# Management Information System (MIS) -The Aquaculture: Increasing Income, Diversifying Diets, and Empowering Women in Bangladesh and Nigeria

Key Highlights:

➢ *The IDEA project has developed an integrated online data management system comprising thirteen datasets to generate information on different segments of the aquaculture value chain system of Northwest Bangladesh.*

➢ *The project has collected data of 43,173 fish farmers and 3,696 aquaculture value-chain market actors of Rajshahi and Rangpur divisions, which aids in project management for expanding and strengthening LSPs' network and forging linkages with the farmers.*

➢ *The project's comprehensive real-time data sharing tool facilitates the free flow of information and knowledge sharing. CGIAR , WorldFish and other aquaculture stakeholders can standardize this data collection system for future acceleration, which can be replicated by any aquaculture project in Bangladesh.*
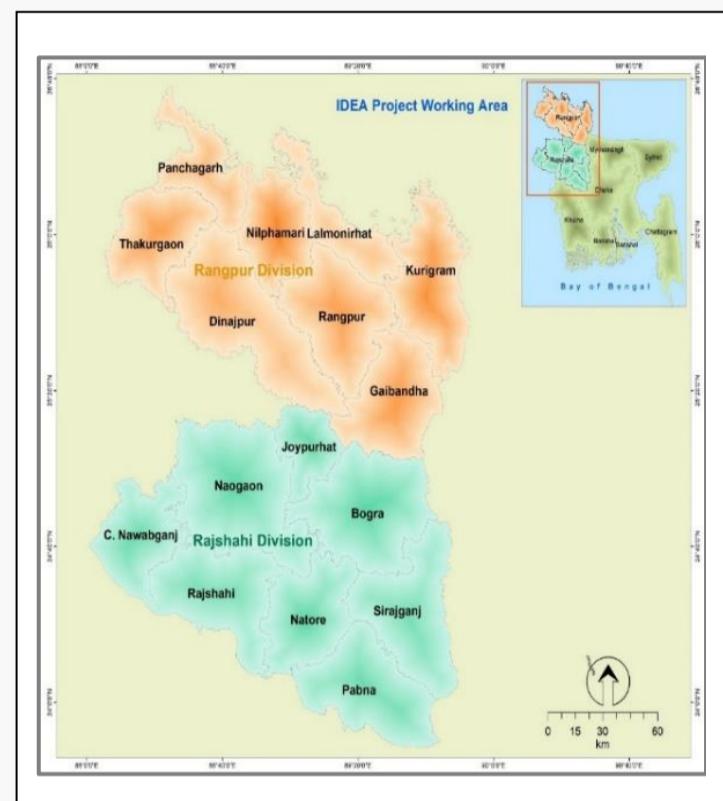
The Aquaculture: Increasing Income, Diversifying Diets, and Empowering Women in Bangladesh and Nigeria Project is a *Bill and Melinda Gates Foundation* initiative based on two decades of WorldFish research on aquaculture technology for smallholder fish farmers in Bangladesh with the aim of improving the lives of millions of people who rely on aquatic food systems. In Bangladesh, the project is known as the Income, Diets, and Empowerment through Aquaculture (IDEA) project, and sixteen districts in the Rangpur and Rajshahi divisions of the northwest region of the country constitute the project's geographic concentration.

Monitoring, Evaluation and Learning (MEL) System of IDEA Project:

Monitoring, Evaluation, and Learning (MEL) represents a core component of the overall management structure of the project's initiatives. The IDEA project operates in a dynamic and evolving context, and to ensure a sustainable outcome and to achieve transformation at a large scale, the project emphasizes an indirect approach by leveraging the aquaculture value chain market actors as key stakeholders to reach a large number of beneficiaries. This indirect approach implies that impact takes longer and is often beyond direct control. Therefore, for IDEA, it is crucial to directly monitor and track progress so that adaptive management and effective learning can be employed in a timely manner to improve performance.

The IDEA project's M&E system follows a Result-Based Monitoring (RBM) approach and donor-mandated results framework comprising of five primary outcomes followed by nineteen intermediate outcomes and seventy-one outputs, and the Management Information System (MIS) of the project is designed to monitor the achievements and progress towards these outputs and outcomes.

Primary Outcomes – IDEA Project
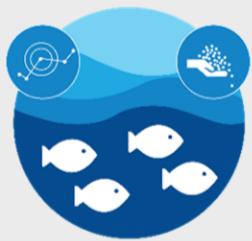
| Productivity	Profitability	Extension Services	Dietary Diversity	Women Empowerment
450,000 smallholder fish farming HHs aquaculture productivity will increase by 50%	450,000 smallholder fish farming HHs will get 50% increment in the total value of fish sold	450,000 small holder fish farming HHs will receive improved extension and advisory services	900,000 of fish farming and non-fish farming HHs have improved access to nutrient-rich foods, including fish	100,000 women members of the fish farming HHs have increased empowerment
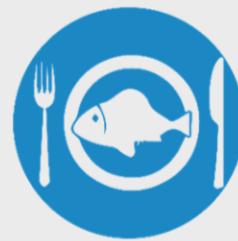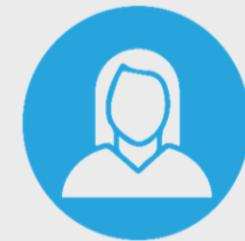
MIS system for Project's Knowledge Management:

The IDEA project is using the Monitoring, Evaluation, and Learning (MEL) Platform of one CGIAR, a multi-center and multi-CRP online platform for the project's outcome monitoring, output level deliverable reporting, knowledge product management, and dissemination through an Open Access repository-DSpace (digital archive).

The IDEA project has also established a web portal to consolidate the Monitoring and Evaluation (M&E) survey information on one centralized platform. An Access web application has been created on the SharePoint platform, and data is stored in the Azure SQLServer database. The database has two deployment environments: the web application (Cloud App Model) and the client-server (desktop) solutions. Users of web app can view, edit, and delete data directly in their web browser. On the other hand, the client-server solution is for monitoring officers and common users to check the quality of the data and generate detailed reports and maps.
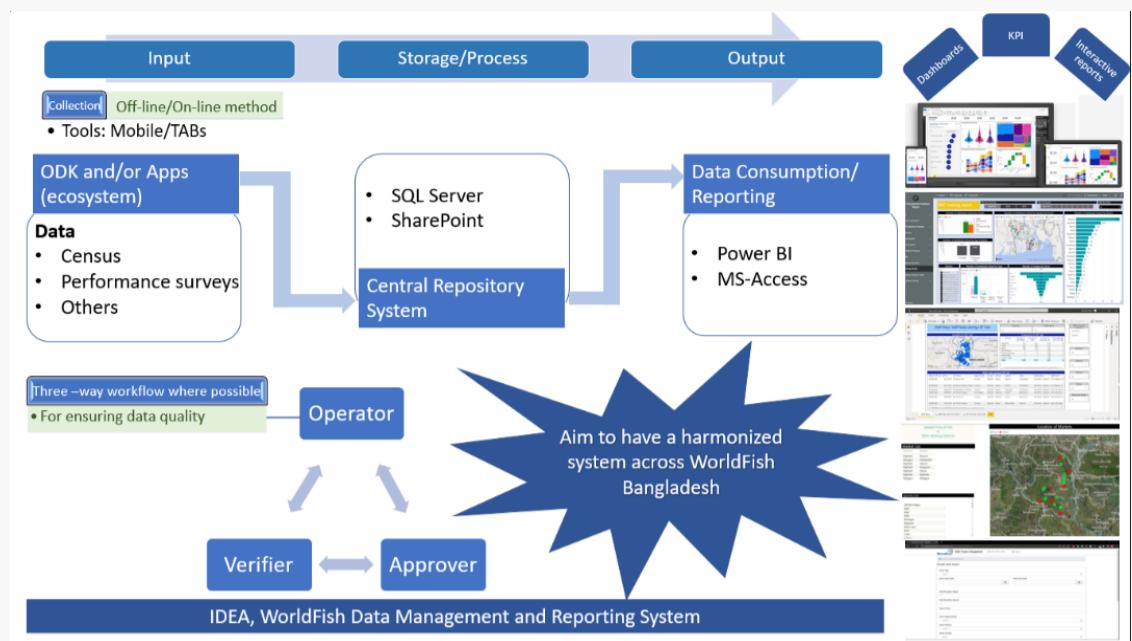
Beneficiaries of IDEA Project's Database System:

A set of comprehensive data collection (Open Data Kit; ODK) tool (online and offline) and interactive dashboards have been developed on PowerBI, a data visualization tool, to visualize and systematically track and monitor the progress of the activities against the target indicators. The IDEA project intends to enable the free flow of information, and all the survey formats were designed in consultation with multiple stakeholders, comprising experts from WorldFish, partners, and beneficiaries (farmers). WorldFish or any other aquaculture projects can standardize this system for future escalation as this real-time data sharing tool and learning opportunity developed by IDEA's MEL system facilitates knowledge sharing.

Surveys and Results Visualization:

Fish Farming Villages:

This survey generates information about aquaculture resources, technological practices, and existing extension services and fish farming facilities through Focus Group Discussion (FGDs) and Key Informant Interviews (KIIs). It provides a scenario of the fish farming context of the northwest region of Bangladesh that aided in designing the project activities and would help in determining the long-term effects of project interventions in future.

Smallholder Fish Farmers:

This census survey of fish farmers provides an overview of the basic demographics of smallholder fish farmers of Rajshahi and Rangpur division who are directly associated with the IDEA project. In total, 43,173 smallholder farmers participated in the census and the data generates information about general characteristics of fish farmers encompassing few crucial attributes such as productivity, land size and fish consumption from own production.

Fish Farming Groups:

The Local Service Providers (LSPs) of the project engaged smallholder fish farmers who are directly involved with the project to form fish farming groups and this survey includes the specifics on the geographic locations and group characteristics. This survey comprised a total of 1,731 farmer s' group information.

Aquaculture Input Supply Chain Actor:

It generates the business profiles of the key aquaculture supply chain actors (e.g. input dealers and retailers; nurserers; seed traders; ice plant, transportation, etc.) in northwest Bangladesh and has previously aided in identifying potential Local Service Providers (LSPs) for the project. This data is being utilized to establish an LSP network using geolocations.

Aquaculture Output Market Actor:

The business information of a variety of output market intermediaries, including commission agents, wholesalers, mahajon, and fish retailers, is profiled through this survey. This supports the project in developing a network amongst LSPs, farmers, fish traders and fish processors in order to establish a competitive procurement and market channel.

Fish Markets:

The survey yields information on the infrastructure and physical amenities of a few prominent fish markets in northwest Bangladesh (e.g., facilities for connecting to water and power, cleaning and draining waste, selling live fish, and digital weighing). It also provides information on the number and types of intermediaries and the volume of transactions on a typical day in the market. This survey information is crucial for the project to link farmers with the appropriate market.

Fish Market Price:

Fish market price survey contains data on market prices for different fish species, both fresh and live. The information is obtained from 28 wholesale and retail markets in the Rangpur and Rajshahi divisions of Bangladesh. The system contains updated fish price information from October, 2019 to October,2022.
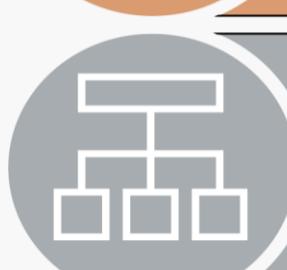
Events Register:

An event registration tool was introduced to keep a record of capacity building and knowledge-sharing events organized by the partners and WorldFish. It is an online portal where the project staff record the information of the participants and provides a summary of the effectiveness evaluation report of the event.

Loan Tracker:

The IDEA project's Financial Institutions (FIs) and Micro Finance Institutions (MFIs) partners provide information on loan disbursement, the number of beneficiaries/borrowers, and the amount of loans disbursed, and this information is projected through loan tracking dashboard. This also provides information on the number of supply chain actors having access to formal financial services through the project.

Staff Diary:

An easy-to-operate tool called "Staff Note: LSP Visit" allows staff to capture their observations while visiting local service providers (LSPs). These insights are essential to collect and reflect upon to provide better-informed decisions to manage and expand the LSP's business. This is also crucial for activity planning and to ensure the effectiveness of our interventions.
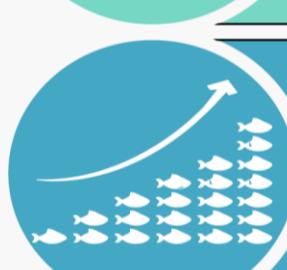
Production Performance Survey:

Production performance survey is an annual performance survey that measures progress on productivity, profitability, income, market access, and the effects of extension services accessibility to quality inputs (seed, feed, and credit). In 2019–20 aquaculture season, the project conducted a production performance survey of over 1,663 fish farming HHs, including control and both direct and indirect participants from the project area. The performance survey for 2021–2022, the project surveyed over 2.202 HHs.

Consumption and Nutrition Survey:

Consumption and Nutrition survey is designed to report annual progress of outcome indicators on fish consumption, dietary diversity, household food insecurity access scale, and knowledge, attitude, and practices of fish and fish-based products. A household consumption and nutrition survey was conducted over 2,669 fish farming and non-fish farming HHs in 2019–20 and for the survey of 2021-2022, the project surveyed over 3,301 HHs.

Women Empowerment Survey:

IDEA conducted women empowerment survey over 1,653 fish farming HHs in 2019–20 to track the progress of outcome indicators pertaining to improving women's ability to access and share in homestead aquaculture assets, credit, and income, as well as women's ownership of resources and group membership. Project management is using the data from the survey to help gender integration throughout the project cycle. The 2021–2022 women's empowerment survey is presently being conducted.

WorldFish   **CGIAR**