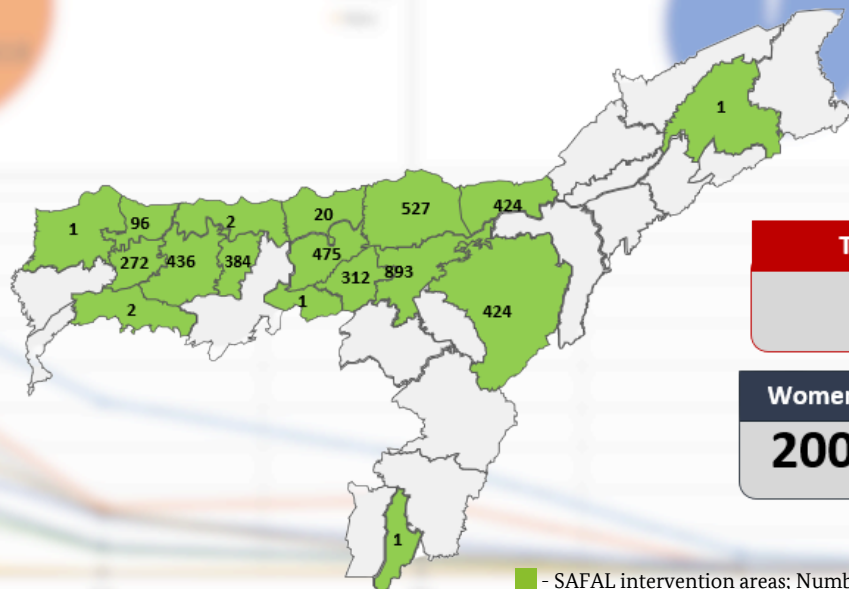# Digitalising fish farming through Farmer Institution Real-Time Monitoring System (FIRMS)

Sustainable Aquaculture for Food and Livelihood (SAFAL)

SAFAL-FIRMS DASHBOARD IN ASSAM

Total Ponds
4949

Total Pond Area (ha)
2518.83

Total CRPs
277

Total Aqua Farmers
4271

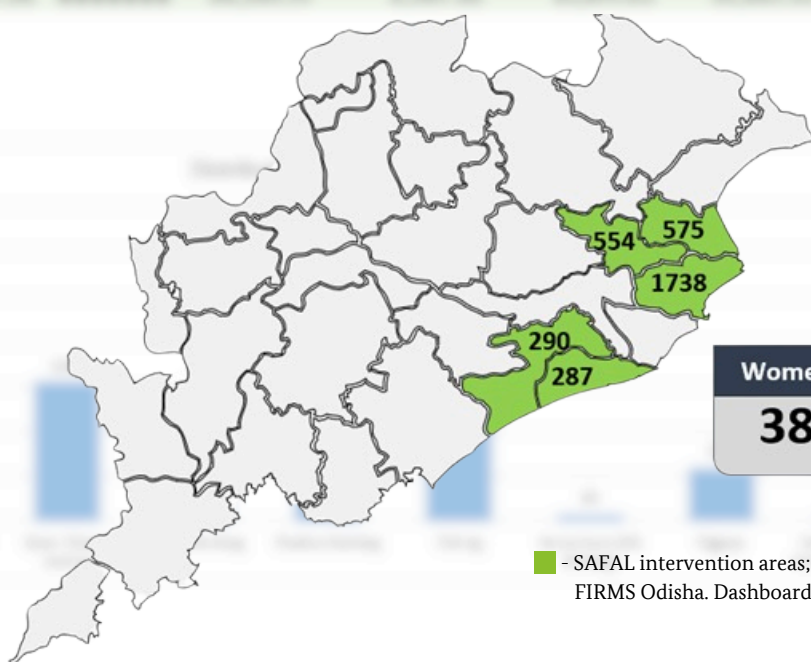| Women	Men
200	77

Women	Men
2921	1352

■ - SAFAL intervention areas; Numbers in map indicate the number of registered farmers in the FIRMS Assam. Dashboard information as updated on FIRMS Assam in April 2025.

SAFAL-FIRMS DASHBOARD IN ODISHA

Total Ponds
3505

Total Pond Area (ha)
1503

Total CRPs
240

Total Aqua Farmers
3444

Women	Men
38	202

Women	Men
561	2883

■ - SAFAL intervention areas; Numbers in map indicate the number of registered farmers in the FIRMS Odisha. Dashboard information as updated on FIRMS Odisha in May 2024.

Introduction

On behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ), the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH implements the Indo-German Development Cooperation Project 'Food Security through Integrated Aquaculture' (EIAA) in cooperation with the Ministry of Fisheries, Animal Husbandry and Dairying (MoFAHD), Government of India. The project aims to increase the production of fish from sustainable aquaculture along with the associated increase in income and demand for labour. The political and institutional framework conditions for the implementation of sustainable and resource-saving aquaculture shall be improved while complementing various Indian government schemes, especially the Pradhan Mantri Matsya Sampada Yojana (PMMSY). EIAA is part of the Global Programme on Sustainable Fisheries and Aquaculture (GP Fish) under the Special Initiative "Transformation of Agricultural and Food Systems" by BMZ. The project is locally known as "Sustainable Aquaculture for Food and Livelihood", hereafter referred to as SAFAL.

Under the SAFAL project, a Farm-Record Book (FRB) was co-created for effective monitoring and enhancing a fish farm's productivity by understanding input cost and profitability of the farming business, disease cycles and risks involved. Each FRB is equipped with a Quick Response (QR) code which helps in identifying and accessing information about individuals using the FRB for maintaining the records. The QR code helps to register their information online into a digital monitoring system.

The Farmer Institution Real-time Monitoring System (FIRMS) is a cutting-edge solution formulated under SAFAL to streamline and enhance the management of Farmer Institutions (FIs) such as Farmer Producer Organisations, Farmer Producer Company, Self-Help Groups, Producer Groups, and Co-operatives. It leverages the QR code that comes with the FRB to ensure that only designated representatives of the FIs along with the Government organisation (for example, Department of Fisheries) can have access to the data collected, simplifying resource management and record-keeping processes thorugh data driven decision-making.

## Benefits of maintaining Farm Record Book (FRB)

- Record keeping aids in ascertaining the farm's earnings and expenditures.
- A Farm Record Book assists with projecting the farm's potential profits.
- It is important for better farming practices by facilitating access to financial resources and agricultural programs.
- It enhances comprehension of the farm's productivity.
- The FRB plays a crucial role in comprehending both the disease cycle and environmental occurrences like floods.
- It also helps in understanding and predicting the risks involved.

How FIRMS works?

FORM 1: For registration. (Static data feeding; one time data entry during registration only.)
FORM 2: For recurring data. (Dynamic data feeding; weekly/monthly for realtime monitoring, or to maintain farm records.)

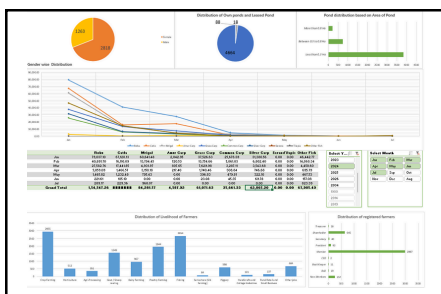Farmers will scan the QR code inside the FRB using an open source mobile application. (e.g., KoboCollect)
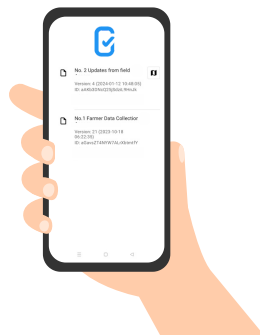
Farmers fill the forms in the open source mobile application based on the input data.

Collected data is presented in a Dashboard at Farmer Institution level under supervision of a designated member.

Government, Institutions and CSOs receive the snapshot of dashboard.

FI can make decisions based on the information presented in the dashboard and share a snapshot of the dashboard with required information to relevant stakeholders.

Improved
Decision Making

Data-driven insights empower informed choices for better aquaculture practices.

Tailored
Advisory Services

Customised advice and recommendations based on individual farm data and needs.

Better
Monitoring

Stakeholders have real-time overview on the impact of intervention.

Optimum
Resource Management

Resource use can be optimised by allocating them where they are most needed.

Risk
Mitigation

Early detection of risks such as disease outbreaks, weather issues, or market fluctuations aids in planning mitigation measures.

How does FIRMS help?

FARMERS

- Enhanced productivity.
- Efficient resource utilization.
- Early disease detection.
- Informed decision-making.
- Market trend monitoring.

FARMER INSTITUTIONS

- Development of aggregated business models.
- Detailed insights into members' livelihood activities.
- Enhanced ability to attract technical and financial support through improved monitoring.
- Improved service delivery to members.

FIRMS
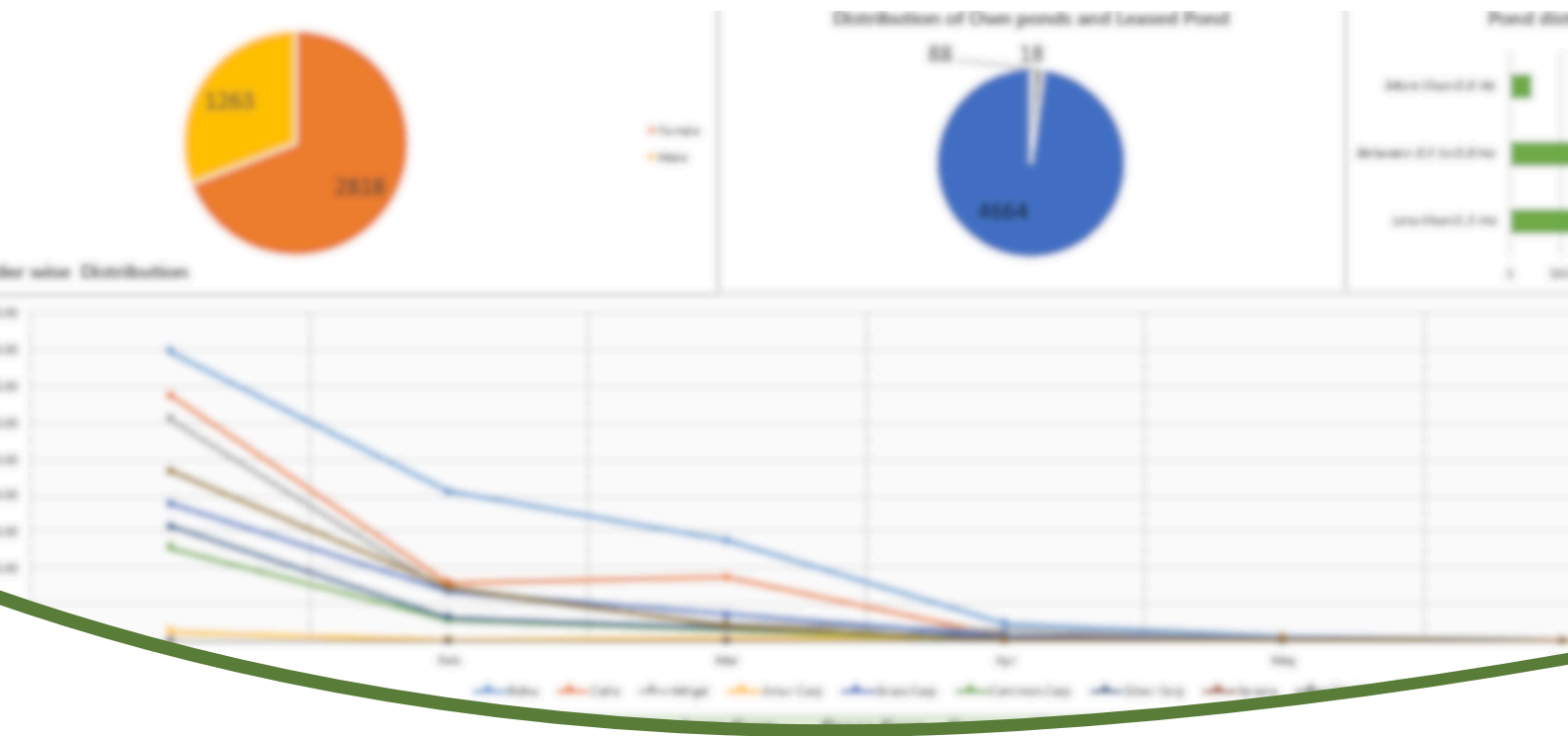
CIVIL SOCIETY ORGANISATIONS

- Trend analysis, issue identification, and targeted support and advice to farmers.
- Impact monitoring of interventions.
- Tailored interventions based on ground reality.
- Real-time monitoring, planning, and management.

GOVERNMENT ORGANISATIONS

- Resource allocation planning and impactful program design.
- Access to comprehensive, evidence-based data for policy formulation.
- Specific and detailed information about ground-level stakeholders.

Scan here to know more about the project