VALUE CHAIN ANALYSIS OF SQUID WITH SPECIAL REFERENCE TO SAN MARINE EXPORTS, SAKTHIKULANGARA, KOLLAM

By

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MAJOR PROJECT REPORT

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DECLARATION

DECLARATION

I, hereby declare that this project entitled **"VALUE CHAIN ANALYSIS OF SQUID WITH SPECIAL REFERENCE TO SAN MARINE EXPORTS, SAKTHIKULANGARA, KOLLAM"** is a bonafide record of research work done by me during the course of major project work and that it has not previously formed the basis for the award to me for any degree, diploma, associateship, fellowship or other similar title, of any other University or Society.

Place: Vellanikkara,

Date:

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(2016-31-027)

CERTIFICATE

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CERTIFICATE

Certified that this project report entitled **"VALUE CHAIN ANALYSIS OF SQUID WITH SPECIAL REFERENCE TO 'SAN MARINE EXPORTS, SAKTHIKULANGARA, KOLLAM"** is a record of project work done independently by Mr. Muhammed Ijaz N under my guidance and supervision and that it has not previously formed the basis for the award of any degree/diploma, fellowship or associateship to him.
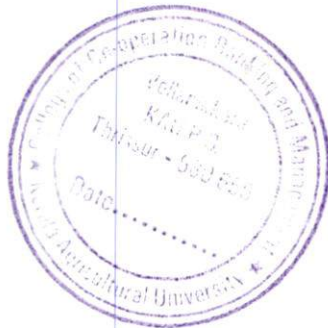
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For any errors or inadequacies that may remain in this work, of course, responsibilities are entirely mine.

Muhammed Ijaz N

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ABBREVIATIONS

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CAGR: Compound Annual Growth Rate

EU: European Union

CV: Coefficient of Variation

GDP: Gross Domestic Product

UK: United Kingdom

USA: United States of America

MPEDA: Marine Products Export Development Authority

OECD: Organization for Economic Co-operation and Development

GVC: Global Value Chain

HACCP: Hazard Analysis and Critical Control Point

FFDA: Fish Farmers Development Agency

CIFT: Central Institute of Fisheries Technology

CMFRI: Central Marine Fisheries Research Institute

MATSYAFED: Kerala State Co-operative Federation for Fisheries Development Ltd

DESIGN OF THE STUDY

CHAPTER 1
DESIGN OF THE STUDY

1.1 Introduction

Indian fisheries and aquaculture is an important sector of food production, providing nutritional security to the food basket, contributing to the agricultural exports and engaging about fourteen million people in different activities. With diverse resources ranging from deep seas to lakes in the mountains and more than 10% of the global biodiversity in terms of fish and shellfish species, the country has shown continuous and sustained increments in fish production since independence. Constituting about 6.3% of the global fish production, the sector contributes to 1.1% of the GDP and 5.15% of the agricultural GDP (National Fisheries Development Board 2017).

Fishing industry occupies an important role in the economy of Kerala. According to the available estimates of the potential fishery resources of the west coast, particularly in South West coasts, Kerala possesses the richest fishing grounds in the area. The state exports fish products worth approximately Rupees 1,200 Crores and has domestic sales worth Rupees 600 crore annually, accounting for roughly three per cent of the state revenue. Kerala's share in the national marine fish production is about 20 % (Dept. of fisheries Govt. of Kerala). On an average, 1.5 lakh tonnes of marine fishes are produced annually by the Kollam district which accounts for about 24% of states total marine fish production. The total squid exports from India in 2015-16 was 81769 tonnes and it increased to 99348 tonnes in 2016-17 with an increased value of 960.08 crore (MPEDA).

Preference for squid is increasing over shrimp due to its health benefits as it contains less fat and calories compared to shrimp. Overall demand for squid is increasing due to increased awareness of health among the people.

The concept of value chains as decision support tools, was added onto the competitive strategies paradigm developed by Porter as early as 1979. In Porter's value chains, Inbound Logistics, Operations, Outbound Logistics, Marketing and Sales, and Service are categorized as primary activities. Secondary activities include Procurement, Human Resource management, Technological Development and Infrastructure (Porter 1985).

According to the OECD Secretary-General (Gurría 2012) the emergence of global value chains (GVCs) in the late 1990s provided a catalyst for accelerated change in the landscape of

international investment and trade, with major, far-reaching consequences on governments as well as enterprises (Gurría 2012).

A value chain analysis is conducted to identify upgrading, that is, improvements in quality and product design that enable producers to gain enhanced value or through diversification in the product lines served.

The study identifies the different value chains present in the trade map of squid with special reference to San Marne Exports, Kollam.

1.2 Statement of problem

Smooth functioning of value chain requires not only the factors of production and technology but also the efficient transport, market information system and management. Despite the relatively high price for the product in the export market, the share of the producers (fishing community) in the chain of value remains poor.

The difficulties faced by the fishermen during the production period includes, low yields, production scattered over many small scale fishermen, outdated harvesting technologies, inadequate information and market ignorance on prices, trends and customer needs and low margin. Squid producers are now looking for value addition strategies.

Inadequate post-harvesting facilities (ice, cold storage and cooler wagons), traditional, agent-driven, inefficient procurement system, extremely poor transportation (roads, harbors, auction halls, market places and logistics), infrastructure, high degree of wastage (poor handling and grading) are the issue involved in fishing.

During marketing stage also major problems are limited organized fresh produce retailing, high degree of wastage, exports constrained by inadequate cold storage infrastructure and high costs. Analysis of various stages in the value chain will help to bring out the constraints and point towards the area where interventions are needed to enhance value.

1.3 Objectives of the study

1. To analyse the recent trend in export of squid from San Marine Exports.

2. To identify and map the various activities in value chain of squid.

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1.4 Methodology of the study

1.4.1 Data Source

The data for the study was collected from both primary and secondary sources. The primary data was collected by carrying out survey of fishermen, auction agents and the company. Secondary data was collected from magazines, journals, published articles, published thesis, unpublished data from research institutions, internet sources, Hazard Analysis and Critical Control Point (HACCP) manual, India stat.com and MPEDA.

1.4.2 Period of the study

The total duration of the study was 3 months.

1.4.3 Sampling design

The sampling technique used was convenient sampling. 40 fisher folks were selected from the sakthikulangara coastal area and one processing company called San Marine exports was selected, which undertakes the processing of marine catches.

1.4.4 Observations made

1. Factors affecting the procurement of squid

2. Activities involved in the processing of squid

3. Degree of participation of actors in the chain

4. Distribution of benefits to actors in the chain

5. Factors affecting the export market of squid

6. Cost and returns of the actors

7. Export volume of squid

1.4.5 Data collection method

Data was collected by using structured interview schedule and from secondary sources.

1.4.6 Statistical tools used

The collected data was analysed by using appropriate statistical tools like percentage analysis, Value chain mapping tools, trend analysis and indices.

1.4.6.1 Percentage analysis

For analysing socio economic profile of the fishermen percentage analysis was used.

1.4.6.2 Indices

For measuring the problems faced by fishermen indices method was used.

$$Index = \frac{Actual\ score}{Maximum\ possible\ score} \times 100$$

- For the construction of indices, the respondents were assigned the scores of 1,2,3,4, 5... representing the severity of problem.

- Ranking is done based on index.

1.4.6.3 Compound Annual Growth Rate

$$CAGR = (EV / BV)^{1/n} - 1$$

Where:

EV = Investment's ending value

BV = Investment's beginning value

n = Number of periods (months, years, etc.)

1.5 Scope

The present study is an attempt to analyse the value chain of squid including the coordination and cooperation among the actors in the value chain. Though a lot of work had been done about the biological aspects of squid very little attention has been paid to the value chain aspects of squid. The study will help to identify the major constraints at each stage and therefore will provide necessary information for policy interventions needed for enhancing the value and thereby improving the living condition of fisher folks. The analysis is driven by key questions relating to the form and function of value chains, their contribution to the livelihoods of fishers and the potential for value chain mechanisms to steer towards sustainable production.

1.6 Limitations of the study

The marine catches contain variety of fishes so the cost incurred for catching squid alone cannot be calculated (an average is taken).

Personal bias on the part of respondents.

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REVIEW OF LITERATURE

CHAPTER II
REVIEW OF LITERATURE

Michael Porter (1985) discussed value chain in his influential book "**Competitive Advantage**," in which he first introduced the concept of the value chain. A value chain is a set of activities that an organization carries out to create value for its customers. Porter proposed a general-purpose value chain that companies can use to examine all of their activities, and see how they're connected. The way in which value chain activities are performed determines costs and affects profits, so this tool can help you understand the sources of value for your organization.

Global Value Chain (GVC) analysis is closely associated with the emergence of globalisation. An important line of inquiry in GVC analysis is the functional integration of internationally dispersed production chains. Scholars agree that, the value chain perspective is an effective means of conceptualising this process of integration (Gereffi 1994; Gereffi et al. 2001).

Charles *et.al* (1998) in an article on "configuring value for competitive advantage: on chains, shops, and networks" proposed the idea that the value chain, the value chain network are three district generic value configuration models required to understand and analyse firm-level value creation logic across a broad range of industries and firms. Value chain analysis is a method for decomposing the firm into strategically important activities and understanding their impact on cost and value. While the long-linked technology delivers value by resolving unique customer problems, and the mediating technology delivers value by enabling direct and indirect exchange between customers.

Prescott C. Ensign (2001) in a report on "Value Chain Analysis and Competitive advantage" stated that the linkages in value chains can be finely tuned to gain a competitive edge. All firms make decisions that affect their competitive position and profitability. Strategic planning is the organizational process of making these important decisions. It is undertaken in an effort to help the firm position itself against its competitors in the pursuit of competitive advantage. Porter suggests that value chain analysis can be a useful approach in developing strategy. Value chain analysis can be used to formulate competitive strategies, understand the source(s) of competitive advantage, and identify and or develop the linkages and

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interrelationships between activities that create value. This paper offers a better understanding of the kinds of linkages and interrelationships that exist or can be developed between value chain activities. Competitive strategies (business strategies) are based on integrating activities in the value chain.

Macro Semini, Jan Ola Strandhagen and Astrid Vigtil.(2003) explained 'Value Chain Profiling' as the Value Chain Management typically focusing on the integration of primary activities along with the strengthening of secondary functions through proper positive interventions from facilitators and stake holders. Once the farm-end user link is shortened and tightly coupled, the production will be synchronised to a large extend with the demand. This will ensure the effective migration of farmers to farm entrepreneurs and bring about the much needed corporate enterprise culture to the Agriculture. This supply chain collaboration will also migrate the risks associated with the small farm holdings, while leveraging on its unique advantages of emotional involvement, opportunities for introducing intensity in farming, decentralised soil conservation composite farming and equitable distribution.

Uma.et.al (2007) in an article on "Moving towards competitiveness, value chain approach" described value chain analysis (VCA) as a method for accounting and presenting the value that is created inn a product or service as it is transformed from raw inputs to a final product consumed by end users. VCA typically involves identifying and mapping the relationships of four types of features: (i) the activities performed during each stage of processing; (ii) the value of inputs, processing time, outputs and value added (iii) the spatial relationships, such as distance and logistics of the activities and, (iv) the structure of economic agents, such as suppliers, the producer and the wholesaler. Value chains can become complex when they reflect multi-stage production systems with multiple types of firms operating in different locations in one country or multiple around the world. The VCA frame work centres around three major segments that describes each production link in the value chain: source, make, and deliver.

In a study entitled 'Agriculture Value Chain Management: Prospectus and challenges', Saji Gopinath (2007) stressed the need for a proper value chain management system for addressing the issue in agriculture. The success of value chain depends upon leveraging capabilities of various chain members within a framework of collaboration. The study inferred that the increased production is not benefiting the famers as the supply chains are still fragmented and inefficient. Thus the solution to the problems in agriculture should not

only focus on adopton of technological means of developing value added products from the farm produce but also to integrate all activities extending from production to consumption.

According to the paper "Agro-Value Chan Analysis and Development" published by UNIDO (2009) value chain analysis is the process of breaking a chain into its constituent parts in order to better understand its structure and functioning. The analysis consists of identifying chain actors at each stage and discerning their functions and relationships; determining the chain governance, or leadership, to facilitate chain formation and strengthening; and identifying value adding activities in the chain and assigning costs and added value to each of those activities.

Value chain approach is fast emerging as a tool for small enterprise development (Jones 2011). The focus of interventions is on creating an inclusive value chain system. Inclusive business models or chains are those who do not leave behind small- holders (Harper 2009). Similar view is expressed by Pastakia and Oza (2011), who consider inclusive value chain, as a market based arrangement that provides opportunity to generate livelihoods for the poor through creating value by producing and delivery of quality products and services to the end user/customer.

PSBRJames (1992) in an article on "The Indian marine fisheries resources scenario present and future Past" stated that in the marine; fisheries sector of India, the emphasis until recently was on development and increased exploitation which lead to intense fishing activity in the 0-50 m depth zone resulting in near optimal exploitation of most stocks inhabiting this region. The data on fishery and biology collected over a number of years on a large number of exploited species from the exploited grounds of 0-50 m depth zone show that there is no scope for increasing production from this region and that the emphasis should be given to effectively manage the resources to ensure sustained returns. In the unexploited grounds beyond 50 m depth the potential yield is of considerable magnitude (1.7 million tonnes) and, therefore, the future oi marine fisheries depends largely on continuing the present level of exploitation in the inshore waters, exploitation of resources from the relatively deep seas, and researches aimed at stock assessment, particularly assessment of mixed or multispecies fisheries, which will help in formulation (d policies for resource management in the entire exclusive economic zone of India.

Parashar Kulkarni (2005) in an article on "The Marine Seafood Export Supply Chain in India" discusses seafood sustainability and continues with a brief description of the Indian seafood industry. Studies the stakeholders in the supply chain, their roles, income and social conditions, examines the bottom of the supply chain, i.e., the state of the landing centres and the fishermen. Recommendations include ensuring hygienic ice and water facilities for fish preservation and cleaning; basic hygiene training to fishermen; promotion of fishermen cooperatives and an integrated approach to food safety.

Mohan Joseph, M (2007) in his report on "Field guide to the common marine molluscs of India" describes that sea shells have been a fascinating item for humans. Anybody visiting the beach would pick up a few beautiful seashells washed ashore and keep them as mementos. There are ardent collectors of seashells where collectors' items of rare seashells are prized several thousands of dollars apiece. There are many exhaustive taxonomic accounts of seashells of the world. However, in India, the lack of a handy guide for identification of local species has been a major lacuna in field studies.

V. Venugopal, F. Shahidi & Dr. Tung-Ching Lee (2009) stated in an article on "Value□ added products from underutilized fish species" of various possibilities for product development using mince from low□cost fishery resources. These include surimi and surimi□based products, sausages, fermented products, protein concentrates and hydrolysates, extruded products, and biotechnological possibilities. The dual advantages of this approach, namely, finding ways for better utilization of low□value fish species and providing protein□ rich convenience foods, have been pointed out. However, the key to the success of this approach depends largely on the market strategies utilized.

Sigurjon Arason *et.al* (2009) in a project on "Maximum resource utilisation – Value added fish by-products" stated that the project has demonstrated the potential of increasing the value of processing water, rest raw material and under-utilized species. It has also shown how the quality and value of fish mince as an ingredient can be improved, and demonstrated the effects of protein ingredients on whitefish fillets and emulsion based products. Using fish proteins as ingredients in processing lines for whitefish fillets generally improved the final products, resulting in lower drip loss and higher total yield. Addition of fish proteins in emulsion based products affected different functional properties. Indications were found of antioxidative and some specific bioactive properties of FPH. Extraction of gelatin from cold

water fish species can take place at room temperature, giving a gel strength thigh enough to expand the application area of cold water fish gelatin.

Shyam.S.Salim (2009) in his paper "Constraint analysis on the impediments faced by Indian seafood exporters" revealed that the irregular supply of raw material, cut throat competition for raw material, heavy competition for target market and low capacity utilization were the major impediments faced by the exporters. It is to be noted that ' amidst the global recession and economic meltdown the sector performed well, contrary to the major competitors slowdown In export growth the country's sea food trade grew by double digit in quantum as well as value. It may be true that the country is not short of forest reserve and the balance of payment regime isn't weak and exports don't seem to hold good as an engine for growth. But it has to be taken care that the seafood exports has been the one sector which had been consistently growing and registered a sustained growth amidst competition from other countries. Indian seafood trade continues unabated amidst numerous non-tariff barriers and regulations remain as major delicacy across 120 countries in the world. It may be true that the country is not short of forest reserve and the balance of payment regime isn't weak and exports doesn't seem to hold good as an engine for growth. But it has to be taken care that the seafood exports has been the one sector which had been consistently growing and registered a sustained growth amidst competition from other countries.

Helene. L. Lauzon et al. (2010) in a report on "Overview on fish quality research - Impact of fish handling, processing, storage and logistics on fish quality deterioration" revealed that the limited shelf life of fresh fish products is a large hurdle for the export of fresh products from Iceland. The influence of raw material quality, cooling methods, processing, packaging and storage conditions on freshness and shelf life extension is discussed. Temperature control is important to maintain fish quality. Pre-cooling of fillets in process has been used to lower the temperature prior to packaging. However, the cooling technique applied should not compromise the microbiological quality of the product and render it vulnerable to faster spoilage post packaging. Synergism of combined super chilling and modified atmosphere packaging (MAP) can lead to a considerable extension of the freshness period and shelf life of fish products. Further, alternative and environmentally-friendly packaging methods are considered. Finally, the impact of transportation mode of fresh fish products on their resulting quality is examined. This report provides an overview of the findings on fish research carried out at Matis (Icelandic Fisheries Laboratories) over the last three decades and further discusses their practicality for the fish processing industry.

D.A.M. De Silva (2011) stated in "Value chain of fish and fishery products: origin, functions and application in developed and developing country markets" that all actors or stakeholders

of the value chains should concentrate on competitiveness and productivity and look for and exploit multiple ways to add value once initial success has been attained with a single deal. Ensure sustainability within the value chains is key important feature to cater the changing demands. An important need recognizes that some keys to success require mainly public sector intervention, others only private, and some are a mixture of the two. Moreover, fisheries industry need to seek private sector alliances at all stages of supply and value chains for better future.

Alex Augusto (2015) in a report on "Value-added seafood products: a challenge or a necessity? Stated that Value addition and product diversification are two sides of the same coin and we must diversify our exports by addition of newer species through aquaculture. There is an increasing need for safe and healthy seafood products with high sensory quality. This demand needs to be met by increased seafood production from farming. Several (controllable) factors in seafood farming may affect some important technical quality attributes (eg, taste, texture) as judged by the consumer. Moreover, the attitudes, beliefs, and behaviour of consumers toward seafood farming as a process, alternative food source, and farmed products with convenience and value added may have a significant impact on the perception of quality of seafood. Integrated research embracing both elements offers the option to fulfil consumers' demand for high quality seafood products.

NORAD-FAO (2012) a project on "A value-chain analysis of international fish trade and food security with an impact assessment of the small scale sector" discusses the ways to improve food security for local populations through more informed policy decisions. Fish exports and trade is a major source of income for developing countries. They now represent close to 50% of global fish exports with their annual net export revenues exceeding US$ 25 billion. Jobs are created in production, processing and trade, and local food-security is strengthened through the nutritional contribution of fish to human consumption.

M C M Beveridge et.al (2013) in an article on "Meeting the food and nutrition needs of the poor: the role of fish and the opportunities and challenges emerging from the rise of aquaculture" stated that people who are food and nutrition insecure largely reside in Asia and Sub-Saharan Africa and for many, fish represents a rich source of protein, micronutrients and essential fatty acids. The contribution of fish to household food and nutrition security depends upon availability, access and cultural and personal preferences. Access is largely determined by location, seasonality and price but at the individual level it also depends upon

a person's physiological and health status and how fish is prepared, cooked and shared among household members. The sustained and rapid expansion of aquaculture over the past 30 years has resulted in >40% of all fish now consumed being derived from farming. While aquaculture produce increasingly features in the diets of many Asians, it is much less apparent among those living in Sub-Saharan Africa. Here, per capita fish consumption has grown little and despite the apparently strong markets and adequate biophysical conditions, aquaculture has yet to develop. The contribution of aquaculture to food and nutrition security is not only just an issue of where aquaculture occurs but also of what is being produced and how and whether the produce is as accessible as that from capture fisheries.

Cathy A. Roheim (2014) in a report on "Trade Liberalization in Fish Products: Impacts on Sustainability of International Markets and Fish Resources" stated that In many ways, fish as a food commodity is treated as a poor sister to agriculture. For example, fish is not part of the agricultural negotiations of the World Trade Organization (WTO) and continues to be treated as an industrial product in negotiations. Yet, fish is the most important source of protein for many around the globe. Estimates are that, globally, per capita consumption of fish is 14.3 kilograms (kg) per year (Delgado et al, 2003). Per capita consumption in 1997 was led by Japan, with 62.6 kg. per year and China at 26.5 kg per year, up from 8.1 in 1985. The European Union (EU) consumes at 23.6 per year per capita, and Southeast Asia at 23.0 kg per year, up from 19.8 in 1985. Furthermore, per capita consumption of fish by 2020 is expected to rise to 35.9 kg/year in China and 25.8 kg/year in Southeast Asia, while it will remain constant or decline in developed countries (Delgado et al., 2003)

Rachel E. Golden and Kimberly Warner (2014) in a report on "The Global Reach of Seafood Fraud: A Current Review of the Literature" stated that Seafood fraud, the misrepresentation of seafood, has been discovered all around the world. Seafood fraud can take many forms, including false labelling, species substitution, short-weighting and over-glazing to hide the correct identity, origin or weight of the seafood. Oceana's campaign to Stop Seafood Fraud focuses on a particular type of fraud: species substitution. To date, Oceana has conducted six seafood studies, which revealed mislabelling in 20 states and Washington, D.C., as well as in France. Oceana's National report, released in 2013, is one of the most widely cited reports about seafood fraud in the media. Notably, many other scientists, governments, students and conservation and consumer organizations have conducted studies focused on seafood fraud, including species substitution.

Rao G Syda *et.al* (2014) in an article on "Cage Aquaculture in India" stated that the demand for marine fish as a favourite food in Indian homes picked up during the last 10-15 years mainly due to promoting of the marine fish as health food containing the valuable omega-3 fatty acids. As a result, the demand for fish during the last decade has increased so much that the high valued fish like seer fish, pomfrets, seabass, red snappers, groupers, breams and mullets have soared, which ultimately affected their availability in the domestic markets. The entire landing of these "high valued fish" is a mere two lakh tonnes out of the 40 lakh tonnes of marine fish landings. This indicates the need to increase the production of these high valued marine fish, which at present mainly possible through open sea mariculture. Besides, to meet the increased requirement of fish of the population by 2050, the projection is to reach 4 million tonnes of fish production through mariculture. Thus CMFRI's eff ort in this direction is a good beginning and we hope to achieve the target in association with developmental agencies like NFDB, who are already extending good support.

Shyam S Salim and Bindu Antony (2015) in an article on "Marine Fisheries Trade in India: Perspectives and paradigms" stated that the marine fish landings across the years had increased and the landings were estimated at 3.78 million tonnes during 2013-14. The total valuation of marine fish landings at the landing centre (point of first sales) was estimated at 29872 crores and that of the retail centres was found to be 47186 crores during 2013-14. Over the years the valuation had registered a ten per cent growth in the landing centre and more than 20 per cent in the retail markets. The markets had been the major driving force behind the realization of the huge value of landings.

S F Haque *et.al* (2015) in the article on "value chain analysis of dry fish marketing at Massimpur in Sylhet of Bangladesh" stated the involvement of more intermediaries in the marketing channel was the reason of increasing product price. Study revealed a number of constraints for wholesalers and retailers including rapid damage of dry fishes, lack of proper hygienic condition, high transaction costs, and lack of capitals, poor marketing infrastructure, transportation and storage facilities.

Sam Siril Nicholas S, Maheswaran M L, Gunalan B (2015) in an article on "Indian seafood Industry strength, weakness, opportunities and threat in the global supply chain" stated that Indian Seafood Industry is a major supplier in the 'Global Seafood trade' in exporting 'wide range of products'. 'International seafood trade' had seen major change in the last decade due

to factors like; 'environment reasons', 'diet diversification', 'increased global supply', 'international trade barriers' and Bioterrorism. This paper studies various Strength, Weakness, Opportunity and Threat (SWOT) faced by Indian seafood trade in the changing global market scenario.

Brian Sterling *et.al* (2015) in an article on "Assessing the Value and Role of Seafood Traceability from an Entire Value☐Chain Perspective" described the traceability practices and systems of 48 separate seafood businesses were assessed as part of an evaluation of 9 global seafood value chains (from catch to point of sale to the consumer). The purpose was to gain insights and provide knowledge about the impact of traceability on improving seafood industry business performance, including reducing waste, and enhancing consumer trust. In addition, the project developed and delivered a tool that can be used by stakeholders that are seeking to better understand the return on investment of implementation of traceability practices and solutions.

V V Devi Prasad Kotni (2016) in his research on "value chain management in marine fisheries: A case study of Andhra Pradesh" stated that the most used value added activities for fresh fish are cleaning, grading, separating, washing, weighing, icing and packaging. The value addition operations by different people like fishermen, middlemen, retailer, head loader and cycle carrier are analysed and it is found that on an average 12 percent value is being added to fish if they perform value addition processes. Therefore, it is strongly recommended to all the players of the fish supply chain to practice value chain management in order to get more value in terms of price to vendor and satisfaction to customer in terms of convenience of using the product.

Shannon M. Bayse *et.al* (2016) in a report on "Fish and squid behaviour at the mouth of a drop-chain trawl: factors contributing to capture or escape" stated that underwater video recordings in the mouth of a squid trawl were used to evaluate the effectiveness of a trawl configured with drop-chain groundgear to catch longfin inshore squid (*Doryteuthis pealeii*) and reduce bycatch of finfish in the Nantucket Sound squid fishery off Cape Cod, Massachusetts, USA. Entrance through the trawl mouth or escape underneath the fishing line and between drop chains was quantified for targeted squid, and two major bycatch species, summer flounder (*Paralichthys dentatus*) and skates (family Rajidae).

FAO (2018) published an article on "The state of world fisheries and aqua-culture" stated that global fish production peaked at about 171 million tonnes in 2016, with aquaculture representing 47 percent of the total and 53 percent of non-food uses (including reduction to

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fishmeal and fish oil) are excluded. The total first sale value of fisheries and aquaculture production in 2016 was estimated at USD 362 billion, of which USD 232 billion was from aquaculture production.

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CHAPTER-III

VALUE CHAIN - THEORETICAL FRAMEWORK

3.1 Value Chain Analysis

The value chain concept was introduced 25 years ago by Michael Porter in his 1985 best-seller, Competitive Advantage: Creating and Sustaining Superior Performance. A value chain is composed of activities and services that bring a product from conception to end use in a particular industry. It is sequence of production, processing and marketing activities. Products pass through all activities of the chain in a certain order and, with each activity, the product gains value. In a well-managed value chain, the value of the end product is often greater than the sum of value added (Porter, 1985).

In Michael Porter's description of the value chain, he identifies the various steps, or links in the generic value chain:

- **Inbound logistics:** the receiving and ware housing of raw materials and their distribution to manufacturing as they are required.

- **Operation:** the process of transforming inputs into finished products and services.

- **Outbound logistics:** the warehousing and distribution of finished goods.

- **Marketing and Sales:** the identification of customer needs and the generation of sales.

- **Service:** the support of customers after the products and services are sold to them.

A value chain is thus a chain of activities. Product pass through all activities of the chain in sequence and at each activity the product gains some value. The chain of activities gives the product more added value than the sum of added values of all activities.

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Fig.3.1 Porter's Value Chain Model

Firm infrastructure				M
Human resource				A
Technology				R
Procurement				G
Inbound Logistics	Operations	Outbound Logistics	Marketing & Sales	I N
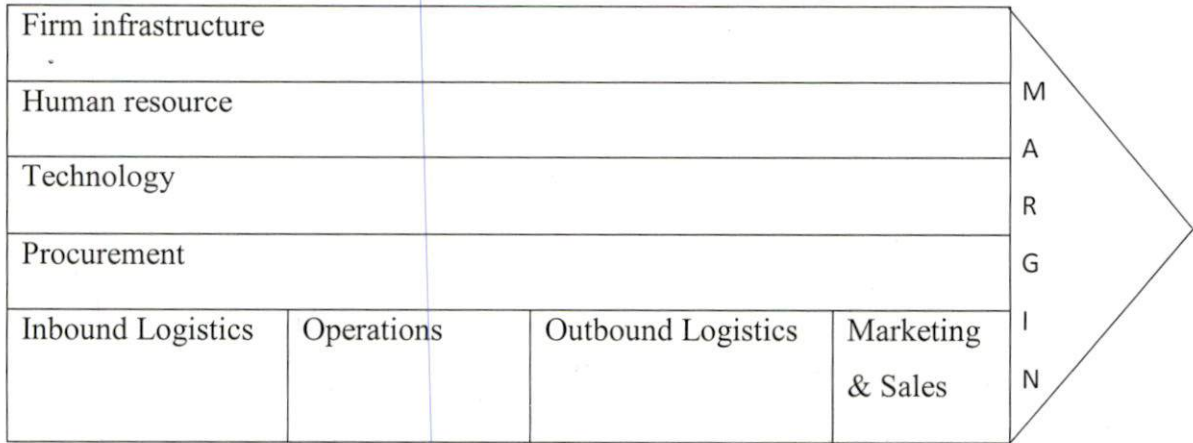
The term margin Implies that organizations realize a profit margin that depends on their ability to manage the linkages between all activities in the value chain. In other words, the organization is able to deliver a product or service for which the customer is willing to pay more than the sum of the costs of all activities in the value chain.

Some thought about the linkages between activities: These linkages are crucial for corporate success. The linkages are flows of information, goods and services, as well as systems and processes for adjusting activities. In most industries, it is rather unusual that a single company performs all activities from product design, production of components, and final assembly to deliver to the final user by itself. Most often, organizations are elements of a value system or supply chain. Hence, value chain analysis should cover the whole value system in which the organization operates.

3.2 Value Chain and Competitive Advantage

Value chain as a term was created by Porter (1985). A value chain disaggregates a firm into its strategically relevant activities in order to understand the behaviour of costs and the existing potential sources of differentiation. According to him competitive cannot be understood by looking at a firm as a whole. It stems from the many discrete activities a firm performing designing, producing, marketing, delivering and supporting its product. Each of these activities can contribute to a firm's relative cost position and create a basis for differentiation.

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A systematic way of examining all the activities a firm performs and how they interact is necessary for analysing the sources of competitive advantage. The value chain is the basic tool for doing so. A firm gain competitive advantage by performing the strategically important activities more cheaply or better than its competitors. A firm's value chain is embedded in a larger stream of activities i.e. value system illustrated below;

Fig 3.2 Value System

Suppliers value chain	→	Firms value chain	→	Channel value chain	→	Buyers value chain
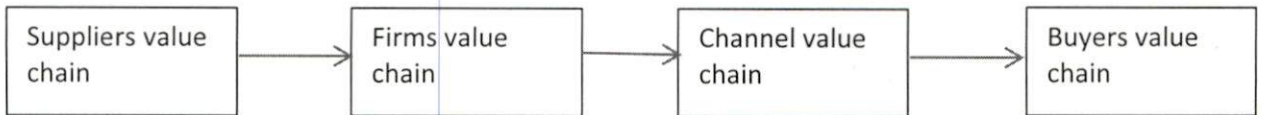
In competitive terms value is the amount buyers are willing to pay for what we provide them. A firm is profitable if the value it commands exceeds the cost involved in creating the product. The value chain displays total value and consists of value activities and margin. Value activities are the physically and technologically distinct activities a firm performs. These are the building blocks by which a firm creates a product valuable to its buyers. Margin is the difference between total value and the collective cost of performing the value activities.

A typical value chain analysis can be performed in the following steps:

- Analysis of own value chain which costs are related to every single activity
- Analysis of customer's value chains-how does our product fit into their value chain
- Identification of potential cost advantages in comparison with competitors
- Identification of potential value added for the customer-how can our product add value to the customer's value chain (e.g. lower costs or higher performance)- where does the customer see such potential.

Porter linked up the value chains between firm to firm what he called a Value System; however, in the present era of greater outsourcing and collaboration the linkage between multiple firm's value creating process has more commonly called the value chain. Value is an experience, and

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it flows from the person (or institution) that is the recipient of resources – it flows from the customer. This is a key difference between a value chain and a supply chain – they flow in opposite directions. Many views of Value Chains can be created.

Value chain mapping is the process of making a pictorial representation of the VCA (Value Chain Analysis). Mapping is considered as the tool of the value chain.

the value chain mapping is done by adopting the following steps:-

1. **Mapping the core process of the value chain**

   The first step is to find the core process involved in the value chain. The core process will differ depending upon the characteristics of the chain mapped.

2. **Identifying and mapping the main actors involved in the value chain**

   The next step is to map the people who are involved in the chain especially the poor or weaker markets, there is often no pure specialization. One actor will take on several roles.

3. **Mapping of specific activities undertaken by actors from core processes**

   Mapping the specific activities helps in further developing the chain. This is done by breaking down the core process into the specific activities.

4. **Mapping flow of products**

   This involves identifying the product at each stage of the process as they are transferred from inputs to raw materials and to final products. Mapping these flows create a clear picture of what forms of product are handled, transformed and transported at each process stage of the value chain.

5. **Mapping the geographical flow of the good or service**

   Based on the mapping of process, actors and product flow, it is relatively straight forward to develop a geographical map following the trail of product or service that is to be mapped. The first step is to identify where each of the process in the value chain are physically located. Start at the place of origin and map how the product travels. from intermediary trader to wholesaler, retailer and final consumer.

6. **Mapping the value at different levels of value chain**

   A core element of value chain mapping is to map the monetary value throughout the chain.

7. **Mapping relationships and linkage between value chain actors**

   It starts with mapping the actors in the value chain. The next step is to analyse what

kind of relationship actors have with each other. Relationship can exist between different process steps and within the same process step. Relationships or linkages between similar actors can be mapped according to two broad categories: -

- Spot market relations:

  These are relationships that are created "on the spot'. Actors make a transaction with the duration and scope of that specific transaction.

- Persistent network relation:

  In this case, actors have preference for transacting with each other time and time again. This comes with a higher level of trust and some level of interdependence.

8. **Mapping constraints and potential solutions**

   Constraints exist at almost all process levels of value chain. Initial identification of these constraints should be made at all process levels and in addition, identification of all potential solutions can be made.

3.3 Fish supply chain

Supply chains for most of the fish species start from oceans and end up with consumer markets far from thousands of miles. A supply chain is a network of retailers, distributors, transporters, storage facilities and suppliers that participate in the production, delivery and sale of a product to the consumer (Harland, 1996). The supply chain is typically made up of multiple companies who coordinate activities to set themselves apart from the competition. A supply chain has three key parts; these are: -

- **Supply** focuses on the raw materials supplied to manufacturing units, including how, when and from what location.

- **Manufacturing** focuses on converting these raw materials into semi-finished or finished products.

- **Distribution** focuses on ensuring these products reach the consumers through an organized network of distributors, warehouses and retailers.

3.4 Value Chain Applied for Marine Products

Value chain for marine industry has become a topic of interest for development agencies, and in an approach that is being increasingly applied by those involved in value chains. Value chain can contribute to meeting the growing need for marine products and investment in response to greater consumer demand for fresh or value added products. From a development perspective, governments and support agencies must ensure that the supply systems in their countries are able to meet these demands arising from the growth of modern sea food value chains.

The value chain as the range of services required to bring a product from conception the final consumer. For seafood products this includes capture (or culture), processing, distribution and marketing. A theoretical basis of value chain analysis, as the value added at each step of the chain is explained and a methodology is developed. Value chain analysis provides government policy makers and fishing company management with a systematic tool which allows them to understand the processes in the industry/company, and especially know the costs related to the various steps in the chain The concept of the value chain simply links all the steps in production, processing and distribution together and allows us to analyse each step in relation to the preceding steps and the steps that follow. It includes aspects such as: physical, economic and social logistics between raw material input and consumption; the supply chain and flow of payment including value adding margins; and allows Fisheries Administration and fishing industry personnel to address value chain issues, so as to maximise value within their commercial operations.

Fig.3.3 Seafood Industry Value Chain

CAPTURE FISHING

AQUACULTURE

PRIMARY PROCESSING

SECONDARY PROCESSING

DISTRIBUTION
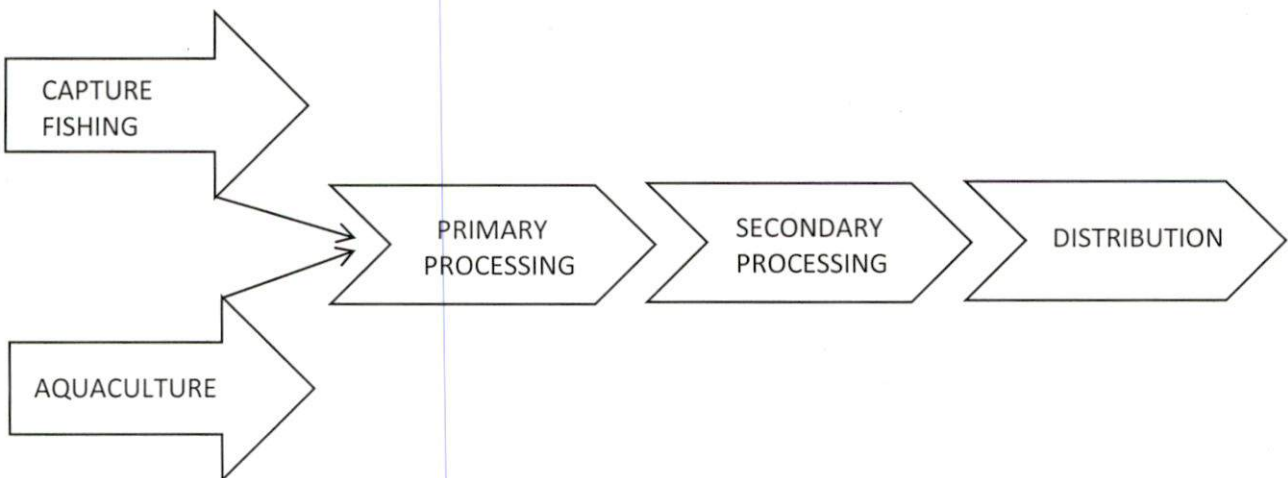
ORGANISATIONAL PROFILE

CHAPTER – IV

SAN MARINE EXPORTS, SAKTHIKULANGARA, KOLLAM- A PROFILE

4.1 Introduction

SAN MARINE EXPORTS, KOLLAM has emerged as one of the leading quality seafood processors of Kerala, India. Ideally located near the twin fishing harbours of Sakthikulangara and Neendakara at Kollam, Established in 2006. The managing partner of the company is Mr. Solomon Antony and other partners are Mr. Biju Sebastian and Mrs. Tresa Rose SAN Marine Exports is able to source raw material as fresh as possible. It also has excellent infrastructure facilities giving it the edge to offer quality products to its customers. The salient features of this factory is its versatility to produce up to 33 tonnes of high quality Frozen Marine Products every day. The company is equipped with two blast freezers with a production capacity of 16 tonnes per day. It also has two plate freezers equipped with pumping system, thereby enabling to enhance the combined block freezing capacity to 19 tonnes per day. The factory has the facility of an in-house cold storage with a capacity to store about 350 tonnes of frozen products and an independent cold store inside the factory premises with a storing capacity of 750 tonnes. In short, San Marine Exports has the capability to offer the customer, a wide range of Quality Seafood Products from the relatively unexploited, unpolluted waters of the Indian Ocean, processed and packed to the highest level of specification existing in the International Markets.

4.2 Vision

"To produce high quality fresh frozen products with assurance of safety"

4.3 Certifications

The company has Hazard Analysis and Critical Control Point (HACCP) certification. HACCP is a systematic preventive approach to food safety from biological, chemical, and physical hazards in production processes that can cause the finished product to be unsafe, and designs measurements to reduce these risks to a safe level. In this manner, HACCIP is referred as the prevention of hazards rather than finished product inspection.

BRC- Company own British Retail Consortium certifications (TSO 22000:2005). The British retail Consortium is one of the leading trade associations in the United Kingdom. Companies exporting to UK have to comply with the BRC standards. Company is authenticated with EU

(European Union) approval, Marine Products Exports Development Authority (MPEDA) and Food Safety and Standards Authority of India (FSSAI) licenses.

4.4 Infrastructural facilities

The company is having a highly sophisticated infrastructure, it includes: -

1) A receiving hall

2) Chilling room

3) Pre-processing hall

4) Processing hall which includes

a) Agitator

b) Glazing machine

c) 2 blast freezers (16 tonnes capacity each)

d) Block ice making unit (12 MT/day)

e) Packing section

Table 4.1 Details of processing plant

Products	Squid whole, shrimps, crab, cuttle fish whole, octopus gutted, fishes
Installed capacity	33 tonnes/day
Capacity utilised	30 tonnes/day

Source: Compiled from survey

The installed capacity of the processing plant is 33 tonnes/day and the products exported are squid whole, shrimps, crab, cuttle fish whole, octopus gutted and fishes.

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Table 4.2 Details of lab

Equipment	Purpose	Cost (₹)
Lab blender	For blending the samples	1,98,240
Serological water bath	For boiling and melting the medias	14,500
UV cabinet	For examining the result of e.coli, other bacteria etc.	6,200
Bio safety cabinet	For safely working with materials contaminated with (or potentially contaminated with) pathogens requiring a defined bio safety level.	97,139
Electronic scale	For precise measurements of weight	5,395
Nitrogen evaporator	For preparing samples for analysis	2,30,000
Laminar air flow	Prevents contamination of semiconductor wafers, biological samples, or any particle sensitive materials.	51,000
Digital colony counter	For accurate count of bacterial colonies and cells.	6,850
Hot plate	Used to heat glassware or its contents.	8,000
Autoclave	For sterilizing materials.	62,000
Incubator	Used to grow and maintain microbiological cultures or cell cultures.	30,499
Vortex mixer	Used to mix small vials of liquid.	5,300
B.O.D (Biological Oxygen Demand) incubator	Used for the growth of yeast and mould as they require low temperature to grow.	76,500

Source: Compiled from survey

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Table 4.2 depicts the equipments used in lab, the purpose of the equipments and their cost. The lab blender is used for blending the samples costing ₹1,98,240. Serological water bath is used for boiling and melting the Medias costing ₹14,500. UV cabinet is used for examining the result of e.coli and other bacteria costing ₹6,200. Bio safety cabinet is used for the safe working with materials contaminated with pathogens costing ₹97,139. Electronic scale is used for the precise measurements of weight costing ₹5,395. Nitrogen evaporator is used for preparing samples for analysis costing ₹2,30,000. Laminar air flow is used for preventing contamination of semiconductor wafers, biological samples or any particle sensitive materials costing ₹51,000. Digital colony counter is used for accurate count of bacterial colonies and cells ₹6,850. Hot plate is used to heat glassware or its contents costing ₹8,000. Autoclave is used for sterilizing materials costing ₹62,000. Incubator is used to grow and maintain microbiological cultures or cell cultures costing ₹30,499. Vortex mixer is used to mix small vials of liquid costing ₹5,300. B.O.D incubator is used for the growth of yeast and moulds costing ₹76,500.

Table 4.3 Details of countries to which squids are exported

EU nations	Italy, Spain, Portugal, Greece
Non-EU nations	Hongkong, USA, Thailand

Source: Compiled from survey

From table 4.3 it is observed that the company export squids to both EU and Non-EU nations. EU nations include Italy, Spain, Portugal, Greece and Non-EU nations include Hongkong, USA, Thailand.

4.5 EU import conditions for marine products

The European Union is by far the world's biggest importer of fish, seafood and aquaculture products. Import rules for these products are harmonised, that the same rules apply in all EU countries. For Non-EU countries the European Commission is the negotiating partner that defines import conditions and certification requirements. The import rules for fishery products

seek to guarantee that all imports fulfil the same high standards as products from EU Member States with respect to hygiene and consumer safety. The imports are only permitted if they come from approved and listed production areas. The national authorities of exporting countries are required to give guarantees on the classification of the products and the close monitoring of the production zones to exclude contamination with certain marine bio toxins. Quality requirements for EU countries also include the presence of microbial contamination and heavy metals like cadmium and lead. EU nations prefer the content of cadmium below 1ppm and lead 3ppm.

4.6 Export procedures and mode of payment for exports

- On placing of purchase order, the export procedures are started and here importers specifications are obtained. Rates are offered for confirmation. Once the rates are accepted a Pro-forma invoice is issued to the importer and the importer is to be issued the Purchase Order and open the Letter of Credit (LC) for the full value of the goods to be shipped to importer based on the Pro forma Invoice.

- On receipt of information of opening the LC or on receiving the original LC the shipping bill (SB) is prepared and filled with the customs house by directly or through a Clearing and Forwarding Agent (CFA).

- Once the customs house passes the SB with the due signature a container is arranged through freight carriers /shipping line. This container is transported in a trailer to the seller's premises for stuffing (House stuffing).

- Intimation to the local customs and central excise is given in the format and only in their presence the container is opened and the cargo is stuffed directly to the container. The container has the facility for keeping the goods at -18/-20/-30 Degree Celsius.
  The customs officers will be present throughout the stuffing and the container is closed and sealed with customs seal as well as steamer agent's seal. The transit permit, port trust declaration, the SB with the details of the stuffing will be jointly signed by customs inspector and the Sup: of customs.

- The sealed container is transported to the port of Cochin which in it is taken on board the vessel. The steamer company issues the bill (BL) of loading that contains the notify

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party, consignee, name of vessel, on board date, description of goods with weight& gross weight, seal No, customs No, shipping bill No, container No, Freight prepaid etc.

- The container will be sail to the destination of the buyer and it takes (26/28 days) according to the distance.

- The seller on receipt of the BL a set of foreign documents drawn and prepared in accordance with the condition mentioned in the LC and negotiated with the bank. The bank pays the full value less their charges and interest till the date of payment.ie LC may drawn at sight (25days) or after certain days from the date of BL (45 days, 60 days, 85 days,90 days & 120 days from the date of BL) or Cash Against Documents (CAD), Documents Against Payment (DAP) basis etc.

Other mode of payment for export includes payment by Telegraphic Transfers and faxing of documents.

4.7 Promotion of products

The Company promotes their products by conducting trade fairs and exhibitions abroad. The company is getting export orders through e-marketing.

4.8 Export turnover of the company

Export turnover is the total amount of revenue generated by the sea food exporting company during the calculated period. The export turnover of the company during 2017-18 is about ₹80 Crore.

Fig 4.1 Organizational setup

Managing partner → Partners

Partners → Manager operation, Manager quality assurance, Manager production, Manager Finance, accounts and administratio, Manager maintenance, Manager human resource, Manager logistics

Manager operation → Purchase in-charge, Marketing & documents in-charge, Shipment in-charge

Manager quality assurance → Assistant quality assurance manager

Manager production → Weighing & pre-processing supervisor, Production in-charge

Production in-charge → Supervisors → Workers

Manager Finance, accounts and administratio → Accounts assistant, Administration

Manager maintenance → Assistant manager maintenance → Electrician, Operators

Manager human resource → Assistant

Manager logistics → Drivers

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RESULTS AND DISCUSSIONS

CHAPTER-V
ANALYSIS OF THE STUDY

5.1 Introduction

Trend analysis is the process of comparing business data over time to identify any consistent results or trends. You can then develop a strategy to respond to these trends in line with your business goals. Trend analysis helps you understand how your business has performed and predict where current business operations and practices will take you. Done well, it will give us ideas about how we might change things to move our business in the right direction. Mapping a value chain eases a clear understanding of the series of activities and the main actors, value at different levels, constraints and relationships involved in the value chain. It provides tools and examples on how to capture the different dimensions of a value chain. This chapter deals with the analysis of the data, which were collected directly from the fishermen, procuring agent and exporting company with the help of structured interview schedule. The list of fishermen and agents were collected from the sea food exporting company "San Marine Exports" Sakthikulangara, Kollam District. The objective of the study was to obtain the details regarding different activities undertaken by various actors in the value chain of Squid and the constraints faced by them and to analyse the trend in export of squid from the company. The data collected were analysed using statistical tools like percentage, indices, value chain mapping tools and trend analysis. The results of the study are presented and discussed in this chapter in detail.

5.2 Recent trend in export of squid from San Marine Exports

Trend analysis involves the collection of information from multiple time periods and plotting the information on a horizontal line for further review. The intent of this analysis is to spot actionable patterns in the presented information. Attempts were made to assess the trend in export of squid from San Marine Exports between years 2008 to 2018. To address the objective secondary data were collected from San Marine Export company. The collected data were analysed using Compound Annual Growth Rate, coefficient of variation, Regression and other summary statistical measures.

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Table 5.1 Trend in export of squid from San Marine Exports (years 2008 to 2018)

YEAR	QUANTITY (Kg)
2008-09	190081.6
2009-10	193819.6
2010-11	199572.6
2011-12	200779.4
2012-13	201894.4
2013-14	202444.4
2014-15	203204.4
2015-16	204090.8
2016-17	205091.6
2017-18	276506.4
Mean	**207748.5**
Standard Deviation	**24614.1**
CV	**11.84803**
CAGR	**3.82%**

Source: Company records

Table 5.1 reveals that total export of squid from San Marine Exports have grown at 3.82% over the year 2008 (190081.6 Kg) to 2018 (276506.4 Kg).

Figure 5.1 Total export of squid from San Marine Exports in Kg (2008 to 2018)
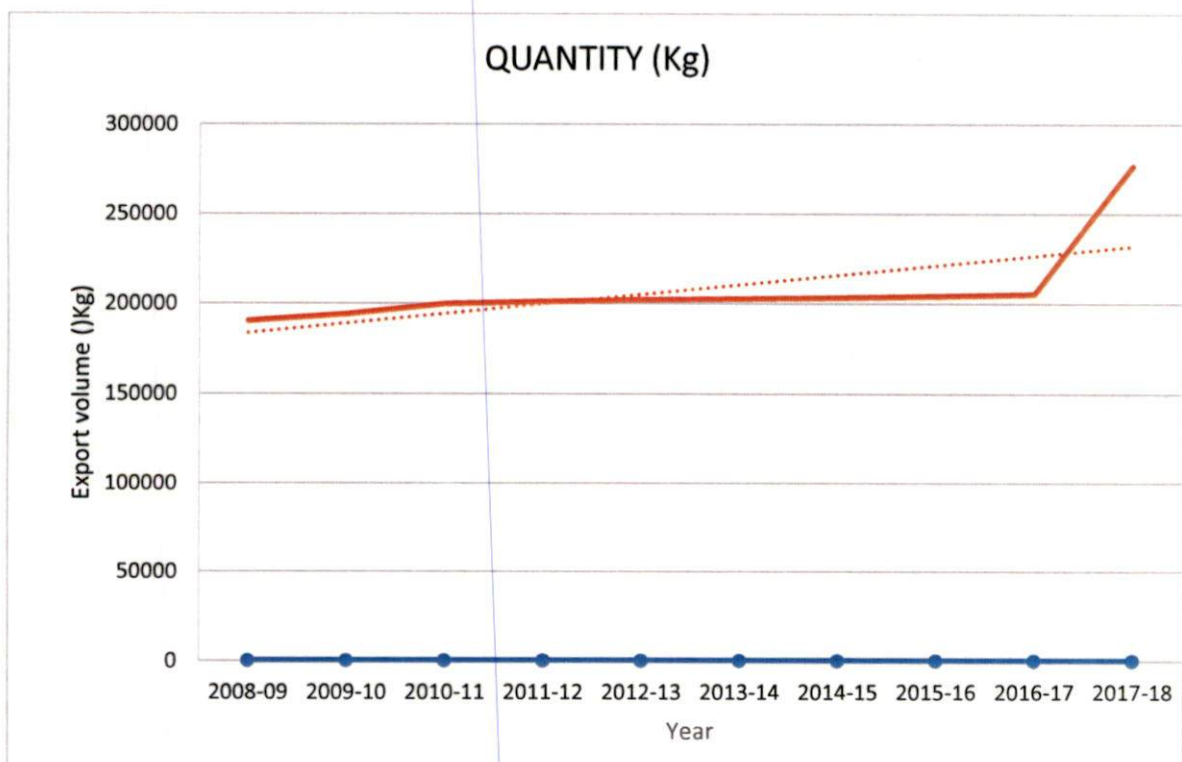
Fig 5.1 shows an increasing trend in quantity of squid exports from San Marine Exports 2008 to 2018-year period. The linear trend equation is **y = 5376.6x + 178177.**

Table 5.2 Export demand forecast

Timeline	Export quantity (Kg)	Forecast
2008-09	190081.6	
2009-10	193819.6	
2010-11	199572.6	
2011-12	200779.4	
2012-13	201894.4	
2013-14	202444.4	
2014-15	203204.4	
2015-16	204090.8	
2016-17	205091.6	
2017-18	276506.4	
2018-19	**237320**	**237319.96**
2019-20		**244437.37**
2020-21		**253166.03**
2021-22		**265760.11**
2022-23		**282722.29**

Source: Company records

Table 5.2 reveals that the export demand forecast of squid from San marine exports though predicted to decrease in 2018-19 is predicted to gradually increase in the coming years.

Fig 5.2 Demand forecast sheet

YEAR
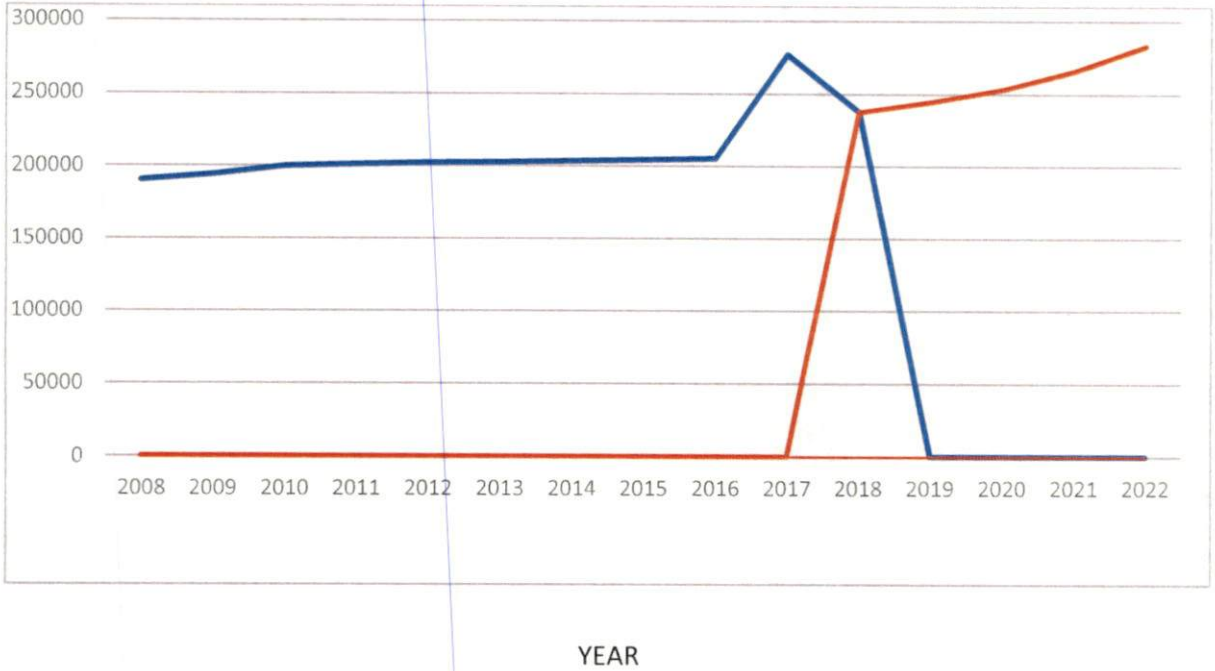
5.3 Socio-economic status of fishermen in Sakthikulangara harbour, Kollam District

Socio-economic status is an economic and sociological **combined total measure** of a person's **work experience and of an individual's** or family's economic and social position in relation to others based on age, income, education, and occupation.

The demographic characteristics of the fishermen community of Sakthikulangara such as age, education, occupation, monthly income were studied with the help of structured interview schedule.

Table 5.3 Socio-economic profile of fishermen

Sl.No	Characteristics	No.of respondents	Percentage (%)
	Age		
1	30-40	8	20
2	40-50	20	50
3	50-60	12	30
	Total	**40**	**100**
	Education		
1	Lower primary level	4	10
2	Upper primary level	26	65
3	High school/Higher secondary	10	25
	Total	**40**	**100**
	Basic Occupation/Source of income		
1	Fishing	28	70
2	Business	8	20
3	Agriculture	4	10
	Total	**40**	**100**
	Annual income		
1	APL	12	30
2	BPL	28	70
	Total	**40**	**100**

Source: Compiled from survey

Table 5.3 reveals that 50% of the fishermen belong to the age group of 40-50 and 30% belongs to the age group of 50-60 and 20% belong to the age group of 30-40. From this it is understood that youngsters are having less interest in fishing and middle aged people are more engaged in fishing. Among the 40 fishermen surveyed, 65% of them have upper primary level education, 25% have high school education and 10% have lower primary level education. From this it is understood that none of the respondents were illiterate. 70% of the respondents are having fishing as their basic source of income and only 8% and 4% are engaged in business and agriculture respectively. Income is another important economic variable which determines the economic status and standard of living of the respondents. About 70% of the respondents were Below Poverty Line (BPL) and 30% were Above Poverty Line(APL).

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5.4 Details of fishing

Table 5.4 Distribution of respondents according to years of relation with the export companies

Years	No of respondents	Percentage (%)
5-10	2	5
10-15	5	12.5
15-20	25	62.5
>20	8	20
Total	**40**	**100**

Source: Compiled from survey

Table 5.4 reveals that 62.5% of the respondents have 15-20 years of relation marine food exporting companies, 20% of the respondents have more than 20 years of relation with the companies, 12.5% of the respondents have 10-15 years of relation and 5% of the respondents have 5-10 years of relation. The relationship ensures the continuous supply of raw materials to the companies.

Table 5.5 Ownership of boats by fishermen

Source	No of respondents	Percentage (%)
Owned	40	100
Rented	0	0
Total	**40**	**100**

Source: Compiled from survey

Table 5.5 depicts that Cen percent of the respondents were having owned boats. None of the respondents were having rented boats.

Table 5.6 Variable cost incurred by fishermen monthly

Sl. No	Particulars	Amount (₹)
1	Ice	1,50,000
2	Fuel	2,34,000
3	Labour	90,000
4	Maintenance cost	1,00,000
5	**Total**	**5,74,000**

Source: Compiled from survey

Table 5.6 depicts that variable cost incurred by fishermen monthly. From this it could be observed that variable cost incurred by the fishermen includes the cost of ice, fuel, labour and

maintenance cost. Among this the major cost incurring item is the cost of fuel. The total variable cost incurred by fishermen monthly is ₹5,74,000.

Table 5.7 Problems faced by fishermen in the production process

Problems	Indices	Rank
Unavailability of squid in required number	37.5	4
Scarcity of labour and high labour charge	50	3
Depleting resources in the sea	12.5	6
Increasing price of fuel	65	2
Temperature effects	25	5
Trolling regulations	87.5	1

Source: Compiled from survey

From table 5.7 it is clear that the major problem faced by fishermen during the production process is trolling regulation followed by increasing price of fuel, scarcity of labour and high labour charge, unavailability of squid in required number, temperature effects and depleting resources in the sea.

Table 5.8 Problems faced by fishermen in processing

Problems	Indices	Rank
Lack of labour	45	4
Spoilage	95	1
Unavailability of ice	62.5	2
High labour charge	50	3

Source: Compiled from survey

Table 5.8 Shows that the major problems faced by fishermen during processing is spoilage followed by unavailability of ice, high labour charge and lack of labour.

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Table 5.9 Problems faced by fishermen in marketing

Problems	Indices	Rank
Lack of fair price	45	6
Lack of fair traders	37.5	7
Lack of fair practices	62.5	4
Loss during transportation	62	5
Lack of reliable and up-to-date market information	30	9
Inadequate transportation and communication facilities	35	8
Existence of too many middle men	100	1
Lack of information about price	70	3
High price fluctuations	75	2

Source: Compiled from survey

From table 5.9 it is clear that the major problem faced by fishermen during marketing is existence of too many middle men followed by high price fluctuations, lack of information about price, lack of fair practices, loss during transportation, lack of fair price, lack of fair traders, inadequate transportation and communication facilities and Lack of reliable and up-to-date market information.

5.5 Value chain mapping of squid

Value chain mapping is a process that identifies the main activities associated with a company's service or product line and is often used in corporate strategy in order to identify performance improvement opportunities. It visualizes networks to get a better understanding of connections between actors and to identify the constraints and possible solutions at different levels in the value chain. Mapping also provide a schematic snapshot of the key value chain actors and the existing structure of raw material, product and information flows at a given point of time. There are many potential dimensions of the value chain that could be included in the value chain, costs and margins at different levels etc. Mapping is the process of making a pictorial representation of the value chain analysis. Mapping is considered as the tool of the value chain. Mapping the value chain has three main objectives:

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- Visualise networks in order to get a better understanding of connections between actors and processes in a value chain.

- Demonstrate independency between actors and processes in the value chain.

- Create awareness of stakeholders to look beyond their own involvement in the value chain.

The present study was undertaken to understand the value chain management of squid with special reference to San Marine Exports, Kollam. For this purpose, main players in the value chain of squid were identified and a primary survey was conducted among the different players.

Mapping of value chain is done through the following steps:

Step 1: Mapping the core processes in the value chain

Step 2: Mapping the main actors involved in the process

Step 3: Mapping specific activities undertaken by actors in the value chain

Step 4: Mapping flows of product, information and knowledge in the value chain

Step 5: Mapping the geographical flow of the product

Step 6: Mapping the value at different levels of the value chain

Step 7: Mapping relationships and linkages between value chain actors

Step 8: Mapping the services that feed into the value chain

Step 9: Mapping constraints at different levels of the value chain

5.5.1 Mapping the core processes in the value chain

The core processes involved in the value chain of squid with special reference to San Marine Exports are identified and mapped. It includes input provisions, procurement by fishermen, fishermen level processing, procurement by auction agent, procurement by company and exporting.

1. Input provisions

   Input provisions are the facilities provided or obtained as input such as baskets, fishing nets, anchors etc. for fishing. These are obtained from MATSYAFED retail outlets, FFDA,

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CMFRI, MPEDA and other private shops near Sakthikulangara. None of the fishermen are availing subsidies for buying these inputs.

2. Procurement by fishermen

Procurement is the catching and collecting of squid. Fishermen procure squid directly from the sea.

3. Fishermen level processing

Fishermen level processing includes sorting, cleaning and icing. After processing fishermen sell it to the agents. Auction agents then supply it to the Marine Export Company.

4. Procurement by auction agents

It involves buying the fish from the fishermen and transporting it to the company.

5. Procurement by company

The company procures the fish from the auction agents as per demand and store it for processing.

6. Export

After processing the final product is then exported to various countries.

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Fig: 5.3 Core processes in the value chain of squid

Input provision	Procurement by fishermen	Fishermen level processing	Procurement by agents	Procurement by processing company	Processing by company	Exporting
Basket, net, anchors etc.	Deep sea fishing of squid	Cleaning, sorting, icing	Agents of San Marine Exports	San Marine Exports	Chilling, peeling, glazing, packing etc.	Foreign countries
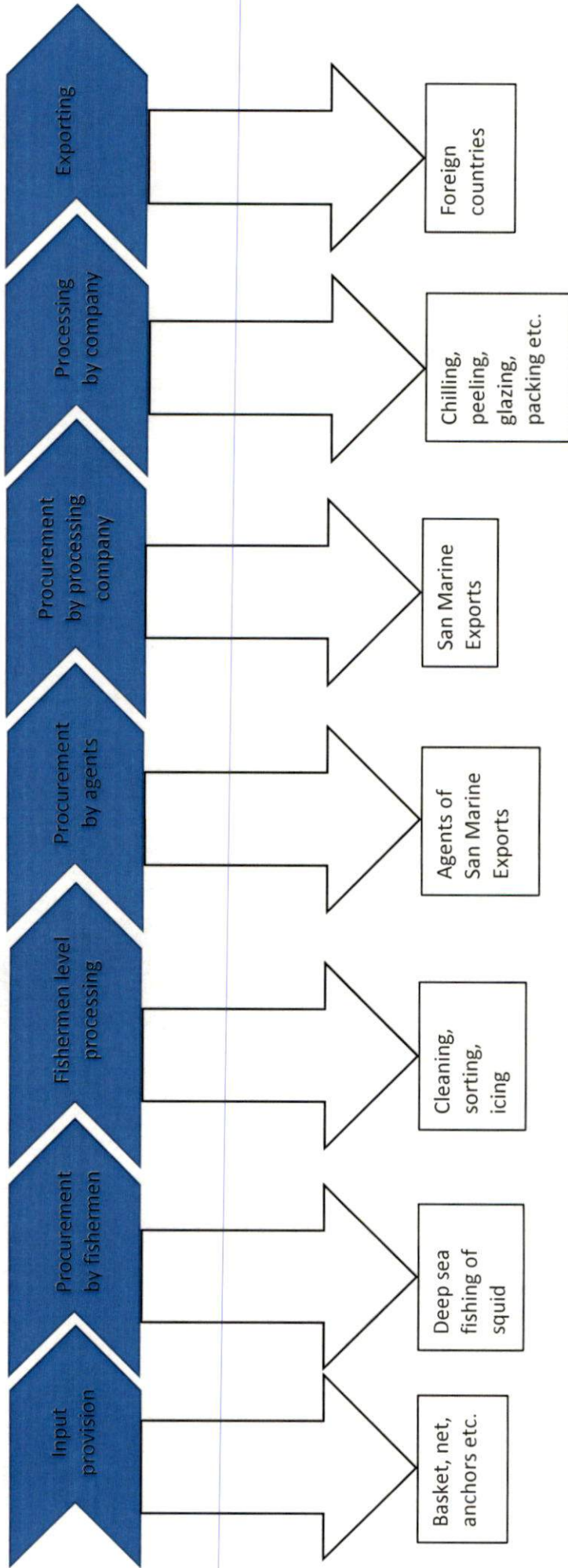
5.5.2 Identifying and mapping the main actors involved in the value chain

This step deals with identifying the actors involved in the value chain and their roles. Each actor has its own importance. The involvement of actors starts from the procurement of raw materials and ends with the marketing of finished products.

Fig 5.4 Mapping the actors involved in the value chain
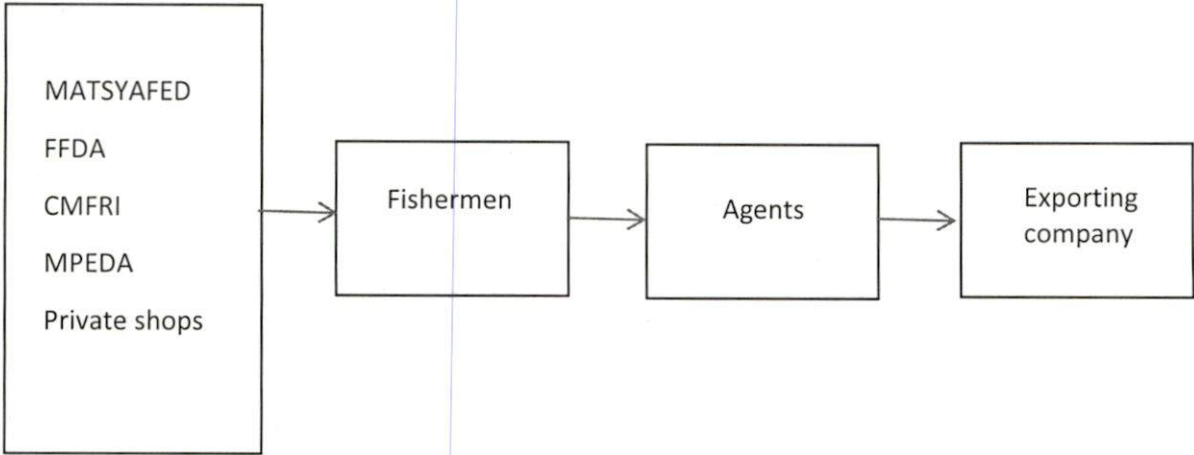
The main actors involved in the input provision are MATSYAFED, FFDA, CMFRI, MPEDA and private shops from where the fishermen get inputs for fishing. Fishermen undertake fishing directly from the sea and after the fishermen level processing it is sold to the auction agents of the exporting company. The auction agents then sell it to the exporting company. After the company level processing the final product is exported as per the purchase orders. The waste generated in the company is drained into a canal leaving behind solid wastes which is taken by fertilizer producing companies and chitin processing units at Sakthikulangara.

5.5.3 Mapping the specific activities undertaken by actors in the value chain

The squid value chain comprises of various activities undertaken by various actors in the value chain.

Fig 5.5 Specific activities undertaken by actors in the value chain

Input supply	Fishermen	Agents	Exporting company
Anchors, Net, Baskets, labour	Deep sea fishing, Cleaning and icing	Agents collect squid from fishermen and sell it to the exporting company	Getting orders, Processing of orders, Submission of export documents, shipment
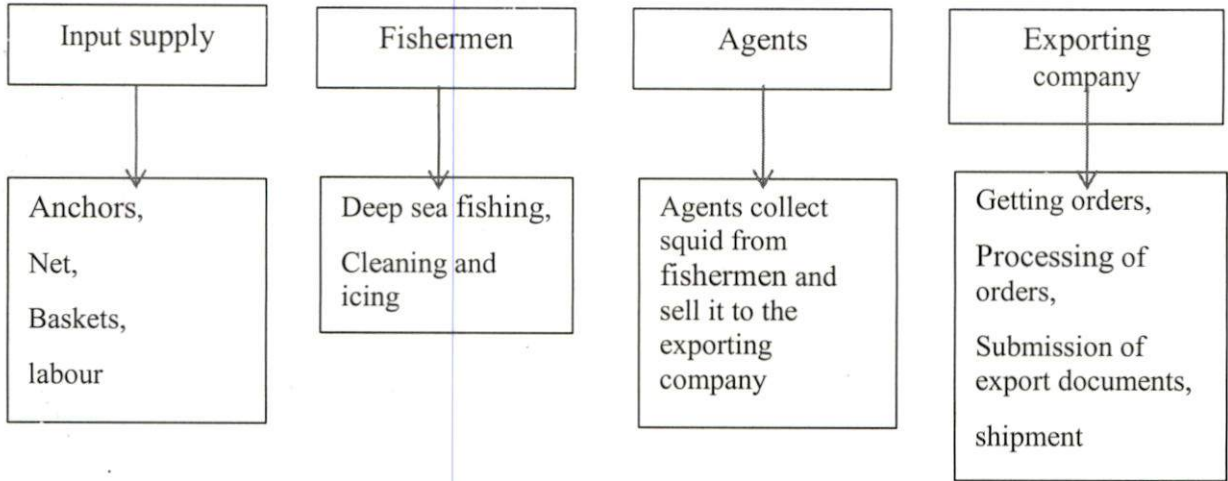
The seafood value chain comprises of various activities at different stages of procurement, processing and marketing. The procurement of seafood means fishing from the sea continued by its transport into deck where it is layered and then iced to prevent quality deterioration. These are then transported to the company in insulated vehicles. The seafood is received at the company receiving centre from where it is checked for quality. Then it is carried for processing, which involves various technologies and procedures like freezing, value adding, packing, branding and finally storing as per the customer demand/order.

5.5.4 Flows of product, information and knowledge in the value chain

This step involves identifying the products at each stage of the process as they are transformed from inputs to raw materials, to intermediate materials and to final product. Mapping these flows creates a clear picture of what forms of product are handled, transformed and transported at each process stage of the value chain. Different flows go through every value chain. These flows can be both tangible (products, money) and intangible (information, services). Identifying the types of flows is the main objective of any value chain analysis. Mapping these flows can be quiet straight forward. When it comes to products one should simply follow the stages that the tangible product goes through, from raw material to final product. Intangible flows like information and services are complicated to capture in a visual map.

Fig 5.6 Flow of product, information and knowledge in the value chain
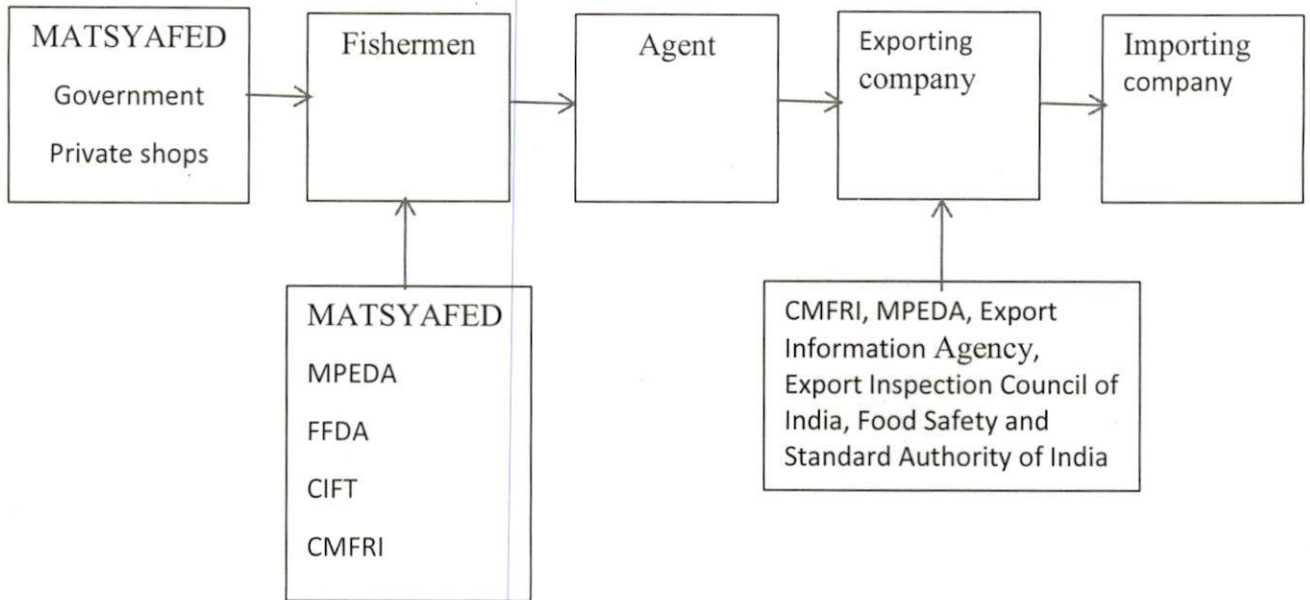
The process of seafood value chain involves flow of products from inputs to branded frozen fish product. Fishermen get the necessary inputs and assistance from specified institutions and agencies and they go for deep sea fishing. Fish caught by fishermen continued by its transport into dock where it is layered and then iced to prevent quality deterioration. The fishermen supply the marine catches to auction agents and auctioneers in turn sell the fish to the exporting company. The flow of information among the three is continuous. Information about price and quality are passed from each actor throughout the chain. The communication between exporting company and importing company is very much essential. The information regarding quality assurance, demand and purchase order are shared between exporting company and importing company. Auctioneers mainly depend on medias like newspaper and radio for seeking information regarding market price and demand. Exporting company relies om internet and other sources for determining market price and demand.

5.5.5 Mapping the geographical flow of the product

This step helps to identify where each of the processes in the value chain are physically located. This mapping starts at the place of origin and tries to trace how the product travels from one intermediary to other and how it reaches the final consumer.

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Fig 5.7 Geographical flow of product

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┌──────────┐      ┌──────────┐      ┌──────────┐      ┌──────────┐
│ Input    │ ───► │Fishermen │ ───► │ Agents   │ ───► │Exporting │
│ supply   │      │          │      │          │      │ company  │
└──────────┘      └──────────┘      └──────────┘      └──────────┘
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┌────────────┐   ┌────────────┐   ┌────────────┐   ┌────────────┐   ┌────────────┐
│MATSYAFED   │   │Fishermen   │   │Agents      │   │San Marine  │   │Foreign     │
│outlets and │◄─►│undertake   │◄─►│procure the │◄─►│Exports in  │◄─►│countries   │
│private     │   │deep sea    │   │marine      │   │Sakthikulan-│   │            │
│shops in    │   │fishing and │   │catches from│   │gara        │   │            │
│Sakthikula- │   │brought to  │   │fishermen at│   │            │   │            │
│ngara       │   │Sakthikula- │   │Sakthikula- │   │            │   │            │
│            │   │ngara       │   │ngara       │   │            │   │            │
│            │   │harbour     │   │harbour     │   │            │   │            │
└────────────┘   └────────────┘   └────────────┘   └────────────┘   └────────────┘
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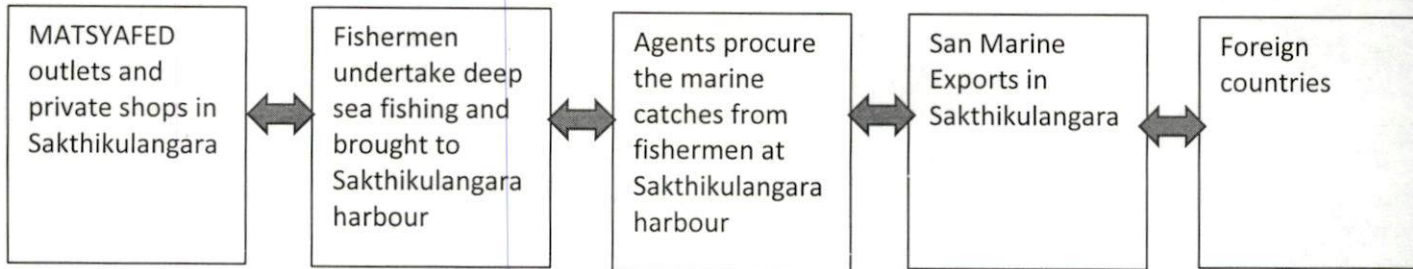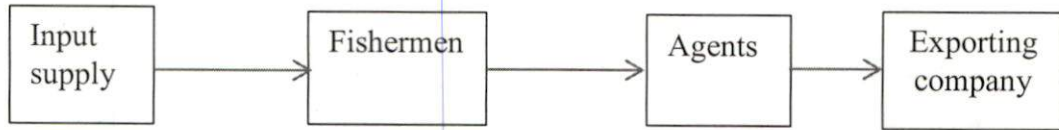
Inputs are procured from MATSYAFED outlets and private shops near Sakthikulangara. Fishermen catches the fish continued by its transport to the dock and immediately supply it to the agents at Sakthikulangara harbour. The agents supply fish to the seafood exporting company San Marine Exports. After processing the finished product is exported to both EU and non-EU nations based on their demand and quality requirements.

5.5.6 Mapping the value at different levels of value chain

Fishermen undertakes deep sea fishing from the sea and sell it to the agents after icing and cleaning at harbour. Since fish is a perishable commodity adequate care should be taken to prevent quality deterioration. Auction agents after icing supply it to the processing company in insulated vehicles. The processing company after all the process sell the finished products to the importing countries based on their demand and the quality requirements. A core element of the value chain mapping is to map the monetary value throughout the chain. The most straight forward depiction of a monetary flow would be to look at the value that is added at every step throughout the chain. Here an attempt is made to calculate the cost incurred by the fishermen for procuring 1 kg of squid and the price gained by them.

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Table 5.10 Cost incurred by fishermen

Sl. No	Particulars	Monthly (₹)	Yearly (₹)	Cost for 1 Kg of squid (₹)
1	Fuel	2,34,000	21,06,000	8
2	Ice	1,50,000	13,50,000	5
3	Labour	90,000	8,10,000	3.24
4	Oil change and repair cost	1,00,000	9,00,000	4
5	**Total cost**	**5,74,000**	**51,66,000**	**21**

Source: Compiled from survey

Assumptions:

1. Fixed cost is not included for calculating cost per kilogram

2. On an average 2,50,000 Kg squid is obtained by fishermen per year (9 months)

3. Variable cost for a year includes only cost for 9 months (excluding 3 months trolling regulation)

Cost of procurement of 1 Kg of squid = 51,66,000/2,50,000

$$= ₹21$$

Fig 5.8 Values in different stages at fishermen level

Procurement	Processing	Marketing
Procurement cost of 1 Kg of squid is ₹21	₹40/Kg is incurred for unloading, cleaning, sorting and icing	Squid is sold at ₹130/Kg to agents
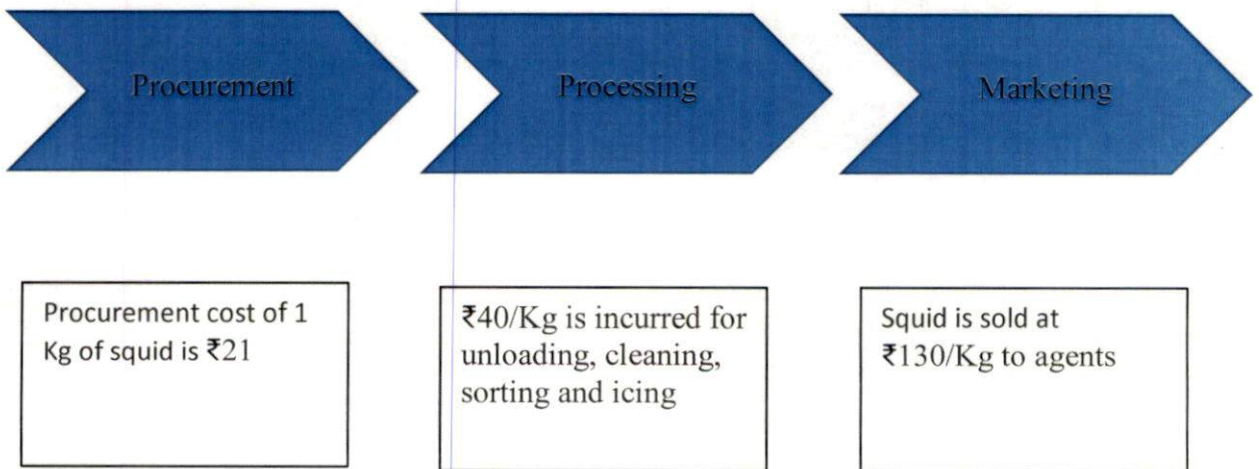
Procurement cost for 1 Kg of squid incurred by fishermen is ₹21. After processing at ₹40/kg they supply it to agents at ₹130/Kg. Total cost incurred by fishermen for procurement and processing is ₹61/Kg. Margin earned by fishermen is ₹69.

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Fig 5.9 Values in different stages at agent level

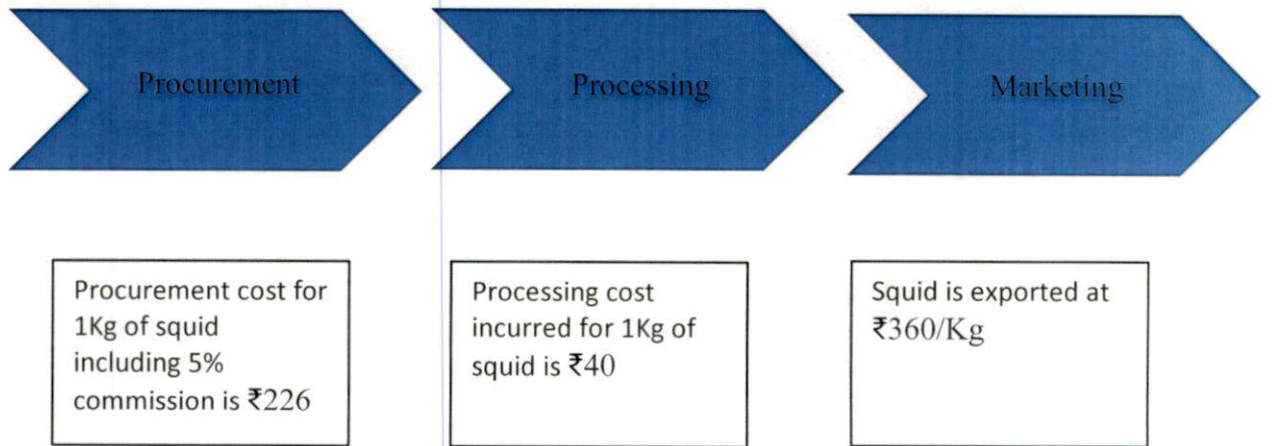| Procurement	Processing	Marketing
Procurement cost for 1 Kg squid is ₹130	Processing and transportation cost incurred is ₹20/Kg	Squid is sold to exporting company at ₹215/Kg
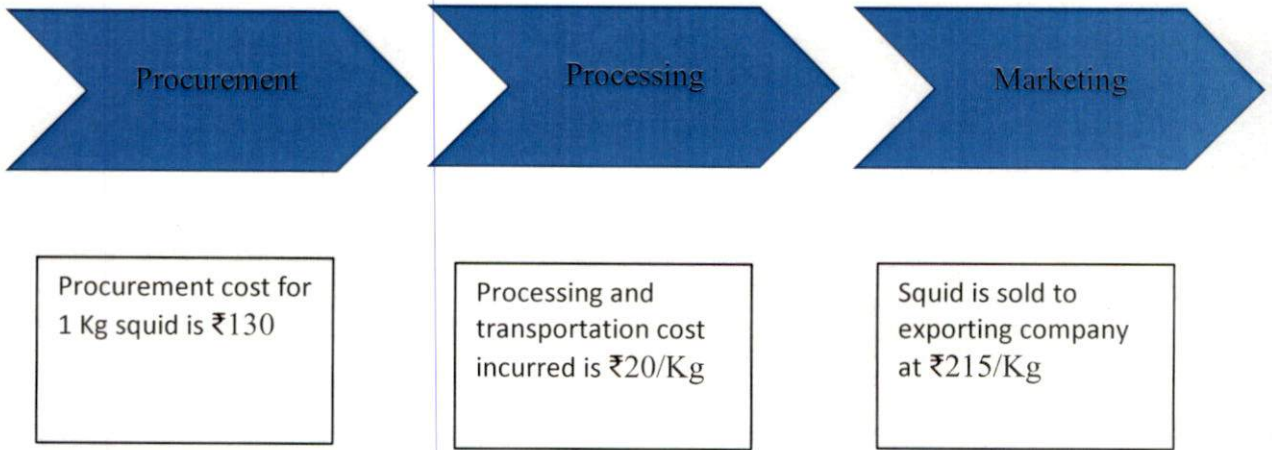
Procurement cost for 1 Kg of squid is ₹130 and after adding the cost of icing and transportation of ₹20/Kg it is sold to the exporting company at ₹215/Kg. Agents get 5% commission for each Kg of squid supplied. Total margin earned by the agents from selling 1Kg of squid including 5% commission is ₹76.

Fig 5.10 Values at different stages of exporting company

Procurement	Processing	Marketing
Procurement cost for 1Kg of squid including 5% commission is ₹226	Processing cost incurred for 1Kg of squid is ₹40	Squid is exported at ₹360/Kg

Squid processing involves chilling, cleaning, sorting, peeling, freezing, packaging and labelling.an unbroken cold chain is followed during processing aimed at attaining maximum product quality. After processing the final product is exported at ₹360/Kg. Margin earned by the company is ₹94/Kg.

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Fig 5.11 Margin earned by each actor

Fishermen — ₹69

Agent — ₹76

Processing company — ₹94
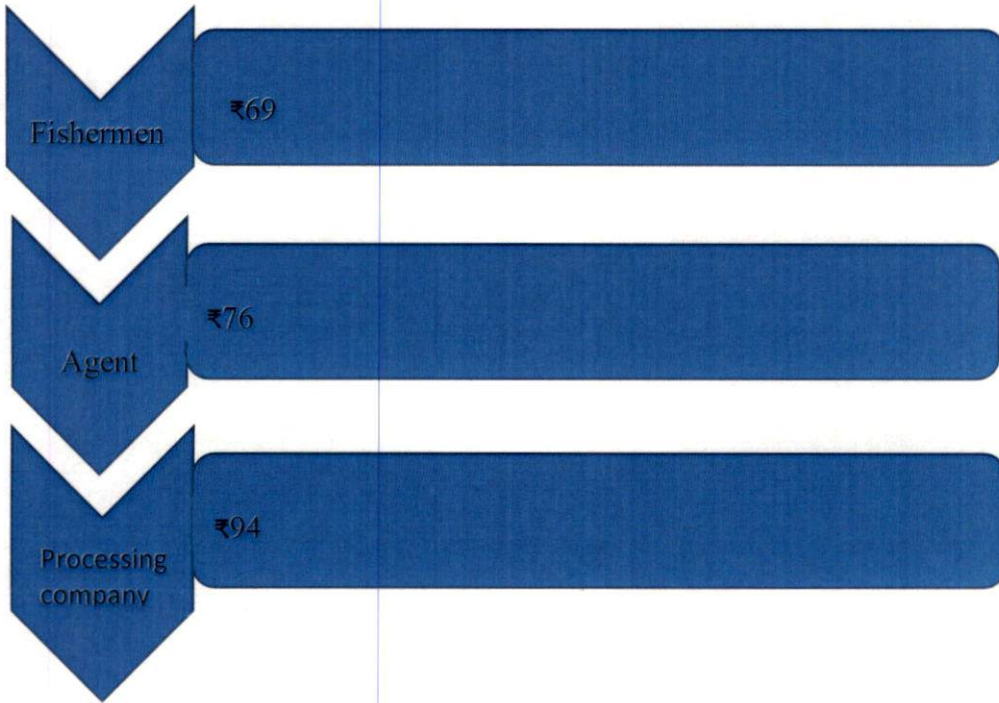
5.5.7 Mapping relationships and linkages between value chain actors

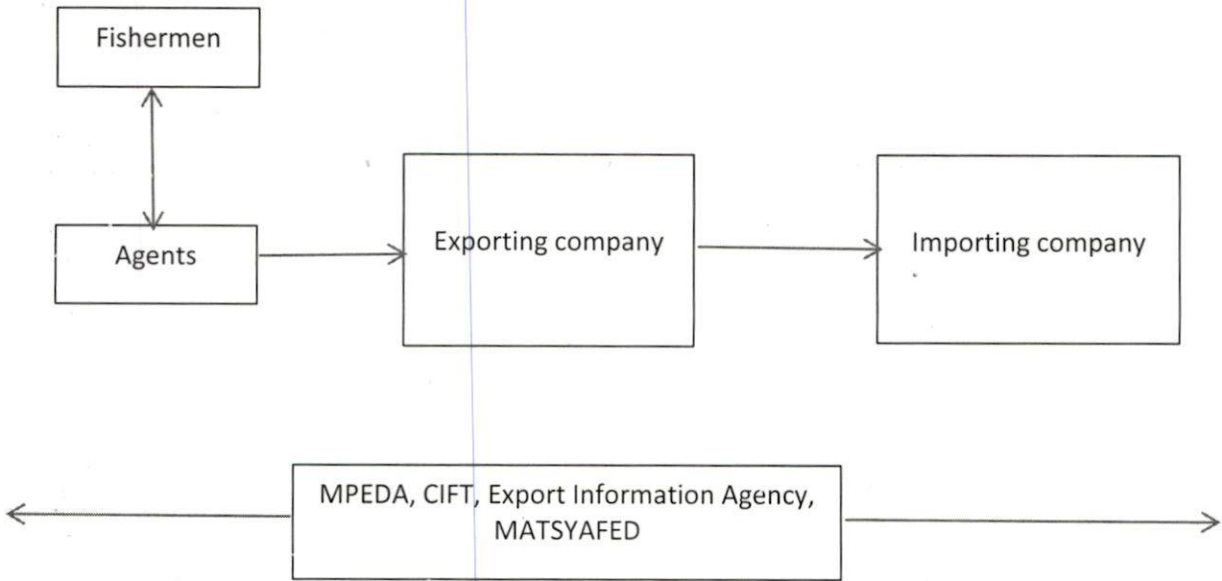The sustainability of the value chain of squid depends largely on the relationships and linkages between the various actors of the value chain. All the actors are linked to organisations like MPEDA, Export Information Agency, Central Institute of Fisheries Technology, Food Safety and Standard Authority of India.

Fig 5.12 Relationship and linkages

The relationship or linkages between similar actors can be mapped according to two broad categories:

- Spot market relations

    These are relations that are created 'on the spot'. Actors make a transaction (including negotiation on price, volume and other requirements) with the duration and scope of that specific transaction. The relationship between fishermen and the agents are of this kind.

- Persistent network relations

    When actors have a preference for transacting with each other again and again, that is known as a persistent network relation. This comes with a higher level of trust and some level of interdependence. This relation can be formalized by contacts, but this is not necessary. The relationship between the agent and the export company, exporting company and importing companies are of this nature.

5.5.8 Mapping the services that feed into the value chain

In each stage of value chain there are so many services required for the preparation final product.

Fig 5.13 Business services that go into the value chain of squid

Mapping of the services give an overview of the potential for interventions outside the value chain. Inputs (MATSYAFED), welfare schemes, license certification were the various services that goes into fishing. Services for processing include subsidy, training for workers and license certification. Services offered for marketing includes export information regarding the price, exchange rates, quality specifications (MPEDA) and quality testing.

5.5.9 Mapping the constraints at different levels of the value chain

Constraints exist in all levels of the value chain. Initial identification of these constraints can be made at all levels and possible solutions can be found out. The major constraints faced by fishermen and exporting company are given below:

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Fig 5.14 Mapping the constraints faced by the fishermen

Production	• Trolling regulations
	• Increasing price of fuel
	• Lack of subsidy for fuel
	• Scarcity of labour and high labour charge

Processing	• Spoilage
	• Unavailability of ice
	• Lack of labour

Marketing	• Existence of too many agents
	• High price fluctuations
	• Lack of price information
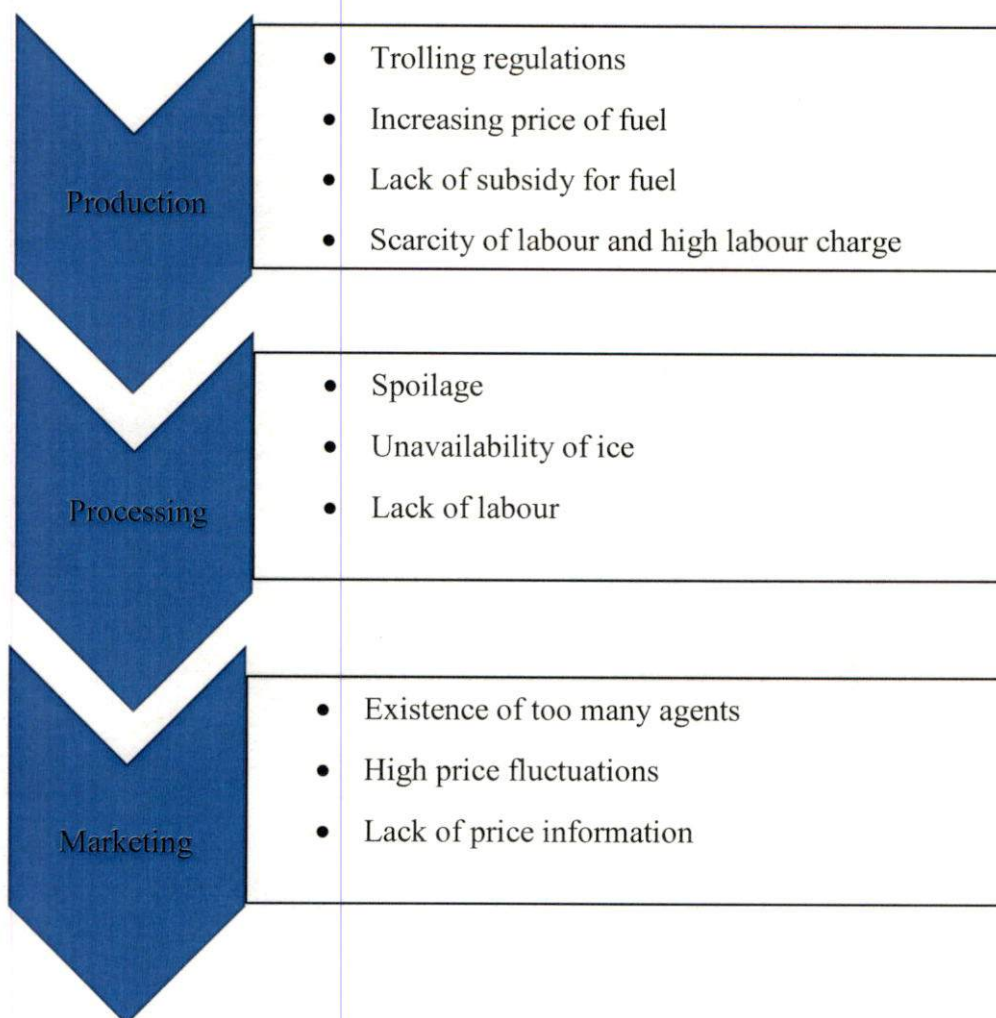
From fig 5.12 the main problems faced by fishermen during production are trolling regulations, increasing price of fuel, lack of subsidy for fuel and high labour charge. Problems faced during processing are spoilage, unavailability of ice and lack of labour and during marketing are existence of too many agents, high price fluctuations and lack of price information. Most of the fishermen were unaware about the schemes and services provided by various institutions for the welfare of fishermen community. Fisher folk should ensure that all the services are reaching them at grass root level. Effort must be made to convey the fishermen about the price prevailing system in the market. Right of first sale with the assistance from co-operative credit institutions will contribute to great success to fishermen.

Fig 5.15 Mapping the constraints faced by the exporting company

Procurement	• Lack of skilled employees
Processing	• Meeting international quality requirements • Lack of skilled employees
Marketing	• Fluctuation in exchange rate

From fig 5.13 major constraints faced by the company during procurement is lack of skilled employees, during processing are meeting international quality requirements and lack of skilled employees and during marketing is fluctuation in exchange rates. Feasible solution to overcome the lack of skilled employees is to provide training to employees, conduct workshops to explore the skills of the employees.

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5.6 Conclusion

The study entitled "Value chain analysis of squid with special reference to San Marine Exports, Sakthikulangara, Kollam analysed the trend in export of squid from San Marine Exports, the socio economic status of registered fishermen in San Marine Exports, core processes in the value chain of squid, actors involved in the value chain of squid, activities undertaken by various actors in the value chain of squid, geographical flow of squid, business services that fed into the value chain of squid, flow of information, values at different levels of the value chain of squid, various linkages and finally various constraints at different levels of the value chain.

The objectives of the study were to analyse the trend in export of squid from San Marine Exports and to identify and map the actors and various activities involved in the value chain of squid and the constraints faced by the various actors. The quantity of squid exported from San Marine Export from 2008 to 2018 shows an increasing trend. The export demand forecast of squid from San marine exports though predicted to decrease in 2018-19 is predicted to gradually increase in the coming years. The actors involved in the value chain of squid are fishermen, agents and the exporting company. The chain starts with the fishermen undertaking deep sea fishing of squid. After fishermen level processing which includes cleaning, sorting and icing it is sold to the agents and after agent level processing which include further icing it is then loaded to trucks for transporting to the processing company. Before the squid reaches the final consumer in the foreign countries various processing activities are undergone and the process adds value to the squid at different levels. The main constraints faced by the fishermen were trolling regulations, increasing price of fuel, lack of subsidy for fuel, lack of labour and high labour charge. Fluctuation in exchange rate, lack of skilled employees and meeting international quality requirements are the major constraints faced by the exporting company. MATSYAFED, MPEDA, FFDA, CIFT and CMFRI plays an important role in the value chain of squid. Margin earned per Kg of squid by fishermen is ₹69, by agent is ₹76 and by the exporting company is ₹94.

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SUMMARY OF FINDINGS, SUGGESTIONS AND CONCLUSION

CHAPTER-VI

SUMMARY OF FINDINGS, SUGGESTIONS AND CONCLUSION

The study entitled value chain analysis of squid with special reference to san marine exports, sakthikulangara, Kollam is taken up with the objective of analysing the trend in export of squid from san marine exports and in identifying and mapping the main actors and activities involved in the proce4ss of value chain of squid and to study the constraints faced by the actors at various stages in the value chain of squid. Analysis was based on primary data collected from a sample of 40 fishermen doing deep sea fishing, 3 agents and one exporting company "san marine exports, sakthikulangara, Kollam". Secondary data were collected from company records and internet sources. This chapter summarises the findings of the study and provide suggestions for improving the value chain of squid.

6.1 Findings

6.1.1 Trend in export of squid from San Marine Exports

CAGR revealed that total export of squid from San Marine Exports have grown at 3.82% over the year 2008 (190081.6 Kg) to 2018 (276506.4 Kg), this is due to the increased preference and demand for squid in the foreign markets due to its health benefits as it is low in fat content and calories compared to other marine products and also a good margin is obtained per Kg of squid for the company. Thus an increasing trend in quantity of squid exports from San Marine Exports 2008 to 2018-year period was observed.

6.1.2 Export demand forecast of squid from San marine exports

the export demand forecast of squid from San marine exports though predicted to decrease in 2018-19 is predicted to gradually increase in the coming years.

6.1.3 Socio economic profile of fishermen

- Age-wise classification of the fishermen revealed that 50% of the fishermen were in the age group of 40-50 years. The young generation are not involved due to the risk involved in deep sea fishing.

- 65% of the fishermen had upper primary level education.

- 70% of the fishermen were having fishing as their only source of income.

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- 70% of the respondents were Below Poverty Line (BPL) and 30% were Above Poverty Line(APL).

6.1.4 Details regarding fishing

- 62.5% of the fishermen had 15-20 years of relation with the exporting companies.

- Cen percent of the fishermen were having owned boats

- The total variable cost incurred by fishermen monthly is ₹5,74,000.

- Trolling regulation is the major problem faced by fishermen during fishing.

- The major problem faced by fishermen during processing is spoilage.

- Existence of too many middle men is the major problem faced by fishermen during marketing.

- All the fishermen were following modern methods for fishing and they are having their own motorized fishing boats, baskets, anchors and net for fishing.

6.1.5 Mapping the value chain of squid

- The core process in the value chain of squid includes input provision, procurement by fishermen, fishermen level processing, procurement by agents, agent level processing, procurement by exporting company, processing and marketing.

- Actors involved in the value chain are fishermen, agents and seafood exporting company "San Marine Exports".

- Fishermen undertake deep sea fishing and after sorting, cleaning and icing at harbour they immediately sell it to the agents. The agents after icing and boxing it is supplied to the exporting company "San Marine Exports".

- The processed squid is exported to EU nations like Italy, Spain, Portugal, Greece and non EU nations like Hong Kong, USA, Thailand.

- Before the squid reaches the final consumer it undergoes various processing activities which add value to the product at different stages within the company.

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- Fishermen incur procuring cost of ₹21 and processing cost of ₹40 and they sell it to the agents at ₹130/Kg and gets margin of ₹69. Fishermen is the actor who is getting the least margin.

- Agents supply squid to exporting company after agent level processing. Cost incurred for processing is ₹20/Kg. They supply it to exporting company and gets margin of ₹76 including 5% commission from each Kg of squid supplied.

- The company is selling processed squid at the rate of ₹360/Kg to the importing companies getting a margin of ₹94/Kg.

- Trolling regulation, increasing price of fuel, high labour charge and lack of information about price are the major problems faced by fishermen.

- Lack of price information is the major reason for realizing lower share in consumer rupee, apart from the presence of several middle men.

- The major problems faced by the company are fluctuation in exchange rate and lack of skilled employees.

6.2 Suggestions

Based on the findings of the study some suggestions to improve the production and marketing of squid are:

- Company should provide training to the fishermen in adoption of new information and technology in fishing.

- Effort must be made by the government to provide fuel subsidy for fishermen.

- Ensure that all the services and schemes of MATSYAFED and MPEDA are reaching the fishermen at the grass root level.

- Auctioning agent system prevailing should be regulated by the cooperative federations in order to get reasonable price for the fish, the output of their hard labour.

- Fishermen should be made aware of up to what extend they can add value to their produce.

- Effort must be made to convey regular price information prevailing in the market.

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- The recent trend in export of squid is increasing so there is a tremendous scope for youngsters for setting up processing units as numerous value added products can be made, thereby providing employment to vast section and contribute to the GDP of the country.

- Company can get more profit by switching over to the production and marketing of value added products of squid such as squid nuggets, squid loafs, squid rolls, squid patties etc.

6.3 Conclusion

From the study entitled "value chain analysis of squid with special reference to San Marine Exports, Sakthikulangara, Kollam" it could be concluded that the company recently has an increasing trend in export of squid with a CAGR of 3.8%. Major actors in the value chain are fishermen, agents and exporting company. Fishermen is getting the least margin compared to other actors in the chain. The major problems faced by the fishermen are trolling regulation, increasing price of fuel, lack of labour and high labour charge. The major problems faced by the company are fluctuation in exchange rate and lack of skilled employees. The fishermen can get a high margin if the auctioning system is regulated by cooperative federations. The exporting company play a vital role in earning foreign currency. The company can earn high margin by switching to production of value added squid products which attract more foreign customers. World seafood industry is undergoing rapid change to process ready to cook and ready to eat convenient products.

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APPENDIX

COLLEGE OF CO-OPERATION BANKING AND MANAGEMENT

VELLANIKKARA, THRISSUR-680 656

KERALA, INDIA

INTERVIEW SCHEDULE FOR SURVEYING ACTORS IN THE VALUE CHAIN OF SQUID WITH SPECIAL REFERENCE TO SAN MARNE EXPORTS, SAKTHIKULANGARA, KOLLAM.

For fishermen

Part 1: Socio-economic profile

1. Name, Address   :
2. Age   :
3. Sex   :
4. Education   : illiterate   lower primary level
                            Upper primary level   matriculation
                            Graduation

5. Primary occupation   : Fishing   Agriculture
                            Business   government job
                            Others
6. Place of residence   : rural   urban
7.
8. Family belongs to which category: APL   BPL
9.
10. Annual income of your family   :   a)below 5,000   b)5,000-10,000
                                       c)Above 10,000

11. Are you following traditional method of fishing? : yes   no

12. Are you a member of SHG or Kudumbasree or Co-operative : yes   No

13. How far have you been engaged in fishing? : a)5-10 years   b)10-15 years
                                                  c)15- 20 years   d)>20 years.

Part 2: Value chain for squid

Table No: 1 Details of production

Frequency of catching	Quantity of squid	Cost/Kg

Table No: 2 Inbound Logistics

Inputs	Cost/unit	Quantity	Source
Fixed			
Boat			
Net			
Basket			
Anchor			
Others			
Recurring			
Fuel			
Ice			
Repairing cost			

Table No: 3: Details of activities undertaken by Fishermen

Activities	Labour		Cost/Kg
	Male	Female	
Sorting			
Cleaning			
Icing			
Others			

14. How will you fix the price of squid? a) market price b) Supply c) Demand d) others
15. What are the quality requirements of squid?
16. Are you receiving any consultancy services? If yes, specify.
17. What are various measures adopted for preventing spoilage?
18. Do you have any insurance policy? Yes/no
19. Have you experienced any loss? Yes/no
20. To whom you directly sell the fish? a) agents/suppliers b) processing units c) exporting company d) others.
21. Do you sell fish every year to the same agent? a)yes b)mostly c)No
22. Place at which selling takes place: a) Harbour b) market c) Any others
23. The period in which maximum catch occurs: a) jan-may b) june-sep c) oct-dec

24. Speciality of squid over other fishes?
25. Do you think you are getting fair price for the product? Yes/no
26. Do you get assistance from MATSYAFED? Yes/no
27. Whether any institutions supporting you for marketing.
28. Problems that you face in the production process: (Rank in the order of importance)

Problems	Rank
Unavailability of squid in required number	
Scarcity of labour and high labour charge	
Depleting resources in the sea	
Increasing price of fuel	
Lack of subsidy for fuel	
Temperature effects	
Lack of Govt. Assistance	
Trolling regulations	
Others	

29. Problems related to processing (Rank in the order of importance)

Problems	Rank
Lack of labour	
spoilage	
Unavailability of ice	

30. Problems related to marketing (Rank in the order of importance)

Problems	Rank
Lack of fair price	
Lack of fair traders	
Lack of fair practices	
Loss during transportation	
Lack of reliable and up-to-date market information	
Inadequate transportation and communication facilities	
Existence of too many middle men of market	
Lack of price information	
High price fluctuations	
others	

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31. Suggestions for improvement of fishing activity?

For company

I. Organisational details:
1. Name of the company:
2. Name of the Taluk and District:
3. Date of registration of the company:
4. Vision:
5. E U approval No:
6. Type of business: sole proprietorship
                            Partnership
                            Joint stock company
7. Certification, authentication, licence details of the company:
8. No. of employees at present

II. Procurement
9. Mode of procurement

Frequency of procurement	Quantity		Price/Kg	
	squid	Other fish	squid	Other fish

10. How do you assure the consistency of supply of squid? a) contract b) others
11. Mode of transportation: a)trucks b)lorry c)others
12. Mode of payment for agents:
13. Criteria for selection of agents:
14. The month in which maximum procurement
15. Problems in procurement: (please rank as you perceive)

Problems	Rank
Scarcity of labour	
High labour charge	

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Depleting resources in the sea	
Agents demand more commission	
Unavailability of squid	
Loss during transportation	
others	

III. Details of processing

16. Details of processing activities undertaken by the company:

Activities	labour		Cost/Kg
	Male	Female	
Peeling			
Freezing			
Setting			
Grading			
Packing			
storage			

17. Details of processing plant

Processing plant	location	products	Installed capacity	Capacity utilization	No. of employees	Remarks on plant working processing

18. Whether the planting is having joint venture with any other organisation? Yes/No
19. Details of Lab

Equipment	purpose	Cost of equipment

20. Number of lab assistants:

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IV. Quality requirements

21. Quality requirements of squid for export:
22. Source of information regarding quality regulations imposed by importing countries.
23. What is the quality standard according to EU that is to be followed by your organisation?
24. What are the instructions given to employees to assure quality?
25. How often EU officials visit your company?

V. Infrastructure of the firm

26. Is the plant approved by EU committee?
27. How do you get the export information?

VI. Cost of operation

Particulars	Cost
Fixed	
Plant and machinery	
Ware housing	
Vehicle	
Recurring cost	**Cost/Kg**
Electricity	
Transportation	
Quality control	
Labour	
others	

VII. Marketing

28. Countries to which products are exported:
29. Export turnover of the company
30. Mode of selling: a) Export b) Domestic sale
31. Mode of payment for export
32. How do you promote your products?
33. How do you get the export orders?
    - Export Associations
    - Direct order from importers
    - Importer agents
    - Trade fairs abroad
34. Materials used for packing
35. Do you label your products?
36. What are the brand name/logo used?
37. Problems in marketing
    Lack of fair price
    Lack of fair traders
    Loss during transportation
    Lack of reliable and up-to-date market information

Lack of stability in demand
High price fluctuations

VIII.   Training and Linkages

38. Do you train the employees? Yes/No. If yes, specify the details of training received.

39. Institutions providing services

Name of institution	Mode of service
Export information agency	
Food safety & standard authority of India	
Export information council of India	
Marine products export development authority of India	

IX. General problems faced by the company (Rank in order of importance)

Problems	Rank
Storage of raw materials	
Fluctuation in exchange rate	
Lack of skilled employees	
Transportation	
Lack of infrastructural facilities	
Financial problems	
Lack of information of world market	
Meeting international quality requirements	
others	