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Review Paper

The challenge of value addition in the seafood value chain along the Kenyan north coast

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Abstract

The general objective of this study was to identify the challenges faced in the process of adding value in the sea food supply chain along the Kenyan coast, with particular interest on fish, and propose sustainable solutions to these challenges. This study looks closely at the key value chain activities that characterize the sea food industry along the Kenyan coastline with the view of establishing their completeness and efficiency. It further identifies the gaps that exist in the chain and recommends measures that can be implemented to improve the chains. To achieve this objective the researchers identified the value chain activities that characterize the seafood industry in Kenya with specific reference to the Kenyan coastline and analyzed the gaps and challenges that exist in the value chain. The study has gone further to develop recommendations on policy and non-policy mitigation options to the value chain gaps and challenges that have been identified. Information gathered and the recommendations thereof will help to create a more complete and efficient chain and, therefore, optimize the economic as well as social benefits of the seafood industry to the country.

Keywords: value addition, sea food, fish, supply chain, value chain

JEL Classification: D50, L26, L16

INTRODUCTION

Kenya's coastline is about 640 Km long extending from Vanga (4° 40.2' S; 39° 11.5' E) in the south to Kiunga (1° 39.8'S; 41° 33.4' E) in the north. It is estimated that over 2 million people live at the coast with many living within five kilometers of the coastline. Fishing has been an important socioeconomic engagement at the coast for hundreds of years. According to Mwatha (2005) Kenya's marine fishery can be classified into two broad categories namely artisanal and semi-industrial fishery. Artisanal fishing is confined to the shallow waters along the entire coastline and it accounts for about 90% of the annual total marine fish landed. Artisanal fishery is basically subsistence fishery. Most of the fish caught is for direct consumption and the surplus is sold to supplement the fishermen income. Artisanal fishermen use traditional fishing gears, characterized by simple gears and small non-powered boats gears. Artisanal fishermen operate in the entire coastline but carry out their activities mostly in the near shore waters whose depth is less than 20 meters depth.

Semi-industrial fishing targets the shallow water prawns among other sea fish. The average total annual tonnage of prawns landed by the semi industrial prawn trawlers is about 400 metric tons annually (Mwatha, 2005). This amounts to about \$ 10 million. It is estimated that small-scale fishermen land about 8,000 metric tonnes annually along the Kenyan Coast, most of which ends up in the domestic market. Statistics reveal that the fish and fisheries' products that were exported mainly to the

European Union in the last year were valued at more than \$10 million (Sh8 billion). During the same year exporters of live edible fish such as crabs, lobsters and ornamental fishery products mainly to the Far East, USA, South Africa and the EU earned over Sh60 million (GoK 2010). However, the fact that similar statistics were reported by Mwatha (2005) almost a decade ago may be indicative of stagnation in the growth of the industry along the coastline of Kenya. Kenya's fisheries sector plays an important role in the national economy. For instance, the sub-sector contributed 0.5% to GDP in the year 2006. This figure would be maybe higher if value addition at the various stages of the supply chain are considered and post harvest losses minimized. The sub-sector growth was estimated at 4.1 % in 2005 (GoK, 2006).

Additional statistics indicate that the sector contributes significantly to many coastal economies in generating income, employment, and foreign exchange earnings to the fishing communities, fish traders, fish processors and fish farmers. The sector supports about 80,000 Kenyans directly and about 800,000 indirectly. In addition, the fishery sector is one of the key contributors to food security and poverty alleviation in many developing nations. The developing world is also more dependent on fish as their source of protein, having a 20.0 percentage contribution of fish to total animal proteins, compared with the developed world's 12.3 per cent (Laureti, 1999).

It is, therefore, clear that the expanding fishery sector has contributed to economic growth in the developing world.

However, it is evident that a lot more growth can be achieved in this sector. This is possible if key players in the industry can identify deficient value addition points in the sea food supply chain and step up value addition.

Currently, most sea food in Kenya is handled, processed, transported and stored without proper equipment and through fairly unhygienic and un standardized processes, which makes it very difficult for Kenya's sea food products to easily access the outside market. Even in the face of these challenges, very little in the way of enhancing the entire fish processing and marketing value chain has happened in the last decade. The Kenyan seafood industry presents a complexity of interwoven value chains which cut across fresh and processed fish, industrial and artisanal processing, domestic and export markets and food and feed products. The sea food sector would have probably grown further if value addition at the various stages of the supply chain are considered and post harvest losses minimized. The biggest challenge, therefore, is how to enhance the sea food value chain by adding value at various points in order to make the industry and its products competitive both within and outside the Kenyan market.

This study seeks to interrogate the key value chain activities that characterize the sea food industry along the Kenyan Coastline with the view of establishing their completeness and efficiency. It will further identify the gaps that exist in the chain and recommend measures that can be implemented to improve the chains. Information gathered and the recommendations thereof will help to create a more complete and efficient chain and, therefore, optimize the economic as well as social benefits of the fishing industry to the country. The objective of this study was to investigate the challenges faced in the process of adding value in the sea food supply chain along the North Coast of Kenya and to propose sustainable solutions to these challenges.

METHODOLOGY

This study was conducted using a mixture of secondary sources. It was, therefore, a desk study of an exploratory nature. Orodho (2003) argues that exploratory research is a good tool for analyzing social scenarios that are characterized largely by qualitative factors. Exploratory studies, therefore, help to formulate important principles, hypotheses and solutions to problems. This study investigates in depth the current status of sea food value chain in the Kenyan coast and

goes on recommend ways of improving the value chain of the sea food industry through value addition. A mixture of sources of data was used. This included records from government agencies concerned with the seafood industry such as the Ministry of Fisheries, Kenya Marine and Fisheries Research institute, policy papers, records from enterprises that intermediate the chain, interviews with key personnel playing key roles at every point in the chain and general observations of occurrences within the chain nodes.

FINDINGS

Introduction

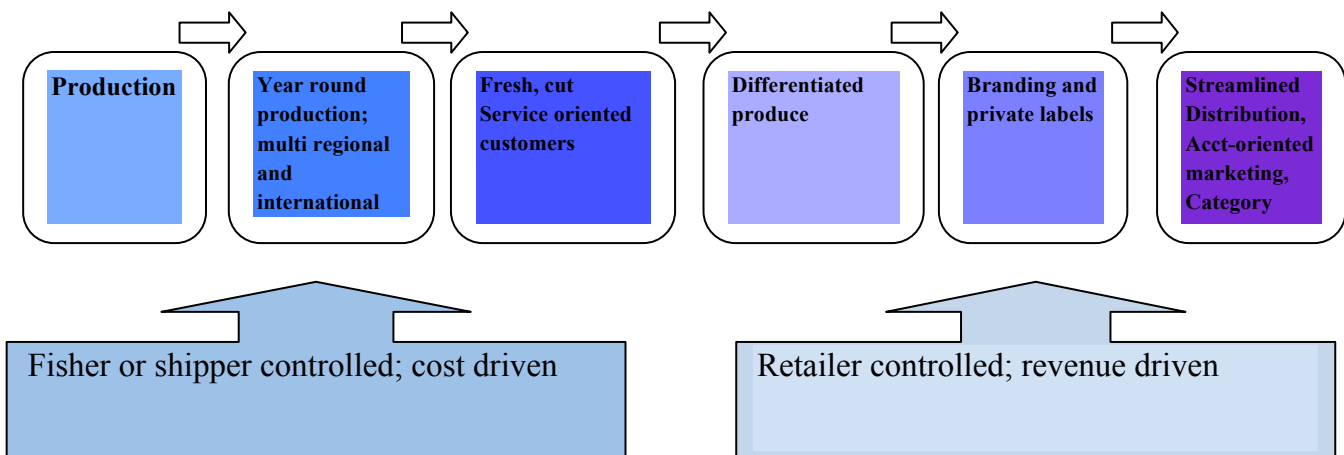
The sea food industry plays a significant role in the livelihood of more than 50 million people in terms of employment, income and provision of principal protein to the diet. Moreover, the industry has ranked high among others in its contribution to local and regional economies.

However, the industry's capability to generate sizable growth opportunities and to effectively contribute to the developing world's development objective of poverty eradication and wealth creation has been immensely disturbed due to the constraints it faces. The sea food industry is greatly threatened due to over exploitation of its natural resource base, environmental degradation, climate change, high pressures on resources and poor or limited value addition. Also, value adding processes and equipment remain largely poor and ineffective especially in developing economies.

The emergence of the value chains in the sea food industry

Value chains are networks of labor and production processes where the result is a finished commodity (Hopkins and Stein, 1986). Value chains are led by firm leaders and chains consist of several nodes, each of which has a particular function in transforming an object from raw materials to an article of consumption (Gereffi and Korzeniewicz, 1994). Value chains are concerned with what the market will pay for a good or service offered for sale. Moreover market considerations differ from country to country, region to region and having close connection with food habits and consumption pattern of the people. The main objectives of value chain management are to maximize gross revenue and sustain it over time. Supply chains are concerned with what it costs and how long it takes to present the good for sale. The main objectives of supply chain management are to reduce the number of links and to reduce friction such as bottlenecks, costs incurred, time to market, etc. Good supply chain is essential to develop a value chain.

Figure 1: Sea food value chain



(Source: Adopted from Roberta cook and Rabobank Mexico, 1999)

Overview of sector growth in Kenya

Studies indicate that effort already put to grow the sea food industry in Kenya have largely been ad-hoc and partisan, therefore, largely ineffective. Projects initiated to improve the industry have not achieved expected results. Although several facility upgrading processes have taken place and a few chain-based initiatives initiated, the entire effort has been rather myopic in focus. Studies show that strategic efforts are required in order to strengthen existing weak financial structures, reengineer industry governance structures, and resolve socio-cultural and environmental concerns (Ardjosoediro & Neven, 2006).

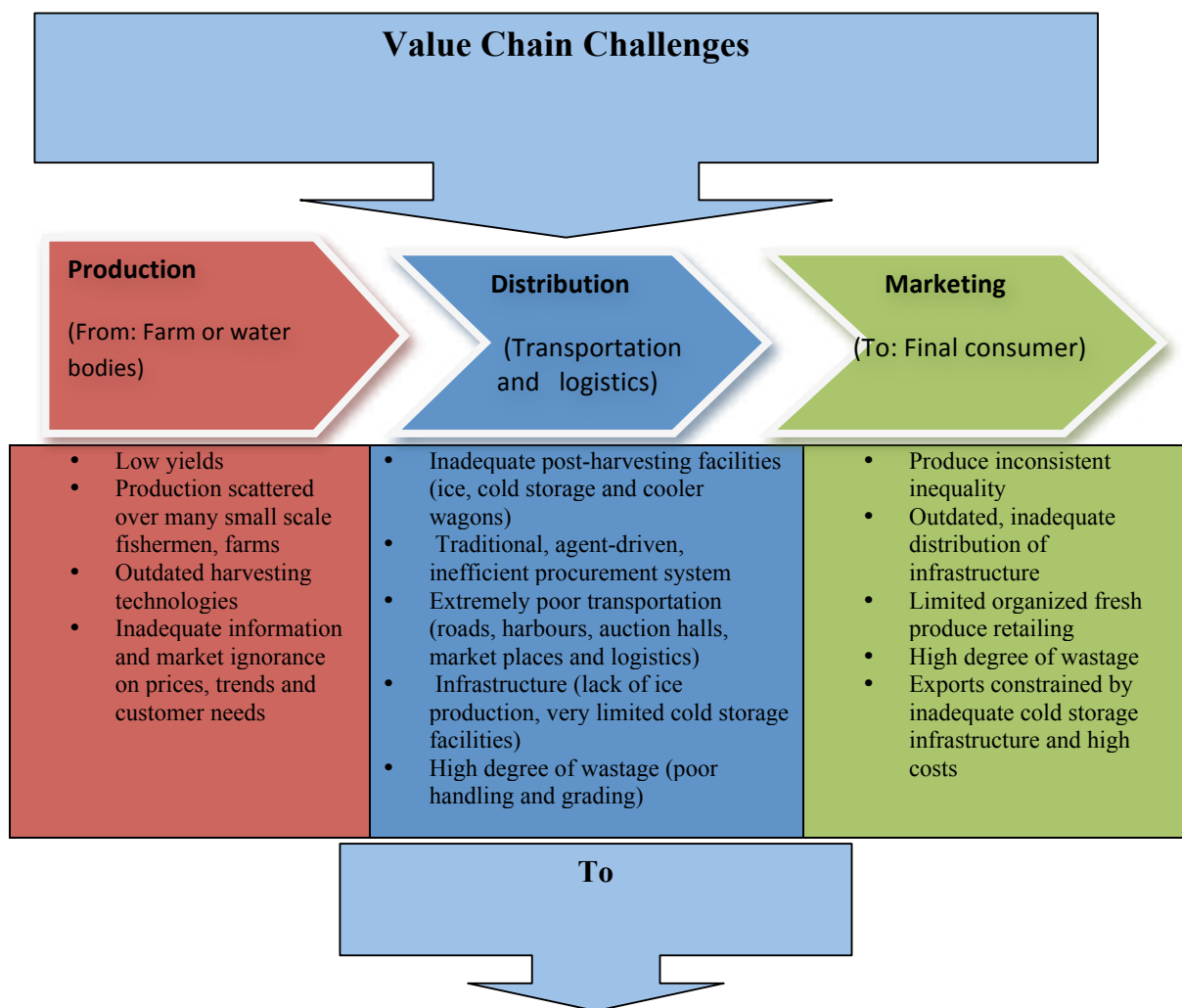
According to Ardjosoediro and Neven (2006) the high levels of post-catch losses indicate that the introduction of coolers and improved ice distribution systems would be an upgrade strategy that could stimulate value chain growth. While this could indeed lead to higher profitability at first, without retaining these profits and reinvesting them back in to their business, value chain actors will not be able to grow their business. In addition to difficulties in accessing financial services, exploitative governance mechanisms, and limited business management also continue to play a part in the difficulties faced by the Industry. It is also noteworthy that along the

Kenya coast, the fishery output has been on the decline (Mwatha, 2005). The decline is attributed to factors such as increased fishing effort, use of destructive fishing methods, habitat degradation and thrashing of by catch by the prawn trawlers. A solution to the problems facing the fishing industry in coast thus has to be wholesome in order to mitigate this complex web of problem.

Challenges of value addition

The entire set of processes and activities required to produce a product then deliver it to a target market is considered as supply chain. The term “produce” encompasses growing, transforming, or manufacturing. The entire chain goes from oceans or farms to hands, chopsticks and forks. Unfortunately, around the world, many central and local governments, donor agencies and non-governmental organizations are concerned with a subset of links within the value chain of fish and fishery products. Smooth functioning of value chain requires not only the factors of production and technology but also the efficient transport, market information systems and management. The following illustrates the key points within the seafood supply chain transitions and the challenges faced at each point. It also shows the possible gains that can be made if the right mitigants are effectively put in place to solve the noted challenges.

Figure 2: Value chain challenges



<ul style="list-style-type: none"> • Significantly higher yields • Stronger linkages with the market • High awareness levels on price trends and customer needs • Use of modern technology, leveraging significant extension work 	<ul style="list-style-type: none"> • Improved post-harvesting technologies available to most fishers and processors • Efficient procurement system with few middlemen • Reduced wastage due to better road/rail and refrigeration infrastructure 	<ul style="list-style-type: none"> • Widespread organized fish retailing, demanding higher quality produce • Upgraded distribution infrastructure; cold storages at wholesale man (local markets) • Exports facilitated through provision of adequate cold storage/pre-cooling infrastructure at ports/airports
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According to Shuurhuizen (2006) there are many social, economic and environmental bottlenecks experienced in the sea food value chain in Kenya. These are summarized below:

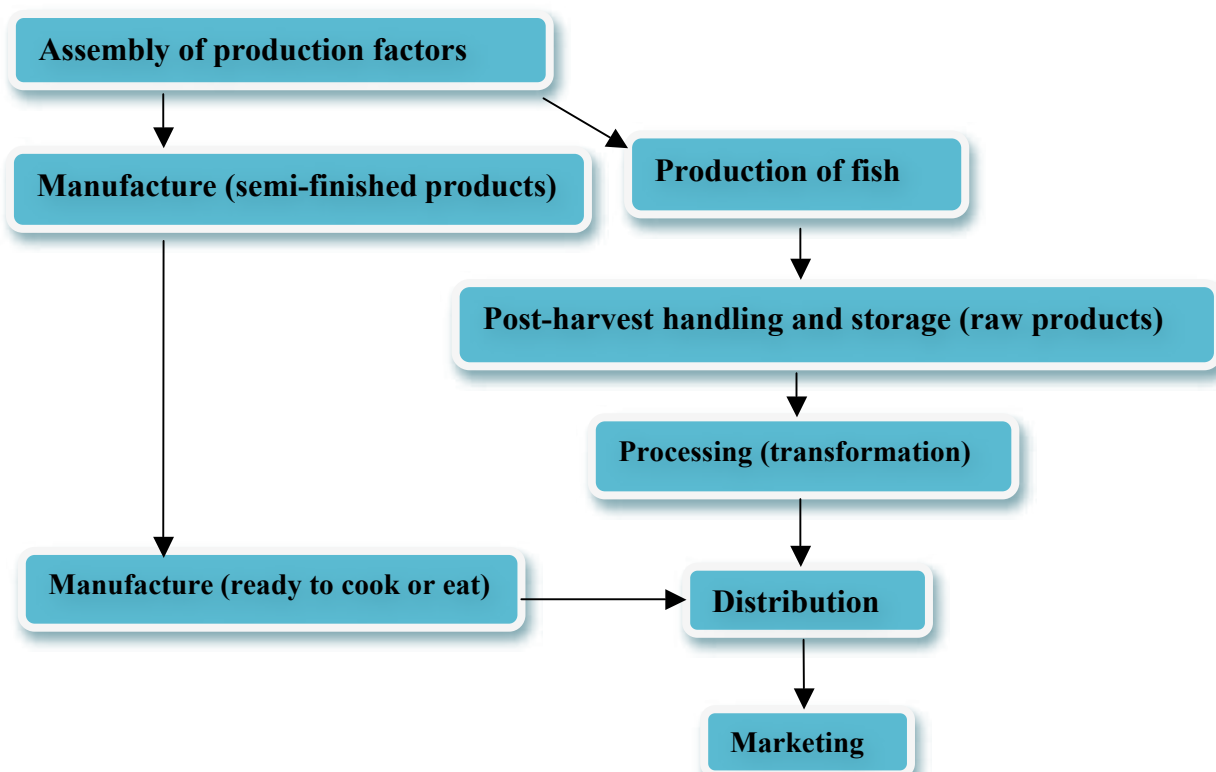
Table1: Summary of social economic bottlenecks in the sea food value chain

Economic	Social	Environmental
New market opportunities	Changing livelihoods	Stock (mature seafood)
Insufficient quality measures	Ownership	Loss of biodiversity
Market failures	Cultural hindrances	Increased pollution
Lack of monitoring, control and crediting	Health and safety issues	Water quality
Risk of product diversification	Competition with domestic markets	Regulatory issues

Key points at which the challenges are faced within the value chain

The sea food value chain is a complex chain of activities that inter-relate to give rise to a smooth transition from the farm (oceans and seas) to the market. The following illustration shows the key chain nodes where challenges are faced in the quest to form an effective sea food chain.

Figure 3: Key nodes in an effective sea food value chain



CONCLUSIONS AND RECOMMENDATIONS

One of the biggest challenges faced by the seafood sector in the Kenyan coast is value addition. There lacks adequate value addition facilities. Most of the seafood products are therefore sold in their raw form. The northern coast line of Kenya has continued to yield significant amounts of sea food. However, the marketing of these products has been less than satisfactory given that most of the sea food is sold locally. The marketing channels available are insufficient and with fairly weak linkages. Most fishermen have no access to international markets for instance. Market exploitation has also been cited as a major challenge within the seafood value chain in the Kenyan North Coast. Since most of the products are sold raw, fishermen reap insignificantly from the chain. There is, also, inadequate information on market opportunities and ignorance on prices, trends and customer needs. The chain is also significantly underdeveloped given that there is very little linkage between the value chain nodes. Moreover, there is very little value addition at various points in the chain. Most of the seafood products are sold in their raw forms.

Health and safety measures have mostly been given lip service across the chain. For instance very little has been done to train operators within the chain on critical areas such as safety while fishing and hygiene during seafood processing. Efficiency continues to be a major challenge in the entire chain in North Coast. Fishermen continue using outdated harvesting methods that in many cases lead to exorbitant harvesting costs. It is also noteworthy that some of the fishing methods used are unfriendly to the environment and existing seafood stocks in our oceans. The seafood value chain is largely unregulated leading to exploitation at various levels of the chain. The government is also not able to adequately provide services that the chain requires to thrive, neither is it able to reap optimally from taxing the chain owing to lack of proper regulation of the chain. For many coastal communities fishing is seen more as a cultural occupation than an economic undertaking. As a result most seafood activities have tended to be conducted for subsistence than economic purposes.

There is need for the government to mainstream the seafood sector in its planning and in the process enhance regulation of the seafood sector to harness the benefits of formal operations. The government could begin by encouraging the establishment of more fishing cooperatives in the Kenyan coast, giving them clear and beneficial operational guidelines and facilitating them in the areas of value addition and marketing. Value addition within the seafood value chain should be given priority in government planning. Private investors should be encouraged to invest in seafood value addition. The government can do this by, for instance, zero-rating imported value addition machinery. Sea food farmers need to be equipped with the skills and knowledge that's they need to function at various stages of the value chain.

Training initiatives would be important in this regard. There is need to continuously study and if necessary redefine the chain in order to rid it of unnecessary bottlenecks and operational challenges. This is because there exists numerous bottlenecks that slow down operations within the chain hence increasing the overall costs of the chain. Market development is critical to the growth and development of the chain. It is necessary that new and diverse markets be opened up urgently in various part of the world to grow the sector and avail more benefits to the operators in the chain. Information centers should be

established to furnish various operators at various chain nodes with necessary information for purposes of planning investment decision making. Inter-sector relationships need to be developed and nurtured. For instance, there exist a lot of relationships between seafood farming and tourism. These relationships would help to tap into the synergies that exist

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