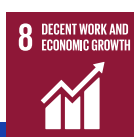


IMPACT SHEET: Nurturing Green Aquaculture in Myanmar (NGA-Myanmar)

Improving resource efficiency, reducing environmental degradation, and boosting economic returns across Myanmar's aquaculture value chain through green aquaculture practices and technologies



Empowering micro, small, and medium enterprises (MSMEs) in Myanmar's aquaculture sector to promote sustainable consumption and production (SCP) through resource-efficient and cleaner practices.



PROJECT BACKGROUND

Myanmar remains largely an agrarian society, with the fisheries sector—including inland aquaculture—serving as a cornerstone of rural livelihoods, providing income, employment, and food security for millions. As aquaculture's role grew in meeting domestic food and nutrition demands, environmental pressures intensified. Mangrove forests in the Ayeyarwady Delta—a vital carbon sink and critical fish nursery—suffered significant loss, in part due to land clearance for agriculture and aquaculture. While intensification efforts boosted yields, they also brought heavy dependence on commercial feeds and other external inputs, leading to water pollution, degradation of aquatic ecosystems, and long-term sustainability risks. In response, Mercy Corps, in partnership with Village Link and Daung Capital, implemented the EU funded SWITCH-Asia [Nurturing Green Aquaculture in Myanmar \(NGA-Myanmar\)](#) initiative, promoting resource-efficient, environmentally sustainable aquaculture practices and technologies to strengthen livelihoods while safeguarding ecosystems. The project actively engaged a wide range of stakeholders, including private sector actors and industry associations, to foster collaboration, knowledge sharing, and market linkages. These partnerships not only supported the adoption of sustainable aquaculture practices during the project period but also laid the foundation for long-term sustainability and scalability beyond the project's lifespan.

CHALLENGE

A major challenge facing MSMEs in Myanmar's aquaculture sector is limited knowledge and awareness about green technologies and sustainable production practices. Many small producers are interested in adopting environmentally friendly solutions but require more information on how these technologies work, their feasibility, and technical requirements. Women in particular face barriers due to exclusion from formal extension services and training, relying instead on informal communication channels that limit their access to new knowledge and innovations. Technology providers and other market actors also face significant challenges, particularly due to a lack of economy of scale that limits their ability to promote and deliver green solutions widely. The fragmented nature of the aquaculture sector and the predominance of small-scale producers make it difficult for suppliers to achieve cost-effective outreach and service delivery, constraining market growth and innovation adoption. Economically, MSMEs struggle with constrained access to affordable financing tailored for green investments. Formal credit options are scarce and often come with restrictive conditions, forcing smaller producers to rely on informal lenders with high-interest rates. This challenge is exacerbated by a difficult macroeconomic environment marked by declining incomes and rising costs of inputs such as feed, which represents a significant portion of production expenses. As a result, many MSMEs lack sufficient cash flow to invest in sustainable improvements, limiting their ability to enhance productivity and environmental performance.

PROJECT OBJECTIVES

The project aimed to improve resource efficiency and reduce environmental degradation in Myanmar's aquaculture industry, while enhancing economic returns. It promoted adoption of green aquaculture practices (GrAqP) and technologies among MSMEs to ensure sustainable, cleaner production and reduced pollution.

The specific objectives include:

- To increase MSMEs adoption of resource-efficient and greener production practices
- To facilitate access to green loans for MSMEs
- To enhance MSMEs skills in production, waste, and site management to reduce environmental impacts
- To expand knowledge and awareness on green aquaculture practices to MSMEs
- To facilitate the use of environmental data to guide adaptive management and improve water quality and carbon footprint

TARGET GROUPS

- 250 MSMEs supported as agents of change
- 22,000 additional MSMEs reached through demonstration events and digital advisory services to create economies of scale
- 10 financial institutions and technology providers engaged as lead firms offering solutions and initiating crowd-ins
- More than 1 million residents in the Yangon-Ayeyarwady aquaculture corridor benefiting from improved water quality

PROJECT ACTIVITIES

Facilitating Access to Green Finance for Aquaculture MSMEs

The project collaborated closely with financial institutions to develop and promote green loan products designed specifically for MSMEs in aquaculture. These loans supported the adoption of green aquaculture practices and technologies by easing financial barriers faced by MSMEs. To increase reach and convenience, loan services were integrated into the Myanmar's largest agricultural digital platform, Htwet Toe, enabling MSMEs to access financing alongside technical advisories and market information. This approach helped scale adoption of sustainable practices while strengthening the connection between finance providers and aquaculture enterprises.

Supporting Champion MSMEs as Agents of Change to Scale Green Aquaculture Practices

The project identified, trained, and provided follow-up technical support to champion MSMEs adopting green technologies and sustainable aquaculture practices. The team worked closely with these enterprises to help them trial, adopt, and demonstrate green aquaculture practices to their peers through pond-level activities. Support included both rigorous in-person trainings and digital advisories delivered via the Htwet Toe platform. The project also partnered with technology and input providers to strengthen market support and build capacity for sustainable service delivery beyond the project timeline. Documented successes and business cases from champion MSMEs were shared to encourage wider adoption of green practices.

Cascading Knowledge and Awareness of Green Aquaculture Practices Among MSMEs

The project expanded exposure to green aquaculture technologies and practices to a broad range of MSMEs in the Yangon-Ayeyarwady corridor. Champion MSMEs hosted pond-level demonstration sites, cascading promoted solutions to a wider group of peers to observe and learn about sustainable production methods. Partnered financial institutions and technology providers used these demos to showcase and promote their offerings, addressing target clients' concerns about the efficacy of the promoted solutions. To reach an even larger audience, the project supported bundling these services through the Htwet Toe app, providing green aquaculture advisories, interactive tools, links to service and technology providers, and real-time market price and weather information, enabling widespread adoption of greener practices.

Adaptive Management through Environmental Monitoring and Data-Driven Actions

The project enhanced MSMEs ability to reduce water pollution by generating and sharing new environmental data on aquaculture pond effluent and its impacts on the Ayeyarwady Delta ecosystem. An environmental impact study and hydrology assessment were conducted to establish baselines on water quality, carbon footprint, and ecological effects. These were complemented by midline and endline assessments, as well as community-based water quality monitoring that regularly measures water quality in streams to enable ongoing evaluation upstream and downstream of aquaculture sites. This data supports adaptive management, allowing continuous improvement of practices to ensure environmental sustainability while maintaining aquaculture productivity.

Developing Bankable Business Cases for Scaling Green Aquaculture

Throughout the project, the initiative engaged various technology providers and financial institutions, creating a valuable opportunity to document key business cases for wider adoption by other market actors. These bankable business cases highlight both the commercial viability and environmental benefits of green aquaculture. They were actively promoted to a broader range of market actors and stakeholders to encourage replication, scaling, and increased investment across the aquaculture sector. This approach fosters a sustainable ecosystem for green

technology adoption and financing, ensuring that the knowledge gained extends beyond initial partners and supports long-term sector transformation.

LESSONS LEARNED

The programme faced several operational and contextual challenges, including logistical constraints, security risks, and broader political and economic instability. These factors required adaptive measures such as adjusting schedules, reinforcing digital practices, and ensuring strict adherence to safety protocols. Coordination among programme partners was essential to maintain alignment, compliance, and continuity of activities.

Challenges also arose in engaging financial and private sector partners due to market uncertainties and limited capacity. To address this, the programme explored alternative partners and delivery models, while leveraging digital tools to expand access to training, technical support, and resources for MSMEs. These approaches helped ensure that activities continued to progress effectively and that the programme remained on track to achieve its objectives.

The initiative demonstrated the value of combining technical support, financial facilitation, and digital platforms to promote sustainable aquaculture practices. Early engagement of champion MSMEs proved effective in catalyzing peer learning and wider adoption of green technologies. NGA-Myanmar's experience highlights that prioritizing Gender Equality and Social Inclusion (GESI) from the start is essential, with approaches such as the Couple Champion model—identifying and supporting husbands who actively share household responsibilities and decision-making—helping to free women's time and strengthen their participation in skills development, finance, and market access. Flexible, adaptive approaches were critical to navigating logistical, security, and market challenges, while strong collaboration between implementing partners ensured continuity and alignment. The experience also highlighted the importance of documenting and sharing evidence-based business cases to stimulate replication and investment, and integrating digital tools to reach larger audiences and sustain long-term impact.

PROJECT ACHIEVEMENT

The initiative enabled MSMEs in Myanmar to adopt green aquaculture practices, increasing productivity, reducing environmental impact, and raising incomes despite challenging economic and operational conditions.

- Participants improved water quality management and disease prevention, meeting effluent standards.
- Feed conversion ratio decreased, lowering feed costs and improving efficiency.
- CO₂ emissions from operations declined, reducing environmental footprint.
- Average participant income increased, linking sustainable practices to economic gains.
- Demonstration ponds and peer learning promoted wider adoption of green practices.



Wahyu Nugroho
Mercy Corps

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Despite Myanmar’s challenging context, this project has shown that market-based approaches can drive systemic change when capacities and incentives align across the value chain. By connecting MSMEs with technology providers, financial institutions, and other market actors, we have strengthened the foundations for sustainable aquaculture growth—demonstrating that even in times of uncertainty, inclusive markets that support responsible consumption and production can thrive.

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Daw Nan Pwint Nyo, a small aquaculture producer from Nyaungdon, faced rising feed costs that threatened her livelihood. With support from NGA-Myanmar, she began farming Black Soldier Flies (BSF), using food waste to produce sustainable feed for her fish. This circular approach not only reduced costs but also improved feed quality. Quickly mastering the technique, she expanded her production and became an advocate for BSF farming. “I encourage more people to engage in BSF farming,” she says, inspiring her peers and promoting sustainable aquaculture across Myanmar.

Long-term project sustainability

The project has fostered long-term sustainability by building the capacity of champion MSMEs, local service providers, and technology partners to continue promoting green aquaculture practices independently. The combination of in-person demonstrations, peer learning networks, and digital tools like the Htwet Toe platform ensures continued access to technical guidance, market information, and financing options beyond the project’s lifecycle. By documenting business cases and showcasing financial and environmental benefits, the project incentivized broader adoption and replication across the sector.

Partnerships with private sector actors and financial institutions further strengthen sustainability by embedding GrAqPs into existing aquaculture value chains. Community-based water quality monitoring, adaptive management practices, and ongoing engagement with smallholders provide a feedback loop for continuous improvement. These measures collectively ensure that both behavioural change and environmental gains are maintained while encouraging investment and sector growth in green aquaculture. In addition, by embedding GESI principles throughout the project, including training, community engagement, and the Couple Champion Approach, women and marginalized groups are empowered to continue participating in aquaculture decision-making, ensuring that sustainable practices are adopted equitably over the long term.

Project contributions to Climate Change Mitigation and SDGs

The project contributed to climate change mitigation by promoting resource-efficient aquaculture practices that reduce CO₂ emissions, improve feed conversion ratios, and minimize water pollution. Adoption of green technologies, optimized feed management, and effluent treatment reduced the sector’s environmental footprint while supporting productivity gains. These measures directly align with SDG 12 by ensuring sustainable consumption and production patterns in Myanmar’s aquaculture sector.

Additionally, integrating digital tools and peer-to-peer learning helped mainstream environmentally sustainable practices and informed decision-making across a wider cohort of MSMEs. The development of bankable business cases and promotion of environmentally responsible practices support the replication of sustainable production models, fostering broader adoption of circular economy principles and contributing to long-term climate resilience in aquaculture.

The project’s activities contribute to multiple SDGs beyond [SDG 12](#). Improved incomes and livelihood opportunities support [SDG 1](#) (No Poverty) and [SDG 8](#) (Decent Work and Economic Growth), while capacity-building, gender inclusion, and social empowerment activities advance [SDG 5](#) (Gender Equality) and [SDG 10](#) (Reduced Inequalities). Water quality monitoring and ecosystem preservation contribute to SDG 6 (Clean Water and Sanitation) and [SDG 14](#) (Life Below Water).

By fostering innovation through digital platforms and technical support, the project promotes [SDG 9](#) (Industry, Innovation, and Infrastructure) and strengthens partnerships under [SDG 17](#) (Partnerships for the Goals). Training, knowledge sharing, and participatory approaches enhance [SDG 4](#) (Quality Education) and [SDG 13](#) (Climate Action). These interlinked outcomes demonstrate that environmentally sustainable aquaculture can simultaneously advance economic, social, and ecological objectives across Myanmar.

Impacts at a Glance

Economic Impact	<ul style="list-style-type: none"> 85% of champion MSMEs reducing feed conversion ratio (FCR) by 0.2 points or more. 57% increase in incomes of champion MSMEs adopting both critical and desirable/non-critical green aquaculture practices and green tech. MSMEs demonstrated improved business planning and cost-efficiency awareness. Women-led enterprises applied green practices to expand into new markets and diversify income.
Environmental Impact	<ul style="list-style-type: none"> 90 % of champion MSMEs with improved wastewater effluent parameters (reduced nitrogen, phosphorus and biochemical oxygen demand and increased dissolved oxygen). 98% of champion enterprises demonstrating satisfactory knowledge of green aquaculture concepts and practices, 91% of other target MSMEs adopting only critical elements of green aquaculture. 99% of MSMEs take adaptive actions to reduce water pollution caused by aquaculture, in response to data on water quality generated by the action & environmental screening checklists completed by champion MSMEs. MSMEs internalized environmental management practices and proactively addressed water quality issues. Women leaders promoted sustainable pond management, including filtration and nutrient control.
Social Impact	<ul style="list-style-type: none"> 40 gender champions trained on household shared responsibilities and supported in disseminating it. 395 female entrepreneurs trained and supported in establishing or strengthening green aquaculture businesses. Youth and women actively promoted environmental stewardship and gender equality within their communities.
Climate Benefits	<ul style="list-style-type: none"> 42% reduction in estimated CO₂ emissions from champion MSMEs' aquaculture operations. Adoption of smart feeding, solar pumps, and low-emission practices fostered climate-conscious operational behaviors.
Green Finance	<ul style="list-style-type: none"> 1,595 target MSMEs accessed credit through newly-developed customised loan products. 4 customised loan/credit products developed & available for aquaculture MSMEs. 22,815 MSME owners & operators reached with marketing campaign of green loans.
Target Group Engagement	<ul style="list-style-type: none"> 13 demo farms organised. 299 champion MSMEs. 2,062 additional target MSMEs participate in learning events & demos. 38,024 MSMEs onboarded and actively using aquaculture-specific functions of the Htwet Toe digital app.
Policy Development	<ul style="list-style-type: none"> 10 unique business cases for adopting green tech & aquaculture at the pond-level developed and promoted by champion MSMEs. 3 sector-wide bankable business cases for the expansion & replication of green aquaculture developed & promoted.
Europe-Asia Cooperation	<ul style="list-style-type: none"> 68 stakeholders participate in the sector-wide bankable business cases workshops demonstrating EU contribution to greening Myanmar aquaculture. Project participation in SWITCH-Asia annual conferences and relevant webinars, fostered knowledge sharing and collaboration.





FUNDING

EUR 1,950,341.04
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DURATION

Jan 2022 - June 2025



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