

The Public Private Partnership (PPP) Model as a Key Strategy to unlock the Potential of the African Aquaculture Feed Industry

BACKGROUND

Aquaculture in Africa is one of the fastest-growing food production sectors, with significant potential to contribute to food security, nutrition, and economic development FAO (2022). The development of the African aquaculture industry is dependent on the availability of high-quality formulated feeds manufactured from animal feed ingredients AU-IBAR (2019). However, the sector faces persistent constraints, chief among them being the limited availability, high cost, and variable quality of aquaculture feeds Tacon, et.al (2015). Feed costs often account for 60–80% of total production expenses, making them a critical determinant of profitability and competitiveness Obiero et.al (2019).

While demand for fish continues to rise due to population growth and changing dietary preferences, local feed production capacity in many African countries remains insufficient to meet market needs in terms of both quantity and quality. Existing feed mills often operate below potential due to limited access to finance, inadequate technology, poor infrastructure, and inconsistent supply of quality raw materials. In addition, the lack of rigorous quality control mechanisms results in variable nutritional standards, undermining fish growth performance and farmer confidence Munguti et.al (2019).

The feed industry is a highly competitive international business based on the animal feed ingredients commodity market and economies of scale El-Sayed, (2020). An economically viable aqua-feed factory typically needs to produce around 50,000 tons of feed per annum and requires a huge capital investment (typically around US $10 - 20 million). Due to the large volumes of feed produced by a single feed mill, the establishment of a feed factory represents a strategic regional investment which enables the growth of cost-effective aquaculture production. In the absence of a regional aquafeed mill, fish farmers are dependent on the importation of feeds at elevated prices World Bank (2014).

Public sector institutions have made efforts to support feed production through research, extension services, and policy frameworks. However, their ability to scale up feed manufacturing and enforce standards is often constrained by budget limitations and operational capacity Conversely, the private sector holds technical expertise, investment potential, and the ability to innovate yet may hesitate to invest without an enabling policy environment and reliable market incentives GIZ (2021).

The Public–Private Partnership (PPP) approach offers a viable pathway to bridge these gaps. Through shared responsibilities, risks, and benefits, PPPs can mobilize capital, improve technology adoption, strengthen quality control systems, and create sustainable value chains for aquaculture feed World Bank (2020). Leveraging such partnerships can enhance feed production efficiency, reduce dependency on imports, lower costs, and improve farmer access to reliable, high-quality products ultimately contributing to the sustainable development of aquaculture across Africa FAO (2021).

KEY ISSUES

Although many efforts are already being made to accelerate the reform and sustainable development of aquaculture in Africa, certain problems persist with regard to fish feed production, such as:



1. Insufficient Production Capacity
Many African feed mills operate below capacity or rely on outdated technology, limiting the quantity of feed produced and failing to meet the growing demand from aquaculture farms.

2. High Feed Costs
Feed prices are often inflated due to high energy costs, dependence on imported raw materials (e.g., soy, fishmeal), and inefficiencies in local production and distribution systems.

3. Variable Feed Quality
Lack of standardized quality control and certification systems results in inconsistent nutritional profiles, reduced feed conversion efficiency, and lower fish growth rates.

4. Weak Raw Material Supply Chains
Poorly organized supply chains for quality ingredients, coupled with post-harvest losses and seasonal shortages, disrupt feed production schedules and consistency.

5. Limited Access to Finance
Small and medium-scale feed producers and ingredient suppliers often face barriers to accessing affordable credit, hindering investment in modern equipment and technology.

6. Inadequate Research–Industry Linkages
Weak collaboration between research institutions, universities, and private feed producers slows the uptake of innovations in feed formulation, alternative ingredients, and sustainable production methods.

7. Policy and Regulatory Gaps
Absence or poor enforcement of feed quality standards, unclear investment incentives, and slow policy implementation discourage private sector engagement.

8. Low Awareness and Technical Skills
Farmers often lack training on optimal feeding practices, which reduces the efficiency of even high-quality feed and increases production costs.

3. MAIN ACTION TO ACHIEVE SUCCESS

1. Establish Public–Private Partnership (PPP) Frameworks
Develop national PPP policies and guidelines specific to aquaculture feed production, clarifying roles, responsibilities, and benefit-sharing mechanisms.

2. Strengthen Feed Production Infrastructure
Mobilize investment for modern feed milling technology, energy-efficient production systems, and expanded storage and distribution networks.

3. Enhance Raw Material Supply Chains
Support contract farming and aggregation models for key feed ingredients (e.g., soy, maize, fishmeal alternatives) to ensure consistent supply and fair pricing.

4. Implement Feed Quality Standards and Certification
Introduce and enforce harmonized feed quality regulations across African countries, with accredited laboratories for regular testing and certification.

5. Facilitate Access to Finance
Provide credit guarantees, blended finance schemes, and investment incentives to encourage private sector expansion in feed production and input supply.

6. Promote Research and Innovation
Strengthen partnerships between research institutions and industry to develop cost-effective, nutritionally balanced feeds, including those using local or alternative ingredients.



7. Capacity Building for Farmers and Producers

Deliver training programs on feed formulation, quality control, and efficient feeding practices to improve feed utilization and reduce waste.

8. Foster Regional Collaboration

Encourage cross-border trade in feed and raw materials, and share best practices in PPP models to achieve economies of scale.

4. POLICY RECOMMENDATION

To ensure sustainable aquaculture growth in Africa through improved feed production, governments, development partners, and the private sector should adopt a targeted Public–Private Partnership (PPP) strategy that focuses on the following priorities:

1. Create an Enabling Policy Environment

Develop and implement clear national PPP frameworks for aquaculture feed production, with transparent regulations, streamlined licensing, and investment incentives.

2. Invest in Feed Production Capacity

Provide fiscal incentives (tax breaks, subsidies, import duty exemptions) for modern feed milling equipment and renewable energy solutions to reduce production costs.

3. Establish Quality Standards

Establish regional and national feed quality control systems with accredited laboratories to ensure compliance with nutritional and safety requirements.

4. Strengthen Supply Chains for Raw Materials

Promote local production of high-quality feed ingredients through contract farming schemes, farmer cooperatives, and support for climate-resilient crops.

5. Facilitate Access to Finance and Risk-Sharing Mechanisms

Introduce blended finance programs, credit guarantees, and low-interest loans to attract private investment in feed production and ingredient supply.

6. Promote Innovation and Research

Fund joint research initiatives between academia, public institutions, and private companies to develop cost-effective feeds using local and alternative protein sources.

7. Enhance Skills and Knowledge

Launch capacity-building programs for feed mill operators, ingredient suppliers, and farmers to optimize feed formulation, storage, and feeding practices.

8. Encourage Regional Collaboration

Harmonize feed regulations and promote cross-border trade to expand market access, reduce costs, and share best practices across African countries.

CONCLUSION

The challenges of establishing a modern and efficient aquafeed industry cannot be addressed by the public or private sector alone. A well-structured Public–Private Partnerships (PPPs) approach offers the most viable pathway to mobilize investment, enhance technology adoption, strengthen quality control, and secure reliable raw material supplies.

By fostering collaboration among governments, industry players, research institutions, and farmers, Africa can build a competitive, resilient, and innovative feed production sector. This will not only improve the profitability and sustainability of aquaculture but also contribute directly to food security, job creation, and economic development across the continent.

The time to act is now; investing in strong PPPs frameworks for feed production will lay the foundation for a thriving aquaculture sector that can meet Africa's growing demand for fish in a sustainable and equitable manner. The (PPP) Model can be applied to enable the establishment of other key value chain activities.

REFERENCE

1. ***FAO. (2022).*** The State of World Fisheries and Aquaculture 2022: Towards Blue Transformation. Rome: Food and Agriculture Organization of the United Nations. https://doi.org/10.4060/cc0461en
2. ***Obiero, K., Meulenbroek, P., Drexler, S., Dagne, A., Akoll, P., Odong, R., ... & Waidbacher, H. (2019).*** The contribution of fish to food and nutrition security in Eastern Africa: Emerging trends and future outlooks. Sustainability, 11(6), 1636. https://doi.org/10.3390/su11061636
3. ***Tacon, A. G. J., & Metian, M. (2015).*** Feed matters: Satisfying the feed demand of aquaculture. Reviews in Fisheries Science & Aquaculture, 23(1), 1–10. https://doi.org/10.1080/23308249.2014.987209
4. ***Munguti, J. M., Liti, D. M., Waidbacher, H., & Straif, M. (2021).*** Status and potential of aquaculture feed production and use in Africa: A review. Aquaculture Reports, 21, 100840. https://doi.org/10.1016/j.aqrep.2021.100840
5. ***African Union – Inter-African Bureau for Animal Resources (AU-IBAR). (2019).*** Policy Framework and Reform Strategy for Fisheries and Aquaculture in Africa. Nairobi: AU-IBAR.
6. ***El-Sayed, A. F. M. (2020).*** Tilapia Culture. 2nd Edition. London: Academic Press. (Chapter on feeds and feeding economics).
7. ***World Bank. (2014).*** Reducing Disease Risks in Aquaculture. Washington, DC: The World Bank Group. https://openknowledge.worldbank.org/handle/10986/17524
8. ***GIZ. (2021).*** Public–Private Partnerships in Agribusiness – Guidelines for Success. Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH.
9. ***FAO. (2021).*** Public–Private Partnerships for Sustainable Agricultural Development. Rome: Food and Agriculture Organization of the United Nations. https://doi.org/10.4060/cb3165en
10. ***World Bank. (2020).*** Public-Private Partnerships in Agriculture: A Review of Lessons Learned. Washington, DC: The World Bank Group. https://openknowledge.worldbank.org/handle/10986/33691

For more information:

African Union – Interafrican Bureau for Animal Resources (AU-IBAR)
Kenindia Business Park Museum Hill, Westlands Road
P.O. Box 30786-00100 Nairobi, Kenya Tel:+254 (20) 3674 000
Email: ibar.office@au-ibar.org Website: www.au-ibar.org

