Egypt Country Program

Achievement highlights under the implementation of the FISH CRP 2017-2021

Overview

During the FISH CRP, the Egypt Country Program continued to work closely with aquaculture and fisheries stakeholders, the private sector and government organizations to improve aquaculture productivity, fish value chains and sustainable use of aquatic resources, including the associated benefits and reach to women and youth.

Research initiatives identified key aquaculture interventions including selective breeding programs for fish, particularly tilapia, fish health for improved biosecurity of the breeding nucleus, and fish feed research to reduce costs and increase feed conversion efficiency. The program has also been at the forefront of setting farm management standards, upgrading postharvest handling standards in existing markets, and stimulating market expansion through market information and value-added processing. Tapping into global innovations for small-scale fisheries, FISH scientists conducted fisheries value chain analyses and fish stock assessments in Lake Nasser, pioneered innovations in the valorization of fisheries catch and by-products (e.g. fish smoking, sun drying fish, fish skin leather production), and partnered with diverse stakeholders to improve youth employment in fisheries.

Major Projects

SDC	STREAMS & YEAG	2015-2019
GIZ	AquaLINC	2016-2019
World Bank	Capturing Value from Egyptian Aquaculture and Fish Supply Chains	2018-2019
FAO	Developing National Strategy for Aquatic Animal Health in Egypt (NSAAH-EG)	2021
JICA	Data Collection Survey on Impact of COVID-19 on Small-Scale Fish Farmers in Egypt	2021
EC	EFWIRE	2018-2022
IFAD	ACLISTAT	2019-2022
NORAD	Increased sustainability in the aquaculture sector in SSA, through improved aquatic animal health management	2020-2024

Partners & Donors

- Alexandria University
- Central Laboratory for Aquaculture Research (CLAR)
- Egyptian Ministry of Agriculture and Land Reclamation
- General Authority for Fisheries Resource Development
- General Authority for Veterinary Service (GOVS)
- Ministry of Agriculture, Ministry of Environment
- Ministry of Health
- Ministry of Higher Education
- National Institute of Oceanography and Fisheries (NIOF)
- National Research Center (NRC)
- Skretting Egypt
- Hohenheim University
- Norwegian Veterinary Institute (NVI)
- University of Stirling
- University of Ghana
- University of Nairobi
- US Soybean Export Council (USSEC)
- Wageningen University and Research
- Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)
- European Commission (EC)
- Food and Agriculture Organization of the United Nations (FAO)
- Foundation for Rural Enterprises & Ecology Development of Mindanao (FREEDOM), Inc.
- International Fund for Agricultural Development (IFAD)
- Japan International Cooperation Agency (JICA)
- Norwegian Agency for Development Cooperation (NORAD)
- Swiss Agency for Development and Cooperation (SDC)
- World Bank

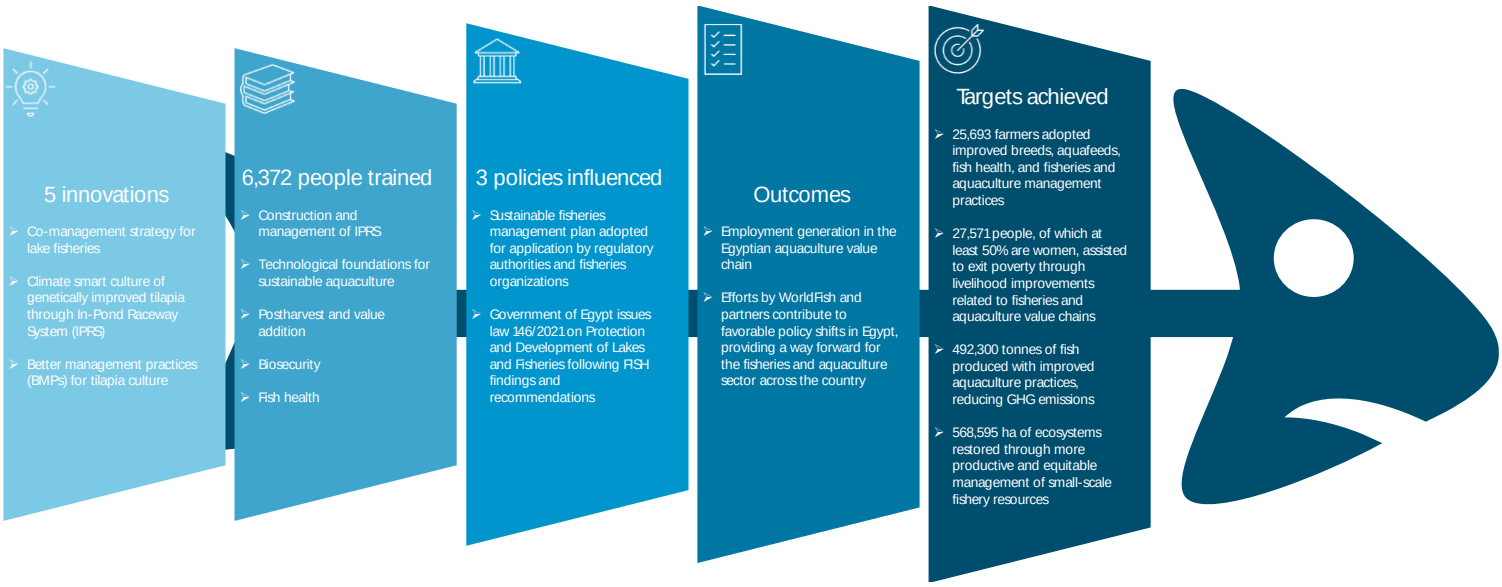
Research Focus

- **Genetic improvement:** Further development and dissemination of the Abbassa strain of Nile tilapia, including adding resilience to the breeding program. GIANT Generation 9 (G9) has now been disseminated to more than 1,000 hatcheries in Egypt, leading to the production of hundreds of thousands of tonnes of fish.
- **Fish feeds:** Research on novel feed ingredients and improved feed efficiency and feeding systems, including training on best management practices.
- **Fish health:** Investigation of key risk factors, economic losses and new disease issues associated with tilapia mortality in Egyptian fish farms. Monitoring the health status of the Abbassa breeding program is among the key research activities.
- **Markets:** Improving fish markets through the group-based organization of informal retailers, product development and improved post-harvest handling.
- **Smart aquaculture systems:** Innovation and implementation of climate-smart models for sustainable aquaculture production. For example, an intensive aquaculture model of running water in earthen ponds (IPRS) was tested for the first time in Egypt and successfully maximized water productivity, indicating the significant potential to be scaled as a climate-smart aquaculture model. Several private farms have now adopted this technology, with more farms under construction.
- **Capacity development:** Management of the Africa Aquaculture Research and Training Center as a regional center of excellence for genetics research and capacity building for national and international trainees. Several training courses on best management practices and other aquaculture topics have been conducted.
- **Gender:** Empowerment of women along fish value chains through gender transformative approaches and establishment of five small fish retailing enterprises founded and led by women in different urban areas, with a target of creating 400 full-time employment opportunities.

Achievements

Through the Abbassa Research and Training Center, the FISH Program in Egypt made tremendous progress in generating pivotal innovations for further development of aquaculture and fisheries, including the realization of value chains fit for improving the nutritional contributions of fish.

Supported by the progressive policy environment for the advancement of the aquaculture sector, FISH scientists collaborated with local and international stakeholders to generate inclusive and gender-sensitive research products that address key development issues in the Egyptian aquaculture sector, maintain and advance the breeding program, design and test climate-smart aquaculture production systems, test and pilot innovative fish feeds, and monitor fish health risks. This led to the development, contextualization and dissemination of tilapia best management practices (for hatcheries and culture). More advanced generations of the Abbassa strain are also available for uptake. For small-scale fisheries, knowledge products and innovations were developed to scale sustainable fisheries resource management approaches and promote the adoption of best practices by fishers, leading to the restoration of aquatic ecosystems, increased and equitable access to fisheries resources, improved fish stocks, increased fish catch, and increased and improved value addition to fish and by-products. Other activities involved gender transformative approaches and technologies and the value-proposition of fish as a low-cost nutritious food, with a strategy to improve the capacity of national public and private institutions to adopt, scale, and sustain similar solutions.



The Way Forward

The work done by the Egypt Country Program has supported the development of the National Aquatic Animal Health Plan for Egypt, including equipping the fish health lab with advanced diagnostic tools for early disease detection, fishery management plans in Lake Nasser, and best practices for fish farmers and fishers. All of these are essential for achieving a significant increase in fish production by 2030 in line with national goals.

Efforts to continue and scale this research should (i) consider developing a breeding nucleus for catfish, (ii) disseminate newly developed GIANT strains (G9+), (iii) develop new partnerships with the government, private sector, and CGIAR centers in Egypt, (iv) continue developing and implementing cost-efficient smart aquaculture systems for higher profitability and water use efficiency, (v) align fundraising with national aquaculture strategy priorities and CGIAR strategies, and (vi) focus on the blue economy and climate change for sustainable aquatic food systems.

References

Research Outputs

- Integrated agriculture-aquaculture manual (Arabic)
- Assessment of the impact of dissemination of genetically improved Abbassa Nile tilapia strain (GIANT-G9) versus commercial strains in some Egyptian governorates
- Piloting novel online survey tool to generate data for integrated assessment of tilapia epidemiology and health economics
- Heritability estimates for some diseases in tilapia
- A systems-thinking approach to identify targeted interventions to address antibiotic misuse and antibiotic resistance has been piloted with partners
- The efficacy and safety of therapeutic candidates for disease prevention in Nile tilapia (*Oreochromis niloticus*) have been investigated
- Spatial and Temporal Variation of Length-Weight Parameters and Condition Factors of Commercial Fish Species in Lake Nasser, Egypt
- Fisheries management based on gear selectivity of a tropical reservoir, Lake Nasser, Egypt

Innovations

- A co-management strategy for Lake Fisheries
- Climate-smart culture of genetically improved tilapia through In-Pond Raceway System (IPRS)
- Fish foresight modeling tools involving quantitative assessments of fish production and consumption patterns
- Better management practices for tilapia culture in Egypt

Policies

- Proposal to amend law number 124/1983 on fishing, aquaculture and fisheries organization in Egypt
- Sustainable fisheries management plan adopted for application by regulatory authorities and fisheries organizations in Egypt

Outcomes

- Employment generation in the Egyptian aquaculture value chain
- WorldFish's and partners' efforts contribute to favorable policy shifts in Egypt providing a way forward for the fisheries and aquaculture sector across the country

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