policy Analysis (Phase 1) was conducted on April 22-23, 2025, aiming to build the foundational skills of field-based government officials in using agricultural data for informed decision-making. To strengthen its initiative on developing the Inclusive Agriculture Transformation (IAT) indicator, IFPRI has proposed a three-phased capacity-building program for key departmental staff. The objective is to enhance their understanding of the importance of data and its systematic maintenance. This initial phase focused on enhancing participants' understanding of various agricultural datasets and equipping them with basic skills in data interpretation and visualization. The workshop was inaugurated by Dr. Arabinda Kumar Padhee, Principal Secretary to Government, Department of Agriculture & Farmers' Empowerment, Government of Odisha. The workshop was designed as part of a comprehensive capacity-building initiative to support the Inclusive Agriculture Transformation (IAT) framework, promoting evidence-based policy formulation and implementation.

The workshop introduced participants to key agricultural data sources, including data from the National Sample Survey Office (NSSO), Periodic Labour Force Survey (PLFS), Ministry of Statistics and Programme Implementation (MoSPI), Situation Assessment Survey (SAS), the Agricultural Census, and market data, emphasizing their relevance in assessing agricultural productivity, socio-economic conditions, and market dynamics. In addition to these traditional datasets, participants were also familiarized with geo-spatial and remote sensing data, learning how to use such data for application in agriculture, crop monitoring and land-use mapping. For example, they were exposed to platforms like Google Earth engine for utilizing different remote sensing data set like Landsat and Sentinel-2. Understanding data formats and creating visual representations, such as charts, graphs, and spatial maps, were covered to facilitate clear and effective communication of agricultural insights.

The training methodology integrated interactive discussions, hands-on exercises, and real-world case studies, fostering an engaging and participatory learning environment. Participants practiced interpreting agricultural data to derive meaningful insights, which could directly inform policy decisions and program evaluations. This practical approach was crucial in bridging the gap between theoretical knowledge and field application, allowing participants to build competence in analyzing data for agricultural planning and assessment.

The successful completion of Phase I enabled participants to develop essential skills in data handling, visualization, and interpretation in the context of agricultural policy. They were also trained in developing policy briefs and blogs, which can contribute to their academic growth. By building a strong foundation, this workshop prepared participants to approach more complex topics in subsequent training phases, ultimately strengthening their capacity to contribute to data-driven agricultural transformation. The positive reception of the training program underscores the relevance and effectiveness of the training, highlighting the practical value of combining data analysis with policy-oriented applications.

Chapter 1: Introduction

Background and Context

The agriculture sector in Odisha is transforming through commercialization, diversification, and digitization. Despite implementing initiatives like crop diversification policies, digital platforms such as Krushak Odisha, and infrastructure upgrades, there is no unified framework to assess the impact of these efforts on smallholder farmers, women, youth, and marginalized communities. To bridge this gap, the International Food Policy Research Institute (IFPRI), in collaboration with the Department of Agriculture and Farmers' Empowerment, Government of Odisha (DAFE, GoO), has been working on the 'Food and Agricultural System Transformation Research' (FASTR) project, supported by the Gates Foundation. This project aims to develop Inclusive Agricultural Transformation (IAT) Indicators to systematically track the progress of government initiatives, focusing on agricultural transformation, inclusiveness, and risk/resilience.

To support this initiative, IFPRI organized the Capacity Strengthening Workshop on Best Practices in Impact Evaluation, Data Interpretation, and Agricultural Policy Analysis (Phase 1) on April 22-23, 2025, in collaboration with the Department of Agriculture and Farmers' Empowerment. The workshop aimed to build the capacity of government officials, researchers, and policymakers to utilize data effectively for informed decision-making in agriculture. Participants were introduced to diverse datasets, including those from NSSO, PLFS, MoSPI, SAS, the agricultural census, market data, and geo-spatial sources. Emphasis was placed on data formats, visualization techniques, and data interpretation. Through interactive discussions and hands-on exercises, participants developed foundational skills crucial for data-driven policy development, fostering inclusive agricultural transformation in Odisha.

Objectives of the Training Program

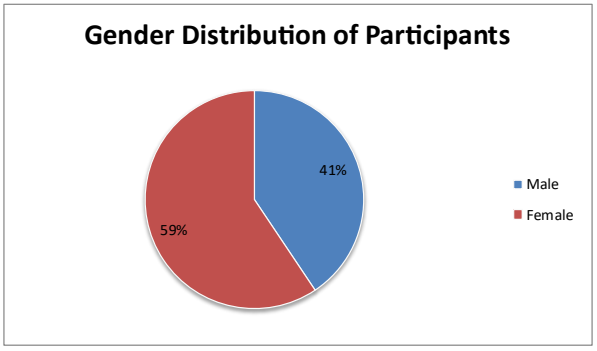
The workshop aimed to familiarize participants with a wide range of agricultural datasets and build their capacity to interpret these datasets effectively. As data-driven decision-making becomes increasingly important in agriculture, it is crucial for government officials, researchers, and policymakers to understand diverse data sources, their structures, and their relevance to policy planning.

Participants were introduced to key agricultural datasets, including those from the National Sample Survey Office (NSSO) under the Ministry of Statistics and Programme Implementation (MoSPI), the Agricultural Census, market data, and geo-spatial datasets. These datasets are vital for analyzing productivity trends, socio-economic conditions of farmers, and market linkages. The workshop emphasized understanding data formats, identifying quality issues, and using basic visualization techniques to derive meaningful inferences.

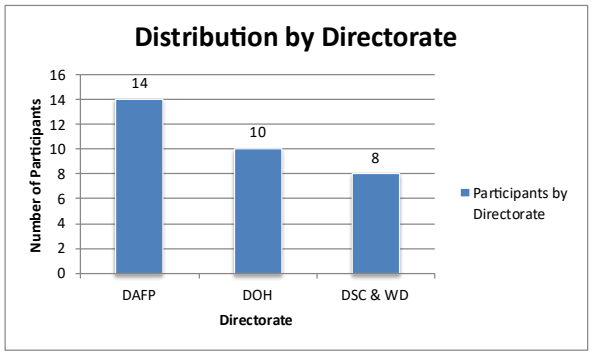
Through hands-on exercises, practical demonstrations, and real-world case studies, participants enhanced their ability to translate raw data into actionable insights. This foundational training supports data literacy and helps ensure that agricultural policies are grounded in robust data analysis, contributing to the broader goals of IAT.

Profile of Participants

The gender distribution analysis of the participants reveals that out of the total 32 attendees, 19 (59.4%) were female, and 13 (40.6%) were male. This indicates a higher representation of female participants, reflecting a positive trend towards gender inclusivity in capacity-building initiatives. The balanced participation from both genders also highlights the commitment to fostering diverse perspectives in agricultural policy analysis and data interpretation.



The distribution of participants across directorates shows a predominant representation from the Department of Agriculture and Food Production (DAFP), accounting for approximately 50% of the total attendees, reflecting the department's strong involvement in capacity-building related to data interpretation and agricultural policy analysis. The Department of Soil Conservation and Watershed Development (DSC & WD) and the Department of Horticulture (DOH) follow with 27% and 23% of participants, respectively, indicating a balanced inclusion of perspectives related to soil conservation, watershed management, and horticultural practices. This diverse participation underscores the training program's focus on fostering cross-sectoral collaboration, enhancing participants' understanding of data-driven policy-making.



The analysis of participants based on their designations reveals a diverse representation from various roles within the agricultural sector. A significant number of attendees (around 38%) are Assistant Agriculture Officers (AAOs), indicating their key role in grassroots agricultural extension and data interpretation. Adaptation (ADAPT) Officers make up about 23% of the participants, reflecting a focus on data insights for policy making. Assistant Horticulture Officers (AHOs) constitute approximately 20% of the group, showcasing the importance of integrating horticultural practices within the broader agricultural framework. Additionally, Block Agriculture Officers (BAOs), Assistant Horticulture Officers (AHOs), and Assistant Soil Chemists (ADA, Soil Chemist) were also represented, highlighting a multidisciplinary approach to capacity building. The inclusion of ADA (Assistant District Agriculture) officers and ADSC (Assistant Director of Soil Conservation) further underscores the program's aim to enhance data literacy across various agricultural domains, fostering a comprehensive understanding of agricultural policies, data interpretation, and impact evaluation.

Chapter 2 : Training Design and Delivery

Training Content

The Capacity Strengthening training on Best Practices in Impact Evaluation, Data Interpretation, and Agricultural Policy Analysis (Phase 1) focused on building participants' skills in effectively using agricultural data for policy planning and evaluation. The training covered various topics, including an introduction to key agricultural datasets such as the National Sample Survey Office (NSSO), Agricultural Census, market data, and trade data, along with basic principles of evaluation and project impact assessment. Emphasis was placed on data ethics, data collection methods, and digital tools for data gathering, including techniques for ensuring data integrity and validation. Participants also learned data visualization techniques using software like Excel and STATA, followed by hands-on exercises with datasets like the Periodic Labour Force Survey (PLFS) and Situation Assessment Survey (SAS), focusing on data extraction, cleaning, and validation. The workshop also explored remote sensing data, including satellite imagery and GIS, enabling participants to map agricultural land use trends and climate variations. In addition, sessions on data-driven policy-making equipped participants with the ability to interpret data outcomes for informed decision-making, thereby enhancing their capacity to translate data insights into practical agricultural policy interventions. The following were the sessions undertaken during the two-days training:

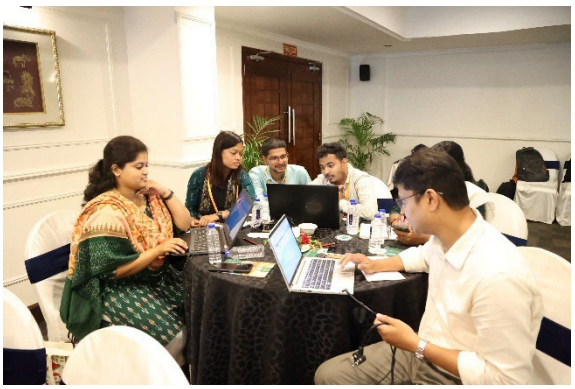
- Types of Agriculture Data and Principles of Evaluation (General Introduction on type of datasets in Agriculture like NSSO, Agricultural Census, Market data, Trade data etc. and indicators available) and basic principles of evaluation & project impact.
- Data Ethics & Data Collection (Data Ethics, Integrity & Validation Preparation of Data Layout & Format for storage, Sampling Issues); Data Collection – Methods & Digital tools.
- Understanding Visualization Techniques (Discussion on Extraction and sources of secondary datasets & Data cleaning Data Analysis, Tools for Data Visualization (Excel/STATA).
- Hands-on exercise using different databases (PLFS, SAS, C&E etc.) including validation checks.
- Interpretation and Policy Insights from Secondary Data (Understanding the results for policy planning and implication, policy report writing).
- Overview & visualization of Remote Sensing Data (Introduction to remote sensing & web scrapping, Key Datasets and Platforms (Satellite Imagery, GIS), Spatial & Temporal Data Variations, Accessing Open-Source Satellite & GIS Data, Hands-on Exercise on Geo-Spatial Platforms, Basics of GIS Mapping & Visualization).
- Interpretation and Policy Applications of Remote Sensing Data (Using Remote Sensing for Crop Monitoring & Climate Analysis, Analyzing Agricultural Land Use Trends, Group Exercise on Data Interpretation).
- Discussion on Data-Driven Policy Making.

Methodology of Training

The methodologies employed in the training were designed to ensure interactive and practical learning. The following approaches were used:

- **Interactive Lectures:** Facilitated the introduction of key topics such as agricultural data types, data ethics, data collection methods, data visualization techniques, and the application of remote sensing data.
- **Audio-Visual Presentations:** Enhanced understanding through real-world examples and demonstrations of data analysis and visualization, making complex concepts more accessible.
- **Exercises and Individual Assignments:** Enabled hands-on practice with data extraction, cleaning, analysis, and visualization using tools like Excel and STATA. Group exercises were also conducted to interpret remote sensing data and analyze agricultural land use trends.
- **Assessments and Feedback:** Provided structured evaluations to gauge participants' understanding, followed by feedback sessions to discuss learning outcomes and practical applications.

This blend of methodologies ensured an engaging and effective learning experience, fostering participants' skills in data-driven policy analysis and decision-making within the agricultural sector.



Profile of Trainers

- **Dr. Devesh Roy:** Dr. Roy is a Senior Research Fellow in the Development Strategies and Governance Unit at IFPRI, specializing in international trade, environment, firm-farm linkages, and food safety. His recent work includes research on the economics of animal disease outbreaks, food safety in developing countries, and varietal choice for staples in India, Rwanda, and Nigeria. Since joining IFPRI in 2004 as a Post-Doctoral Fellow, he has contributed to various roles, including as a Senior Research Fellow with the CGIAR Research Program on Agriculture for Nutrition and Health (A4NH). His prior research focused on food security in South Asia and contract farming in India. Devesh holds a PhD in Economics from the University of Maryland and a master's degree from the Delhi School of Economics.
- **Dr. Mamata Pradhan:** Dr. Pradhan is a Senior Research Coordinator in IFPRI's South Asia Regional Office. She conducts applied research on food systems, nutrition, and agricultural transformation, particularly in South Asia. Her work focuses on understanding how food systems can become more inclusive and nutrition-sensitive. She holds a Ph.D. in International Development from the University of East Anglia, UK.
- **Mr. Sunil Saroj:** Sunil Saroj is a Senior Research Analyst with IFPRI's Development Strategies and Governance Unit. He works on agricultural policy, food security, and rural development. He has a master's degree in economics from Jawaharlal Nehru University, New Delhi, and extensive experience in monitoring and evaluation, and applied policy research.
- **Mr. Pushkar Gaur:** Pushkar Gaur is a Research Analyst in IFPRI's Natural Resources and Resilience Unit in New Delhi. He contributes to the Picture-Based Crop Insurance project and works on geo-spatial applications for agricultural monitoring. He holds a Master's degree in Remote Sensing and GIS, and a Bachelor's degree in Computer Science. Prior to IFPRI, he worked at the Mahalanobis National Crop Forecast Centre.
- **Ms. Vandana S. Vidhani:** Vandana Vidhani is a Research Analyst in IFPRI's Development Strategies and Governance Unit based in Bhubaneswar. Her work focuses on indicators of inclusive agricultural transformation. She holds a master's degree in Economics with a specialization in Environment and Resource Economics from TERI School of Advanced Studies. Her past work includes research on agricultural procurement systems and sustainable mobility.
- **Mr. Devendra Kumar:** Devendra Kumar is a Data Manager with IFPRI's Development Strategies and Governance Unit in New Delhi. He supports the Food and Agricultural System Transformation Research Project in Odisha, focusing on data management, geospatial analytics and GIS applications. He holds a Post Graduate Diploma in Remote Sensing and GIS with a specialization in Spatial Data Science from the Indian Institute of Remote Sensing (ISRO).

Chapter 3 : Session-wise Training Description

Session 1: Basics of Research-I

Formulating a research question, overview of experimental and quasi-experimental design and methodologies for evaluation of agricultural research and development programs.

Methodology	Presentation & Open discussion
Topic Details	The first session aimed at establishing a strong foundation for research. The session began with the basics of research—steps for formulating research questions & the importance of having a research question. Participants were asked to brainstorm a research problem that they were trying to tackle in their day-to-day routine. This exercise helped participants understand the elements of a good research question and its importance. Moving forward, participants learnt about different types of research questions- quantitative, descriptive, comparative, relationship & qualitative research questions. Lastly, acronym mnemonic – 'FINER' was used so that participants could remember the elements of a good research question – feasible, interesting, novel, ethical and relevant. The second part of the session dealt with an introductory lecture on impact evaluation – its objectives, concept of a control group, selection bias, impact evaluation for policy decisions and the role of qualitative data. The session emphasized on addressing the counterfactual question – "How would individuals who participated in a program have fared in the absence of the program? & How would those who were not exposed to the program have fared in the presence of the program?". The session covered the importance of creating two comparable groups- treatment and control, for evaluation and explained the concept of 'average treatment effect on treated (ATT)'. Additionally, the session also briefly covered mixed methods of research and the role of qualitative data as a key supplement to quantitative impact evaluations providing complementary perspectives on program's performance.
Key Learning Outcomes	• Participants learnt detailed facets associated with framing of a research question. • Participants learnt about challenges in impact evaluation- selection bias and confounding factors which would have affected the results. • Participants also learnt about the importance of creating two comparable groups to assess the impact. • Since most of the participants dealt with implementation of a program, they were delighted to learn about the mixed methods of evaluation and inclusion of FGDs and key informant interviews.

Session 2: Introduction to different kinds of Agricultural Datasets.

Methodology	Group Exercise / PPT
Topic Details	Participants gained a comprehensive understanding of different FPO models through a comparative analysis of voluntary and institutionally promoted FPOs. The session explored how voluntary FPOs, often formed organically by farmer collectives, benefit from strong member ownership and intrinsic motivation but may face challenges in accessing resources and technical support. Conversely, institutionally promoted FPOs, established under government or NGO initiatives, are better equipped with financial support, technical expertise, and market linkages but may struggle with ensuring sustained member participation and ownership. Through this analysis, participants learned to identify the strengths and weaknesses of both models, enabling them to adopt best practices that foster member engagement, operational efficiency, and long-term sustainability. Emphasis was placed on tailoring governance structures and support systems to meet the unique needs of each model, ensuring alignment with the overall objectives of agricultural transformation and farmer empowerment.
Key Learning Outcomes	Participants understood the comparative advantages and challenges of voluntary versus institutionally promoted FPOs, enabling them to adopt governance and operational practices that leverage the strengths of each model while addressing their specific limitations for sustainable growth and member empowerment.

Session 3: Data Cleaning and Data Analysis, Tools for Data Visualization.

Data collection (checks and balances, frequency, type of errors), introduction to ODK / Survey CTO and discussion on sampling framework/strategy.

Methodology	Group Exercise / PPT (Case Study: FPO Divide)
Topic Details	Participants were introduced to the critical aspects of member selection mechanisms within FPOs, emphasizing the need for a structured and inclusive approach. The session covered the criteria for selecting members, focusing on factors such as their professional background, alignment with the FPO's objectives, and active engagement in agricultural activities. Insights were provided on how transparent and democratic processes, such as voting, can be used to ensure fair representation and build trust among members. Participants also learned about the importance of defining clear roles and responsibilities for members to ensure accountability and effective contribution to the FPO's operations. By adopting robust member selection mechanisms, FPOs can foster a cohesive and motivated team, enhance governance, and drive collective decision-making that aligns with the organization's long-term goals.
Key Learning Outcomes	Participants understand the importance of a transparent and inclusive member selection mechanism that ensures fair representation, aligns with organizational objectives, and fosters accountability, trust, and effective participation in the FPO's operations.

Session 4: Hands-on exercise using different databases including validation checks

Methodology	Case Study, Presentation & Discussion (Case Study: Subhlabh FPC)
Topic Details	The session highlighted the significance of carefully considering the size and composition of FPO membership, emphasizing how diverse skill sets, resources, and expectations contribute to the organization's success. Participants learned that a balanced membership structure, with a mix of farmers from different backgrounds, skills, and resources, can enhance the FPO's ability to address various challenges and tap into new opportunities. The training also focused on the importance of aligning member expectations with the FPO's goals to ensure engagement and commitment. By understanding the needs and capabilities of members, FPOs can create a more cohesive and effective organization that capitalizes on the strengths of its diverse membership base, fostering innovation, resilience, and long-term sustainability.
Key Learning Outcomes	Participants understand the importance of optimizing the size and composition of FPO membership by balancing diverse skill sets, resources, and expectations, which enhances the organization's effectiveness, fosters innovation, and ensures long-term sustainability.

Session 5: Introduction to Remote Sensing, Key Datasets and Platforms

Methodology	Group Exercise, Case Study, Presentation & Discussion (Case Study: Shahyadri Farms)
Topic Details	Participants were guided on the roles and responsibilities of key leadership figures within an FPO, including the Board of Directors (BoD), Chief Executive Officer (CEO), and the promoting institution. The BoD, typically consisting of elected representatives from the member base, plays a crucial role in setting strategic direction, ensuring governance, and making high-level decisions. The CEO, on the other hand, is responsible for day-to-day operations, implementation of strategic plans, and managing the overall functioning of the FPO. The promoting institution provides support, resources, and technical guidance, helping the FPO develop its capacity and navigate challenges. The session also emphasized the importance of establishing clear criteria for leadership selection, ensuring that leaders possess the necessary skills, experience, and commitment to drive the FPO towards its goals. This understanding equips participants to implement effective leadership structures that promote accountability, transparency, and organizational success.
Key Learning Outcomes	Participants understand the distinct roles of the Board of Directors, CEO, and promoting institution within an FPO, and the importance of establishing clear criteria for leadership selection to ensure effective governance, accountability, and organizational success.

Session 6: **Using Remote Sensing for Crop Monitoring & Climate Analysis, Analyzing Agricultural Land Use Trends, Group Exercise on Data Interpretation**

Methodology	Presentation & Discussion with Chartered Accountant
Topic Details	The session provided participants with a comprehensive understanding of the legal compliance requirements for FPOs and the importance of developing creditworthiness. Participants learned about the legal frameworks governing FPOs, including registration, documentation, and adherence to relevant agricultural and business laws. Ensuring legal compliance is essential for the FPO's credibility, operational legitimacy, and access to government schemes and financial resources. Additionally, the session emphasized the need for FPOs to build strong creditworthiness by maintaining transparent financial records, establishing sound financial management practices, and developing a positive relationship with financial institutions. By understanding these legal and financial requirements, participants were equipped with tools to navigate the complexities of compliance, improve the FPO's financial standing, and secure the necessary funding for sustainable growth.
Key Learning Outcomes	Participants understand the importance of legal compliance and financial management in developing the creditworthiness of an FPO, enabling them to maintain operational legitimacy, secure funding, and ensure long-term sustainability.

Session 7: Basics of Research-II

Sampling Techniques and Quasi-Experimental Techniques of Research

Methodology	Experimental learning and group exercise
Topic Details	Participants were introduced to the life cycle of FPOs, which typically progresses through three key stages: incubation, growth, and scale-up. During the incubation phase, FPOs focus on building foundational structures, developing governance frameworks, and engaging initial members. The session emphasized the importance of strong leadership, training, and capacity-building during this phase to ensure a solid foundation for future success. In the growth phase, FPOs expand their operations, enhance market linkages, and improve resource mobilization. The session highlighted strategies for managing increased membership, diversifying activities, and building financial sustainability. The scale-up phase involves expanding the reach of the FPO, strengthening its market presence, and increasing its influence in the agricultural value chain. Participants learned about the critical factors needed for successful scaling, including operational efficiency, leadership development, and strategic partnerships. By understanding this life cycle, participants were better equipped to guide FPOs through each stage of development, ensuring they can effectively navigate challenges and achieve sustainable growth.
Key Learning Outcomes	Participants gain an understanding of the FPO life cycle—incubation, growth, and scale-up—enabling them to navigate each phase effectively, apply appropriate strategies, and drive the FPO towards sustainable development and long-term success.

Session 8 : Writing a Policy Note

Methodology	Group exercise, Presentation & Discussion
Topic Details	The session emphasized several critical factors that contribute to the success of FPOs. Participants learned that strong leadership and good governance are fundamental for ensuring clear direction, accountability, and effective decision-making. Building a robust organizational structure and operational framework was also highlighted as key to managing day-to-day activities and sustaining growth. The importance of financial management, including maintaining transparent financial records and securing funding, was discussed as crucial for ensuring financial stability and enabling future investments. Additionally, the session stressed the need for effective member engagement and inclusion to ensure that all members are actively involved and benefit from the FPO's activities. Access to markets, value addition, and leveraging technology for better productivity were also identified as essential drivers for success. By focusing on these critical factors, participants were equipped with the required tools to enhance the operational efficiency and sustainability of FPOs, ensuring their long-term impact and success.
Key Learning Outcomes	Participants understand the critical factors that drive the success of FPOs, including strong leadership, good governance, financial management, member engagement, and market access, enabling them to implement strategies that ensure the long-term sustainability and growth of their organizations.

Session 9 : Concept of Marketing

Making the FPOs market ready (Key steps, identifying the right markets, leveraging government schemes/facilities)

Methodology	Group exercise, Presentation & Discussion
Topic Details	The session provided participants with a comprehensive understanding of the concept of marketing and the key steps needed to make FPOs marketready. Participants learned that successful marketing begins with understanding the needs of the target market and identifying the right markets for their products. The session emphasized the importance of conducting market research, selecting appropriate marketing channels, and positioning products to meet consumer demand. Participants also explored various government schemes and facilities, under various departments and programs like Rashtriya Krishi Vikas Yojna (RKVY), Mission on Integrated, Development of Horticulture (MIDH), Agriculture Infrastructure Fund (AIF) such as the Agricultural Marketing Infrastructure (AMI), Sub Mission on Agriculture Mechanization (SMAM) and e-NAM and others which can help FPOs access funding, market platforms, and logistics support. The importance of branding, packaging, and value addition to increase competitiveness in the market was also highlighted. By understanding these concepts, participants were equipped with tools to navigate the marketing landscape effectively, ensuring that their FPOs can maximize their market potential and achieve sustainable growth.
Key Learning Outcomes	Participants gain a clear understanding of the key steps required to make FPOs market-ready, including market identification, leveraging government schemes, and applying effective marketing strategies, enabling them to enhance their FPO's market access and competitiveness.

Session 10: Agri-Value Chains and Value Chain interventions, post-harvest losses within the Chains

Methodology	Case Study, Presentation & Discussion (Case Study: Mango Value Chain PPT & Video)
Topic Details	The session provided participants with a deep understanding of agri-value chains and the significance of value chain interventions in enhancing the efficiency and profitability of FPOs. Participants learned how value chains, which encompass all activities from production to the final consumer, offer opportunities for improving quality, reducing costs, and increasing market competitiveness. The session also focused on identifying key value chain interventions, such as post-harvest handling, processing, and storage, that can add value to agricultural products. A critical area covered was the issue of post-harvest losses, which often undermine profitability. Participants learned about the causes of such losses, including inadequate storage, poor handling, and lack of proper transportation, and were introduced to strategies to minimize these losses through better practices, technology, and infrastructure. By addressing these challenges, participants were equipped with the knowledge to enhance the efficiency and value-added potential of their FPOs, ultimately improving their economic outcomes.
Key Learning Outcomes	Participants understand the importance of agri-value chains and value chain interventions, including strategies to reduce post-harvest losses, enabling them to improve the efficiency, profitability, and sustainability of FPO operations.

Session 11: Identifying opportunities (Economies of scale, standardized quality, branding, certification, product differentiation) **& Challenges** (Lack of price parity, non-transparency)

Methodology	Group exercise and Presentation
Topic Details	The session equipped participants with the knowledge to identify key opportunities and challenges that FPOs face in the agricultural market. Participants learned how economies of scale, achieved through collective efforts, can reduce costs and increase bargaining power, making FPOs more competitive. The importance of standardized quality, branding, and certification was emphasized as essential tools for building market recognition and consumer trust, while product differentiation allows FPOs to stand out in a crowded market. However, the session also highlighted significant challenges, such as the lack of price parity, where farmers may not receive fair prices for their produce, and the issue of non-transparency in pricing, which can lead to exploitation by intermediaries. By recognizing these opportunities and challenges, participants were able to explore strategies to address market inefficiencies, enhance their FPO's competitiveness, and ensure that they are better positioned to thrive in the market.
Key Learning Outcomes	Participants gain the ability to identify and leverage opportunities such as economies of scale, branding, and certification, while also addressing challenges like price parity and non-transparency, to enhance their FPO's market position and overall sustainability.

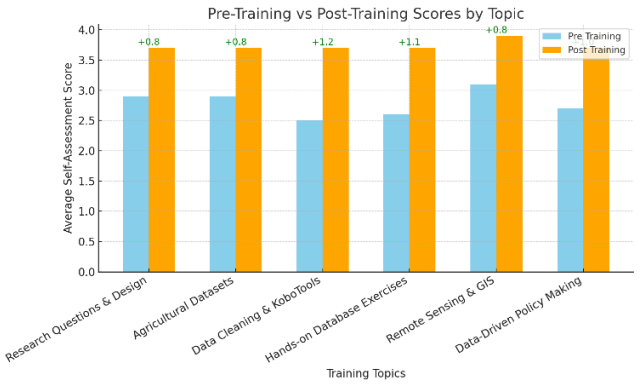
Session 12: Outcome-based Indicators for FPO success, for e.g. Turnover, Longevity, Farmers' income, financial performance.

Methodology	Group exercise and Presentation
Topic Details	The session focused on the importance of outcome-based indicators in measuring the success of FPOs, providing participants with the tools to track and evaluate key performance metrics. Participants learned about various indicators, including turnover, which reflects the financial scale and operational capacity of the FPO; longevity, which measures the sustainability and resilience of the organization over time; and farmers' income, which is a critical measure of the value that FPOs deliver to their members. Additionally, financial performance indicators, such as profitability, cost management, and return on investment, were discussed to assess the financial health of the FPO. By understanding these outcome-based indicators, participants were able to establish clear goals, monitor progress, and implement strategies to ensure their FPOs' success, growth, and long-term sustainability.
Key Learning Outcomes	Participants understand how to use outcome-based indicators, such as turnover, longevity, farmers' income, and financial performance, to measure and evaluate the success of FPOs, enabling them to track progress and implement strategies for sustainable growth.

Chapter 4: Feedback and Takeaways

Key outcomes from the training

- All training topics showed clear improvements in participant self-assessed understanding after the training.
- The largest improvement was in "Data Cleaning & KoboTools" with a +1.2 increase (from 2.5 to 3.7).
- Other topics also showed notable improvements between +0.8 and +1.1.



- The highest post-training average score was for "Remote Sensing & GIS" (3.9), indicating strong confidence in this topic after the session.
- Overall, participants moved from average ratings mostly in the 2.5–3.1 range (pre-training) to consistently higher levels (3.7–3.9) post-training.

The results indicate that the training was highly effective in enhancing participants' confidence and comprehension across all core subjects. In particular, the hands-on tools and data cleaning session stood out as especially impactful.

Key Takeaways from the training

a. <u>Key Learnings</u>

- Data Tools & Techniques: Most participants highlighted learning about Kobo Toolbox, STATA, Python, and remote sensing tools for data collection, analysis, and visualization.
- Policy Making & Impact Evaluation: Many mentioned gaining knowledge on policy writing, impact evaluation methodologies, and data-driven policy making.
- Remote Sensing & GIS: Several noted new insights into remote sensing data, GIS mapping, and spatial/temporal data variations.
- Sampling & Survey Techniques: Learning about sampling, survey design, and data cleaning was commonly cited.
- Research and Reporting Skills: Participants also appreciated knowledge about writing blogs, memos, and policy reports.

b. <u>Expected Job Outcomes</u>

Most respondents expect the training to have a positive and significant impact on their work, especially in:

- Data collection and analysis efficiency.
- Better decision-making and policy formulation.
- Improved monitoring and evaluation of schemes and projects.
- A few suggested additional advanced trainings to deepen these skills further.
- Applying data tools (Kobo, STATA, Python) in field data collection and analysis.
- Using remote sensing and GIS for crop monitoring, disaster assessment, and resource mapping.
- Enhancing policy reports and communication via blogs and memos.
- Better scheme monitoring and impact evaluation through data-driven methods.

c. Training material and coverage
   - Most found the material and topics covered to be appropriate and sufficient.
   - Some feedback indicated too much material was covered too quickly, especially complex software like STATA and Python.
   - Suggestions for more practical sessions and extended duration were common.

d. Changes in practice post-training
   - Implement more systematic data collection and analysis.
   - Use GIS and remote sensing tools for better agricultural assessments.
   - Incorporate data-driven decision-making in their roles.
   - Share insights through policy briefs and reports.
   - Few expressed the need for further practice and advanced workshops to fully utilize these new skills.

Valedictory

The training concluded with a valuable interaction between participants and key officials, including Sri Shubhranshu Mishra (OAS), Additional Secretary of DAFE, and Dr. Sangram Keshari Pattanaik, Deputy Director of DAFE. Officials acknowledged the concerns of FPO members and assured continued departmental support after the training. All participants were awarded certificates for completing the two-day residential training program. The key points raised by each speaker are summarized below:

Sri Subhranshu Mishra (OAS), Additional Secretary, DAFE, emphasized that FPOs are vital for connecting small farmers to markets. By focusing on optimal design and effective market strategies, FPOs can address existing challenges and promote long-term sustainability, which will contribute to the overall growth of the state. He highlighted the crucial role of training initiatives in enhancing the effectiveness of FPOs.

Dr. Sangram Keshari Pattanaik, Deputy Director, DAFE, stressed the importance of monitoring the financial health of FPOs through accounting ratios, which help identify areas

for improvement. Dr. Pattanaik noted that the training offered a valuable platform for FPO members to share their experiences and learn from both the successes and challenges faced by existing FPOs.

Sri Nagendra Kumar Malik, Additional Director, DAFE highlighted the empowering role of FPOs in providing better market access to farmers, citing the successful example of jackfruit exports from Odisha to Dubai. He emphasized that training and capacity building are critical for the growth and sustainability of FPOs, equipping members with the skills needed to overcome various challenges.

Dr. Devesh Roy, Senior Research Fellow, IFPRI, suggested adopting entrepreneurial practices similar to those in ASEAN countries, emphasizing the need for innovative business practices that prioritize efficiency and agility. He also stressed the importance of hiring individuals with specific skill sets aligned with FPO activities and maintaining an optimal size for better communication, coordination, and management.

Dr. Mamata Pradhan, Research Coordinator, IFPRI, advised on product differentiation, enhancing market access, and adhering to proper certification and safety standards, all of which would improve the marketability of FPO products.

Overall, the collective insights from these officials underscore the potential of FPOs to not only support farmers but also to transform the agricultural landscape by fostering collaboration, innovation, and sustainability in farming practices.

Chapter 5: Conclusion

The two-day FPO training program, organized by IFPRI in collaboration with the Department of Agriculture & Farmers' Empowerment (DAFE), Government of Odisha, proved to be a significant step toward enhancing the capacity and effectiveness of FPOs in Odisha. The training provided participants with in-depth knowledge and practical tools on various critical aspects such as the role of FPOs, marketing strategies, governance structures, and value chain interventions, among others. By addressing the challenges and identifying key opportunities for growth, the training equipped FPO functionaries with the skills necessary to drive the sustainability and success of their organizations.

Key insights emerged on various facets of FPO operations, such as the importance of optimal organizational design, leadership selection, legal compliance, and financial management. Participants were introduced to outcome-based indicators for assessing the performance of FPOs and learned about the impact of economies of scale, standardized quality, and branding in improving market competitiveness. The discussion around the agri-value chains and post-harvest interventions further helped participants understand how to reduce losses and enhance the value of agricultural produce.

Moreover, the training highlighted critical success factors, including the importance of member engagement, transparent pricing, and strong market linkages. The officials present at the closing ceremony emphasized the crucial role of FPOs in empowering farmers, improving market access, and contributing to the overall growth of the agricultural sector in Odisha. They offered continuous support to participants from the department post-training, ensuring the successful implementation of the strategies learned.

The training concluded with valuable recommendations from experts who highlighted the need for entrepreneurial practices, product differentiation, and adherence to certification standards. These recommendations, coupled with the shared experiences and practical knowledge gained during the training, will serve as a foundation for building stronger, more sustainable FPOs in Odisha.

This training program has laid strong groundwork for FPOs to thrive by empowering them with essential skills and strategies for overcoming challenges, capitalizing on opportunities, and driving agricultural transformation in the state. With continued support and commitment from the government of Odisha, the FPOs in Odisha have the potential to play a transformative role in improving the livelihoods of small and marginal farmers.

Annexure – I

Training Curriculum

Day	Time	Sessions	Details	Resource Persons
Primary & Secondary Agricultural Data - Overview, Extraction/Source, Collection, visualization, Interpretation and Application				
Day 1	**9:30 AM – 10:00 AM**	Inaugural Session	Welcome Address- Purpose of Training Keynote Speech	DAFE, Odisha
	10:00 AM - 11:00 AM	Session 1: Introductory Session on Types of Agriculture Data and Principles of Evaluation	General Introduction on type of datasets in Agriculture (NSSO, Agricultural Census, Market data, Trade data etc.) & indicators available – how to read & interpret the indicators. Basic Principles of evaluation & project impact	Dr. Mamata Pradhan, Research Coordinator & Dr Devesh Roy, Senior Research Fellow, IFPRI
Day 1	**11:00 AM – 11:15 AM**	Tea Break		
Day 1	**11:15 AM – 1:00 PM**	Session 2: Data Ethics & Data Collection	Data Ethics, Integrity & Validation Preparation of Data Layout & Format for storage, Sampling Issues Data Collection – Methods & Digital tools	Dr. Mamata Pradhan, Research Coordinator & Dr Devesh Roy, Senior Research Fellow, IFPRI
Day 1	**1:00 PM – 2:00 PM**	Lunch Break		
Day 1	**2:00 PM – 3:30 PM**	Session 3: Understanding Visualization Techniques	Discussion on Extraction and sources of secondary datasets & Data cleaning Data Analysis, Tools for Data Visualization (Excel/STATA)	Sunil Saroj, Senior Research Analyst & Vandana Vidhani, Research Analyst, IFPRI
Day 1	**3:30 PM – 4:00 PM**	Tea Break		
Day 1	**4:00 PM – 5:30 PM**	Session 4: Hands on Exercise	Hands-on Exercise using different databases (PLFS, SAS, C& E) including validation checks	Sunil Saroj, Senior Research Analyst & Vandana Vidhani, Research Analyst, IFPRI

	Remote Sensing and Geo-Spatial Data for Agricultural Analysis			
Day 2	**9:30 AM – 11:00 AM**	Session 1: Interpretation and Policy Insights from Secondary Data	Recap of Day 1 Understanding the results for policy planning and implication Policy report writing	Dr. Mamata Pradhan, Research Coordinator & Dr Devesh Roy, Senior Research Fellow, IFPRI
Day 2	**11:00 AM – 11:15 AM**	Tea Break		
Day 2	**11:15 AM – 1:00 PM**	Session 2: Overview & visualization of Remote Sensing Data	Introduction to remote sensing & web scrapping, Key Datasets and Platforms (Satellite Imagery, GIS), Spatial & Temporal Data Variations, Accessing Open-Source Satellite & GIS Data, Hands-on Exercise on Geo-Spatial Platforms, Basics of GIS Mapping & Visualization	Pushkar Gaur, Research Analyst; Devendra Kumar, Data Manager & Sunil Saroj, Senior Research Analyst, IFPRI
Day 2	**1:00 PM – 2:00 PM**	Lunch Break		
Day 2	**2:00 PM – 3:30 PM**	Session 3: Interpretation and Policy Applications of Remote Sensing Data	Using Remote Sensing for Crop Monitoring & Climate Analysis, Analyzing Agricultural Land Use Trends, Group Exercise on Data Interpretation	Pushkar Gaur, Research Analyst; Devendra Kumar, Data Manager & Sunil Saroj, Senior Research Analyst, IFPRI
Day 2	**3:30 PM – 4:00 PM**	Tea Break		
Day 2	**4:00 PM – 5:30 PM**	Session 4: Closing Session & Way Forward	Discussion on Data-Driven Policy Making, Participant Feedback & Certificates, Closing Remarks	Dr. Mamata Pradhan, Research Coordinator & Dr Devesh Roy, Senior Research Fellow, IFPRI

Annexure – II

Participants List

Sl. No.	Name of Officials	Gender	Designation	Directorate	District
1	Prajnadutta Priyadarshini	Female	AAO	DAFP	Khordha
2	Jagruti Nanda	Female	AAO	DAFP	Puri
3	Ramya Ranjan Mohanta	Male	AAO	DAFP	Mayurbhanj
4	Nehalin Bhuyan	Female	AAO	DAFP	Balangir
5	Chinmoyee Naik	Female	AAO	DAFP	Angul
6	Lenien Sabar	Male	AAO	DAFP	Koraput
7	Ganeswar Sahu	Male	BAO	DAFP	Ganjam
8	Deepak Kumar Bhoi	Male	AAO	DAFP	Sundergarh
9	Tilottama Mahakuda	Female	ADA, Soil Chemist	DAFP	Bhadrak
10	Saswat Kumar Mishra	Male	AAO	DAFP	Deogarh
11	Abash naik	Male	AAO	DAFP	Nuapada
12	Prabodha Kumar Biswal	Male	BAO	DAFP	Keonjhar
13	Lalatendu Mohapatra	Male	ADA	DAFP	Bhubaneswar
14	Sudhansu Shekhar Sahu	Male	ADA	DAFP	Bhubaneswar
15	Namrita Khadia	Female	ADAPT Officer	DSC & WD	Angul
16	Adyasha Mallick	Female	ADAPT Officer	DSC & WD	Boudh
17	Anuradha Behera	Female	ADAPT Officer	DSC & WD	Dhenkanal
18	Niharika Sahoo	Female	ADAPT Officer	DSC & WD	Kendrapara
19	G Mansi Mohapatra	Female	ADAPT Officer	DSC & WD	Khurdha
20	Birabhadra Rout	Male	ADAPT Officer	DSC & WD	Nayagarh
21	Siba Prasad Nayak	Male	ADAPT Officer	DSC & WD	Bhubaneswar
22	Ankita Mishra	Female	ADSC	DSC & WD	Bhubaneswar
23	Tirjyak Kumar Das	Male	AHO	DOH	Balangir
24	Manorama Mukut	Female	AHO	DOH	Dhenkanal
25	Snigdha Mishra	Female	AHO	DOH	Ganjam
26	Krushna Chandra Mohanty	Male	AHO	DOH	Nabarangpur
27	Aruna Rani Oram	Female	AHO	DOH	Keonjhar
28	Monalisha Kispotta	Female	AHO	DOH	Sundergarh
29	Babita Hantal	Female	AHO	DOH	Malkangiri
30	Tanmay Chhualsingh	Male	AHO	DOH	Rayagada
31	Priyanka Priyadarshini Rout	Female	AHO	DOH	Bhubaneswar
32	Pralipta Pani	Female	AAE	DOH	Bhubaneswar

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