

## Research Application Summary

### **Impact of gender on production and value addition along the farmed fish value chain in Kenya**

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#### **Abstract**

Unorganized structures in the aquaculture sector in Kenya have resulted in an overreliance on rudimentary production and processing technologies, high wastage of harvested fish and underutilization of fish and by-products, mismatch in demand and supply and ever-increasing costs of production. Empirical data on social networks have revealed that women and youth are increasingly playing important roles in production and productivity at the farm level, household nutrition decisions, access to an external resource and its management, management of household income, workload division and control over their time. Women empowerment along agricultural value chains has been a key Sustainable Development Goal of the 2030 Agenda for Sustainable Development adopted by the United Nations General Assembly. It is on this background that the study was conducted to generate empirical information on gender dimensions and how gender influences production, value addition and opportunities in the aquaculture sector. Data collected from 321 farmers, 66 traders and 82 consumers using a semi-structured questionnaire was triangulated with focus group discussion, key informant interviews and a review of policy documents in Kirinyaga, Busia, Kakamega and Migori counties. From the results, gender was seen to influence roles during production, processing and consumption. However, limited access to capital and financing, land, labor and information were seen to favor men and this negatively affected the uptake of modern production and processing technologies which were limited to gutting and descaling by 78% and deep-frying by 89% of the farmers and traders. Women were the main decision-makers on household consumption, but their low disposable income meant limited consumption of fish by the families. The study concludes that despite gender inclusion playing a crucial role in development, inequality in the aquaculture sector is responsible for the sluggish growth despite government investment in the sector.

Key words: Aquaculture, gender, postharvest losses, value addition, value chain governance

#### **Résumé**

L'absence de structures organisées dans le secteur aquacole au Kenya a entraîné une dépendance excessive à l'égard de technologies de production et de transformation rudimentaires, un gaspillage important des produits de pêche et leur sous-utilisation, une inadéquation entre l'offre et la demande et des coûts de production en constante augmentation. Les données empiriques recueillies sur les réseaux sociaux ont révélé que les femmes et les jeunes jouent de plus en plus un rôle important dans la production et la productivité au niveau de l'exploitation, la prise de décisions concernant

l'alimentation des ménages, l'accès à une source de revenus externe et sa gestion, la répartition de la charge de travail et le contrôle du temps. L'autonomisation des femmes le long des chaînes de valeur agricoles a été l'un des principaux objectifs du développement durable de l'Agenda adopté par l'Assemblée générale des Nations unies. C'est dans ce contexte que la présente étude a été menée pour générer des informations sur les dimensions de genre et la façon dont le genre influence la production, la valeur ajoutée et les opportunités dans le secteur aquacole. Les données recueillies auprès de 321 agriculteurs, 66 commerçants et 82 consommateurs à l'aide d'un questionnaire semi-structuré ont été triangulées avec des discussions de groupe, des entretiens avec des informateurs clés et une revue de littérature portant sur la politique aquacole dans les contrées de Kirinyaga, Busia, Kakamega et Migori. Les résultats montrent que le genre influence les rôles au cours de la production, de la transformation et de la consommation. Cependant, l'accès limité au capital et au financement, à la terre, à la main-d'œuvre et à l'information favorise les hommes, ce qui a eu un impact négatif sur l'adoption des technologies modernes de production et de transformation, qui se limitent à l'éviscération et au décapage pour 78% des agriculteurs et des commerçants et à la friture pour 89% d'entre eux. Les femmes étaient les principales responsables de la consommation des ménages, mais le faible revenu dont elles disposaient a restreint la consommation de poisson par les familles. L'étude conclut que malgré le rôle crucial de l'inclusion genre dans le développement, l'inégalité dans le secteur de l'aquaculture est responsable de la faible croissance malgré les investissements du gouvernement dans le secteur.

**Mots clés:** Aquaculture, genre, pertes post-récolte, valeur ajoutée, gouvernance de la chaîne de valeur.

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## Introduction

The Kenyan Government invested greatly on fish farming through the economic stimulus programme in 2009/2010 with an aim to boost food security and improve livelihoods of small scale producers. On this, 200 farming ponds were constructed in 140 constituencies with initial fingerling, feeds and extension services provided to beneficiaries by The Ministry of Fisheries Development (Maina *et al.*, 2015). However, less than a decade down the line, poorly coordinated support into the sector by the government and research institutions and other value chain actors have resulted to poor inadequate uptake of modern production and processing technologies, high losses/ wastage of fish, unorganized production, marketing and consumption network structure and high production costs (Shitote *et al.*, 2013; Maina *et al.*, 2015; Mwangi *et al.*, 2017). In comparison to the global situation, aquaculture is considered as one of the fastest growing sector in food production (FAO, 2016).

Empirical research on the root-cause of the poor network organization in aquaculture sectors revealed that there exists poor distribution of income, nutrition, resources and other benefits amongst women, men and youth across different social classes (Kruijssen *et al.*, 2018). On this, inherent labor codes were observed with relationship either been formal or informal, while the roles of either gender implicitly defined (Tallontire *et al.*, 2005). In general, unequal access to opportunities as exhibited where women tend to be employed on seasonal contracts where pay is lower than men who get permanent contracts. Interestingly, inclusion of women has been seen to improve quality of food products, by improving efficiency in food production, and therefore employers used women to bring down costs of operations (Kruijssen *et al.*, 2018).

Gender also influences decision making, control of household/ personal incomes, and division of labor, tasks and responsibilities, among the sexes, including allocation of time and resources for paid/unpaid work, productive and reproductive roles, nutrition, education, health care among other (Alsop *et al.*, 2006). Sustainable Development Goals which advocates for social justice between men and women for development is also a 'silent' gender driver (ODI, 2015).

The main assets in aquaculture systems include land/ponds, water, capital, knowledge, extension and skills, and technologies. In middle and low income countries, there exists unequal distribution of assets which in turn limits women's control on assets. Religious beliefs, social norms and customary limitation, for example, inheritance play a big role on ownership and control of assets (Sari *et al.*, 2017). On top of these, local regulations on businesses and other property indirectly creates gender imbalances. Lack of access and control to household assets in turn discriminates women to access/control financial services, better education, and mobility (Kruijssen *et al.*, 2018). Some cultures also intentionally limit women's access to technology as their beliefs prohibit women from operating machinery (Naved *et al.*, 2011). This coupled with limited access to knowledge; trainings and extension contribute to inequality in technology distribution.

In Kenya, gender is seen to influence access and size of ponds, with men controlling larger ponds than women. Pond management practices such as feeding, fertilization and maintenance being dictated by men. Women also have limited access to capital and credit ultimately affecting their access to resources and technologies (Maina *et al.*, 2014). Despite existence of basic literature on gender during production, there exists limited literature on gender during processing of fish in Kenya. This study therefore seeks to generate empirical information on gender dimensions and how gender influence production, value addition and opportunities in the aquaculture sector.

## Material and Methods

Cross-sectional study design approach was used to collect data in Kirinyaga, Busia, Kakamega and Migori Counties in Kenya. Semi-structured questionnaires were administered in face-to-face interviews with 321 farmers, 66 traders and 82 consumers. To triangulate this data for quality purpose, focus group discussion, key informant interviews and review of policy documents was also done. Data analysis was done using Scientific Package for Social Sciences (SPSS) for quantitative data while NVivo application was used to analyze qualitative data.

## Results and Discussion

Inherent labor codes based on gender were observed during production, processing and consumption. As suggested by Tallontire *et al.* (2005), the relationships were both formal and informal and the roles for each gender were implicitly stated. For instance, the men had access to assets namely land, ponds, labour, knowledge and skills and extension while women and youth were disadvantaged. In addition, men were the decision makers in large enterprises while women and youth provided family labor at no pay. Consequently, access to assets, machinery and technology was limited to men-owned enterprises while labour intensive processes such as gutting and descaling (78%) and deep-frying (89%) being done mostly by women and youth. Commercial freezing was not common with the exception of 18% of farmers and traders who put unsold fish overnight in home freezers, which points out to need to control household resources. At consumption, women were the main decision makers at the household level, but their low disposable income meant limited consumption of fish by the families. On the other hand, majority of fish consumers at restaurants/eating areas were mostly men.

## Conclusions

The study concludes that despite gender inclusion playing a crucial role in development, inequality in the aquaculture sector is responsible for the sluggish growth despite government investment in the sector. The study recommends redesigning of network and governance structure to focus on women and youth empowerment.

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