



ARRIVES

IS THE FISH FARMING SECTOR FOR YOU?

**Business and job
opportunities in Nigeria**

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ABOUT THE PAPER

This fish farming sector profile has been developed within the framework of the ARRIVES project.

The Assisting the Reintegration of Returnees through Integrated Vocational and Entrepreneurship Support (ARRIVES) project supports the sustainable economic reintegration of voluntary returnees into the Nigerian economy. It focuses on Nigerians who have chosen to return from Germany, offering tailored support in skills development, employment, and entrepreneurship to enable a dignified return and build sustainable livelihoods.

ARRIVES provides holistic, individualized assistance throughout the entire reintegration journey—from the decision to return and the development of a business idea to establishing a business or entering employment in Nigeria. The project is implemented by Social Impact gGmbH, the International Returns and Reintegration Assistance (IRARA), and the International Trade Centre (ITC). This partnership ensures long-term, locally grounded support for returnees.

The project also publishes reports that examine opportunities, challenges, and support mechanisms across Nigeria's evolving economic sectors and entrepreneurship ecosystem. These evidence-based publications inform stakeholders.



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ACRONYMS

Unless otherwise specified, all references to dollars (\$) are to United States dollars. As of 5 March 2025, \$1 equalled about 1,500 NGN.

ARRIVES	Assisting the Reintegration of Returnees through Integrated Vocational and Entrepreneurship Support
CAFFAN	Catfish and Allied Fish Farmers Association of Nigeria
FAO	Food and Agriculture Organization
Kg	Kilogram
NGN	Nigerian Naira
NGOs	Non-governmental organizations
USAID	United States Agency for International Development

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INTRODUCTION

INTRODUCTION

Fish farming is a strategic subsector in Nigeria's agricultural economy, offering significant opportunities for economic growth, food security and entrepreneurship. Nigeria is a net importer of frozen fish as fish supplies in the country do not meet national demand. Rapid production cycles, scalability and government support make it an attractive avenue for investment, presenting opportunities for entrepreneurs and returnees looking to start or expand their businesses. This profile provides insights to guide stakeholders interested in the fish farming sector, covering essential aspects of the industry, from market dynamics to financial planning.

1. Overview of Nigeria's fish farming sector:

This section describes the fish farming market in Nigeria, covering trends, growth drivers and demand for fish products. It highlights stakeholders and discusses the regulatory environment. It also maps the fish farming value chain to show key stages and players, helping returnees understand market dynamics and entry points.

2. Opportunities for entrepreneurs:

The sector offers many opportunities for entrepreneurs. Farming catfish and tilapia remains a popular and profitable venture while producing fish feed and providing hatchery services are growing demand areas. This section explores the opportunities, highlighting the pros and cons of each.

3. Key stakeholders in the sector:

This section identifies the main stakeholders in Nigeria's fish farming sector, including government bodies, associations and international organizations. It summarizes key policies and regulations affecting the sector to help returnees understand legal requirements and benefits.

4. Challenges and barriers:

The fish farming sector has potential but faces challenges such as disease management, high feed costs, limited access to quality fish seed and market fluctuations. This section outlines these barriers and suggests strategies to overcome them, such as best practices for biosecurity and available support programmes.

5. Labour market insights:

This section examines job opportunities in the sector and the skills needed for roles related to farming, producing fish feed and providing hatchery services. It offers insights into job growth, expected income levels and top training providers, helping returnees enhance their skills and employability.

6. Financial aspects:

This section outlines the investment needed to start a business related to fish farming and trading, including initial costs, funding options and potential returns. It serves as a guide for returnees seeking financial insights for their ventures.

Nigeria is a net importer of frozen fish as fish supplies in the country do not meet national demand



▶ CHAPTER 1 ▶

Sector overview

Nigeria's fisheries sector offers major opportunities for entrepreneurs

Nigeria plays a key role in Africa's fish sector. The country is the largest fish consumer on the continent and one of the biggest globally, with about 3.2 million tonnes of fish consumed annually (FAO, 2025). The fisheries sector includes subsectors such as artisanal fisheries, commercial fisheries and aquaculture. With more than 14 million hectares of inland waters and an 853-kilometre coastline, Nigeria produces 1.2 million tonnes of fish each year (313,231 tonnes from aquaculture and 759,828 tonnes from fisheries) (FAO, 2025).

While 90% of this production is consumed domestically, the per capita fish consumption in Nigeria, at 11.3 kilograms (kg), remains much lower than the global average of 21kg (WorldFish, 2025). The country is grappling with severe food insecurity, affecting nearly 60% of households and leading to an annual expenditure of about \$1 billion on fish imports to meet domestic needs (WorldFish, 2025). This consistent gap highlights the potential for local fish

farming to reduce reliance on imports and improve food security.

Fish farming, also known as aquaculture, is a crucial part of Nigeria's agricultural economy, contributing to food security and income generation. The sector is key in meeting the growing demand for affordable protein sources, with fish accounting for more than 40% of the country's total animal protein intake. Catfish makes up at least a quarter of this consumption (FAO, 2023).

Demand for fish in Nigeria has been rising due to factors such as population growth, urbanization and a shift towards healthier dietary choices. Fish farming presents a sustainable and cost-effective solution to this growing demand, especially as consumers increasingly favour fish over other protein sources such as beef, chicken and mutton. This trend has established aquaculture as one of the fastest-growing subsectors in Nigeria's agricultural landscape.

The fish farming sector offers various advantages for entrepreneurs. Species such as catfish and tilapia have relatively short production cycles, reaching market

size in just three to eight months based on factors such as average weight at stocking (fingerling or juvenile), target market (smoking size from three months, barbecue, four months, etc.) and location, which allows for quick returns on investment.

Additionally, fish can be farmed on a small scale, such as in backyard ponds, or scaled up to larger commercial operations, making fish farming accessible to a broad range of entrepreneurs in both urban and rural areas. The high demand for fresh and processed fish creates lucrative market opportunities, and entrepreneurs can diversify into value-added products such as smoked fish, dried fish and packaged fillets to cater to urban and export markets.

The Nigerian Government acknowledges the importance of fish farming and has initiated policies to promote its growth. The National Aquaculture Development Plan, formulated in 2008, aims to increase domestic fish production to meet self-sufficiency and create a surplus for export (Umoh, n.d.). Initiatives such as the Anchor Borrowers' Programme offers financial assistance and access to credit for fish farmers.

The Government, in collaboration with international partners, is committed to bolstering aquaculture facilities and support systems. One initiative focuses on producing 20 million fingerlings annually, designed to boost productivity and employment in the sector (The Whistler, 2023).

Recent investments in aquaculture facilities have increased production capacity. For example, Nutreco (maker

of Skretting feed) has opened a state-of-the-art fish feed production facility that produces 125,000 tonnes of feed annually, addressing local and regional demand (Aquafeed, 2023). Additionally, a modern fish hatchery in Calabar has been established to produce millions of fingerlings yearly, supporting the sector's expansion and offering training opportunities (The Whistler, 2023).

Beyond fish farming, there are significant opportunities to process and transform fish products. Smoked fish production is a popular preservation method with high demand in urban and export markets. There is also a growing need for packaged and processed fish products, such as fillets, canned fish and frozen options, that cater to modern consumer preferences. Moreover, fish feed production is a profitable avenue along the value chain, as it addresses the rising demand for high-quality, affordable feed.

Fish farming offers resilience against challenges facing other agricultural subsectors. Aquaculture systems can use water efficiently, making them suitable for areas with limited land or water resources. Modern techniques, such as recirculating aquaculture systems, allow production to continue irrespective of climatic changes, ensuring stable income for farmers. Still, the sector faces challenges, including high feed costs, disease management issues, inadequate infrastructure and limited access to high-quality fingerlings (WorldFish, 2023).

Market trends and growth drivers

The fish sector is crucial for Nigeria's food security, economic stability and rural development. Each year, Nigeria



Nigeria is the largest fish consumer on the African continent and one of the biggest globally, with about 3.2 million tonnes of fish consumed annually (FAO, 2025).

produces more than 1 million tonnes of fish through 36% of marine capture, 36% of inland fishing, and 28% of aquaculture (FAOSTAT, 2024). However, this production still falls short of the national demand, which is around 2.1 million tonnes annually and projected to reach 4 million tonnes by 2030 (Subasinghe et al., 2021). To make up for this gap, Nigeria relies on fish imports.

Fish is a major source of protein for many Nigerians, accounting for 20%–25% of their animal protein intake. In coastal and riverine communities, this number can rise to 80% (FAO, 2025). Despite its critical role, the fish sector only contributed about 0.83% to national gross domestic product in 2020 (FAO, 2025). While this figure is low compared to other agricultural sectors, such as livestock and crop production, the increase over recent years shows that the fisheries and aquaculture sector is undoubtedly a path to socioeconomic development in Nigeria. This highlights a substantial opportunity for growth and development in the industry.

Artisanal small-scale fishers from coastal, inshore creeks of the Niger Delta, lagoons, inland rivers and lakes generate more than 80% of Nigeria's total domestic production. The small migratory bonga (*Ethmalosa fimbriata*) is the principal catch. Some initial progress has been made in developing an industrial fisheries sector, but the fleet and infrastructure are ageing.

Marine capture fisheries in Nigeria are primarily found along the Gulf of Guinea, yielding about 400,000 tonnes of fish each year. However, the Gulf's limited productivity – from inadequate upwelling conditions and a narrow continental shelf – poses challenges for this sector. States including Lagos, Rivers and Ondo are key players in fishing, but local production often falls short of meeting demand. For instance, Lagos State, the largest

urban population in Nigeria, produces around 150,000 tonnes annually, accounting for just 40% of its estimated need (Vanguard, 2019). On the other hand, Nigeria's inland capture fisheries tap into the country's extensive freshwater resources, such as rivers, reservoirs and floodplains. They add another 400,000 tonnes annually to the nation's fish supply, mainly tilapia and catfish. Nonetheless, challenges including overfishing, erosion and pollution from agricultural and industrial activities threaten these vital resources. Inland fisheries play a crucial role in supporting the livelihoods of millions of people, particularly in rural and remote regions (FAO, 2023; World Bank, 2022).

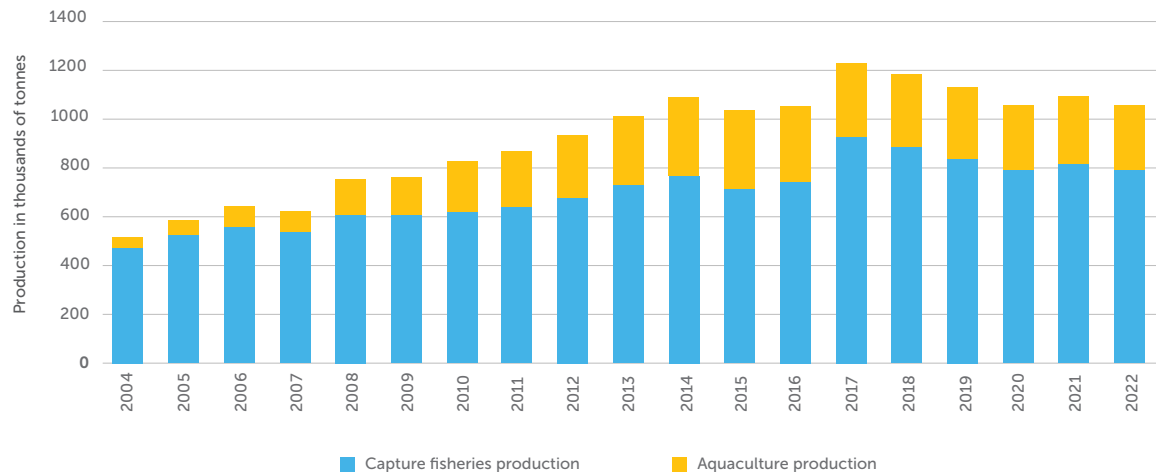
Aquaculture production trends

Aquaculture is Nigeria's fastest-growing sector. The sector's growth is evident from historical trends, as shown in Figure 1. While capture fisheries production has been relatively stagnant since the 2000s, aquaculture production has experienced a sharp and sustained increase, growing from less than 50,000 tonnes in 2005 to more than 296,000 tonnes by 2017. Although aquaculture production fluctuated after 2018, it remains a crucial growth driver, keeping total fisheries production above 1.1 million tonnes annually.

This shift underscores the rising importance of aquaculture to address Nigeria's growing fish demand. The rapid growth of aquaculture aligns with the country's status as the largest producer in sub-Saharan Africa, accounting for 52% of the region's farmed fish production (Ogunji & Wuertz, 2023). Rising demand for fish and aquaculture products is reflected in the rapid expansion of small and medium-sized aquaculture enterprises, several large-scale managed fish farms and fish-oriented markets throughout Nigeria.



Figure 1: Fish production trends



Source: Worldbank ,2022

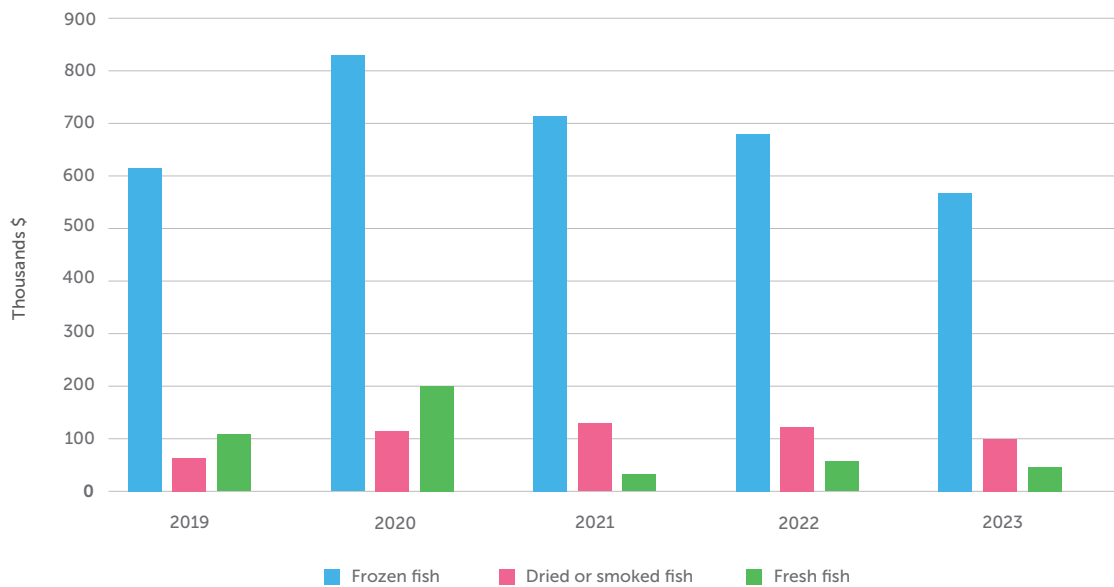
The most farmed species in Nigeria are catfish and tilapia, with catfish representing about 90% of fish farming activities (FAO, 2021). Other species include Nile perch and aba. The high reliance on a few species indicates a need for diversification to enhance production capacity and market resilience (Walakira et al., 2023).

The catfish value chain is one of the two value chains recognized by the Federal Ministry of Agriculture and Food Security in the fisheries and aquaculture sector (the second being the shrimp value chain). The catfish value chain supports an estimated 1 million direct and indirect jobs (FAO, 2021). However, the aquaculture sector faces challenges including high input costs, a shortage of quality fish feed and fingerlings, and weak policy execution, which have limited profitability, particularly for small-scale producers.

Despite notable advancements, Nigeria continues to depend heavily on fish imports, which exceed 1 million tonnes yearly, amounting to about \$600 million in 2023. The country is thus a net importer of fishery products. In contrast, exports remain relatively modest, bringing in around \$90 million annually, with the export potential for live fish amounting to \$4 million (ITC, 2025).

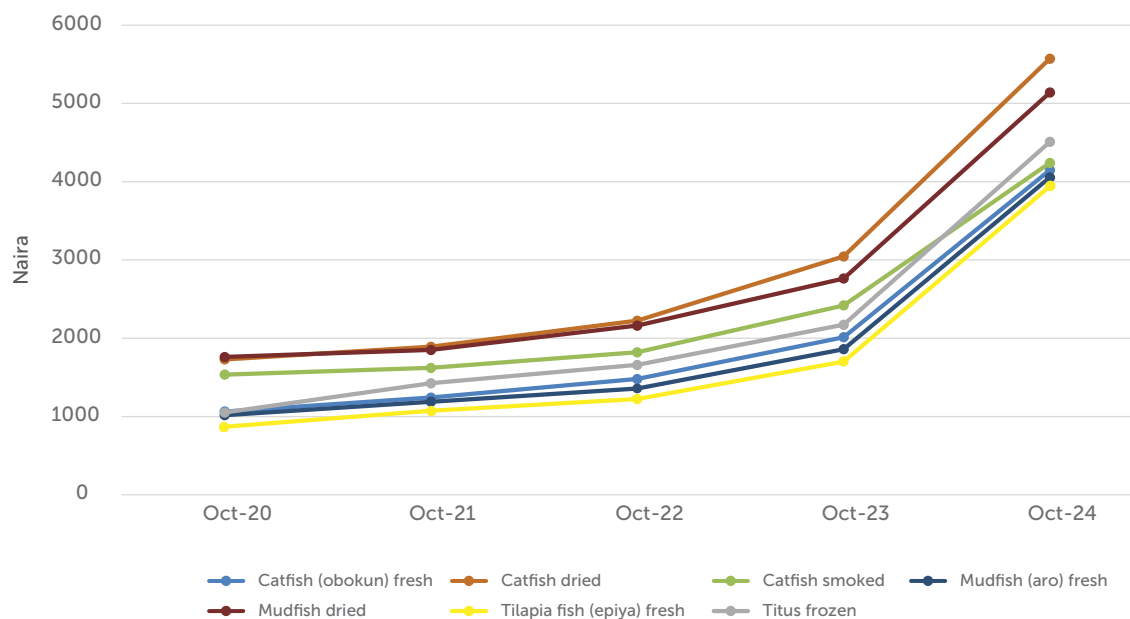
The Nigerian fish market comprises several segments, including traditional smoked fish, fresh fish, imported frozen fish and industrial fish markets. Frozen fish (HS 0303) is the top import, though imports fell to \$565,000 in 2023 from \$837,000 in 2020, possibly due to shifting demand, local production and trade restrictions. Dried/smoked fish (HS 0305) peaked in 2022 (\$130,925) but dropped to \$96,738 in 2023. Declining fish imports signal an opportunity for local fish farming and processing.

Figure 2: Import trends of Nigeria's fish sector (2019–2023)



Source: ITC Trade Map.

Figure 3: Fish prices have climbed since October 2020



Source: ITC based on National Bureau of Statistics data.

Fish prices climbed in 2020–2024, driven by rising demand, inflation and supply-chain issues. For example, the price of a kilogram of fresh catfish almost quadrupled from ₦1,064 in 2020 to ₦4,150 in 2024. Fresh mudfish (aro) jumped from ₦850 in 2020 to ₦3,000 in 2024, a 253% increase. Fresh tilapia (epiya) doubled from ₦1,500 in 2020 to ₦3,000 in 2024 (National Bureau of Statistics, 2024).

Processed fish prices were even more dramatic due to their longer shelf life and higher demand. Dried catfish rose 222% from ₦1,729 in 2020 to ₦5,572 in 2024. The highest price for a kilogram of dried catfish hit ₦11,910 in Imo State. Frozen fish, such as Titus, also increased sharply, rising from ₦1,051.36 in 2020 to ₦4,509.38 in 2024, a 329% increase. In 2024 alone, prices for Titus rose by 107.52 (National Bureau of Statistics, 2024).

However, field data collected from stakeholders (farmers and farm associations) indicate disparities in these reported figures. According to the farm association, for instance, a kilogram of catfish rose from ₦850 in 2020 to ₦3,000 in 2024, reflecting 253% growth. This discrepancy highlights significant variations between official statistics and on-the-ground market realities.

It is important to highlight regional price differences, which stakeholders interviewed attributed to variations in access and distribution. Fresh tilapia (epiya) cost as much as ₦6,250 in Ebonyi but just ₦2,100 in Taraba. Similarly, a kilogram of Titus frozen fish ranged from ₦3,150 in Taraba to ₦5,526 in Zamfara. These differences highlight the need to improve regional logistics and supply chains to stabilize prices nationwide (National Bureau of Statistics, 2024).

Value chain mapping

The fish farming value chain includes hatchery services, feed production, input sales, marketing, logistics services, broodstock production, farming, processing, and distribution. Understanding these stages can help entrepreneurs to identify key entry points and navigate market dynamics effectively.

Every segment of the aquaculture value chain presents profitability and substantial growth opportunities, driven by the industry's continuous expansion. As global and local populations increase, demand for high-quality fish protein also increases, creating a thriving market for production, processing, distribution and value-added fish products. This upward trend underscores the sector's long-term viability and potential for sustained investment and innovation.

Production stage

Input supply

The value chain in aquaculture begins with essential support services and materials, including broodstock, fingerlings, feed and equipment. High-quality fish seeds (fingerlings or juvenile) are vital, greatly influencing productivity and fish quality. In Nigeria, hatcheries in locations such as Latia Global and Sej farms in Lagos, CVA farms in Port Harcourt, Myra farms in Abuja and Premium Aquaculture in Abeokuta provide farmers with genetically strong and disease-resistant fingerlings.





¹Integrated multi-trophic aquaculture, or IMTA, is similar to polyculture, where two or more organisms are farmed together. In IMTA, multiple aquatic species from different trophic levels are farmed in an integrated fashion to improve efficiency, reduce waste and provide ecosystem services, such as bio-remediation.

Fish feed, which is responsible for a large portion of production costs, is crucial for the healthy growth of fish. Feed manufacturers offer specialized formulations tailored to the nutritional needs of various species, such as catfish and tilapia. Ensuring the quality of fish feed is critical, as poor feed can lead to lower yields and increased mortality rates.

Interest is growing in integrated food production systems, including aquaculture-agriculture and integrated multitrophic aquaculture,¹ due to their ability to optimize resources, increase farmers' income and support food security.

Notably, some farmers are integrating aquaculture with other ventures, such as aquaculture with rice farming, aquaculture and poultry farming, and aquaculture and vegetable farming. Stakeholders have collaborated to improve the productivity and profitability of aquaculture.

Production and harvesting

Nigeria has both small-scale and large-scale fish production operations, primarily focusing on catfish, tilapia and carp. The systems range from extensive methods using natural water bodies to intensive operations involving ponds and tanks. While smallholder farmers dominate the sector, larger commercial enterprises are increasingly emerging in areas with better access to resources and infrastructure.

Aquaculture farmers manage various aspects of the farming process, including pond management, feeding,

health monitoring and harvesting. Recent advancements in aquaculture technologies, such as raceways, mobile tarpaulin ponds and integrated food production systems, have enhanced efficiency and encouraged best practices. Farmers harvest the fish once they reach market size based on customer preference (250 grams to 3kg). This process requires careful handling to minimize stress and damage to the fish, ensuring quality for the market.

Post-farmgate activities

Processing

After harvesting, fish may be processed to enhance their marketability. Common processing methods include gutting, smoking, drying, filleting and packaging. Processors are crucial in adding value to fish products, especially unsold fresh fish. Depending on the scale of production, processing can occur at small local facilities or larger commercial plants.

Smoking and drying are popular methods to preserve fish in Nigeria, especially in rural areas with limited access to refrigeration. Processed fish must meet health standards to ensure food safety, mainly when supplying urban markets.

Distribution and markets

Efficient logistics are essential for transporting fish products to markets, ensuring they reach consumers in optimal condition. Wholesalers play a vital role in this process by purchasing fish in bulk from farmers and processors, then distributing them to retailers or other businesses. They act as intermediaries, facilitating the distribution of fish products across various markets.



Retailers sell fish products directly to consumers and can be found in local markets, supermarkets and specialized fish shops. Many retailers offer fresh fish and processed items to cater to consumer preferences. Fish products are sold through multiple channels:

- Fresh and smoked fish are typically available at local markets, allowing consumers to buy directly from producers or traders.
- Larger supermarkets, such as Shoprite and Spar, stock processed fish products, providing convenient access to urban consumers.
- Producers increasingly use e-commerce platforms to reach a wider audience and offer home delivery services to meet growing demand from urban customers.

Consumer

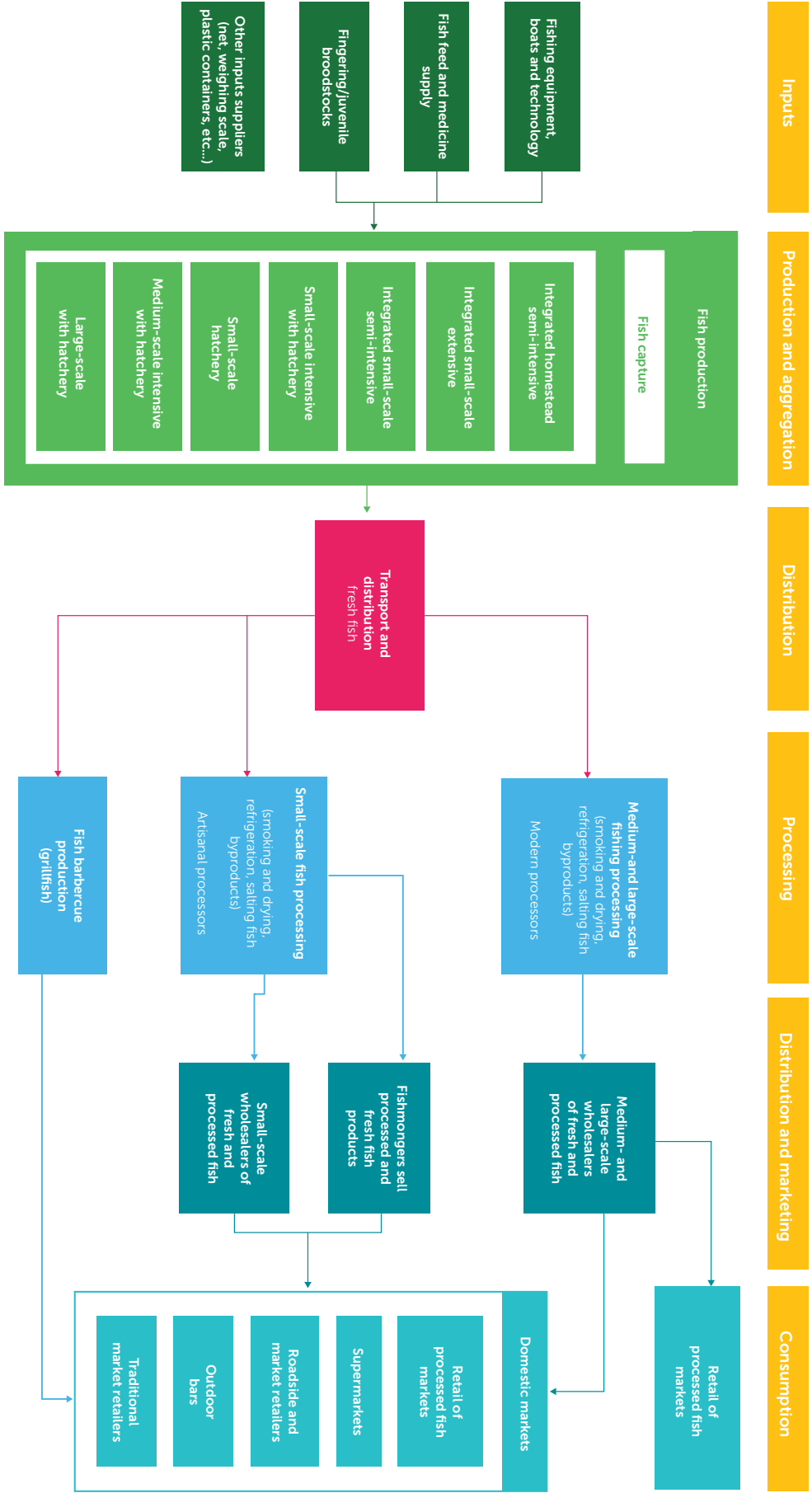
The final stage of the value chain involves

consumers who buy fish for personal consumption. These may include households, restaurants, hotels and institutions such as schools. Demand for fresh fish is high and consumers often prefer to buy directly from retailers or local markets.

Consumption patterns vary across Nigeria and are influenced by culture, income level and food preferences. Fish is widely appreciated for its nutritional benefits, as a rich protein source, omega-3 fatty acids and other vital nutrients. As incomes rise, demand for fish is expected to continue growing, particularly among health-conscious consumers seeking lean protein sources.

Figure 4 illustrates the fish farming value chain from essential inputs to end consumers.

Figure 4: Representation of Nigeria's fish farming sector value chain



Source: Compiled by ITC based on interviews and desk research.

▶ CHAPTER 2 |

Exploring business opportunities

The fish farming sector in Nigeria offers business opportunities across various stages of the value chain. Entrepreneurs can tap into these opportunities by identifying gaps and leveraging government incentives and support services to establish or expand their operations. Below are some key business opportunities in the sector.

Catfish and tilapia farming are popular and profitable. Additional segments include fish feed production, hatchery services and value-added activities such as processing and packaging. Innovative areas including ornamental fish farming and organic aquaculture also offer potential for market differentiation.

Through innovation, aquaculture can be integrated into other farming businesses, such as aquaculture and vegetable farming, which presents a chance to expand, diversify revenue and mitigate risks associated with a farming venture. An example of the vast opportunity in aquaculture is the integration of fish farming with goat farming, vegetable

farming and poultry farming. This shows the circularity in agribusiness as waste products in aquaculture are used as raw materials in horticulture.

According to the stakeholders interviewed, the use of wastewater from the pond – which is rich in nitrogen, phosphorus and organic matter – to irrigate vegetables improves yields.

Broodstock production

Demand is high for quality broodstock, which is critical in the aquaculture value chain as quality fish seed produced from good broodstock is the foundation of any aquaculture enterprise. Without quality broodstock, the industry would suffer a major loss due to poor fish seed, which would reduce farmers' productivity and profitability.

This business model involves selecting and stocking fishes with high genetic vigour, raising them using specialized broodstock feed and selling mature male and gravid females to hatchery operators.

Table 1: Broodstock production

Pros	Cons
High demand for broodstock ensures a ready market for broodstock farmers	High risk of disease outbreaks affecting quality and supply
Contributes to fish farm productivity by providing high-quality broodstock for breeding	High competition from farmers offering poor-quality broodstock at cheaper prices
Government incentives and support for aquaculture growth	Requires technical knowledge in fish nutrition and water management
Few farmers are active in this sector, making it a viable choice for new entrants into the business	

Source: ITC field interview.

Broodstock production requires patience as the time of harvest starts at 12 months. Broodstock production should not be a standalone business. Rather, it should be combined with any other activity along the fish value chain. An example is combining broodstock production with catfish processing. The fish waste (gut) generated from fish processing is used as a supplementary feed for the broodstock.

Fingerling production and hatcheries

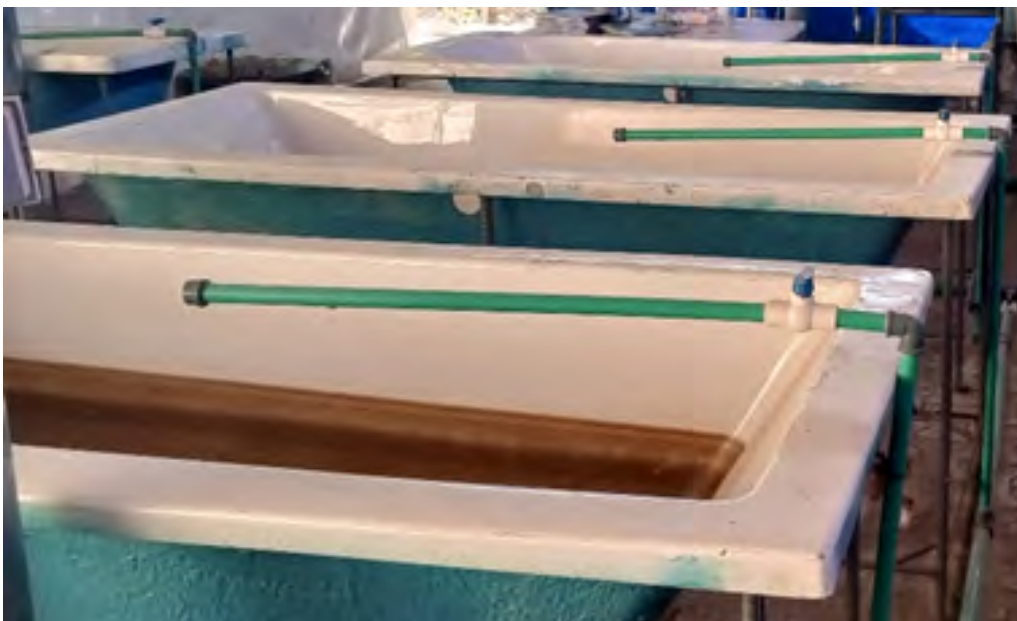
There is considerable demand for high-quality fingerlings, providing opportunities for entrepreneurs to invest in hatchery operations. Establishing hatcheries that produce genetically strong and disease-resistant fingerlings can address the shortage of quality inputs and improve fish farmers' productivity.

This business model involves setting up hatchery infrastructure, breeding fish and supplying fingerlings to smallholder and commercial fish farms.

Though starting a standard hatchery requires extensive capital, there are some traditional ways (e.g. tarpaulin vats, wooden vat, plastic vats) that do not cost much. It is important to start small using traditional methods to gain experience, market share and expertise before investing in high-quality equipment such as automatic hatching jars and a hatching recirculatory aquaculture system. The business model involves producing fingerlings/juveniles and selling directly to farmers or through middlemen called fish marketers.



Tarpaulin hatching vats



Fibre tank hatching vats

It is worth noting that despite the high-risk nature of fingerling production, it offers the most reward based on return on investment when compared with fish production, fish processing and feed distribution. Therefore, it is important to attend a practical training session to acquire the relevant skills in hatching and nursery management required to succeed before investing in fish hatching business.

Table 2: Fingerling production and hatcheries

Pros	Cons
High demand for fingerlings ensures a ready market for hatchery operators	High risk of disease outbreaks affecting quality and supply
Contributes to fish farm productivity by providing high-quality stock	Significant competition from established hatcheries
Government incentives and support for aquaculture growth	Requires technical knowledge in breeding and hatchery management

Source: ITC field interview

Feed production

Fish feed accounts for a large share of operational costs (between 60% and 80%) (Ogunji, J., & Wuertz, S., 2023) and the availability of quality feed remains a challenge in the aquaculture industry. Entrepreneurs can invest in feed mills that produce high-quality, nutritionally balanced fish feed tailored to different species. Producing locally can also help reduce costs and ensure consistent feed availability.

This venture is well-suited to those with some experience in animal nutrition and access to capital for equipment and raw materials. The business model involves producing feed that is sold to farmers either directly or through distributors such as key distributors or sub-distributors.

Table 3: Feed production

Pros	Cons
High demand for quality feed provides a stable market opportunity	High initial investment in machinery and raw materials
Producing locally helps reduce reliance on imported feed and cuts transportation costs	Competition from established feed producers can be challenging for new entrants
Government support and incentives are available to boost local feed production	Requires technical expertise in feed formulation to ensure product quality and consistency

Source: ITC field interview

Starting a feed production operation requires substantial capital and technical knowledge that may not be readily available to a new entrant. The scarcity of essential raw materials such as corn for animal feed and soya groundnut cake in bulk and the cost to import micronutrients (e.g. methionine, lysine, vitamin premix) means a huge amount of capital is required to purchase materials to sustain production. This may not be a good venture for a new entrant in aquaculture. It

is possible to enter this business if one can access long-term loans with low interest rates or when the farm has grown to consume 300 tonnes of feed annually.

Fish farming operations

Setting up fish farms, whether small-scale or commercial, can be a profitable venture given the rising demand for fish in Nigeria. As mentioned, catfish and tilapia are popular species with steady market demand and strong year-over-year growth. Tilapia, for instance, grew almost 132% year-over-year in 2024, highlighting lucrative areas for scaling fish production. These products can cater to urban and rural consumers and will likely sustain high demand.

It is also worth mentioning that urban markets, such as Imo and Ebonyi, are willing to pay premium prices for processed and fresh fish. Nigerian returnees can consider intensive farming techniques, such as pond or tank systems, to

optimize space and enhance production.

The business model for fish farming requires aquaculture knowledge, access to water resources and essential farm management skills. Factors such as market demand, size preference and selling price should be taken into account when considering investment in fish production.

A good example is the case of Ebonyi State. Though catfish prices are premium, as stated earlier, demand is relatively low. While the price in Delta State is moderate, demand is very high as fish is a staple source of protein used to prepare local delicacies such as 'banga soup' and pepper soup. It may take a farmer four weeks to sell one tonne of fish in Ebonyi State and just a day to sell the same amount in Delta State.

Catfish are commonly stocked at different growth stages, with fingerlings and juveniles the most widely used. The key differences between them are outlined below.

Table 4: Differences between catfish juveniles and fingerlings

Feature	Fingerlings	Juveniles
Size	3–5 cm in length	6–10 cm in length
Age	4–6 weeks old	6–8 weeks old
Growth stage	Early developmental stage	More developed and closer to table size
Survival rate	Lower, as they are delicate and prone to high mortality	Higher, as they are stronger and more resilient
Disease susceptibility	More vulnerable to diseases and infections	Less prone to diseases due to a stronger immune system and ability to withstand stress
Adaptability	Less adaptable to environmental changes	Better adaptation to pond conditions and handling
Risk of cannibalism	Higher among fingerlings due to size variations	Lower, as juveniles have passed the critical cannibalistic stage
Stocking preference	Preferred for farmers looking to grow fish from an early stage	Preferred for those who want faster growth and reduced mortality
Market readiness	Takes longer to reach market size (6 to 8 months)	Reaches market size faster (4 to 5 months)

Source: ITC compilation based on stakeholders' responses.

Table 4 shows that stocking juveniles is far more advantageous than stocking fingerlings. Therefore, it is advisable to stock ponds with juveniles rather than fingerlings as this can make a big difference in catfish production.

Another important practice that contributes to success in catfish production is adopting the cyclical stocking model. This is an efficient system that ensures a continuous supply of fish throughout the year. It involves stocking juveniles on a monthly basis, allowing a continuous production cycle. A production cycle is the time from stocking to harvesting.

Table 5: Cyclical production model

Month	Stocking date	Number of juveniles	Harvest date	Expected harvest (kg)
January	15 Jan	3,000	15 May	2,432
February	15 Feb	3,000	15 Jun	2,432
March	15 Mar	3,000	15 Jul	2,432
April	15 Apr	3,000	15 Aug	2,432
May	15 May	3,000	15 Sept	2,432
June	15 Jun	3,000	15 Oct	2,432
July	15 Jul	3,000	15 Nov	2,432
August	15 Aug	3,000	15 Dec	2,432
September	15 Sep	3,000	15 Jan	2,432
October	15 Oct	3,000	15 Feb	2,432
November	15 Nov	3,000	15 Mar	2,432
December	15 Dec	3,000	15 Apr	2,432

Source: ITC based on field interviews.

Assumptions:

- Stocking date: 15th of every month
- Number of juveniles stocked: 3,000
- Growing time to 1kg: four months
- Harvest date: four months after stocking
- Mortality rate: 10% (300 juveniles)
- Feed consumption (bags): 210 bags per cycle (each cycle last four months)

As juveniles normally reach 1kg in four months, this model enables the farmer to begin monthly harvesting and sales from the fifth month after the initial stocking. The regular stocking schedule ensures the farmer can maintain their customer base. This system is advantageous for farmers looking for stable income, efficient resource management and consistent market supply while minimizing the financial strain associated with bulk purchase of feed.

Table 6: Fish farming operations

Pros	Cons
High demand for fish provides a ready and consistent market	Moderate risk of disease outbreaks, which can affect stock and lead to huge financial losses
Fish farming can be highly scalable, allowing small operations to grow progressively	High costs of feed and other inputs, which make profitability challenging without efficient cost management
Multiple revenue streams, such as selling fingerlings, market-ready fish and value-added products	Requires significant technical knowledge in aquaculture and water quality management to prevent mortality and maintain optimal growth conditions
Government incentives and support for aquaculture provide opportunities for financial assistance and resources	Competition from imported fish can affect local pricing and market access

Processing and value addition

Processed products such as dried and smoked fish command premium prices, with dried catfish priced as high as ₦11,910 per kilogram in certain regions. Entrepreneurs can invest in fish-processing facilities or packaging operations, focusing on drying and smoking, to capture this value-added segment. Value-added products including smoked fish, fish fillets and ready-to-eat fish snacks, pre-packaged or ready-to-cook fish products can cater to urban consumers seeking convenience and quality. This venture is appealing to those looking to diversify revenue streams and provide differentiated products.

Table 7: Processing and value addition

Pros	Cons
Value-added products often have higher profit margins compared to raw fish	Requires substantial initial investment in equipment and facilities for processing, drying and packaging
Growing demand for convenient, ready-to-eat fish products among urban consumers	Stringent quality control and food safety standards must be met to ensure compliance with regulations, which can increase operational costs
Processing can help reduce post-harvest losses, making the supply chain more efficient	Market competition from established processed fish brands
Opportunities for export to neighbouring countries and international markets	

Source: ITC based on field interviews.

²Stakeholder interview (Ose fish market, Onitsha).

The dry catfish processing business is a highly lucrative and rapidly growing sector driven by growing local demand and export opportunities. Smoked catfish is widely consumed by most Nigerians and it has several advantages, such as long shelf life, high nutritional value and ease of storage, making it a preferred protein source among households, restaurants and international markets.

A key advantage of this value chain is its low entry barrier. New entrants can start by using simple smoking kilns such as the chorkor oven or traditional drum ovens. The traditional drum oven can cost just ₦20,000 while the chorkor oven kiln costs an average of ₦150,000 and the raw material (live catfish) is readily available from local farms.

Demand and preference for smoked catfish varies based on location, taste preferences and health status. Some customers prefer their fish spiced while others like it plain. Some enjoy the firewood taste while others do not. A typical example is the Ose market

in Onitsha, Anambra State, where the customers prefer the fish whole (ungutted) and smoked with firewood rather than gas. The market union and traders reject any fish processed in a gas oven as it is perceived to be of low quality, leading to reduced demand and the possibility of financial loss due to slow sales.²

It is important to note that it takes 4kg of fresh catfish to produce 1kg of dried catfish. This 4:1 ratio of fresh to dried catfish is crucial for production planning, cost calculation, pricing strategy and client management. Accurate yield estimation ensures informed decision-making, optimizes profitability and enhances competitiveness in the market, ultimately driving business success and sustainability.

The business model revolves around selling dried catfish to customers such as supermarkets, households, restaurants and wholesalers. Some actors in the processing business also render processing services to other farmers.



Chorkor oven (oven used for fish smoking) This picture shows trainees participating in fish processing at Doctor Fish Agric Consult Training Center, Delta State.

Logistics and distribution

Efficient logistics ensure that fish (live, frozen and dried) reaches consumers in good condition. While these items are in high demand, inconsistencies in regional supply can affect them. Investing in logistics – specifically in storage and refrigerated transportation – can help maintain a consistent supply, reduce spoilage and stabilize prices.

Nigerian returnees have opportunities to invest in logistics to preserve product quality throughout the supply chain. Entrepreneurs can also target underserved regions. Regions with lower prices, such as Taraba and Zamfara, indicate opportunities to scale operations and serve untapped demand. Improved distribution networks can address supply gaps and equalize price disparities. This business requires investment in appropriate equipment and the establishment of partnerships with producers and markets.

Table 8: Several logistics models are available in the sector

S/N	Logistics model	Description	Example	Advantages	Disadvantages
1	In-house logistics	Aquaculture company manages its own logistics	The farmer uses his/her own trucks to transport fish, feed and other supplies	Control over operations, reduced transportation costs	High capital investment, requires expertise
2	Third-party logistics	Outsourcing logistics to a specialized provider	The farmer partners with a logistics company for help moving his/her goods	Cost savings, expertise, scalability	Loss of control, potential for poor service
4	Just-in-time logistics	Delivering products just in time to meet demand	The farmer relies on the logistics company to bring his/her goods just when they are wanted	Reduced inventory costs, improved freshness	High transportation costs, risk of stockouts
5	Vendor-managed inventory logistics	This model entails the supplier managing the farmer's inventory on his/her behalf	The feed distributor manages the inventory and pays the logistics company for feed supplies to the farmer	Lower inventory costs, better supply-chain visibility, improved freshness	Loss of control, potential for poor service
6	Cold-chain logistics	Temperature-controlled logistics for perishable aquaculture products	A farmer using an ice box on a bike for fish transportation	Maintains product quality, reduces spoilage	High costs, requires specialized equipment and expertise

Source: ITC based on field interviews.

Different types of vehicles can be used for logistics, including bikes, cars, buses and trucks.



Table 9: Cold-chain logistics and distribution

Pros	Cons
Cold-chain logistics helps maintain the quality and freshness of fish products, leading to greater consumer satisfaction	High initial capital investment required for refrigerated trucks, storage facilities and other cold-chain equipment
Reduces post-harvest losses by ensuring fish are stored and transported under optimal conditions	Operational costs, such as energy consumption and maintenance, are significant and can impact profitability
There is growing demand for reliable logistics, especially in urban centres where consumers expect high-quality, fresh products	Requires specialized knowledge and training to effectively manage the cold chain, including temperature control and proper handling practices
Cold-chain logistics can facilitate access to more lucrative markets, including export opportunities	Market entry can be challenging due to competition from well-established logistics companies

Aquaculture equipment supply

Demand for aquaculture equipment, such as aerators, pond liners and water pumps, is rising. Entrepreneurs can supply or even manufacture these essential tools to support the growing fish farming industry. They can also import some of them, but this requires important initial capital. This venture suits those with engineering skills or a background in manufacturing.

Table 10: Aquaculture equipment supply

Pros	Cons
High and growing demand for specialized aquaculture equipment as fish farming activities expand	High initial capital investment required for manufacturing equipment, including the cost of machinery and raw materials
Opportunities for partnerships with local fish farmers and hatcheries, ensuring a consistent customer base	Requires technical expertise in engineering and manufacturing to produce high-quality, durable equipment
Government incentives for supporting local aquaculture development can financially assist equipment manufacturing	Market competition from imported equipment may pose challenges, particularly on pricing and perceived quality

Source: ITC based on field interviews.

Consulting and training services

Many smallholder farmers lack technical knowledge about best practices in fish farming. Providing consulting, extension services and training programmes can help improve farming practices, increase yields and reduce losses due to poor management or disease. This opportunity suits individuals with technical expertise in aquaculture (FAO, 2023).

Table 11: Consulting and training services

Pros	Cons
Growing demand for training and consulting services due to the increasing number of small-scale fish farmers	Requires deep technical knowledge and experience in aquaculture
Opportunity to create a positive impact by helping farmers improve productivity and profitability	Difficulties in reaching farmers in remote areas due to poor infrastructure
Consulting can be a flexible business model with low overhead costs compared to other aquaculture ventures	Competition from established consulting firms and non-governmental organizations (NGOs) providing free or subsidized training
Government and NGO programmes often seek partnerships with consultants to provide extension services, creating additional revenue opportunities	The success of the service depends heavily on farmers' willingness to adopt new practices, which may face cultural or logistical barriers

Source: ITC based on field interviews.

E-commerce and direct marketing

With the increasing adoption of digital platforms, entrepreneurs can establish e-commerce businesses that facilitate the sale of fresh or processed fish products directly to consumers. This approach can help bypass intermediaries, reduce costs and provide consumers with convenient access to fish products. It is ideal for tech-savvy entrepreneurs who can leverage digital tools to build an online presence.

Table 12: E-commerce and direct marketing

Pros	Cons
Direct access to consumers maximizes profit margins by eliminating intermediaries	Requires investment in technology and digital marketing, which can be challenging for those unfamiliar with e-commerce platforms
E-commerce provides an opportunity to reach a larger market, including customers beyond local regions	Logistics can be a challenge, especially ensuring timely and fresh delivery to consumers
Flexibility to market both fresh and processed fish, providing multiple revenue streams	High competition from established e-commerce platforms and other online sellers
Lower overhead costs compared to physical stores, as there is no need to rent or maintain physical retail space	Dependence on internet infrastructure, which can be unreliable in some rural areas

Source: ITC based on field interviews.

Feed and input distribution

Feed constitutes an average of 70% of aquaculture's production cost, making it a viable business in the value chain. Most feed distributors also sell fish inputs such as nets, fish medication, weighing scales and containers. This venture is ideal for entrepreneurs with experience in and/or passion for trading.

Table 13: Feed and input distribution

Pros	Cons
High and growing demand for feed and other inputs due to the expansion of fish farming activities	High initial capital investment required to start the business
Opportunities for partnerships with feed manufacturers and local fish farmers ensuring a consistent customer base	Requires technical expertise in trading and fish farming to navigate complexities in the industry
Support from feed manufactures can easily lead to expansion of the business	Market competition from distributors of other feed brands in the proposed territory of the new distributor

Source: ITC based on field interviews.

Box 1: Recommendations for new businesses entering the sector

1. Gather as much information as possible about the business

Before starting, collect information about market demand, consumer preferences, pricing structures and existing competition in your intended locality. If additional data are required, consult trade associations such as the Catfish and Allied Fish Farmers Association of Nigeria (CAFFAN), which has a wide network and can help you with any information required to succeed in the business.

2. Carry out a thorough market analysis for your target market

Visit local markets, supermarkets and restaurants to understand pricing and customer needs.

3. Identify niche opportunities to explore untapped markets

Specializing in a niche can differentiate your business and reduce direct competition. Examples include producing:

- a. Organic or antibiotic-free smoked catfish targeting health-conscious consumers
- b. Smoking size fish (250 grams to 350 grams)
- c. Premium export-grade value-added products such as packaged smoked catfish or ready-to-cook fillets for local and international markets, leveraging Nigeria's diaspora

4. Determine the type of fish to be farmed

There are three species of catfish farming in Nigeria, namely *Clarias* Species, *Heterobranchus* Species and Hybrid, which is a cross between *Clarias* and *Heterobranchus*. Genetically improved farmed tilapia has been widely adopted across a few states in Nigeria such as Lagos and Abuja.

While catfish farming and consumption are widespread and well-established, with many people aware where to buy it, tilapia farming is a relatively new venture. As a result, there is a lack of awareness about the desirable qualities of this tilapia strain, such as its fleshiness. The market for tilapia is still underdeveloped, making it challenging to sell. Therefore, great effort is required to promote and sell tilapia, making catfish the preferred fish for a new entrant into aquaculture.

5. Chose suitable production processes and maintain optimal stocking density

An example is choosing between using earthen pond or mobile tarpaulin tanks for fish production. Location, availability and affordability influence the choice. For people living in urban areas, tarpaulin pond is preferred as it is cheaper to construct, maintain and monitor, and it has higher stocking capacity based on water management regime adopted.

It is important to determine the optimal initial stocking density based on the size of the fish targeted at harvest, the size of the pond and the management system adopted.

Stocking Density Guide (per square metre)

- Earthen pond: 20 – 30 fish
- Concrete pond: 40 – 60 fish
- Tarpaulin pond: 40 – 60 fish

However, the stocking density can be increased to 120 fish per square metre if good water management – such as flow through or daily changing of water – is maintained in tarpaulin pond

- 6. Develop a comprehensive business plan with clear goals**, operational structure, production capacity, sales strategies, financial projections and risk management measures. Use templates from ITC or the Small and Medium Enterprises Development Agency of Nigeria or consult a reliable stakeholder (see appendix). A well-structured business plan is an essential tool to attract investors and secure funding from government and private sources.
- 7. Get a suitable farm site with access to clean water sources** (borehole, river or lake) and good drainage facility. Access to water is critical in aquaculture as it directly affects fish health, growth and overall production success.



▶ CHAPTER 3 ▶

Key players and regulatory environment

The fish farming ecosystem in Nigeria includes various stakeholders, including government bodies, industry associations, private enterprises and international organizations. These stakeholders collaborate to regulate, advocate and support the sector, although challenges persist. High feed costs, disease management and infrastructure gaps hinder productivity. Market fluctuations and competition from imported fish further complicate the landscape.

Relevant institutions supporting returnee entrepreneur

Policy network (regulatory and policy institutions)

Nigeria's public sector plays a crucial role in regulating and supporting the fisheries industry. Government agencies develop policies, establish quality standards, issue licences and monitor compliance to ensure sustainable fishing practices. Engaging with these agencies is essential for any new venture in the sector to understand regulatory requirements, gain access to government programmes and participate in various industry support initiatives.

Table 14: Public sector and government agencies in the fisheries sector

Organization	Role and engagement strategy	Relevance to new entrants
Federal Ministry of Agriculture and Rural Development	Oversees fisheries policies, including regulations related to fishing methods, aquatic health and sustainability. It implements best practices and develops strategies for fish production and biosecurity	Provides key guidelines on sustainable fishing practices, necessary permits and technical support for new entrants
National Institute for Freshwater Fisheries Research	Researches freshwater fish species, breeding, aquaculture development and sustainable exploitation of aquatic resources	Offers research findings, innovations in aquaculture practices, and technical assistance that benefit aquaculture start-ups
Nigerian Institute for Oceanography and Marine Research	Focuses on marine resource research, providing insight into sustainable exploitation, environmental impacts and coastal fisheries management	Provides critical data on marine fisheries and aquaculture, supporting effective decision-making for new ventures
Federal College of Fisheries and Marine Technology	Offers education and training in fisheries technology, marine science and aquaculture, aiming to build sector capacity	Ideal for training programmes and technical knowledge for entrepreneurs entering the fisheries sector
National Environmental Standards and Regulations Enforcement Agency	Regulates pollution control, ensuring aquaculture and fisheries operations adhere to sustainable environmental practices	Essential for understanding environmental regulations related to aquaculture waste management
Nigerian Agricultural Quarantine Service	Oversees the importation and export of live fish, enforcing quarantine measures to prevent disease transmission. Compliance with Nigerian Agricultural Quarantine Service standards is essential to trade aquatic species	Ensures compliance for businesses importing broodstock or exporting fish products
Local state fisheries departments	Local agencies implement state-level fisheries programmes and provide direct support to small-scale fishers	Provides localized permits, funding and technical assistance tailored to small-scale fishers and rural communities
Nigerian Export Promotion Council	Responsible for promoting, developing and diversifying Nigeria's non-oil export sector	Provides support for export market development, regulations and financing
African Regional Aquaculture Centre	This is a separate department of the Nigerian Institute for Oceanography and Marine Research established with the assistance of FAO/United Nations Development Programme for training and research in aquaculture	Provides training, research information and capacity building in aquaculture, fisheries and oceanography to new entrants

Source: ITC based on field interviews.

Private sector and industry players

The private sector plays a key role in Nigeria's fisheries production, encompassing aquaculture farms, feed manufacturers and fish processing companies. Several private-sector companies help with training, capacity building and setting up fish businesses. Additionally, some of these firms provide support in establishing market connections and accessing financing. Their involvement is essential to ensure the success of newcomers in the industry. Below is a list of some of these companies.

Table 15: Private sector and industry stakeholders by market segment

Organization	Short description	Relevance to new entrants
Premium Aquaculture Ltd.	A major aquaculture producer specializing in tilapia and catfish production	Partnering can help smaller producers with access to fingerlings and distribution channels
Grand Cereals Limited	Produces and distributes fish feed across Nigeria, supplying many aquaculture farms	A reliable source of quality feed is critical for managing production costs in fish farming. New entrants can become distributors
CVA farms	Engages in fish breeding and pond construction	Provides opportunities for new farmers willing to enter the hatching business through training, access to broodstock, mentorship and process partnerships
Olam Nigeria	Operates across the agricultural value chain, including aquaculture feed production	Offers partnership opportunities for feed distribution and capacity building
Livestock Feeds Plc	Produces aquaculture feed and has a wide distribution network	New entrants can become distributors or benefit from existing feed distribution networks
Sej Farms Consult Ltd	A major aquaculture producer specializing in catfish, tilapia production and processing as well as training on aquaculture value chain	Offers training, mentorship and access to fingerlings and other inputs. Some training is done in collaboration with other organizations such as International Institute for Tropical Agriculture. Some trainees enjoy full scholarship and start-up capital based on grant received and project design
Myra Farms	Has an integrated value-chain operation comprising a hatchery, grow-out farm, processing, training centre, fish theme resort, feed mill and consultancy services	Offers training, mentorship and access to fingerlings and other inputs

Latia Global Investment Limited	A pioneer in tilapia farming, cage culture and black soldier fly production	A reliable source for training, mentorship, construction of floating cages, integrated farming model and access to fingerlings
Doctor Fish Agric Consult	A major integrated farm and training centre for livestock and aquaculture business	Provides a comprehensive range of services, including training, business incubation, farm consultancy, access to finance and market linkages. Notably, some of these training programmes are offered free of charge, made possible by grants that support the training and set-up of beneficiaries in their chosen agribusiness ventures

Source: ITC.

Non-governmental organizations and industry associations

NGOs and industry associations play a pivotal role in supporting Nigeria's fisheries sector through advocacy, funding and training initiatives. Many organizations provide resources, training and funding, helping fish farmers improve productivity, access markets and meet regulatory standards.

Table 16: NGOs and industry associations

Organization	Short Description	Relevance to new entrants
Fisheries Society of Nigeria	The leading trade association representing Nigeria's fisheries sector, advocating for sustainable fisheries management	Provides networking, advocacy and access to industry insights for new fish farmers
USAID Feed the Future Program	Provides funding and training to small-scale fish farmers to improve productivity and food security	Offers financial and technical support for aquaculture ventures, particularly small-scale farmers
Tilapia Aquaculture Developers Association of Nigeria	Promotes tilapia farming in Nigeria, providing training and advocacy	Ideal for those interested in tilapia farming, providing best practices and industry connections
Heifer International - Nigeria	Supports sustainable livestock and aquaculture development, focusing on rural communities	Provides funding and technical assistance for rural aquaculture projects

WorldFish	Engages in research and development for sustainable aquaculture and fisheries	Offers access to research, innovation and global best practices in aquaculture
Catfish and Allied Fish Farmers Association of Nigeria	Promotes aquaculture business, supports farmers and advocates for policies enhancing industry growth	Provides networking opportunities and support to new entrants
Foundation for Partnership Initiatives in the Niger Delta	Provides support and development of the aquaculture value chain across the Niger Delta	Linkage to service providers who provide technical expertise, access to market, quality input and finance

Source: ITC.

International development agencies and funding bodies

Several international agencies and funding bodies support Nigeria's fisheries sector by providing grants, concessional loans and technical assistance to foster sustainable growth, improve food security and enhance market access.

Table 17: International agencies and funding bodies

Organization	Role in fisheries sector	Relevance to new entrants
World Bank - Fisheries and Aquaculture Program	Provides funding and technical assistance to enhance fisheries productivity and resilience	Offers grants for infrastructure development and sustainable practices in aquaculture
African Development Bank	Funds fisheries project to boost food security and rural livelihoods	Offers funding opportunities for large-scale fisheries and aquaculture projects
Food and Agriculture Organization	Supports sustainable fisheries and aquaculture practices, providing guidelines for biosecurity and fish health management	Provides best practices and access to international fisheries knowledge
USAID Agribusiness Investment Activity	Focuses on providing technical and financial support to agribusiness ventures, including aquaculture	Offers funding and support programmes for small and medium-scale fish farmers
Bill & Melinda Gates Foundation - Agricultural Development	Supports innovative aquaculture practices to improve productivity and food security	Provides funding for innovative practices and technologies in fish farming

Source: ITC.

Regulatory environment

Nigeria's fisheries sector is governed by a comprehensive legal framework aimed at promoting sustainable practices, protecting local industries and ensuring food security. Key legislation in this sector includes the Nigerian Fisheries Act of 1992, the Coastal and Inland Fisheries (Control and Regulation) Regulations, and the Exclusive Economic Zone Act. To bolster domestic fish production and decrease reliance on imports, the country has implemented strict regulations and quotas on certain fish products, primarily frozen fish, to shield local producers from international competition and foster the growth of the domestic fisheries industry.

While Nigeria has not yet established robust legislative frameworks specific to aquaculture, as seen in countries such as Egypt, it has made strides with its National Aquaculture Strategy, developed with the assistance of the FAO in 2008. This strategy aims to sustainably enhance domestic fish production and marks a significant step toward policy improvement (Walakira et al., 2023).

The Nigerian Government has implemented various policies to enhance the productivity and competitiveness of the fisheries sector. These initiatives include subsidies for fish feed, the development of hatcheries and improvements to infrastructure for fish farmers.

Compliance requirements

For individuals planning to enter the fisheries business, understanding regulatory requirements is essential for

establishing a compliant and successful operation. Key areas to consider include:

Business registration and licensing:

All fisheries businesses should be registered with the Corporate Affairs Commission to obtain legal status and access to formal contracts, grants and business financing. The business can be registered as a sole proprietorship or a limited liability company.

- Registration with the Federal Inland Revenue Service for a limited liability company or Joint Tax Board for a sole proprietorship is also necessary to obtain a tax identification number and fulfil tax obligations.

Import regulations:

- Authorization from the Standards Organization of Nigeria is required for the duty-free importation of aquaculture equipment to ensure compliance with quality standards.
- Drugs, vaccines and chemicals used in aquaculture are subject to duties and strict procedures set by the National Agency for Food and Drug Administration and Control.
- The importation of live fish is restricted to broodstock or fingerlings, with quarantine measures enforced by the National Agricultural Quarantine Service upon arrival. Licensing from the Federal Ministry of Agriculture and Rural Development is necessary for import permissions. Permits managed by the Nigerian Institute of Animal Science are required to import feed, concentrates and supplements.



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Product quality and environmental compliance

- Fish products must meet quality guidelines established by the Standards Organization of Nigeria, ensuring that all feed, medications and processing equipment comply with safety and quality standards.
- Compliance with biosecurity protocols and vaccination schedules mandated by the National Institute for Freshwater Fisheries Research is crucial to prevent disease outbreaks and maintain the health of fish populations.

▶ CHAPTER 4 ▶

Challenges and barriers for entrepreneurs

Challenges affecting the sector

Nigeria's aquaculture sector is an important component of the country's agricultural economy and fisheries industry, representing a promising avenue for food security, employment generation and economic development. However, despite its potential and current standing as the second-largest aquaculture producer in Africa, Nigeria faces challenges that hinder the full realization of its aquaculture potential.

Lack of access to quality feed and fingerlings, from high costs of feed raw materials.

Quality fish feed is often imported and prohibitively expensive, accounting for 70%–82% of total fish production costs (Fregene et al., 2020). Farmers have expressed frustration over the rising prices of raw materials, transportation and energy, which further inflate feed costs. As a result, some are compelled

to use lower-quality feed, negatively affecting fish growth and survival rates (Adewumi, 2015).

For instance, one fish farmer in Oyo feeds his catfish protein-rich fermented maggots sourced from another state. While this method has advantages, he recognizes that catfish requires a diverse nutrient profile for healthy growth, better market prices and enhanced nutritional value for consumers (WorldFish, 2023).

Additionally, there is a shortage of quality, locally sourced feeds (such as starter feed) and a lack of expertise in feed production, which hinders the progress of Nigeria's aquaculture sector (Naturenews.africa, n.d.). This leads to dependence on imported aquatic feed and ingredients.

Lack of quality fish seed (fingerlings and juveniles) arising from the

limited number of hatcheries.

Many farmers lack access to well-established hatcheries where they can source quality fish seed. Therefore, they buy low-quality or diseased fingerlings, compromising their yields. This practice has driven many farmers out of the business as the yield is often very poor and cannot sustain the growth of the business.

Rising production costs and difficulty securing affordable loans restrict farmers' ability to scale up operations.

A study in the Sudano-Sahelian region of Nigeria found that 88.6% of fish farmers identified inadequate capital and the high cost of fish feed as constraints to aquaculture development (Subasinghe et al., 2021). Small-scale fish farmers face challenges accessing loans and financing options due to high interest rates, collateral requirements and inadequate loan facilities.

For instance, some fish farmers in Asaba (Delta State) formed a cluster known as Camp 74 (Yusuf, 2014), which allowed them to access state government financial intervention during a natural disaster when their fish were lost due to floods (WorldFish, 2023). Other fish farmers in different areas of Asaba who were unable to join this cluster did not benefit from state government recognition, despite being registered with the Corporate Affairs Commission.

This limited access to credit hinders the farmers ability to invest in essential equipment, infrastructure upgrades and quality fingerlings. Many of these farmers

operate on leased lands, and high service charges reduce their profits considerably (Tavershima, Ugwuh & Ameh, 2022a).

Additionally, women in aquaculture face greater challenges in obtaining financial resources as their financial literacy is often limited and they struggle to meet collateral requirements. The difficulty in accessing affordable credit stifles investment in the sector and hampers the adoption of improved technologies.

Nigeria's fish farmers face huge marketing and distribution channel challenges.

Many report difficulties in accessing reliable markets for their products. This, coupled with insufficient cold storage facilities, leads to post-harvest losses and, ultimately, lower profits. Transportation issues exacerbate the situation, making it complicated to distribute fish products efficiently. Farmers often face high logistics costs and inadequate infrastructure, which are especially problematic for new market entrants. This makes it difficult for them to reach a wider customer base and to compete effectively with established competitors.

Moreover, competition from imported frozen fish adds another layer of difficulty. Nigeria imports a substantial amount of fish, primarily because these imports are often cheaper due to subsidies and economies of scale in production abroad. As a result, local producers struggle to find viable markets, notably in urban areas, where consumers tend to prefer lower-priced options. This competitive pressure can undermine local businesses and diminish their

market share, further complicating the landscape for domestic fish farmers.

Environmental challenges in fish farming including water quality management.

Maintaining clean and oxygenated water is crucial for fish health, yet many farmers lack the technology to achieve optimal conditions. For example, Ukwuani Chijioke Mark, known as CJ Fish, operates a fish farm in Enugu and uses empty giant snail shells as natural buffers to stabilize pH levels in his pond. By placing the shells in a porous bag and submerging them for three hours, he effectively neutralizes acidity and prevents rapid fluctuations in pH (WorldFish, 2023).

Pollution remains a big concern, as industrial and agricultural runoff introduces contaminants such as pesticides, heavy metals and untreated waste. These deteriorate water quality, lead to fish kills and compromise fish stocks.

Water scarcity is also pressing, particularly in regions where clean water is limited during the dry season. This greatly affects aquaculture activities. Additionally, climate change aggravates environmental challenges, creating pressures on fish populations and aquatic ecosystems.

In Oyo, Asaba and Enugu, fish farms operate under erratic weather patterns, with many lacking adequate shelters from direct sunlight. One farmer noted the financial burden of using jerry cans to fetch water, highlighting issues of irregular availability that increase costs and risks (WorldFish, 2023).

Variability in rainfall, increased flooding and rising temperatures disrupt fish habitats and aquaculture. Flood events can devastate ponds and displace stocks, severely affecting productivity. Habitat degradation, especially the destruction of mangroves due to coastal development and pollution, threatens breeding grounds essential for many fish species. These factors create a precarious situation for the fisheries sector, making it especially challenging for new entrepreneurs who may lack the experience and resources to navigate such risks.

Inadequate infrastructure hampers the efficiency and profitability of fish farming in Nigeria.

Poor roads and transportation options create challenges in accessing markets, particularly for small-scale farmers in rural areas. This leads to increased post-harvest losses due to spoilage. Insufficient cold storage and processing facilities further exacerbate this issue, resulting in a considerable amount of caught fish going to waste.

The absence of modern aquaculture technology and infrastructure also affects production conditions, contributing to higher mortality rates and higher operational costs (Nwuba, Ude & Ogbonnaya, 2022). New entrants to the industry face the burden of investing heavily in modernization, which can deter investment and limit growth. Experts suggest that adopting modern technology is essential to revolutionize fish farming and ensure sustainable development in Nigeria's aquaculture sector (AgroNigeria, 2024).

The fisheries sector faces major challenges due to poor regulation and enforcement.

Outdated legislation, such as the 1992 Sea Fisheries Act, inadequately addresses modern issues, leading to overfishing and resource depletion. The regulatory framework is weak, with many poorly implemented or inconsistently enforced laws that permit unsustainable fishing practices and inadequate environmental protection.

A lack of capacity and funding for government agencies hinders monitoring and management of fisheries resources, resulting in insufficient surveillance and difficulty deterring illegal activities. Frequent changes in government policies create an unstable operating environment for fish farmers, as abrupt modifications, such as shifts in tariffs on imported fish, disrupt market prices and undermine local production. This instability ultimately undermines investor confidence and discourages new participants in the sector, exacerbating the challenges of fisheries management and sustainability.

Many small-scale aquaculture operators lack formal training in modern practices, further limiting their productivity.

An assessment of fish farmers in Enugu State revealed a significant lack of

technical knowledge and skills in key areas such as pond management, breeding practices and disease prevention (WorldFish, 2023). This led to lower yields and reduced market competitiveness. While one farmer felt adequately equipped, most expressed concerns about their ability to manage their operations effectively. The absence of training is also linked to the limited access to extension services, which is inadequate, preventing farmers from obtaining vital information on best practices and technological advancements.

Many fish farmers' farms are vulnerable to diseases, which can lead to large losses.

Many farmers do not recognize the need for veterinary services or lack the financial resources to afford diagnostics and preventive measures, leaving their operations open to disease outbreaks. Poor management practices and inadequate biosecurity measures often contribute to these outbreaks, resulting in the potential loss of entire fish stocks. The situation is further complicated by a lack of knowledge and access to appropriate veterinary services, hindering effective fish health management and increasing the risk of losses.

Box 2 Practical tips to overcome entry barriers including cost

Start small and scale gradually

- Begin with a small pond or rented space to minimize land costs and gain experience before expanding your operation
- Use plastic or tarpaulin ponds instead of concrete ponds, which are quite expensive to build
- Test different feed formulations to determine cost-effective options
- Build a small smoking kiln instead of buying an expensive industrial one

Network with industry experts and associations

- Join the Fisheries Society of Nigeria and CAFFAN
- Connect with successful fish farmers for mentorship and partnership opportunities

Establish reliable relationships with the supply chain

- Source fingerlings and juvenile fish from reputable hatcheries with proven records to ensure healthy stock
- Identify cost-effective and high-quality feed suppliers and reduce expenses by asking for advice from successful fish farmers
- Develop a supply-chain strategy by working with major distributors and feed company representatives who also offer free consultancy services to their customers
- Establish agreements with processors, wholesalers and retailers to secure off-take arrangements

Adopt cost-effective technologies

- Invest in energy-efficient smoking kilns, such as gas or solar powered kilns, to reduce processing expenses
- Consider solar-powered water pump for sustainable and affordable pond management
- Adopt integrated farming such as aquaculture and vegetable farming to use pond wastewater and generate additional income
- Mobile tarpaulin ponds have proven to be useful in optimizing water use and reducing wastage

Regularly review and adapt the business plan

- Evaluate business performance after every cycle to adjust production and sales strategies
- Monitor changes in fish prices, feed costs and processing expenses; this will be useful in budgeting and forecasting
- Stay informed through platforms such as CAFFAN monthly meetings, where price advice is given on a monthly basis

Prioritize biosecurity and sustainable practices

- Implement strict hygiene measures to prevent disease outbreaks
- Maintain water quality by changing your pond water regularly
- Feed the fish with the right size feed and maintain feeding times
- Wash and disinfect ponds during the sorting exercise and restrict unauthorized access to the pond

Register the business with the relevant authorities to grants and loan

- Register with Corporate Affairs Commission for formal recognition as a business
- Apply for government support through agencies such as the Bank of Industry, the Bank of Agriculture and the Small and Medium Enterprises Development Agency of Nigeria
- Explore grants from the Mastercard Foundation, the Tony Elumelu Foundation and the African Development Bank
- Consider private investors, cooperatives or impact investment funds. Joining a cooperative is a viable option as they offer cheaper finance, more flexible loan conditions and easy accessibility.

Note that it is advisable to start with personal finance rather than a loan. Starting with personal finance helps reduce risks, avoid debt stress, build financial stability and improve long-term profitability. Loans should only be considered for expansion when the business has achieved operational efficiency, market penetration and financial stability.

CHAPTER 5

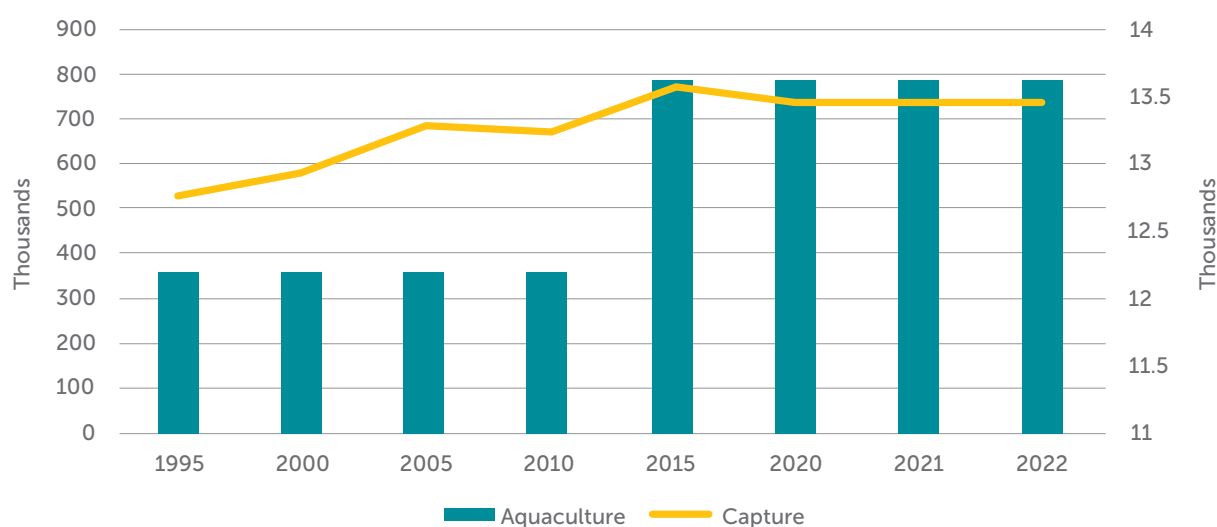
Labour market insights

The aquaculture sector plays a key role in Nigeria's economy. Employment in the capture fisheries sector grew 46% in 1995–2015, from 530,330 workers to 772,780, before stabilizing around 735,660 since 2020 – indicating a saturation point.

In comparison, aquaculture employment has remained relatively stable, rising from 12,190 in 1995 to 13,630 in 2015 and

maintaining that figure through 2022 (Figure 5). However, it should be noted that data on employment in aquaculture are limited. This stability reflects aquaculture's small share of total fisheries employment, even though it holds considerable potential for growth. Projections estimate the creation of 60,000 to 240,000 new green jobs by 2030, particularly in aquaculture and poultry (Bega, 2024).

Figure 5: Nigeria's employment statistics



Source: FAO 2024.



Smallholder fish farming, a key segment of the aquaculture industry, supports an estimated 8.6 million people (Foundation for Partnership Initiatives in the Niger Delta [PIND], 2021) through direct employment for farmers and indirect employment through value-chain activities such as feed production, processing and marketing. Typically, smallholder fish farmers operate modestly, with fishponds measuring 150 square metres to 200 square metres, collectively supporting about 18 people through their operations. This underscores the impact of small-scale aquaculture on local employment and its potential to enhance livelihoods.

Additionally, the fish sector provides substantial opportunities for youth and women. Women own around 50% of post-farmgate value-chain activities, while youth (under 35) control 35% (FAO & ITC, 2024). This indicates that the sector serves as a source of income and a platform for empowering marginalized

groups. Women are prominent in fish retailing while men engage more in wholesaling, reflecting the cultural and economic dynamics in the sector.

The fish value chain is economically viable, with more than 80% of post-farmgate value-chain actors reporting profitability. This is crucial to sustain employment and encourage further investment in the sector (Subasinghe et al., 2021).

Job opportunities and skills requirements

Aquaculture, or fish farming, is a fast-changing field with many specialized jobs that help make operations efficient, sustainable and profitable. The table below lists important roles in this industry, explaining the responsibilities and skills needed for each position. These roles show the diversity of the aquaculture sector.

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Table 18: Expected income for key jobs in the aquaculture industry

Job role	Responsibilities	Required skills	Salary range per month (NGN)
Fish farmer/ aquaculture operator	Manages fish farms, including breeding, feeding and harvesting fish	Knowledge of fish species and breeding techniques; water quality management; business skills	120,000 - 250,000
Hatchery manager	Oversees the production of high-quality fingerlings for fish farms	Expertise in hatchery operations, genetics and water quality management	150,000 - 300,000
Feed production specialist	Develops and produces nutritionally balanced fish feeds	Knowledge of fish nutrition and feed formulation; quality assurance skills	250,000 - 500,000
Aquaculture technician	Provides technical support in fish farming operations, including equipment installation and maintenance	Technical skills for aquaculture systems; understanding water recirculation systems	40,000 - 100,000
Fisheries extension officer	Educates fish farmers on best practices, policies and technologies	Strong communication and expertise in fish farming techniques and regulations	10,000 - 250,000
Aquatic veterinarian/ fish health specialist	Diagnoses and treats diseases in farmed fish	Veterinary knowledge with a focus on aquaculture and biosecurity skills	150,000 - 250,000
Cold-chain and processing specialist	Ensures proper handling, storage and processing of fish to maintain quality	Knowledge of cold storage, fish preservation techniques and food safety skills	75,000 - 280,000
Aquaculture researcher/scientist	Conducts research to improve fish farming methods, feed efficiency and disease control	Advanced knowledge in aquaculture; research and data analysis skills	250,000 - 650,000
Aquaculture business consultant	Advises fish farmers on improving productivity and profitability	Business and financial analysis; market knowledge; technical expertise	250,000 - 450,000
Fish processing and packaging expert	Focuses on value addition through packaging and processing fish products for markets	Knowledge of packaging techniques and compliance with safety standards	150,000 - 400,000
Environmental monitoring specialist	Monitors the environmental impact of fish farming and suggests sustainable practices	Environmental monitoring; waste management; policy compliance	100,000 - 280,000
Marketing and sales specialist	Promotes and sells fish and fish-related products in local and international markets	Marketing and negotiation skills; knowledge of fish markets and customer preferences	100,000 - 250,000

Note: The salaries for these roles vary depending on factors such as location, experience and size of the farm. The salary range was compiled from data obtained from stakeholders across the country and an average range presented, as seen above.

Source: ITC stakeholders' review

Training and education providers

Training and capacity-building initiatives in Nigeria's aquaculture and fisheries sector play a crucial role in enhancing the skills and knowledge of stakeholders, ultimately leading to improved productivity and sustainable practices. Key players in this effort include public and private institutions.

- The Federal Department of Fisheries and Aquaculture is responsible for implementing policies and conducting training workshops for fish farmers to enhance their expertise. Similarly, the National Institute for Freshwater Fisheries Research focuses on research and development, offering training programmes aimed at improving aquaculture practices for farmers, researchers and extension workers.
- The National Institute of Oceanography and Marine Research provides training initiatives that enhance marine aquaculture practices. Additionally, numerous universities and agricultural colleges across Nigeria, particularly those with dedicated faculties, offer degree programmes and courses in aquaculture and fisheries management, vital for producing qualified professionals in the sector.
- Fisheries and fish farmers' associations, such as the Fisheries Society of Nigeria and CAFFAN, also play a significant role by organizing workshops, seminars and field demonstrations to share best practices and innovations among their members. Notably, several Nigerian universities, such as the University of Agriculture in Abeokuta, University of Ibadan, Obafemi Awolowo University, provide degree programmes in fisheries,

contributing to the educational framework necessary to support the growing aquaculture and fisheries industry.

Various institutions actively organize workshops and seminars to educate fish farmers about best practices, new technologies and sustainable aquaculture methods. These events often feature expert speakers and include hands-on training sessions. Agricultural extension services play a crucial role in building capacity by providing practical support to fish farmers through training, technical assistance and advice on improving aquaculture practices (Subasinghe et al., 2021).

Collaborative research initiatives among universities, research institutes and the private sector are essential as they focus on the development of innovative aquaculture technologies. These programmes typically include training components to effectively disseminate findings and educate all stakeholders involved (Subasinghe et al., 2021).

In response to technological advancements, some institutions offer online training programmes and e-learning modules, allowing fish farmers to access resources remotely and enhance their skills. An example is the University of Nigeria, Nsukka, whose e-learning course is accessible [here](#). Additionally, specific initiatives aimed at empowering youth and women in aquaculture are being implemented, focusing on providing training, resources and support networks to encourage their active participation in the sector.

▶ CHAPTER 6 ◀

Financial aspects

The aquaculture sector offers diverse investment opportunities with varying financial requirements, capital needs and profitability. Each segment presents distinct challenges that directly influence the business' financial needs.

Table 19 provides a comprehensive guide to investment opportunities in aquaculture, outlining capital requirements, challenges and major expenses. This enables returnees to select ventures that match their passion, financial capacity, expertise and market demands. They can select from low-capital options such as fish marketing to higher-investment ventures including hatcheries and feed production.

Table 19: Investment requirements

Opportunity	Initial capital (₦)	Challenges	Main expenses
Fish production (smoking size: 250–350 grams) Time to market 2–3 months per cycle	300,000 – 5,000,000	Moderate ease of entry and high feed prices and instability of market prices	Pond, fingerlings/juvenile, feed, basic amenities (water and energy), labour
Fish production (750 grams to 1.2kg) Time to market 4–8 months per cycle	2,000,000– 10,000,000	Moderate ease of entry and high feed prices and medication costs, production cycles are prolonged	Pond, fingerlings/juvenile, feed, basic amenities (water and energy), labour

Broodstock production Time to market 12–24 months	1,500,000– 10,000,000	Moderate ease of entry. Lack of commercially formulated broodstock feed	Pond, fingerlings/juvenile, feed, basic amenities (water and energy), labour
Feed production	5,000,000– 30,000,000	Raw material prices fluctuate, quality-control challenges and competition from existing players	Raw materials, feed milling equipment (hammer mill, mixer, extruder, dryer), feed mill structure, energy source, compliance and regulatory costs
Hatchery (fingerling and juvenile production) Time to market 6–12 weeks	10,000,000– 50,000,000	Lack of standardized equipment, technical know-how, risk of diseases, water quality management	Broodstock, hatchery tanks, feed, aerators, water filtration system
Fingerling distribution	100,000 – 500,000	Easy of entry with challenges related to transportation costs, fragility of fingerlings, fluctuating market demand	Transport tanks, oxygen cylinders, water management tools
Fish processing (smoking) 3 days	5,000,000– 20,000,000	Moderate start-up costs, market accessibility, compliance with food safety regulations, risk of spoilage	Smoking kilns, packaging materials, storage facilities, compliance and regulatory costs.
Fish processing (fillet and sausage)	10,000,000– 50,000,000	High initial capital requirement, regulatory compliance, waste management, and environmental impact issues	Processing and filleting equipment, cold storage, packaging materials, fish supply, compliance and regulatory costs.
Aquaculture consultancy and training	100,000– 500,000	Intermediate industry experience is a prerequisite, with a small client base and competition from government/ NGO bodies	Certifications, degrees, training centres, demonstration farm
Veterinary services	500,000– 5,000,000	Tough professional qualifications (degree required), high costs of medication, market penetration difficulty	Certifications, degrees, test kits, compliance and regulatory costs
Sales of inputs and drugs	1,000,000– 10,000,000	Intermediate start-up cost, strict regulatory protocols, risk of purchasing fake products, constraints to logistics	Physical stores, certifications, compliance and regulatory costs

Note: These figures are approximate and intended for returnees starting on a small scale with plans to grow organically. To determine a more precise investment estimate, returnees should conduct a thorough business plan and market analysis specific to the location or market they wish to serve.

Source: ITC estimates based on field research and stakeholder discussions.



Available financing models

Nigeria's fishery sector enjoys diverse funding opportunities to support farmers and promote sustainable enterprises. These financing models range from government-backed programmes at the federal and state levels to private-sector partnerships and international development organizations' programmes, ensuring that potential and established aquaculture farmers can secure the necessary capital, resources and market access.

Funding opportunities for farmers without collateral

1. Government-sponsored programmes

Some state governments have collaborated with feed millers and donor agencies to create initiatives that support smallholder fish farmers. Several models have been implemented, including:

- In Cross River State, the federal government, together with the International Fund for Agricultural Development, USAID Feed the Future and the Fish Breeders Association, collaborated to build a standard hatchery that will provide farmers with quality juveniles and technical assistance. This model ensures that farmers receive quality fish seed and stock juveniles rather than fingerlings.
- Some state governments have collaborated with feed companies such as Olam Feed and Grand Cereals Limited to support farmers with fish feed as a source of empowerment.
- The state government created the Lagos State Employment Trust Fund loan programme to provide affordable funding for small businesses to grow, expand, create wealth and generate employment. The loan scheme, which carries 9% interest per annum, is available to business owners who are registered residents of Lagos State (Lagos State Employment Trust Fund, 2024).
- Several constituency projects were designed with fish farming as a core component of the projects in the 2024 budget scheme across various states.

This model helps lower financial barriers for people who lack substantial initial capital and facilitates practical engagement in agribusiness.

2. Non-governmental organizations

In collaboration with the Mastercard Foundation, NGOs, including the International Institute for Tropical Agriculture, have launched programmes to support youth employment in the aquaculture sector. These initiatives provide training, resources and financial support for youth and women, helping them establish their own fish businesses without collateral (International Institute for Tropical Agriculture, 2020).

3. Grants

International organizations such as the Bill & Melinda Gates Foundation offer grants to fish and poultry farmers, focusing on capacity building and sustainable farming practices. Other grants include the Tony Elumelu grant, which offers \$5,000 in support to businesses across Africa; the Foundation for Partnership Initiatives in the Niger Delta grant, which targets youths in the Niger Delta; and the Flourish Africa grant, which targets female entrepreneurs. These grants are designed to help farmers adopt modern techniques and expand their businesses without requiring collateral.

4. Leventis Foundation agricultural training programme

This foundation offers financial and practical support to farmers between 18 and 40 years of age, especially those with basic literacy and experience in farming. The programme provides training, helping farmers enhance their operations and business efficiency without requiring collateral.

Funding opportunities for farmers to scale operations

- Commercial banks such as Sterling Bank and First City Monument Bank offer tailored agricultural loans for fish farmers seeking to expand their operations. These loans can be used to buy equipment, for infrastructure or for daily operations, including purchasing feed. However, the loans usually go through a long approval process and typically require collateral. They usually have a high interest rate (over 20%) making it an expensive source of funds for agribusiness.
- Some agricultural cooperatives have played a pivotal role in helping farmers access cheaper funds as the interest rate is usually set at 10% per annum and there is a very flexible

repayment plan. A key characteristic of cooperatives is the ability of farmers to pool their resources and assist each other during times of crisis. This makes cooperatives an ideal financing option for farmers seeking to scale up their production capacity.

- Development banks such as the Bank of Industry, the Bank of Agriculture and the Development Bank of Nigeria offer loan portfolios to businesses at different stages of operation. To qualify, farmers must be registered, demonstrate profitability and have a bankable business plan. Although collateral is typically required for large-scale loans, the bank provides substantial financial support to help businesses grow and improve their production capacity.

Box 3: Practical tips for returnees interested in entering the sector

- The first step to starting a business in the aquaculture value chain is for returnees to enrol in vocational training centres or aquaculture training institutes such as Leventis Foundation Nigeria, located in Abuja, or the Agriculture Incubation Innovation and Development Initiative in Lagos. This is important because understanding fish farming techniques is vital for success. They can also participate in internship programmes focused on various aspects of the value chain.
- Returnees should connect with experienced fish farmers and join cooperatives. This will help enhance their practical skills, provide mentorship and market linkages, and help reduce the chances of making costly mistakes.
- The next step is to identify the value chain they want to join and the market segment they wish to serve. Thereafter, a proper business plan should be developed to guide the investment. It is important to start small and learn what works in that location before scaling up production.
- Identifying an appropriate location is crucial. Returnees can use family land, leased land or rent ponds in government and private cluster farms in various parts of the country. The land should have adequate water and drainage facilities. Leveraging sponsorship programmes offered by state governments and private enterprises can provide essential funding to offset start-up costs.
- A sustainable aquaculture business relies on consistent market access. Returnees should establish relationships with wholesalers, retailers and processors before their first harvest. Engaging with local fish markets, restaurants and cold-storage facilities ahead of the scheduled harvest date will ensure they sell at the appropriate time and price and not under pressure, which can affect profitability. This will also ensure a steady demand and reduce losses due to market fluctuations.
- Many state governments and private organizations offer financial and technical support to encourage youth participation in aquaculture. Returnees should explore grants, low-interest loans and capacity-building programmes that can ease entry barriers and improve business sustainability.

Box 4: Success story of Sejiro Oke-tojinu

Sejiro Oke-tojinu ventured into farming as a teenager, starting with backyard vegetable farming while raising rabbits, snails and poultry. He initially started out of passion and because he used to watch his mother, who was a farmer. He furthered his studies by earning his first and second degrees in fisheries and aquatic biology.

While in his second year at university, Sejiro began his hatchery. Upon graduation, he decided not to seek a job but to create jobs through aquaculture. He enhanced his skills by attending local and international conferences in Ghana, Thailand, the United States and Egypt.

Achievements: Starting as a backyard farmer, Sejiro has established a leading aquaculture business (Sej Farms consults) that spun off two other companies: Mosneri Foods, specialized in processing and sales of seafoods, as well as the Aquaculture Incubation Innovation and development centre.

He has become a trusted trainer, facilitator, consultant and partner for organizations including the International Institute for Tropical Agriculture, the British American Tobacco Nigeria Foundation, the Business Innovation Facility, the Lagos Appeals Project, the World Initiative for Soy in Human/Health, the United States Soybean Export Council and Aller Aqua Nigeria Ltd. These organizations sponsor training programmes in collaboration with Sejiro's farm. About 10 tertiary institutions in Nigeria send their students to the facility for internships. Sejiro has received several awards, such as the best fish farmer in Lagos.

Challenges: Sejiro's journey to entrepreneurship was not easy. He faced hurdles such as raising funds to start his business, high land acquisition costs, multiple taxation and finding the right workforce. Securing finance to expand and upgrade the business has also been challenging. The lack of price standardization has affected the industry negatively as farmers do not get the desired remuneration for their effort.

Lessons learned: Sejiro says consistency is a key factor in the success equation. He also believes in the power of training and knowledge, which led him to attend numerous leadership and aquaculture-related training and certifications worldwide.

Opportunities and advice: He sees many opportunities in the sector. He says farmers need to collaborate more. He encourages hands-on training in programmes with 70% practical and 30% theoretical content. Establishing post-training support, such as a mentorship buy-back arrangement with trainees, is also important. Investing in market development will open avenues to sell fish and fish products because if everything fails, the food and food business will not fail.

Sejiro advises farmers to adopt sustainable agricultural practices. His journey is a powerful reminder that with vision, dedication, creativity and passion, challenges can turn into opportunities, inspiring others.

Source: Stakeholder interview.

Appendix:

Cost of setting up different businesses

Table 20 shows the estimated start-up costs for 3,000 catfish using mobile tarpaulin ponds for cost efficiency and ease of start-up. The costs are divided into two main categories: costs for fixed assets, which include equipment costs, and operating costs, such as the purchase of young animals, feed, medication, transport and water management. The actual costs may vary depending on the location and product choice.

The table also outlines the revenue from sales of fresh fish, barbecued and dried fish, leading to a calculation of gross profit per cycle. These data are crucial to understand the profitability and financial planning required for catfish farming.

Table 20: Catfish economics of production

Expense category	Item description	Quantity	Unit	Price per unit (₦)	Total cost (₦)
Juvenile costs	Juvenile fish	3,000	Fish	70	210,000
Feed costs	2 mm feed	9	Bags	33,400	300,600
	3 mm feed	21	Bags	29,190	612,990
	4 mm feed	48	Bags	27,740	1,331,520
	6 mm feed	84	Bags	26,240	2,204,160
	9 mm feed	48	Bags	24,940	1,197,120
Transportation costs	Juvenile transportation	3,000	Fish	2	6,000
	Feed transportation	210	Bags	50	10,500
Operating expenses	Petrol (2 litres a day)	120	Litres	1,100	264,000
	Salaries (one attendant for four months)	1	Attendant	80,000	80,000
	Pond rent	4	Months	10,000	40,000
Finance cost	Cost of fund (5% per batch)	-	-	-	312,844.50
Net total cost		-	-	-	6,569,735
Total income	Revenue from sales of fresh fish	2,423	Fish	3,000	7,269,000
Gross profit per cycle		-	-	-	699,266

Source: ITC calculation based on data collected through stakeholder interviews and field survey.

Table 21 summarizes key performance indicators for catfish production, providing value insights into feed conversion ratios, average body weight achieved within four months, total feed consumption, mortality rates and the resulting biomass at harvest. It provides benchmark figures that producers can use to evaluate their production efficiency, evaluate production outcomes against industry standards and identify areas for improvement.

Table 21: Performance analysis of catfish production

Parameter	Value
Number of fish stocked	3,000
Mortality rate	10%
Feed conversion ratio	1.3
Average body weight	0.9kg
Total feed consumed	210 bags
Total biomass harvested	2,423kg

Source: ITC calculation based on data collected through stakeholder interviews and field survey.

Table 22 shows the cost and revenue analysis for smoked catfish production. All the expenses incurred, such as the cost of live catfish, energy, packaging materials, transportation and operational costs, were captured. It highlights income streams from the sale of smoked catfish in local markets. This data is important for evaluating the profitability of smoked catfish processing with detailed insights into gross profit margins and market price trends.

Table 22: Economics of production to process 1 tonne of catfish

Item	Quantity	Unit cost (NGN)	Total cost (NGN)
Live fish (400g avg. weight)	1,000kg	2,500	2,500,000
Charcoal	7 bags	11,000	77,000
Salt	800g	2,000	2,000
Labour	10 people	4,000	40,000
Packaging materials	-	-	50,000
Transportation of fish	1,000	10	10,000
Miscellaneous (e.g. spices)	-	-	10,000
Total cost	-	-	2,689,000

Income analysis

Item	Value
Total weight after smoking	250kg
Selling price per kg	16,000 NGN
Gross income	4,000,000.00

Source: ITC calculation based on data collected through stakeholder interviews and field survey

Tilapia farming is gaining popularity in Nigeria. Optimal growth is achieved in floating cages and earthen ponds. As shown in Table 23, this venture offers attractive economics and returns on investment in a relatively short period of six months. The business is ideally suited for areas with extensive water resources, including lakes, rivers, creeks, dams and marshy or low-lying lands.

Prospective farmers should prioritize assessing the chemical properties of the water, a very important factor to ensure the success of their tilapia farming operation.

Table 23: Cost and revenue of tilapia production

Category	Item	Quantity	Unit cost (NGN)	Total cost (NGN)
Fingerlings	Fingerlings	1,000	100	100,000
Feed	0.8mm	1	50,000.00	50,000.00
	2mm	123.75	1,733.33	214,499.59
	3mm	330	1,566.67	517,001.10
	4mm	453.75	1,400.00	63,250.00
Transportation	Juvenile transportation	1,000	10.00	10,000.00
	Feed transportation	-	-	10,000.00
Operating expense	Allowance	1	50,000.00	50,000.00
	Water management	-	-	50,000.00
Total expense	Grand total	-	-	1,536,750.69

Revenue from sales

Item	Value
Total biomass harvested (kg)	495
Unit cost per kg (NGN)	3,700
Gross income	1,831,500.00
Gross margin	294,749.31
Return on investment in six months	19.17%

Source: ITC calculation based on data collected through stakeholder interviews and field survey.

REFERENCES

- Adewumi, A. A. (2015). Aquaculture in Nigeria: Sustainability issues and challenges. Direct Research Journal of Agriculture and Food Science, 3(12), 223–231. <http://directresearchpublisher.org/journal/drjafs>
- AgroNigeria. (2024). How adoption of modern technology can revolutionize fish farming for sustainable growth. <https://agronigeria.ng/how-adoption-of-modern-technology-can-revolutionise-fish-farming-for-sustainable-growth>
- Aquafeed. (2023, March 8). Skretting opens fish feed facility in Nigeria. Aquafeed. <https://www.aquafeed.com/newsroom/news/skretting-opens-fish-feed-facility-in-nigeria/>
- Bega, S. (2024, August 12). Africa's green economy could produce 3.3 million jobs by 2030, with solar leading the way. Mail & Guardian. <https://mg.co.za/news/2024-08-12-africas-green-economy-could-produce-3-3-million-jobs-by-2030-with-solar-leading-the-way/>
- FAO. (2020). Catfish aquaculture production guide. Food and Agriculture Organization of the United Nations.
- FAO. (2021). Fish4ACP – Nigeria: Unlocking the potential of the catfish sector in Nigeria. Food and Agriculture Organization of the United Nations.
- FAO. (2023). Catfish: A big business for a big nation. <https://www.fao.org/investment-centre/latest/news/detail/catfish--a-big-business-for-a-big-nation>
- FAO. (2024a). Fishery and aquaculture country profile: Nigeria. <https://www.fao.org/fishery/fr/facp/nga?lang=en>
- FAO. (2024b). Fishery and aquaculture statistics – Yearbook 2021. FAO yearbook of fishery and aquaculture statistics. Rome. <https://doi.org/10.4060/cc9523en>
- FAO. (2024c). The state of world fisheries and aquaculture 2024 – Blue transformation in action. Rome. <https://openknowledge.fao.org/items/06690fd0-d133-424c-9673-1849e414543d>
- FAO. (2025). FAO in Nigeria: Nigeria at a glance. <https://www.fao.org/nigeria/fao-in-nigeria/nigeria-at-a-glance>
- FAOLEX. (2019). Nigeria. National aquaculture strategy. <https://faolex.fao.org/docs/pdf/nig189027.pdf>
- FAOSTAT. (2024). Fisheries and aquaculture data for Nigeria. <https://www.fao.org/fishery/en/facp/nga>

Food and Agriculture Organization & International Trade Centre. (2024). Mapping of the fisheries value chain in Ghana and Nigeria from a trade potential perspective. Rome, Italy: FAO & ITC. <https://doi.org/10.4060/cd1155en>

Foundation for Partnership Initiatives in the Niger Delta. (2021). Aquaculture value chain factsheet. Retrieved from <https://pindfoundation.org/wp-content/uploads/2023/07/Aquaculture-Value-Chain-Factsheet-2021-090922.pdf>

Fregene, B. T., Yossa, R., Karisa, H. C., & Olaniyi, A. A. (2020). Extension manual on quality low-cost fish feed formulation and production. Technologies for African Agricultural Transformation; WorldFish. <https://hdl.handle.net/20.500.12348/4819>

National Bureau of Statistics. September 2024. Selected Food Prices Watch. [https://nigerianstat.gov.ng/elibrary/read/1241575#:~:text=Agric%20eggs%20medium%20size%20\(12,N%20%2C289.19%20in%20August%202024](https://nigerianstat.gov.ng/elibrary/read/1241575#:~:text=Agric%20eggs%20medium%20size%20(12,N%20%2C289.19%20in%20August%202024)

Naturenews.africa. (n.d.). Fish farmers face dilemma over cost of feed, other challenges in Nigeria. <https://naturenews.africa/fish-farmers-face-dilemma-over-cost-of-feed-other-challenges-in-nigeria>

Nwuba, L. A., Ude, E. F., & Ogbonnaya, H. F. (2022). Current trends in fisheries and aquaculture. International Journal of Agriculture, Food and Biodiversity, 1(1), 185–205. <https://journals.unizik.edu.ng/ijafab/article/view/1399/1127>

Ogunji, J., & Wuertz, S. (2023). Aquaculture development in Nigeria: The second biggest aquaculture producer in Africa. Water, 15(24), 4224. <https://doi.org/10.3390/w15244224>

Subasinghe, R. et al. (2021). Nigeria fish futures: Aquaculture in Nigeria: Increasing income, diversifying diets and empowering women: Report of the scoping study. WorldFish. <https://digitalarchive.worldfishcenter.org/bitstreams/829e9258-1639-4deb-922e-33269eeef4bb/download>

Tavershima, T., Ugwu, M. G., & Ameh, D. E. (2022a). Economic effect of improved fish production technology on the output of fish farmers in Otukpo Local Government Area of Benue State, Nigeria. <https://directresearchpublisher.org/drjafs/files/2022/08/PUBLICATIONDRJAFS18252590.pdf>

Tavershima, T., Ugwu, M. G., & Ameh, D. E. (2022b). Economic effect of improved fish production technology on the output of fish farmers in Otukpo Local Government Area of Benue State, Nigeria. Journal of Agriculture and Food Science, 10. <https://directresearchpublisher.org/drjafs/files/2022/08/PUBLICATIONDRJAFS18252590.pdf>

The Whistler. (2023, November 24). FG to produce 20 million fingerlings from Calabar fish facility. The Whistler Nigeria. <https://thewhistler.ng/fg-to-produce-20-million-fingerlings-from-calabar-fish-facility/>

Umoh, I. S. (n.d.). National vision for aquaculture development in Nigeria. Feed the Future. <https://www.fishinnovationlab.msstate.edu/sites/www.fishinnovationlab.msstate.edu/files/inline-files/NATIONAL%20VISION%20FOR%20AQUACULTURE%20DEVELOPMENT%20IN%20NIGERIA.pdf>

Vanguard. (2019, August 30). Food security: We need 374,000 tons of fish annually—LASG. Vanguard Nigeria. <https://www.vanguardngr.com/2019/08/food-security-we-need-374000-tons-of-fish-annually-lasg/>

Walakira, J. K., Hinrichsen, E., Tarus, V., Langi, S., Ibrahim, N. A., Badmus, O., Aziz, A., & Baumüller, H. (2023). Scaling aquaculture for food security and employment in Africa: Insights from Egypt, Kenya, and Nigeria (ZEF Working Paper Series No. 223). University of Bonn, Center for Development Research (ZEF). <https://www.econstor.eu/handle/10419/278612>

World Bank. (2022). Aquaculture production (metric tons) – Nigeria. World Bank Open Data. <https://data.worldbank.org/indicator/ER.FSH.AQUA.MT?locations=NG>

World Bank. (2025). Aquaculture production (metric tons) - Nigeria. <https://data.worldbank.org/indicator/ER.FSH.AQUA.MT?locations=NG>

WorldFish. (2023, June 12). Gathering data, growing solutions: A journey across Nigeria. WorldFish. <https://worldfishcenter.org/blog/gathering-data-growing-solutions-journey-across-nigeria>

WorldFish. (2025). Nigeria country profile. <https://worldfishcenter.org/where-we-work/africa/nigeria>

Yusuf, V. A. (2014, February 20). Delta beyond oil: The massive fish production initiative. Daily Trust. <https://dailytrust.com/delta-beyond-oil-the-massive-fish-production-initiative/>



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