KENYA MARINE AND FISHERIES RESEARCH INSTITUTE

FRESH WATER SYSTEMS

FACT SHEET

Value Chain analysis of one major fishery conducted in one major lake (Lake Baringo)



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BACKGROUND INFORMATION

- Lake Baringo is located in the Great Rift Valley of East Africa.
- The Lake is rich in biodiversity supporting fisheries industry that plays a crucial role in the local economy and food security especially in Baringo South Constituency in Baringo County.
- However, with increasing demand and various environmental challenges, the sustainability and management of these fisheries have become a pressing concern.
- This technical report aims to provide a comprehensive value chain analysis of Lake Baringo fisheries sector, with the objective of informing management strategies, investment decisions, and policymaking to ensure the long-term viability and socio-economic benefits of the industry.

MATERIALS AND METHODS

Study approach

The study will involve the engagement of diverse actors through a participatory consultative workshop with representatives from relevant government agencies, agro-dealers, primary producers/fisher folks (Cooperatives and Individuals), distributors, traders (BMUs and individual) and processors Mama Karangas) with the aim of opening up critical areas of intervention while broadening local solutions and actions.

Data collection and ethical issues

- Data collection for the study was conducted using a combination of primary and secondary data sources.
- Participant were grouped based on the value chain nodes and roles, with each group constituting the chair and secretary.
- Various questions and or areas to be addressed were recorded and shared during the plenary sessions prior to groups break outs.
- Collected data by groups were presented and deliberated upon in the plenary to attain consensus and accuracy.
- Data collection employed a multi-method approach to gather comprehensive and reliable information on fish value chain.
- The researchers ensured all the authors of borrowed literature were acknowledged.
- Integrity was observed during data collection and the respondents were assured of anonymity of their identity and confidentiality of the information given.

Data analysis and interpretation

- Data analysis were undertaken using Microsoft excel 2010 and presented by use of frequency tables, pie charts and bar graphs.

RESULTS

Value chain actors and their roles

There exist various value chain partners/stakeholders. Table 1 below describes stakeholders/partners with influence to the four hubs at the different segments of the aquaculture value chain.

Table 1: General and cross Cutting actors and their roles

No.	Stakeholders and partners	Role (s)
1	Beach Management Units (BMUs)	i. Co-management of fisheries ii. Monitoring, Control and Surveillance of fisheries iii. Conflict resolution amongst BMU members iv. Welfare support of BMU Members v. Infrastructure development for fishermen from fish landed revenue vi. Develop business plans for fish farmers vii. Collecting fisheries statistical Data viii. Vetting of Fishermen and fish traders ix. Quality assurance within the industry x. Link between GOK with Fishermen and fish traders
2	Co-operatives	i. Financial Support through Loans and member welfare ii. Financial management and support to farmers as a business iii. Member financial and economic development. iv. Product marketing and price negotiation. v. Cold Chain infrastructure development
3	KMFRI	i. Undertake research on blue economy and fisheries ii. Disseminate quality data to inform policy and stakeholders.
4	KEFS	i. Management of fisheries resources. ii. Control fishing effort through licensing. iii. Policing of fishing activities. (monitoring, control and surveillance) iv. Issuing of fish movement and export licenses.
5	NGOs (WFP, NRT etc.)	i. Support Governments and industry stakeholders.
6	Kenya Coast Guard	i. Ensure safety in industry operations and compliance. ii. Conduct search and rescue operations. iii. Prevention of illegal activities.
7	Kenya Maritime Authority (KMA)	i. Inspection of Boats/vessels. ii. Vessel Identification registration licensing. iii. Licensing of Coxswains and seafarers.

8	G.O.K - Blue Economy	i. Industry policy formulation and policy implementation
9	Baringo County Government	i. Developing fisheries management plan. ii. Local Fishermen trading licensing. iii. Monitoring, Control and Surveillance within County borders. iv. Collection of Cess v. Creating enabling environment for industry stakeholders. vi. Extension services. vii. Provide essential infrastructure. viii. Provide quality assurance and marketing. ix. Conduct monitoring and evaluation of fisheries projects and programs. x. Co-operate with the National Government in monitoring and controlling all fisheries activities. xi. Demarcate breeding areas and potential zones for aquaculture. xii. Promote recreation and ornamental fisheries. xiii. Support programs: Food Systems Resilience Program (FSRP) and Financing Locally Led Climate Action (FLLOCA)

Value chain analysis

The Lake The value chain analysis as presented in table 2 to 6 below explains the key strategic issues affecting value chain functions, their causes, existing opportunities and necessary interventions. The section also indicates the high impact opportunities and interventions (order of priority) arrived at after pair-wise ranking of the opportunities per node with top one being the highest ranked strategic opportunity.

Table 2: Input Supply Node

Challenges	Causes	Opportunities	Intervention
High cost of inputs (fishing gears).	Lack of local supplier hence exploitation by retailers.	Demand for affordable inputs (fishing gears)	-Tailor made credit products by financial institutions to fund actors. -The governments to give incentives to investors -Government subsidies to actors. -Formation of an apex cooperative to increase bargaining power and coordination of actors
Weak market linkages	Inadequate knowledge on market access	Demand for market data/information	-Capacity building actors -Conduct market research and analysis

Weak enforcement of policy and regulations on inputs standards	Inadequate staffing	Enforced and strengthened inputs standards	-Recruit 24 fish inspectors -Incentivizes to privates

Table 3: Production Node

Challenges	Causes	Opportunities	Intervention
High input and operation cost.	High operation Cost (fossil fuel)	Demand for renewable energy powered boat engines	Use of solar powered boat engines
Declining fish stocks	Overfishing	Demand for 1,300MT Annually	-Restocking water bodies across the county (3 lakes with 6 million fingerlings annually and 40 dams with 1 million fingerlings) -Expand fish farming through constructing 100 fish ponds of 1000 capacity of annually -Map and demarcate fish Breeding grounds -Patrolling and surveillance.
Insufficient Knowledge on the industry	Low literacy levels and negative cultural practices (wrong perception on cat and lung fish)	Need for capacity building (trainings of BMUs and fisher folk)	Training on sustainable fisheries management practices and attitude change.
Climate Change and habitat degradation	Pollution, Expansion of Agricultural land, Obstruction of waterways for irrigation, Invasion of invasive weeds, decline in biodiversity, Change in weather patterns and Siltation	Demand for CSA/TIMPS technologies	-Capacity building (trainings of BMUs and fisher folk) on TIMPs -Strengthen monitoring Surveillance control system -Invest in solar powered boat engines -Patrolling and surveillance -Conserve and protect riparian land -Sensitization and campaigns of good agricultural practises
Weak Management and Governance	Inadequate capacity of BMUs officials, Limited Resources to conduct MCS	Demand for a strong coordination mechanism	-Capacity building through trainings -Formulation and implementation of Fisheries management plans -Acquisition of Monitoring surveillance Control (MCS) equipment-Fibre glass boats fitted with binoculars -Policy Domestication and implementation
High post-harvest losses	Lack of cold Chain infrastructure	Demand for a cold chain facility	-Establish and equip 6 Cold Chain Infrastructure/facilities at the landing beaches
Inadequate Research development	Limited knowledge in industry best practices and development.	Demand for Research funding	Sensitize County and National governments to allocate funds to research institution (KMFRI)

Table 4: Processing Node

Challenges	Causes	Opportunities	Intervention
Post-harvest loses	Lack of cold storage	Demand for 6 cold storage facilities	-Construction of cold storage facilities and purchase of cold storage equipment -Capacity build on CSA technologies
Lack of processing infrastructure	No shade structures, cold room facilities, modern jikos, smoking kilns at the processing sites	Demand for equipped modern processing plant/unit	Establish and equip of one modern fishing processing plant
Low products diversity/ processing volumes	Inadequate knowledge on value addition, inadequate infrastructure,	Need for products diversity to increase value added products	Capacity building of value addition
Lack of access to affordable credit	No tailor-made loan facilities for fish traders/processors	Need for access to affordable loans	Provision of tailor-made loan facilities by financial institutions

Table 5: Trade Node

Challenges	**Causes**	**Existing Opportunities**	**Intervention**
Post-harvest loses	Lack of cold storage	Demand for 5 cold storage facilities	Construction and equipment of cold storage
Price fluctuation	Competition from other fish sources	Demand for training on marketing and value addition techniques and operationalization of cooperatives	Marketing training, installation cold storage, Cooperatives operationalization, Value addition -
Inefficient, inappropriate transport equipment	No refrigerated equipment for fish transport	Demand for appropriate /refrigerated transport vehicle to	Purchase of refrigerated fish transport vehicle

		transport fish to markets	
Fraud/Conmen	Distant unscrupulous traders defaulting payments	Demand for Formal marketing structure /MOUs and contracts between fishers/fish farmers and traders to prevent loss of funds	Establishing MOUs between fishers/fish farmers and traders -Engage contact farming - Training on Formal marketing structure /MOUs and contracts
Lack of market infrastructure	No shade structures and cold room facilities at the markets	Demand for 6 well equipped Market infrastructure with cold storage.	Construction of fish 6 market structures
Low trade volumes	Low catches landed at the beaches	Demand for 6 well-equipped aggregation centers	6 well-equipped aggregation centers
Lack of access to affordable credit	No tailor-made loan facilities for fish traders/processors	Demand for access to affordable loans and grants	Provision of tailor-made loan facilities by financial institutions

Table 6: Transport Node Challenges

Challenges	**Causes**	**Opportunities**	**Intervention**
Fish spoilage before reaching markets	-Long trips to the landing site -high temperatures	-Motorized boat with a refrigeration facility -refrigerated trucks	Provision of cool boxes + ice
Poor road network	-Seasonal flooding, roads are neglected	Roads open up and route optimization	County public works to gravel
Low profit margins due to high fuel cost	-long trips	Solar powered boats	Renewable source of energy
Environmental factors (raising water levels	-climate variability	Weather-smart planning	Daily lake weather briefs Construction of better landing points
Price fluctuations and poor trip economic	-customer fluctuation, poor demand	Demand visibility and aggregation.	Presence of an aggregator

RESULT'S INTERPRETATION

Despite Lake Baringo fish production potential role in food security, nutrition and resilience, it remains untapped, hence limited commercialization. Unavailability of quality inputs and gears, weak coordination structures, low productivity, inadequate access to market, high postharvest losses and inefficient distribution/transportation have hindered performance of the value chain. The concentration of marketing power in the hands of a few players presents challenges to the Lake Baringo fish marketing sector. The manifestation can limit competition, result in uneven distribution of benefits, and potentially lead to exploitative practices especially to fishermen who aren't appropriately safeguarded by BMUs as should be the practice. Ensuring a fair and competitive market environment should be a priority to promote a sustainable and inclusive market.

RECOMMENDATIONS

- This study therefore recommends supporting and empowering the small-scale value chain actors especially fishermen and processors at Kambi ya Samaki to enhance market resilience and promote equitable market access.
- More so, the development and enforcement of quality control established guidelines and fishery management measures to minimize post-harvest losses cannot be overemphasised.