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Transforming the Aquaculture Sector in Malawi: Key Lessons From the 2022 SADC Regional Fisheries Dialogue Side Event

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Key Messages

- In most African countries, there has been a policy shift away from treating small-scale aquaculture as a tool for achieving household food security towards the prioritization of sustainable commercial aquaculture. If embraced in Malawi, this shift can attract both domestic and foreign investment.
- Investing in research can transform the aquaculture sector. Genetic improvement programs, in particular, will result in a greater availability of high-quality fingerlings.
- Following the examples of the top aquaculture-producing countries in Africa, the Government of Malawi should provide incentives for private sector investment in diversified feed production, research, and aquaculture production.
- Adoption of innovative technologies and best farm management practices (such as cage culture) is key for boosting aquaculture productivity and profitability.
- Domestication and implementation of the SADC regional plans (including the Aquaculture Strategy, Aquatic Animal Health Strategy, and Regional Value Chain Priority Action Roadmap) will promote regional cooperation that could lead to greater trade in fish products and help to achieve regional integration.

1. Introduction

The fisheries sector in Malawi remains an important source of jobs, income, and nutritious food. More than 1 million Malawians are directly involved in fishing and aquaculture or indirectly engaged in ancillary activities such as fish trade, processing, marketing, and equipment production and maintenance. The sector is also a source of foreign currency and contributes approximately 4 percent to the gross domestic product (GDP).[1]

As Malawi becomes increasingly urbanized with an emerging middle class, the demand for fish is projected to grow. Fish supply in Malawi has been largely dependent on capture fisheries. However, wild fish stocks—especially the commercially valuable Chambo (*Oreochromis* species)—have been in steep decline due to overfishing, with the implication that capture fisheries alone cannot meet the local demand for fish.

Aquaculture has the potential to fill this gap and thereby contribute to national economic development and to the Malawi 2063 vision. Notably, it is estimated that 10–20% of Malawi's land area is considered suitable for aquaculture. Nevertheless, levels of farmed fish production remain low. Between 2005 and 2015, aquaculture accounted for just 1–5% of Malawi's total fish

production, and while the sector has expanded over time (growing from 813 tons of fish production in 2005 to 9,399 tons in 2020), this is still marginal.

This lackluster growth in the aquaculture sector is not unique to Malawi but is mirrored in many other Southern African Development Community (SADC) countries. For this reason, the Government of Malawi and the SADC Technical Committee on Fisheries have prioritized aquaculture growth in line with Malawi 2063 and the SADC Protocol on Fisheries, respectively.

Since 2016, SADC Ministers responsible for fisheries and aquaculture have approved several regional plans, which were to be domesticated by Member States:

(a) SADC Regional Aquaculture Strategy and Action Plan (2016–2026);
(b) SADC Aquatic Animal Health Strategy (2016–2026); and
(c) SADC Regional Aquaculture Value Chains Priority Action Roadmap (2020–2030).

Several harmonized guidelines have also been developed:

(a) Regional Framework for Environmental Management of Aquaculture in Southern Africa (2016);
(b) SADC-FAO Guidelines for Aquaculture Management (2019); and
(c) SADC Harmonized Guidelines for Hatchery and Broodstock Management, Gene Banking, and Stock Enhancement (2022).

Malawi is one of the few countries that has adopted most of these instruments and domesticated them through national strategies and policies. Still, there remains a need to translate these into tangible actions and thereby foster an enabling environment for investment in aquaculture. Notably, governments in the region need answers to two important questions: Why is there low investment in the sector despite its great potential and the existence of policy and strategic frameworks? What needs to be done to harness this potential?

On April 20, 2022, the MwAPATA Institute—in collaboration with the Department of Fisheries under the Ministry of Natural Resources and Climate Change and GIZ—hosted a policy research dissemination seminar to explore strategies to grow and improve the aquaculture sector in Malawi. The seminar was co-hosted by Benguela Current Convention (BCC) and the SADC Secretariat. It served as a side event of the "Regional Dialogue Towards Building Resilience and Adaptation in Artisanal Fisheries and Aquaculture in Southern Africa" and as part of the Celebration of the International Year of Artisanal Fisheries and Aquaculture (IYAFA) 2022.

The seminar was organized to:

(a) Identify challenges hindering aquaculture development in Malawi and discuss strategies to address these challenges.
(b) Bring the opportunities within the aquaculture sector to the attention of policymakers, investors, and other stakeholders.
(c) Discuss ways to create an enabling environment for aquaculture development in Malawi.
(d) Draw best practices and lessons from other SADC Member States.

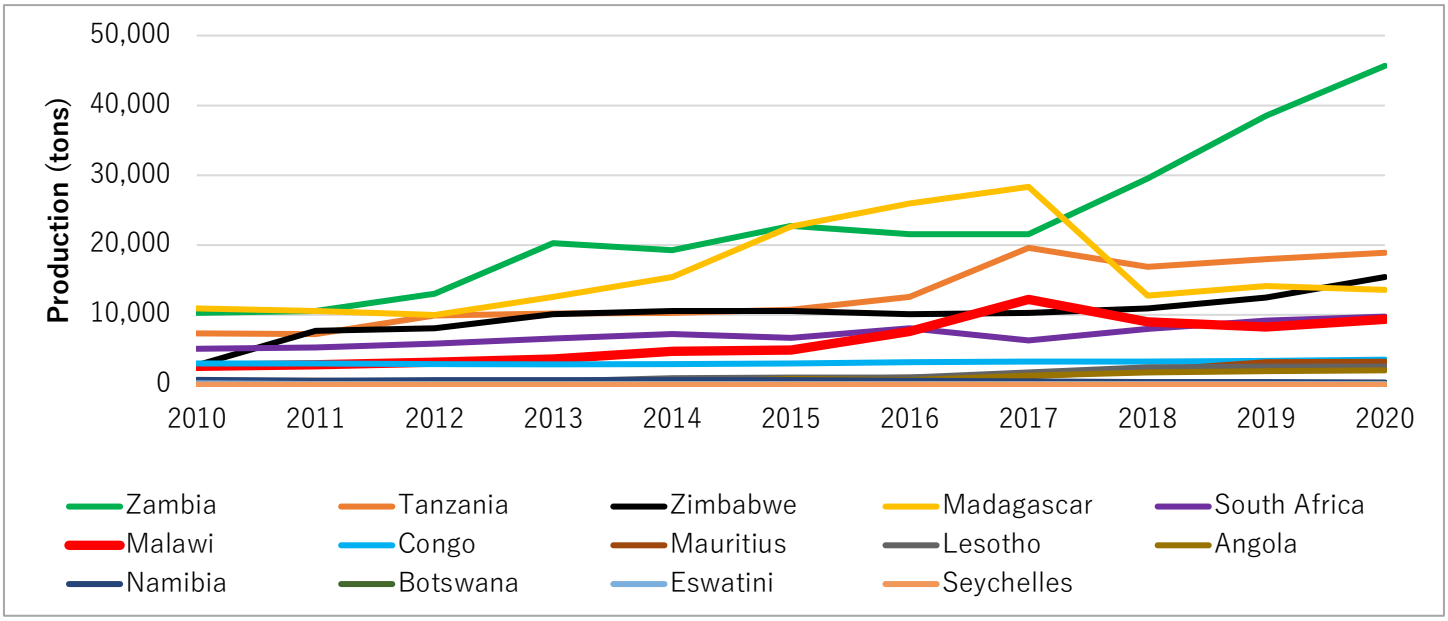
The seminar took place at the Bingu International Convention Centre in Lilongwe, Malawi, and was attended by fisheries and aquaculture experts from across Malawi and the SADC region. This policy brief summarizes the key policy recommendations put forth by these participants.

2. Overview of aquaculture in the SADC region

Aquaculture is an important sector throughout the SADC region, one that has grown significantly over the past decade. In 2020, the leading producer in the region was Zambia, followed by Tanzania, Zimbabwe, Madagascar, and South Africa, as shown in Figure 1. Malawi was the sixth-leading

producer, contributing approximately 8% of the total regional aquaculture production. The total aquaculture production from all SADC countries increased from 44,183 tons in 2010 to 124,793 tons in 2020. This growth was heterogeneous, with some countries showing limited growth (e.g., Eswatini and Seychelles) and others showing substantial growth (e.g., Madagascar, Tanzania, and Zambia). Zambia's aquaculture production doubled between 2015 and 2020, growing from 22,754 to 45,670 tons.

Figure 1: Aquaculture production in SADC countries from 2010 to 2020



Source: FAOSTAT (2022)[2]

3. What have other countries done to transform the aquaculture sector?

Policy shift towards commercial aquaculture

The aquaculture sector in Africa is dichotomous, consisting of small-scale and commercial subsectors. Historically, small-scale aquaculture has been embraced by governments and development partners with a focus on its contribution to household food security. In recent years, however, there has been tremendous growth in the aquaculture sector overall in Egypt, Ghana, Kenya, Nigeria, Uganda, and Zambia, due to both the proliferation of micro, small, and medium enterprises (MSMEs) and large-scale commercial enterprises. Zambia's aquaculture production doubled from 2015–2020 due to the emergence of large-scale producers, which now account for 71% of the country's production.[3] Governments in most countries have encouraged their small-scale farmers to commercialize, and fisheries policies have been revised to support aquaculture commercialization. The lesson for Malawi is that large-scale aquaculture merits policy attention and support.

Transformation of small-scale/community-based fish farms into productive MSMEs

According to seminar participants, the transformation of small-scale/community-based aquaculture operations into productive MSMEs can be achieved through (a) establishing and promoting National Aquaculture Transformation Funds; (b) country governments aggressively investing; (c) developing and operating pilot farms to demonstrate the business case; (d) developing and implementing S.M.A.R.T. (Specific, Measurable, Achievable, Relevant, Time-based)

aquaculture extension services to cultivate a market orientation; (e) promoting the adoption of integrated, commercial, small-scale aquaculture as a means of increasing rural productivity and food security; and (f) establishing market locations and developing the associated infrastructure.

Malawi is heading towards transforming its aquaculture sector. Just recently, the country developed a new National Aquaculture Strategic Plan for 2021–2031 (NASP II), initiating a policy shift towards the transformation of small-scale fish farms into market-led MSMEs.

Private sector investment

In the top aquaculture-producing countries in Africa, a high level of private sector investment has been a key driver in the growth of fish farming. Some countries host manufacturers and suppliers of fish farming equipment. Noting that fish feed and seed (fingerlings) are major inputs for aquaculture production, private sector firms have also established feed mills and hatcheries to supply floating feed and high-quality fingerlings, respectively.

In Zambia, some of the livestock feed manufacturers (e.g., Novatek Animal Feeds, Farm Feeds, and Savanna Streams) have diversified into the development of fish feed. In addition, large-scale commercial operators have ventured into partnerships with feed mills to better control the supply, quality, and price of feed.

Private sector engagement in these countries has been successful because of the introduction of government policies and regulations that create an enabling environment for such investment. For example, Ghana and Egypt have put in place packages of investment incentives such as waivers on imported cages, tax breaks, and favorable interest rates, and this has attracted both domestic and foreign investment. Malawi should follow suit. Of note, Malawi's livestock feed industry is vibrant; following Zambia's example, firms in Malawi have the potential to diversify their domestic feed production, and they need to be encouraged and incentivized to produce fish feed.

Use of new and intensive production systems

In the top aquaculture-producing countries in Africa, growth has also been driven by the adoption of modern and intensive production systems, especially the use of tanks and cages. Recent evidence from Malawi (drawn from the MwAPATA Aquaculture Survey of 2021) indicates that the country's small-scale aquaculture is dominated by traditional pond-based production, which limits its development.[4] In contrast, the introduction of intensive cage aquaculture in Zambia (primarily to produce the exotic Nile tilapia in Lake Kariba) has emerged as the largest contributor to national aquaculture production. Likewise, cage farming in Lake Volta, Ghana, accounts for more than 80% of the country's aquaculture production. Cage farming has advantages over other production systems due to its high production potential, profitability, low establishment costs, and reduced land pressure.

Investment in research and development

Research and development play a crucial role in unleashing aquaculture's potential. However, aquaculture in Africa is constrained by a lack of suitable domesticated species, limited funding and research facilities, and weak research capacity. Aquaculture growth in African countries and beyond has been spurred by research activities in selective breeding, identification of key traits to incorporate into genetic improvement programs, and low-cost diet production, as well as on-farm participatory research using model farms and private enterprises. For instance, through selective breeding programs, Egypt developed the genetically improved Nile tilapia strain known as Genetically Improved Abbassa Nile tilapia (GIANT), making Egypt Africa's leading tilapia producer. Along these lines, the introduction of genetically

improved farmed tilapia (GIFT) in Asian countries such as Bangladesh, the Philippines, and Vietnam has boosted fish production and productivity.

Through the National Genetic Improvement Program, with capacity support from the AfDB-WorldFish Aquaculture TAAT Compact, Malawi has now embarked on implementing genetic improvement programs (GIPs) for *O. shiranus* and *C. rendalli* at the National Aquaculture Centre, Mzuzu University, and Lilongwe University of Agriculture and Natural Resources. As such, there is a need for intensive support for GIPs in Malawi in order to develop fast-growing farmed fish strains for improved yields and profitability.

4. Conclusion

This policy brief has summarized the key takeaways from the vibrant discussions held as part of the policy research dissemination seminar on aquaculture, which took place on April 20, 2022. Participants converged on the best practices that have unleashed the potential of aquaculture in Africa and beyond. Investing in research, creating an enabling environment for the private sector, using new and intensive production systems, transforming small-scale/community-based aquaculture operations into productive MSMEs, and shifting broad policy towards commercial aquaculture have together transformed and accelerated the growth of aquaculture elsewhere, with the implication that Malawi can aim to follow a similar path.

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