CAPACITY BUILDING AND STREAMLINING OF LEGISLATIVE FRAMEWORK NEEDED TO IMPROVE FISH HEALTH AND MANAGEMENT IN KENYAN AQUACULTURE

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Capacity Building and Streamlining of Legislative Framework needed to improve Fish Health and Management in Kenyan Aquaculture

Key Messages

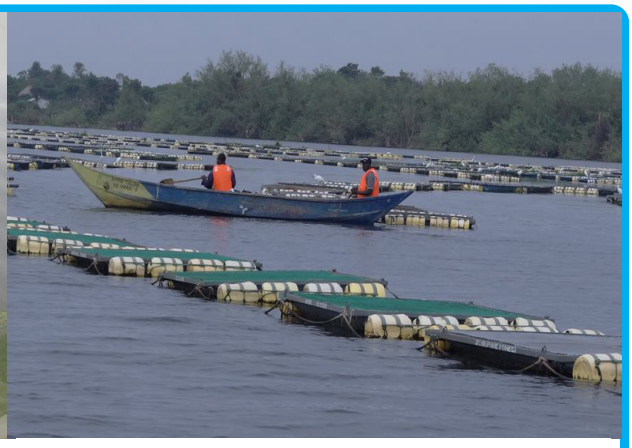
- There is poor understanding on fish health and management by farmers and service providers. Therefore, the need to train farmers and build capacity of technical/ extension staff on fish health and management.
- With the increasing intensification of aquaculture in Kenya, there will be a growing challenge of fish diseases, especially, in intensive systems. Thus, the need to build infrastructure for fish disease management, for example, strengthening regional veterinary laboratories for fish disease diagnosis, establishing fish care diagnostic facilities and incorporating fish in Kenya's animal health database for fish surveillance and reporting.
- Probiotics have the capacity to improve fish health and performance as demonstrated in Asia. They are slowly entering Kenyan aquaculture, especially in intensive culture systems (e.g hatcheries, RAS and Cages), yet there is a poor understanding of their usage and potential role in aquaculture. There is a need to educate farmers and service providers on probiotics, their usage and their role in fish health and management.
- Some of the livestock probiotics in Kenyan agro-veterinary shops are also indicated for use in aquaculture but neither the sellers nor fish farmers are aware of their use in Aquaculture. Prophylactic health products (PHPs) manufacturers and distributors need to create awareness among retailers and fish farmers on available fish health management products in the market.
- There is the use of banned chemicals by a minimal percentage of aquaculture farmers in Kenya. Therefore, the need to create awareness of the banned chemicals and the dangers of these to the health of humans and the safety of the environment. There is a need for training farmers and service providers on fish quality standards and aquaculture best practices.
- There is conflict in the mandate of the Veterinary Medicines Directorate (VMD) and Kenya Bureau of Standards (KEBS) in the regulation of the manufacture, importation, registration and trade of probiotics, feeds and additives. There is a need to streamline the regulatory/institutional framework of VMD and KEBS to ensure quality assurance from the factory to the farm.

1.0 Background Information

1.1 Overview of the fish industry

Aquaculture is one of the fastest-growing sectors of agriculture globally (Welker & Lim, 2011) and with the increasing need for healthy animal protein, commercial fish farming is also emerging globally. In Kenyan aquaculture, fish production has shown remarkable growth from 1,000 MT in 2000 to 19,945 MT in 2019 (KNBS, 2022). This level of production is however below the annual demand leading to quantities imported in Kenya 5,900 MT in 2014 (GOK, 2014) and continues to import to satisfy the growing demand. This is despite very low per capita fish intake of 5 kg per year against FAO minimum per capita intake of 20 kg per year (Rothuis et al., 2011). This supply gap is driving aquaculture growth (KMFRI, 2017; Opiyo et al., 2018) as demand for fish and fish products in Kenya have been on the rise. With the dwindling catches from the capture fisheries, aquaculture has slowly emerged as a viable alternative to bridge the demand gap. This is driving aquaculture to intensification levels mainly by hatcheries and cage farmers in Lake Victoria.

Intensive Tilapia Hatchery –Jasa Fish Farm in Thika



Cages in Anyanga Beach Siaya County

Previous studies have shown that aquaculture intensification brings about environmental unsustainability and results in increased problems of fish diseases (Hassan et al., 2013). This brief provides a summary of the findings of a recent study that assessed the health practices by Kenyan fish farmers and the current trends in probiotic use with a bid to provide baseline information and inform infrastructural development with regards to fish health and management in light of increasing intensification levels in Kenyan aquaculture.

1.2 Study Approach

The study used a mixed methods approach in which survey tools were used to collect data from fish farmers and livestock pharmaceutical outlets (agrovets) in Western and Central Kenya. Semi-structured interviews and a stakeholder engagement workshop with key Kenyan aquaculture and livestock stakeholders were also conducted to collaborate and validate the survey results and formulate lessons for the sector.

The study surveyed 193 smallholder pond aquaculture farms, 27 intensive aquaculture cage farms and over 200 agrovets from various counties in western (Busia, Kakamega, Vihiga Siaya and Homabay) and central Kenya (Kiambu and Kirinyaga).The counties were purposively selected based on their contribution to fish and livestock production in Kenya (Opiyo et al, 2018;), while surveyed farms were randomly selected.

1.3 Lessons from the study

- The main problems identified from fish farmers were poor feed quality and its high cost, variable fish seed quality and availability, poor marketing structure and poor market linkage with poor roads, lack of cold chain infrastructure , high input costs needed for setting up fish ponds or cage farming, security from theft and predation and losses from diseases and poor management.

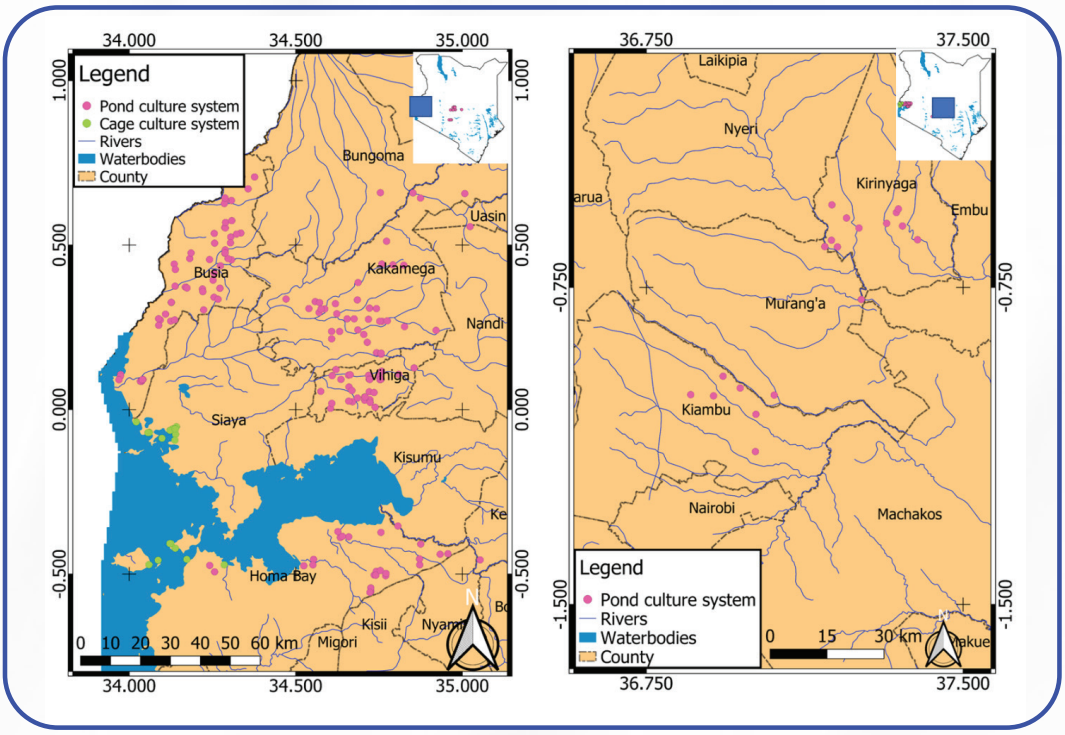


Figure 1: Map showing the geographical distribution of the fish farms surveyed.

- Most animal health service providers have very limited knowledge in fish health and management, thus, unable to provide practical and viable solutions to fish farmers. In addition, there is lack of diagnostic capacity for fish diseases in the current veterinary laboratories thus interventions are based on general clinical observations or recommendations from other farmers, fisheries officers and researchers. Elsewhere in the world, for control and treatment of fish diseases, antibiotics, disinfectants, insecticides, fungicides, mineral salts, probiotics, prebiotics, organic acids, herbal extracts, essential oils among others are used. Prudent use of these products is key to safety of fish products.
- With increasing intensification, disease problems are bound to increase and without good management, antibiotic use becomes the dominant intervention. Use of antibiotics in fish health management has inherent problem in development of antibiotic resistance and residues in fish products and water body. Safer alternative PHPs are available to improve health and performance of fish thus eliminating the need for antibiotic use. In Kenya, probiotics, prebiotics, organic acids and phytobiotics are available for use in aquaculture and livestock production. However, there is poor awareness of availability and value of probiotics in fish health and management among both service providers and farmers.
- Most outlets sell probiotics and related products but do not understand their value and usage, and farmers are unaware of their existence. Additionally, there is a conflict in the regulation of feeds, additives and probiotics between VMD and KEBS. This creates a gap in registration, usage, and quality assurance of the products from factory to farm.

Policy gaps

- Despite the growth in aquaculture, there is poor knowledge of fish health and management in Kenya by both farmers and service providers.
- There is an increase in use of PHPs worldwide to enhance production in aquaculture. In Kenya there is deficiency in awareness on availability and value of PHPs as well as inadequate regulatory framework on the use of PHPs.

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