GLOBALISATION AND INTERNATIONAL SEAFOOD LEGISLATION:

THE IMPACT ON POVERTY IN INDIA

DFID PROJECT

A REVIEW OF EXPORT SUPPLY CHAINS IN KERALA

By

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TABLE OF CONTENTS

TABLE OF FIGURES

LIST OF TABLES

GLOSSARY OF TERMS

AP	Andhra Pradesh
BF	Block frozen
CMFRI	Central Marine Fisheries Research Institute
Crore	10,000,000
DFID	Department for International Development
EU	European Union
IQF	Individually quick frozen
Lakh	100,000
MPEDA	Marine Products Export Development Authority, India
NRI	Natural Resources Institute, University of Greenwich
PD	Peeled and deveined
PUD	Peeled and undeviened
Rs	Indian rupees
SEAI	Seafood Exporters Association of India
SIFFS	South Indian Federation of Fishermen Societies
USA (or US)	United States of America
WG	Whole gut

EXECUTIVE SUMMARY

1. Kerala is one of the major maritime states in India accounting for 20.5% of the total marine fish landings in India in 1999 - 2000. The major species landed are oil sardine (14% by volume) and shrimp (13% by volume).
2. During 2000 – 01, Kerala accounted for 20.6% in volume terms and 16.0% in value terms of seafood exports from India. The sector accounts for approximately 25% of Kerala's export earnings and directly employs approximately 1 million people.
3. The major export species from Kerala are shrimp (59% by value, 32% by volume), frozen cuttlefish (15% by value, 16% by value) and frozen squid (13% by value, 17% by volume). Finfishes, which account for 28% by volume, are a relatively low value item accounting for just 9% of the total export value.
4. Seafood export from Kerala is mainly channelled through the Kochi (formerly Cochin) and Trivandrum ports with Kochi handling the vast majority of the exports. During the period 1996 – 2000, the Kochi port handled 99.30% of the volume (98.97% by value) of all exports channelled through Kerala ports. It is generally felt by industry sources such as officials of the Seafood Exporters Association of India and MPEDA officials that seafood export figures from the Kochi port give a fair picture of the seafood exported from Kerala. For the purposes of this study this is assumed to be correct and Kochi seafood export data are taken to represent those of Kerala as a whole.
5. In terms of seafood exports, the Kochi port, in comparison to the eastern coast ports of Chennai and Vishakapatanam, is a high volume-low value-port. During the last five years the value share of the seafood export from Kochi port vis-à-vis all India figures has been lower than the volume share (see Figure 5 in main report). Whereas, the Kochi port accounted for 20.6% in volume terms and 16.0% in value terms of seafood exports from India during 2000 – 01, the Chennai port accounted for 8.12% of the volume and 26.05% by value of All India exports. The corresponding figures for the Vishakapatanam port are 5.66% by volume and 15.32% by value. Analysis of MPEDA data of the composition of the exports from the Kochi port will show that it has not been able to keep up with Chennai and Vishakapatanam in terms of growth of exports of high value items such as shrimp. For instance Kochi has registered a growth rate of 37% in value terms for shrimp exports for the period 1996 – 2000, the corresponding figures for Chennai and Vishakapatanam are 123% and 72% respectively. On the other hand, the export from Kochi of low value items such as frozen ribbon fish (which mainly goes to the South East Asian market) has increased during the same period. The opposite trend is seen in Chennai.
6. Though seafood exports from the Kochi port have increased in absolute volume (12.3%) and value (21%) during the period 1995/96 to 2001/02, Kerala's share of All India exports has declined by 6.5 percentage points in volume terms and in value terms by 9.3 percentage points during this period. In other words, while exports from Kerala have been increasing, they have not been keeping pace with the growth in All India exports. One of the major reasons for the decline in Kerala's share has been its inability to keep up with Andhra Pradesh in the production of cultured shrimp. During the period 1995/6 – 2000/01, Kerala's

share in the All India cultured shrimp production dropped from 12.75% to 6.74%. During the same period AP's share increased from 38.46% to 59.49%. Cultured shrimp accounts for 45% by value of the total seafood exports from Chennai and Vishakapatanam ports. It can be safely assumed that a large percentage of the cultured shrimp that is exported from the Chennai and Vishakapatanam ports is produced in Andhra Pradesh.

7. The EU is the main destination for seafood exported from Kerala with 33% of the volume (and 36% of value) during the year 2000 - 01 going to this market. Japan (11% by volume and 18% by value) and the USA (15% by volume and 22% by value) are the other major markets. South East Asia (mainly China), which accounts for 34% by volume accounts for only 16% by value, indicating that this market mainly buys lower value species such as frozen ribbon fish and frozen mackerel from Kerala.
8. Kerala's share in Indian seafood exports to major markets like Japan, the EU, the USA and the Middle East has declined in both volume and value terms during the period 1995/6 – 2000/01. The main reason for this has been the state's inability to keep up with Andhra Pradesh in shrimp culture. In value terms, frozen shrimp is the main seafood export item from India accounting for 70.91% of the total value of All India exports. According to MPEDA statistics, of the Rs 4535 crores worth of shrimp that was exported from India during the year 2000 – 01, a whopping 86% came from shrimp culture. As mentioned earlier Kerala has not been doing well in the field of shrimp aquaculture during the above-mentioned period. In other words AP has been encroaching into Kerala's share in overseas markets by increasing its shrimp culture production.
9. Kerala's share in Indian seafood exports to Japan has declined during the period 1995/96 – 2000/01 by about 5 percentage points in volume terms and by about 3 percentage points in value terms. The main reason for this has been that shrimp is the major item of export to Japan accounting for 89.6% of the total value of exports from India to that country. Kerala with its falling shrimp aquaculture production has not been able to cater to the demand as well as states such as AP and Orissa have.
10. Kerala's share in Indian seafood exports to the EU has declined during the period 1995/96 – 2000/01 by about 7 percentage points in volume terms and by about 9 percentage points in value terms. Once again, shrimp is the main item of export to the EU in terms of value accounting for 62.46% of the total exports from India. Kerala seems to have lost out in this market on account of its increasing inability to cater to this demand for shrimp.
11. Kerala's share in Indian seafood exports to the USA has declined during the period 1995/96 – 2000/01 by 20 percentage points in volume terms and by about 30 percentage points in value terms. As in the case of Japan and the EU, shrimp is the main item of export to the USA accounting for 85.01% of the total value of exports to that country. Kerala seems to have been at a disadvantage in servicing this demand for shrimp given its falling aquaculture production.
12. Kerala's share in Indian seafood exports to South East Asian countries has increased during the period 1995/96 – 2000/01 by 5 percentage points in volume terms and by about 0.4 percentage points in value terms. The major reason for the

increase in Kerala's share has been the rising exports of low value frozen fishes such as ribbonfish and mackerels to China and Hong Kong. This explains the marginal increase in the value share.

13. Kerala's share in Indian seafood exports to the Middle East has declined during the period 1995/96 – 2000/01 by about 6 percentage points in volume terms and by about 1.4 percentage points in value terms. The reasons for the drop in Kerala's share are not clear.
14. The mechanised trawl sector accounts for 79% of the shrimp landings and about 92% of the cephalopod landings in the state. The rest is accounted for by the artisanal sector.
15. Fishing for export species such as shrimp, cuttlefish and squid is mostly done by large mechanised trawlers. Trawlers rarely, if at all target domestic species. On the other hand, artisanal fishermen who use smaller artisanal crafts generally fish mainly for domestic species. However these artisanal fishermen do fish for export species during the months of June, July and August when a trawling ban is in effect in the state. There are isolated pockets in Kerala where artisanal fishermen fish year round for export species such as cuttlefish. However this is the exception.
16. The traditional form of pokkali aquaculture in which paddy and shrimp farming are alternated, has been practised in certain parts of Kerala for a long time. During the 1990's, many of the traditional pokkali farmers started adopting modern methods of aquaculture such as use of hatchery developed seedlings, use of scientifically developed feeds and use of medicines to control diseases. Most of the aquaculture that is practised in Kerala is of the traditional to semi intensive kind on a small scale. The farm sizes are relatively small in Kerala. This is in contrast to aquaculture farming in AP where it is done on an intensive basis on a large scale.
17. Aquaculture, which emerged as a major source of cultured shrimp during the 1990's, has been hit by disease and environmental concerns and the total output from this sector has declined 18% during the decade 1990/91 – 2000/01. The contribution of this sector to the total prawn production (captured and cultured sources) in the state fell from a high of 19% in 1993 to just under 11.5% in 1997. Shrimp from captured sources continues to be the mainstay of the industry in Kerala.
18. The marketing chain for export species comprises of four categories of players, namely the fisherman, commission agents of peeling sheds and processing companies, the peeling sheds and the processing/exporting companies. A significant quantity of material that is exported is handled by the peeling shed industry, which is still very much in the informal sector.
19. Fishermen are a diverse group comprising of trawler crew, crew of small-scale artisanal fishing units and owners of small scale motorised and non-motorised artisanal fishing units. The main constituents of the peeling shed industry are the owners of peeling sheds and the peeling shed workers; mainly women from the economically weaker sections of the fishing community.
20. The seafood export industry in Kerala is currently facing several problems. Chief among them is raw material scarcity. The dwindling catch quantities coupled with

the overcapacity in the fishing fleet is placing enormous pressure on the profitability of individual fishing units. This problem is further compounded by the steady increase in operating costs as fuel prices increase. The raw material scarcity is also affecting the peeling shed industry and the processing industry in the state. The excess processing capacity that has been built up at a high cost is proving to be the bane of many processors in Kerala. While the demand for processed seafood continues to exist in export markets, it is the lack of availability of sufficient quantities of raw material at a reasonable price that keeps many processing facilities idle.

MAIN REPORT

1. Background

This study has been undertaken as part of a DFID funded research project on "Globalisation and Seafood Trade Legislation: The effect of poverty in India". At a workshop organised in Vishakapatanam, Andhra Pradesh in June 2001 by NRI and its Indian collaborators; Integrated Coastal Management, Catalyst Management Systems and South Indian Federation of Fishermen Societies, it was agreed that a mapping of the export chains of the main seafood export species would be vital in understanding the impact of international seafood legislation on the various players involved in the seafood export industry.

2. Objective and Structure of the Study

The study aims to provide a background to fisheries in Kerala with a particular focus on seafood export from the state using commodity, quantity, value and country wise data. The study also aims to map the flow of key export species from landing site to the port of dispatch in order to list the main factors that determine the seafood export chains in the state and identify the key stakeholders involved.

The report has been organised as follows. An overview of the fisheries sector places fisheries in the context of the Kerala state in terms of the number of people who are dependent on fishing as a livelihood, a broad classification of the craft and gear that is used on the Kerala coast and an overview of the main sub sectors i.e. the mechanised and the non mechanised sectors. This is followed by a brief look at the trends in fish production in Kerala over the last decade, the main species caught and the trends in aquaculture production in Kerala state. An overview of the Kerala seafood export scenario follows. This section provides information on trends in volume and value of exports from the Kochi port over the last six years, species composition of exports and destination wise split of exports from Kerala. This is followed by a presentation of export trends to the major export markets for seafood and Kerala's share in each of these markets. The next section describes the export chains for the major seafood varieties that are processed in Kerala i.e. shrimp, cuttle fish, squid and finfishes. A note on the peeling shed industry in Kerala gives an overview of industry. The report ends with a brief note on the degree of dependence of the poor within the fishing community on seafood industry.

3. Methodology

The report has been compiled using information from the following sources.

1. Interviews with important stakeholders at the major landing centres of Kollam and Kochi. These include owners of mechanised and artisanal fishing craft, crewmembers, owners of aquaculture farms and peeling sheds, peelers, wholesale agents, traders, exporters, processing plant owners, Marine Products Export

Development Authority (MPEDA) officials, officials of the Cochin University of Science and Technology and Seafood Exporters' Association of India (SEAI) office bearers.

2. Secondary sources such as published MPEDA and College of Fisheries statistics and reports, unpublished documents obtained from various sources and journals such as the Seafood Export Journal.
3. Field observations from visits to landing sites, aquaculture farms, peeling sheds and processing plants

4. Selection of sites

Sites for fieldwork were selected on the basis of information gathered from interviews with key informants who are knowledgeable about the fishing industry in Kerala. It was decided that Kochi and Neendakara would be the main sites for fieldwork as most of the seafood export related activity is in these areas. More time was spent at Kochi as the majority of peeling sheds, processing plants and two of the major fishing harbours in Kerala are located there. The Neendakara region also has a major fishing harbour and a few processing plants and peeling sheds. Apart from these two sites, fieldwork was also done in Tykcal village in Allepey district in order to understand the relevance of the export industry to the livelihoods of fishermen in that area. Fieldwork was also done in Vizhinjam and Marianadu, which are major fishing village in the Thiruvananthapuram district of Kerala. A more detailed note on this presented in the final report in the section dealing with research methodology.

5. Limitations

Given the diversity of fishing activity in the state it is not possible for a single study of this nature to encapsulate the various marketing chains for export species. In other words, no single export chain mentioned in this report is truly representative for the whole state. Therefore, the choice of locations for this study will have a bearing on the findings.

There is a lack of information about the amount of seafood exported from Kerala. While informed sources suggest that almost all of the seafood exported from Kerala leaves the country through the Kochi and Trivandrum ports, there is an opinion that some goes through the Tuticorin port in neighbouring Tamil Nadu. The lack of reliable information in this regard is a handicap in making authoritative claims about the quantity, value and composition of seafood export from Kerala.

There are no reliable records about the prices, cost and margin structures at the various levels of the export chain. This problem is accentuated by the large variations in prices that are observed in this sector.

Suspicion on the part of the respondents especially at the Kochi fishing harbour was a major problem that was faced during the fieldwork. The respondents at the harbour were generally guarded in their answers and were quite suspicious of any note taking. Cynicism on the part of respondents was also a problem. This can perhaps be attributed to

the fact that many studies of various kinds have been conducted in the past and the general impression is that the fishing and fish trading community do not benefit from such studies. Yet another limitation was with regard to interviewing peeling shed workers. It was difficult to get meetings organised without the knowledge of the peeling shed owner and it is very likely that responses given (especially with regard to working conditions etc) in the presence of peeling shed owners are not entirely true.

6. An Overview of the Fisheries Sector in Kerala

6.1 Introduction

The state of Kerala situated on the southwest coast of India is richly endowed in fishing resources. Kerala has a coast line of 590 kms (7.26% of the India coastline), 44 rivers with a total length of 3,200 kms and a water spread of 85,000 ha, 30 extensive interconnected backwaters and estuaries with a water spread of 243,000 ha, 30 reservoirs with an area of 30,000 ha and a large number of ponds and tanks totalling to about an area of 4,000 ha.

An assessment of fisheries resources made by Central Marine Fisheries Research Institute (CMFRI) reveals that there is a potential for capture fisheries to the extent of 7.50 lakh tonnes in the marine sector. This includes 5.70 lakh tonnes from the inshore areas and 1.80 lakh tonnes through offshore and deep-sea fishing. The fish catch from the inshore has crossed the 6-lakh tonne mark in 2000/01. The inland fish production is around 0.75 lakh tonnes. (College of Fisheries report, 2002)

Fishery resources contribute around 3% to the state's economy and provide a means of livelihood to about 1,000,000 (10 lakh) people directly (i.e. fishermen and their dependants) and 200,000 (2 lakh) people indirectly (i.e. people who work in allied areas like fish trade, fish peeling, fish processing, transportation and ice manufacturing). The state accounts for 22% of the marine products exported from India in value terms. Fish and fish products account for about 25% of the total export earnings of the state. (College of Fisheries report, 2002)

6.2 A Note on Fishing Methods

The Kerala coast is characterised by a wide diversity in fishing craft and gear. The fishing fleet can be broadly categorised into the mechanised and artisanal sectors based on the size of the boats and the extent of mechanisation. The artisanal sector can be further divided into the motorised and non-motorised sectors. The use of certain types of craft and gear are limited to certain areas of the Kerala coast. Traditionally, fishermen in various parts of the coast have developed craft and gear that is best suited for the conditions in which they operate. There are various factors, which influence the choice of craft and gear. The main factors that influence the choice of gear are the predominant species that is available in the fishing grounds where the fisherman normally operates and the predominant species that is available at a particular time of the year. The main factors, which influence the choice of craft, are the general characteristics of the sea in

the area of operation and the average catch sizes that are obtained in a particular region. These factors are elaborated in the section that follows.

Factors influencing choice of gear

1. Predominant species that is available: The predominant species of fish that is available in the area of operation determines the choice of gear. The main categories of gear that is used on the Kerala coast are the gillnets, the trammel nets, the shore seine, the boat seine, the ring seine, the mini trawl nets and the hook and line. In areas such as Alappuzha, where species like mackerel and sardines are available in large quantities the gear of choice is the ring seine. In the fishing villages of Thiruvananthapuram district, the gear of choice is the hook and line as this type of gear suits many of the major species like seer fish and pomfret that are found in this area.

2. Seasonality: The choice of gear can also vary from one season to the other depending on the predominant species that is available at a point of time.

Factors influencing choice of craft

1. Nature of the sea: The choice of craft depends to a large extent on the how the sea behaves for most parts of the year. Fishermen operating in areas where the seas is generally rough for most parts of the year, prefer smaller crafts such as the catamaran which are easier to manage in case they capsize. In areas where the seas are calmer and hence the chances of the craft capsizing are smaller, fishermen prefer larger crafts. The main categories of craft that is used on the Kerala coast are the dugout canoes (large, medium, small and very small), plank canoes (very large, large, medium, small and transom), kattumarams (3 log and 4 log varieties) and the plywood boats (very large, large, medium and small). The kattumarams is the smallest type of craft on the Kerala coast and is found exclusively in the Thiruvananthapuram and Kollam districts where the seas are rougher than in other places. The plywood boat, which is a relatively new introduction on the Kerala coast, has caught on mainly in the Thiruvananthapuram and Kollam districts as a substitute to the traditional kattumarams. A fairly large number of plywood boats are also found in the northern Kerala districts of Kannur, Kozhikode and Malapuram. The motorised plank canoes are mainly found in Alappuzha, Ernakulam and Thrissur districts. The non-motorised plank canoes are found in Thiruvananthapuram, Alappuzha and Ernakulam districts. The dugout canoes are mainly found in northern Kerala districts of Kasargod, Kannur, Kozhikode, Malapuram, Thrissur and Ernakulam.

2. Average catch sizes: In areas where the catch sizes tend to large, fishermen prefer larger crafts.

The mechanised sector

The mechanised sector comprises of three main category of crafts; i.e. the trawlers, the purse seiners and the gill-netters.

Whereas purse seiners and gill netters are mainly involved in the capture of domestic species such as mackerel and sardine, mechanised trawler boats are primarily involved in 'shrimping' i.e. fishing which revolves almost entirely around shrimp capture. The main method of fishing is bottom trawling. Trawlers are expensive to operate and hence necessarily have to target the higher value export species such as shrimp and cuttlefish. It appears that the operating cost of an average sized trawler is in the range of Rs 10,000 per day. The typical argument given by many trawler crews is that given the high operational cost, shrimp is the only species that make trawling viable.

There are 3800 mechanised trawler vessels in the State, which employ around 30,400 crew (Expert Committee for Fisheries Management Studies, Kerala, 2000). Trawlers come in a variety of sizes. Whereas until about 5 years back most of the trawlers were about 32 – 40 feet long, most of the trawlers launched in the last five years measure 45 – 50 feet and the really big trawlers measure as much as 60 feet. In fact the trend towards larger and consequently more expensive trawlers has been forced upon the industry by the lack of availability of shrimp in traditional fishing grounds, which are relatively closer to shore. This has forced trawlers to go deeper into the sea and stay longer (which necessitates larger boats). Trawlers are designed to stay at sea for anywhere between 7 and 20 days at a stretch depending on the storage and fuel capacities. Many of the trawlers carry modern equipment like echo sounders and GPS, which increase their efficiency in locating fish. Almost all trawlers irrespective of size take a crew of 6- 7 per trip. The main landing centres for trawling boats are the Neendakara harbour in Kollam district and the Kochi harbour in Ernakulam.

This sector accounted for 78.6 % of the total penaeid prawn landings in Kerala during 1997/98. (Expert Committee for Fisheries Management Studies, Kerala, 2000). Informed sources suggest that this sector accounted for 92% of the cephalopod landings in Kerala in the year 2000 - 2001. (Source - Interview with Dr Kurup, Professor at the School of Industrial Fisheries at the Cochin University of Science and Technology).

The artisanal sector

The artisanal sector forms the core of the fishing population of Kerala. John Kurien (2000) estimated that the total employment generation potential of the non -mechanised artisanal sector remained constant around 146,000 jobs in 1998, comprising 25% non-motorised and 75% motorised.

The artisanal motorised sector in Kerala encompasses a large variety of craft and gear. No single type of craft or gear is representative of the whole Kerala coast. Fishing units in the artisanal sector are small in their scale of operations and normally fish for species that are sold in the domestic market. In most locations on the Kerala coast, landings of export species such as shrimp and cuttlefish by these units are seasonal. However, the

artisanal sector accounted for a significant 21.5% of the total penaeid prawn landings in Kerala during 1997/98 (Expert Committee for Fisheries Management Studies, Kerala, 2000).

Most of the shrimp is landed by these units during the months of June, July and August when there is a trawling ban in effect in Kerala waters. However during the other months, export species are merely incidental catch. The general impression is that export species while always welcome (as they help generate some surplus) are not treated as the main breadwinner by the average artisanal fisherman.

However, there are isolated villages on the coast (such as Marianadu in Thiruvananthapuram district) in which operators of artisanal motorised units depend heavily on export varieties like cuttlefish.

As is clear from the above, the demand for export species such as shrimp, cuttlefish and squid is mainly satisfied by the mechanised trawling industry. The motorised artisanal sector makes a relatively modest contribution. However, this was not always the case. In 1969, the mechanised sector (purse seiners, gill netters and trawlers) accounted for just 10% of the total marine catch landings (including both domestic and export species). By 1996 this figure had risen to 46%. The mechanised sector, in particular the trawling industry has grown at the expense of the artisanal sector. This is more so in the case of export species.

Table 1: Distribution of fishing craft and main fishing gears in Kerala

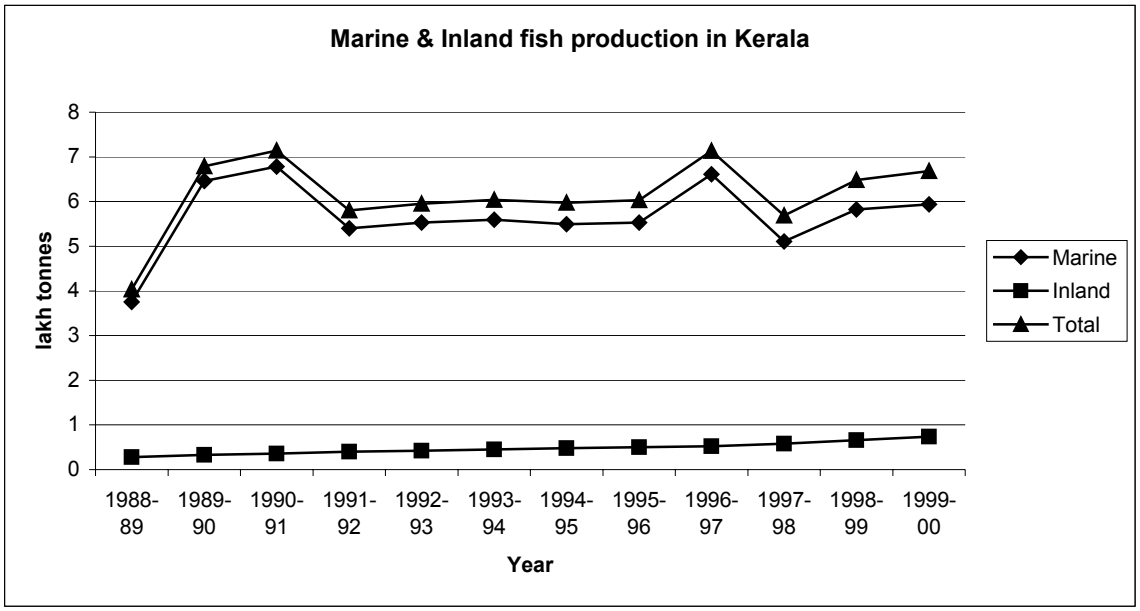
Fishing craft	Areas where mainly used	Main fishing gears used
Plank canoes	From north of Neendakara (Kollam district) up to Malapuram district	Ring seine, Gill net, Hook and line, shore seine
Dugout canoes	From Kasargod to Ernakulam	Ring seine, Gill net, Hook and line, mini trawl nets
Kattumarams	Thiruvananthapuram and Kollam districts	Hook and line
Plywood boats (decked)	All districts except Ernakulam	Mainly hook and line. Gill net and ring seine are also used
Plywood boats (open)	All districts except Ernakulam	Mainly large mesh gillnets.

Adapted from 'A census of the artisanal marine fishing fleet of Kerala 1998', SIFFS

6.3 Fish Production in Kerala

Kerala is one of the premier fish producing states in India. During the period 1988/89 to 1999/00, fish production in Kerala registered a 65.8% increase from 4.03 lakh tonnes to 6.68 lakh tonnes (see Figure 1). During the same period inland fish production increased by 164% from 0.28 lakh tonnes to 0.74 lakh tonnes. Also, during the same period marine fish production increased by 58.4% from 3.75 lakh tonnes to 5.94 lakh tonnes.

Figure 1: Marine and inland fish production in Kerala

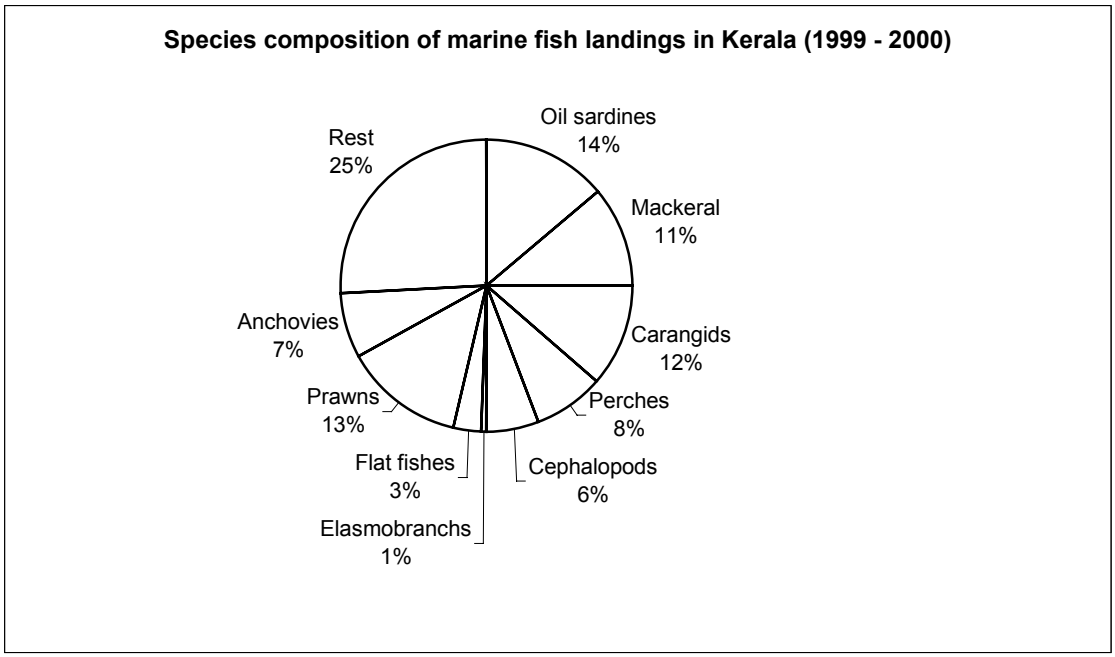


Source: College of Fisheries report, 2002

6.4 Marine Fish Production

Kerala occupies second position in the total marine fish production of India and contributes 20.5% of the volume of the all India landings for 1999 - 2000. The species wise contribution to the Kerala marine catch is given in Figure 2.

Figure 2: Volume wise species composition of marine fish landings in Kerala



Source: College of Fisheries report, 2002

As can be seen from Figure 2, prawns constitute a significant portion of the total landings in the state. Cephalopods such as cuttlefish, squid and octopus also constitute 6% of the total landings.

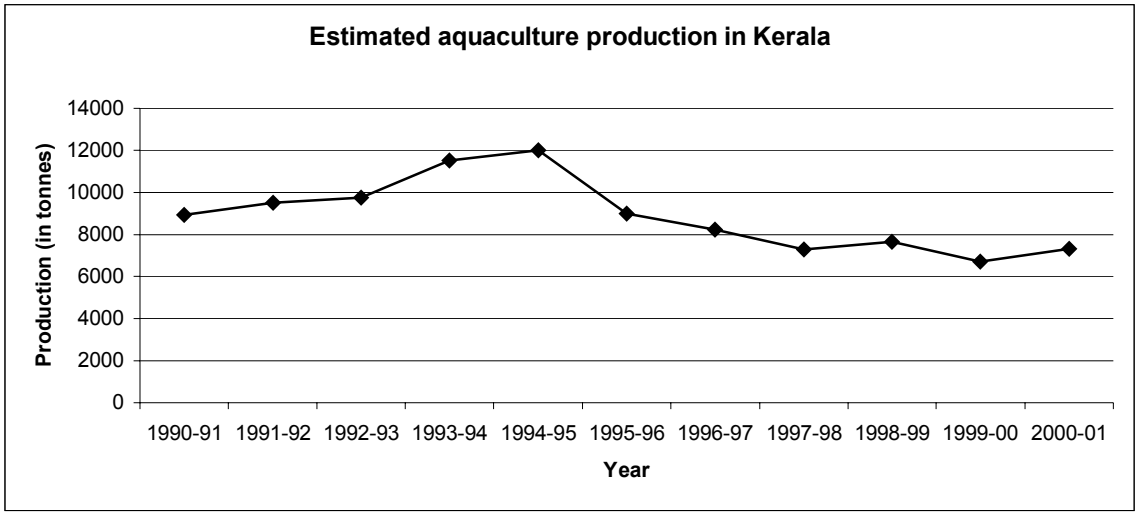
6.5 Aquaculture in Kerala

Shrimp aquaculture has come to play an important role in the Kerala fisheries sector. Traditional aquaculture has been practiced in the wetlands of central Kerala (mainly in Ernakulam, Thrissur and Alappuzha) for a long time in the form of pokkali cultivation in which paddy is cultivated from June to October and shrimp is cultured from November to March. Pokkali was done on a small scale by paddy farmers in these regions.

It is with the advent of modern aquaculture technology and practice in the last decade or so that the shrimp aquaculture industry has expanded in a big way. Many of the traditional paddy farmers who could afford to invest in modern methods shifted from pokkali aquaculture to round the year modern aquaculture. They adopted modern methods like the use of hatchery-developed seedlings (as opposed to the traditional filtration process), scientifically developed feeds and feeding regimens (as opposed to little or no feeding in the traditional system) and the use of antibiotics to prevent the outbreak of disease. The returns were high and so were the investments. The high level of investment that is required in the preparation of the land, purchase of seedlings, feeds and medicines meant that modern aquaculture was not an option for the poor. Farmers with some economic surplus to invest were the ones who adopted the new methods.

Of late the industry has been hit by disease affecting the shrimps mainly the white spots disease and environmental concerns, which have retarded its growth. This can be clearly seen from Figure 3. Shrimp production from aquaculture has been steadily declining from its peak in 1994/95. During the decade 1990/91 to 2000/01, aquaculture shrimp production in Kerala registered an 18% decline from 8,925 tonnes to 7,327 tonnes.

Figure 3: Estimated aquaculture production in Kerala



Source: College of Fisheries report, 2002

The main species that are cultured in Kerala are the kara chemmen (trade name – tiger shrimp, scientific name – Peneaus Monodon) and the naran chemmen (trade name – White prawn, scientific name – Peneaus Indicus).

7 An Overview of Seafood Exports from Kerala

7.1 Introduction

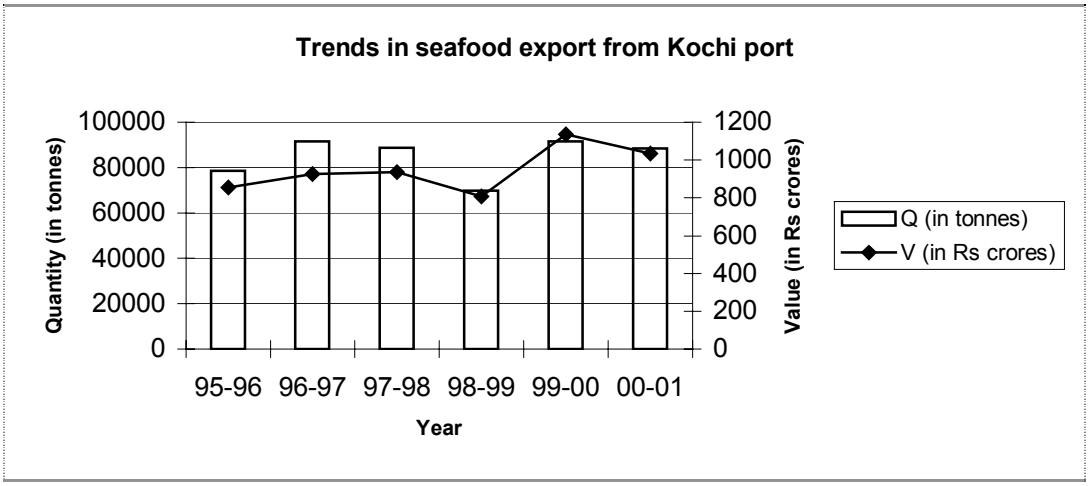
Kerala is one of the main seafood exporting states in India. Kochi is the main port through which seafood from Kerala leaves for export markets. Trivandrum is also an exit point for seafood albeit a very minor one. While some quantity is shipped through the Tuticorin port in neighbouring Tamil Nadu, this is considered negligible. The general impression gained from informed sources is that almost no seafood that is processed outside the state is exported from the Kochi or Trivandrum ports. Hence the figures of seafood exported from the Kochi port can be taken as fairly accurate figures for the amount of seafood that is processed for export by peeling sheds and processing plants within the state.

7.2 Seafood Export from the Kochi Port

As can be seen from Figure 4, there has been an increase in the quantity and the value of the seafood exported from the Kochi port from 1995/96 to 2000/01. In that time period the quantity exported has increased by 12.3% from 78,682 tonnes to 88,355 tonnes. This increase however is significantly lower than the 49% increase, which All India seafood exports registered during the period. Also during the same period, the value of the seafood exported from Kochi port has increased by 21.1% from Rs 854 crores to Rs 1034 crores. This again is significantly lower than the 84% rise in the value of all India seafood export during the time period.

Thus, while there is a definite growth in the quantity and value of seafood exported from Kerala, it is much lower than the growth of the all India seafood exports both in terms of volume and value. In 2000/01 Kerala accounted for 16% by value (20% by volume) of the total seafood exported from India.

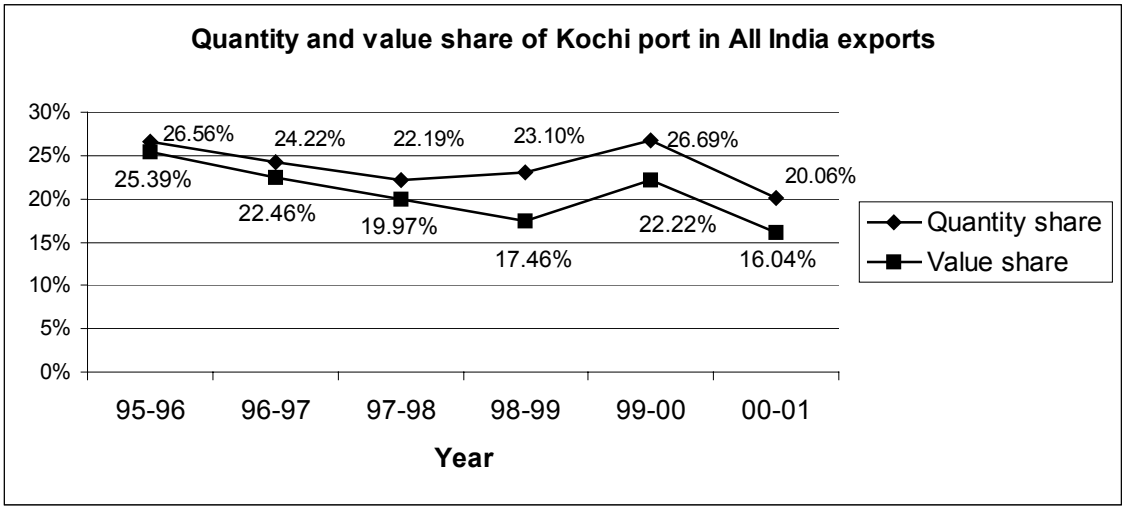
Figure 4: Trends in seafood export from Kochi port



Source: MPEDA internal document, 2000 - 2001

The declining importance of the Kochi port in terms of all India seafood export can be seen from the fact that while there has been an increase in actual volume terms of 12.3% for the period under consideration, the share of the total exports handled by the Kochi port vis-à-vis the all India exports, has actually come down from 26.56% to 20% (Figure 5).

Figure 5: Trends in seafood export from Kochi port



Source: MPEDA Internal document, 2000 - 2001

The same trend can be seen in terms of the value of seafood exported from the Kochi port. While there has been an increase in actual value terms of 21% for the period under consideration, the value of the total exports handled by the Kochi port vis-à-vis the value of all India exports, has actually come down from 25.3% to 16% (Figure 5).

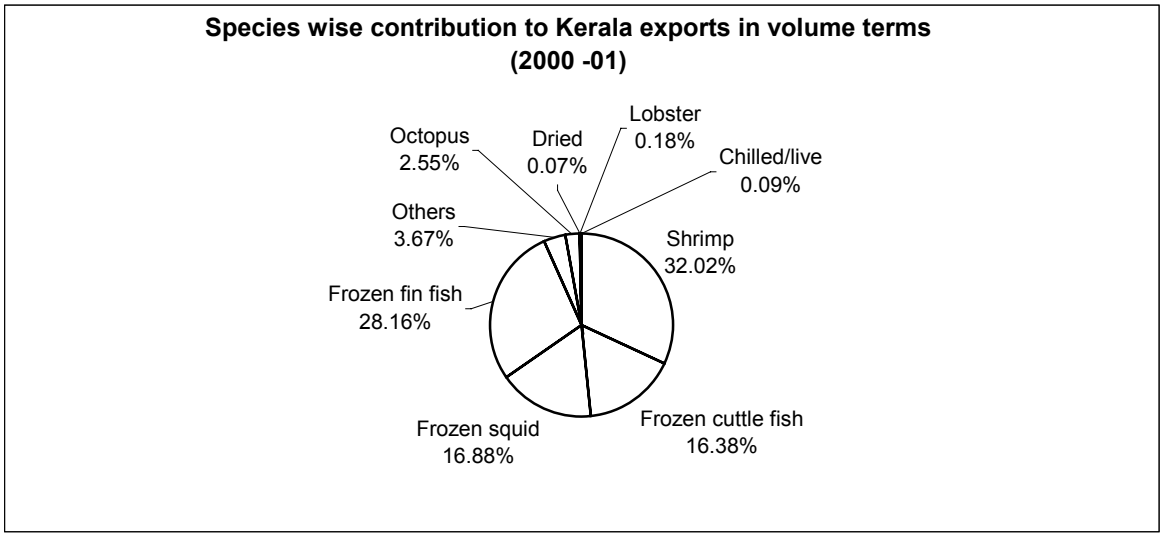
One of the major reasons for the decline in Kerala's share has been its inability to keep up with Andhra Pradesh in the production of cultured shrimp. During the period 1995/6 –

2000/01, Kerala's share in the All India cultured shrimp production dropped from 12.75% to 6.74%. During the same period AP's share increased from 38.46% to 59.49%. Aquaculture has been assuming significant importance in All India exports of shrimp. In 2000 – 01, shrimp from cultured sources accounted for 59% by volume of the total shrimp exported from India.

7.3 Species Composition of Exports from Kerala

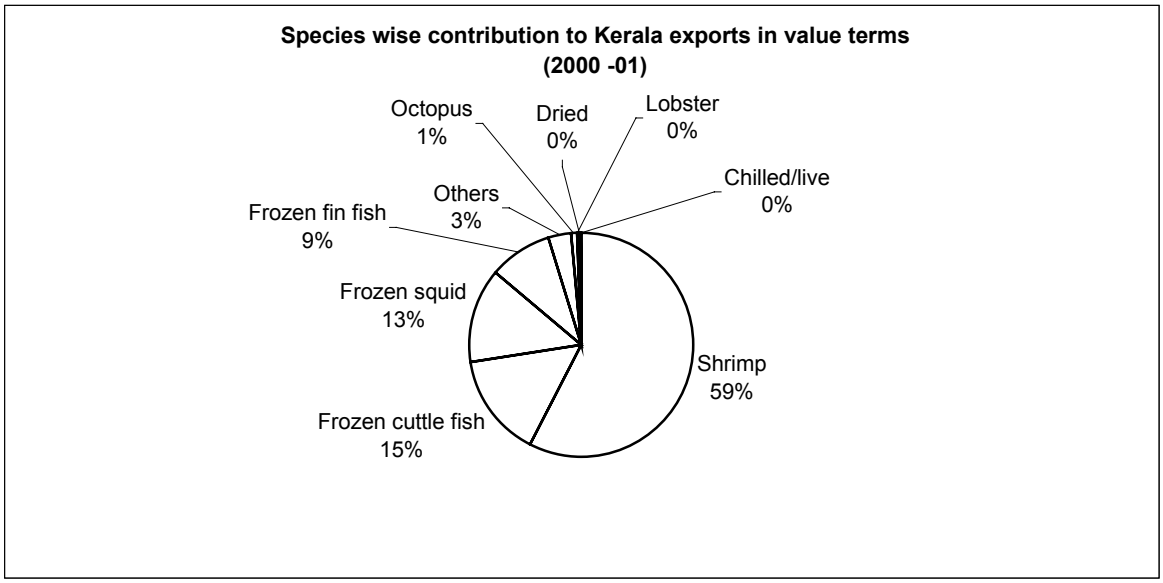
The main species exported from Kerala are illustrated in Figures 6&7. The major export item is shrimp which accounts for 32% by volume and 59% by value. In value terms this is followed by frozen cuttlefish (15% by value and 16.4% by volume) and frozen squid (13% by value and 17% by volume). Finfish, which accounts for 28% by volume, is a relatively low value item accounting for just 9% of the total export value.

Figure 6: Species wise contribution to Kerala exports in volume terms (2000 – 01)



Source: SEAI annual report 2000-01

Figure 7: Species wise contribution to Kerala exports in value terms (2000 – 01)



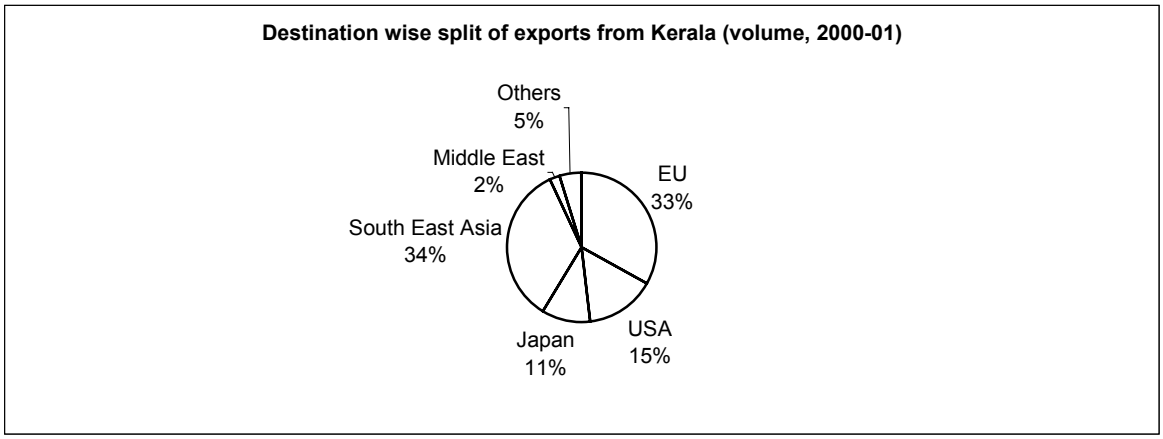
Source: SEAI annual report 2000-01

7.4 Country Wise Exports from Kerala

As can be seen from Figures 8 & 9, Kerala primarily caters to the South East Asian and the EU markets in terms of the volume exported. While the South East Asian markets account for 34% by volume of the seafood exported from Kerala it accounts for only 16% by value, indicating that the main species that are exported are the lower value fin fishes. However Japan (11% by volume and 18% by value) and the USA (15% by volume and 22% by value) seem to be the main markets for the high value species such as shrimp. The EU however is the main market for seafood from Kerala accounting for 33% by volume and 36% by value. While the relative importance of the EU as a market has declined in the last five years (in 1995/96, the EU accounted for 56% by volume and 49% by value of seafood export from Kerala) it still remains the mainstay of the Kerala seafood industry.

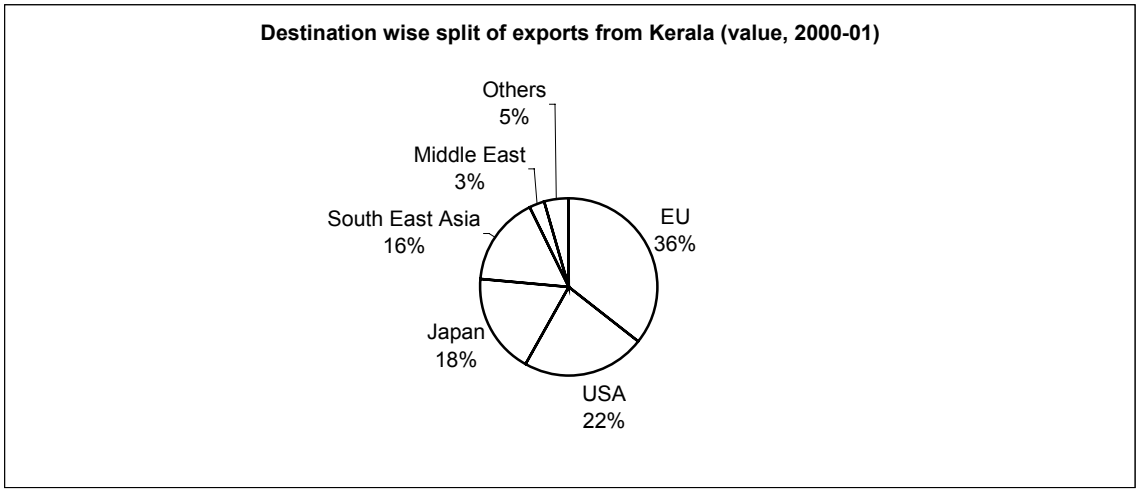
Kerala was one of the pioneers in the area of exporting seafood from India and countries in the EU have been the major destination. One of reasons is that the EU markets purchase and assortment of seafood (shrimp of all sizes and cephalopods), whereas Japan and the US generally prefer the larger sized shrimp, which is not widely available in Kerala.

Figure 8: Destination wise break-up of exports from Kerala in volume terms



Source: SEAI annual report 2000-01

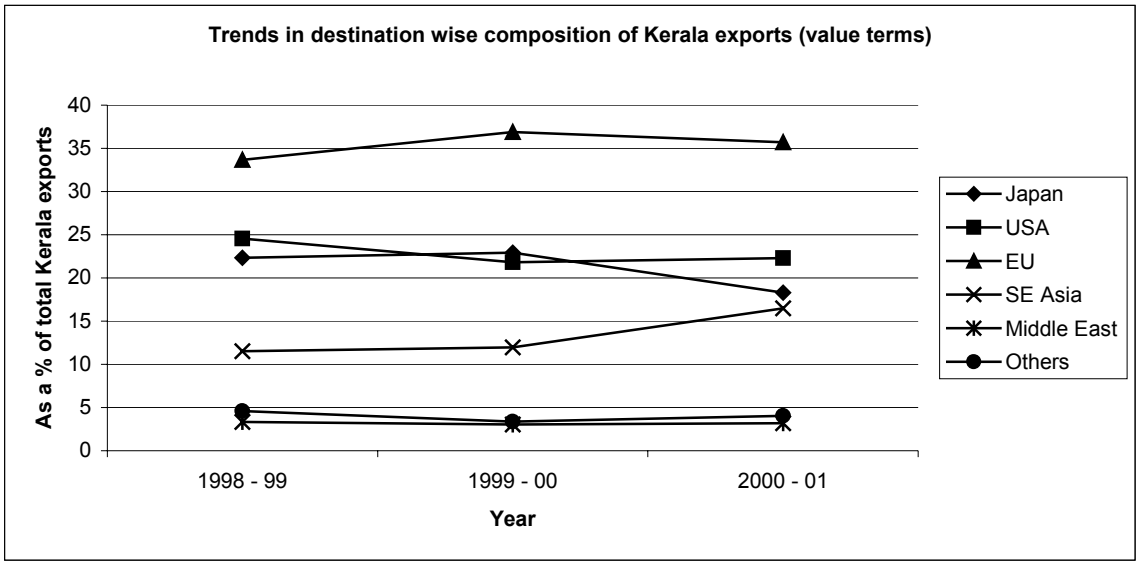
Figure 9: Destination wise break-up of exports from Kerala in value terms (2000 – 01)



Source: SEAI annual report 2000-01

As can be seen from Figure 10, there has been a slight increase of 2% in EU's share of exports from Kerala for the period 1998/99 – 2000/01. There has also been an increase of 5% in the share of South East Asian countries in exports from Kerala during the same period. However there has been a decline of 4% in Japan's share and a decline of 2.25% in US share of exports from Kerala.

Figure 10: Trends in destination wise composition of Kerala exports (value terms)



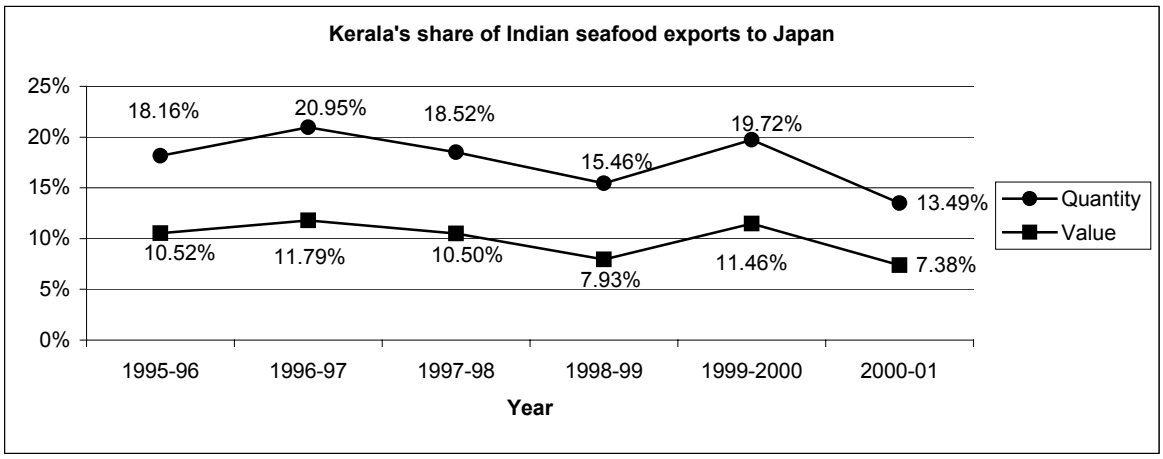
Source: SEAI annual report 2000-01

8. Kerala's Share in Indian Seafood Exports to the Main Export Markets

8.1 Japan

As can been from Figure 11, Kerala's share in the All India exports to Japan has been fluctuating but overall there has been a decline in volume and value since 1995/96.

Figure 11: Kerala's share of Indian seafood exports to Japan

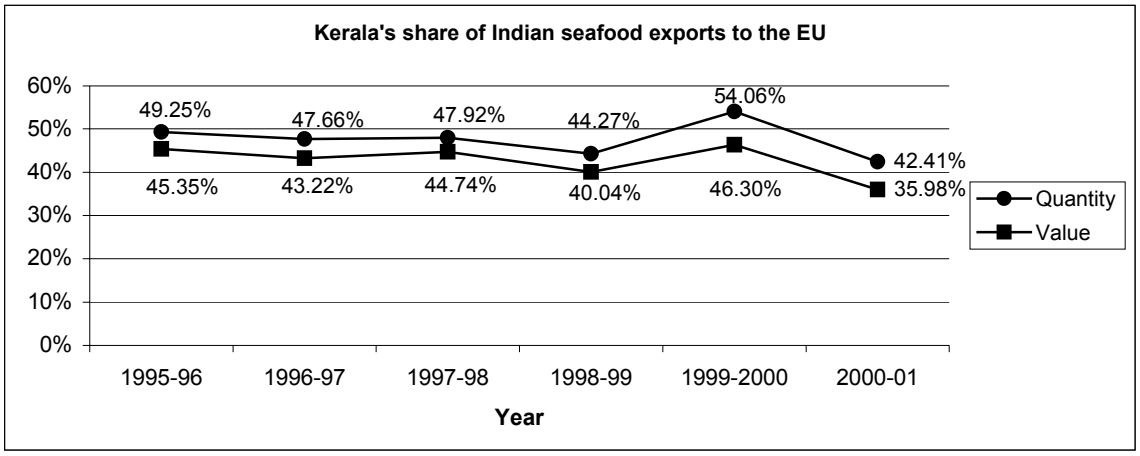


Source: MPEDA internal document, 2000 - 2001

8.2 European Union

The EU market has been the mainstay of the seafood export industry in Kerala during the past decade. However, as is clear from Figure 12, Kerala's share in the All India exports to the EU has been fluctuating but overall there has been a decline in volume and value since 1995/96. Even though the EU is the main market for the Kerala seafood industry, its relative prominence even in this market is on the decline. Whereas in 1995/96 Kerala supplied 49.3% of the total Indian exports to the EU, in 2000/01, this has reduced to 42.4%. Even so, Kerala continues to be the main supplier of seafood to the EU from India.

Figure 12: Kerala's share of Indian seafood exports to the EU

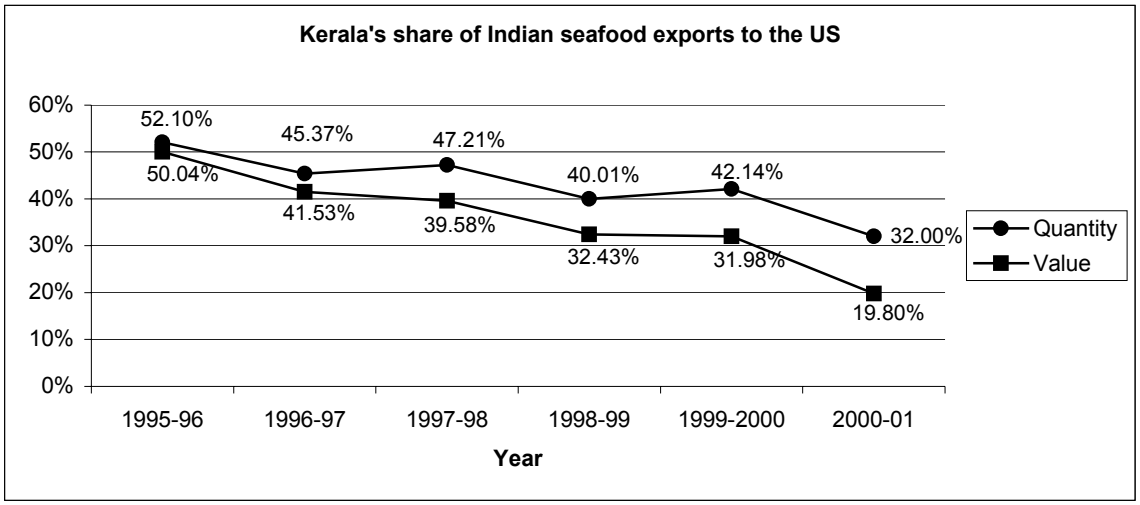


Source: MPEDA internal document, 2000 - 2001

8.3 USA

The decline in Kerala's share of Indian seafood exports to the US market has been sharp. Since 1995-96 Kerala's share has declined from an impressive 50% in value terms to just under 20% in 2000-01.

Figure 13: Kerala's share of Indian seafood exports to the US

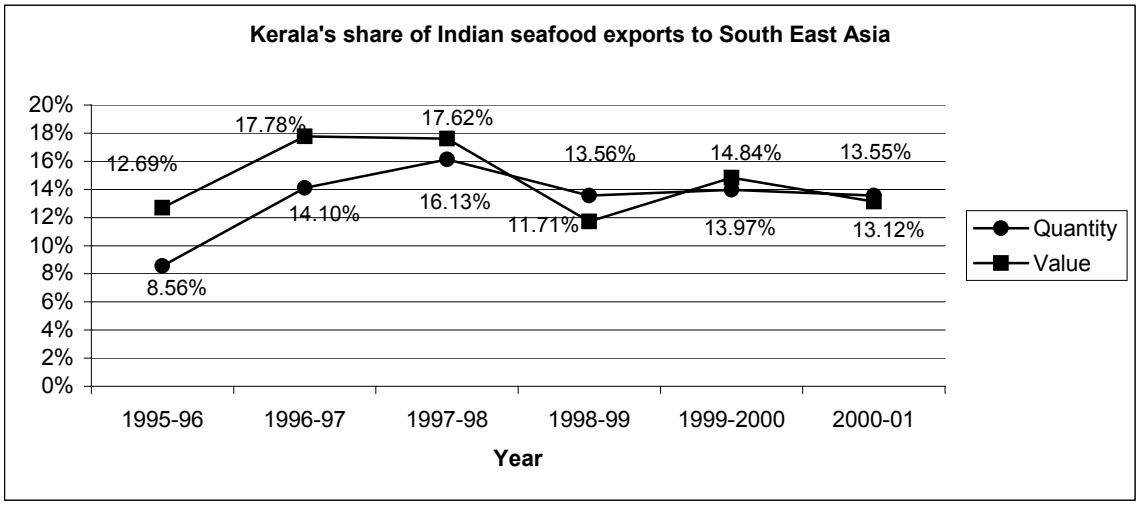


Source: MPEDA internal document, 2000 - 2001

8.4 South East Asia

South East Asian countries have emerged as significant importers of seafood in recent years. Seafood exports from India to this region have shown impressive growth during the last decade. China in particular has emerged as a major market for low value items like ribbon fish. Kerala's share has registered an increase in recent years but shows signs of declining again.

Figure 14: Kerala's share of Indian seafood exports to the South East Asia

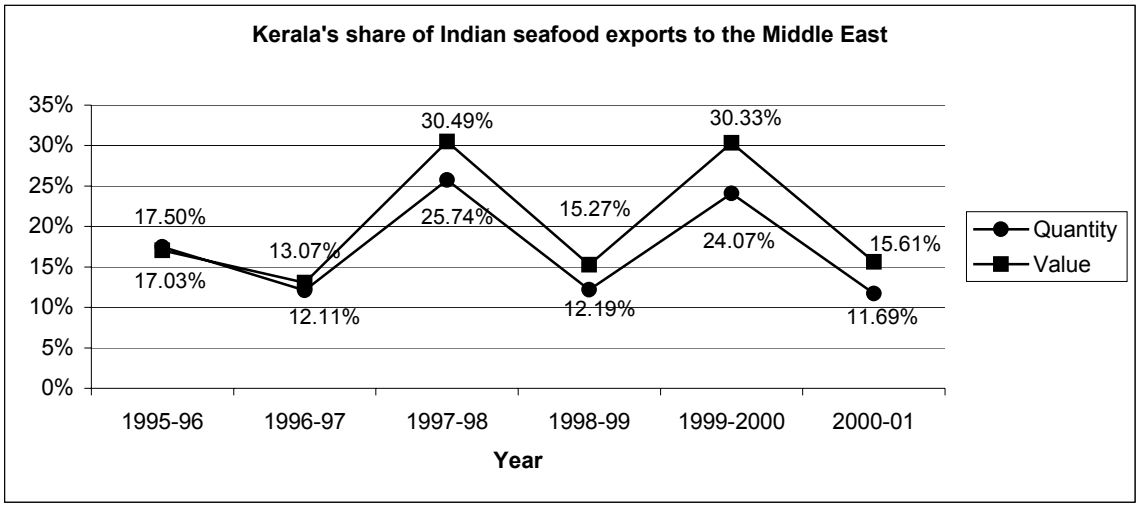


Source: MPEDA internal document, 2000 - 2001

8.5 Middle East

Kerala's share in the Middle Eastern market has shown wide fluctuations in recent years. However, there has been a slight decrease in the overall value share from 17.5% to 15.6% during the period 1995/96 to 2000/01.

Figure 15: Kerala's share of Indian seafood exports to the Middle East



Source: MPEDA internal document, 2000 - 2001

9. Export Chains for Important Seafood Varieties Processed in Kerala

9.1 Introduction

The main exit point for seafood export from Kerala is the Kochi port. Some of it however is exported from Tuticorin in Tamil Nadu and occasionally processing houses based in Chennai purchase raw material from landing sites in Kerala, process the material in Tamil Nadu and export them from the Chennai port. However, the focus of this study is limited the seafood that is exported from Kochi.

As mentioned earlier, in terms of value, the main seafood varieties that are exported from Kerala are shrimp, cuttlefish, squid and finfishes. Shrimp accounts for 32% by volume and 59% by value of the seafood exported from Kerala and four main shrimp varieties are exported namely: Naran (trade name - white prawn, scientific name – Peneaus Indicus), Poovalan (trade name - flower prawn), Karikadi (trade name – Karikadi, scientific name – Parapenaeopsis Stylifera) and Kara Chemmen (trade name Tiger prawn, scientific name Peneaus Monodon). The shrimp exported from Kerala has two main sources; from capture or culture. The export chains for shrimp from these two sources are different and will be described separately in Sections 9.2 and 9.3. The export chains for cuttlefish and squid (Section 9.4 and 9.5) and finfishes (Section 9.6) are detailed in the final sections. In each case, detailed diagrams are provided to illustrate the export chain for each species.

9.2 Captured Shrimp

There are various stages involved in the export of different varieties of shrimp from captured sources (mechanised and artisanal sectors).

Stage one (capture and onboard storage)

The first stage is the capture of shrimp. Most of the shrimp that is landed in Kerala is caught by mechanised trawl boats (Expert Committee for Fisheries Management Studies, Kerala, 2000). A trawl boat normally has a crew of 6-7 and depending on the size of the boat can stay at sea for up to 20 days at a time. Many trawl boats however make 7-day trips or stay at sea until they run out of storage space. Since shrimp is the targeted species, it is given preference over other species when it comes to storage space, i.e. lower value species will be discarded to make room for shrimp.

While mechanised trawl boats account for most of the shrimp landings, non mechanised motorised boats also land significant quantities of shrimp during the months of June, July and August when a trawl ban is enforced and mechanised trawl boats are forced to stay on shore. An artisanal motorised unit normally has a crew of 4 and makes short 10 –12 hours trips and generally returns to shore within 3-4 hours of catching shrimps.

In the case of both types of craft, the shrimp is hauled onboard, cleansed of filth, sorted by variety and iced (1:1 ratio) and stored on board.

Stage two (landing and auctioning of the catch)

Once the boat comes ashore, the catch is washed and care is taken to make it presentable. Crewmembers inspect the catch for colour change and foul odour and remove prawns, which are likely to have lost their freshness. The shrimp that is caught on the various days of fishing (and hence landed with varying degrees of freshness) are mixed and presented together to the buyers. The catch is piled into lots at the auction site at the landing centre and a public auction is conducted. The auctioneer is normally a middleman who has financed the boat and hence won the right to auction the catch.

The buyers at the landing site can be classified into the following categories

1. Owners of peeling sheds. They would generally own one or two small peeling sheds in the vicinity of major landing centres like the Kochi and Neendakara harbours. The quantity that they are able to procure from the landing centre closest to them is adequate to sustain their level of operation but generally buy small quantities.
2. Agents of peeling sheds. They generally procure for several peeling sheds throughout the state and are not exclusive agents for any single peeling shed. They exchange price information with their buyers on a regular basis and procure based on orders from them. They do not normally own peeling sheds. They buy the raw material for cash and give short-term credit to their buyers. They are paid

a fixed margin per kilogram procured. Once the material is procured, the agent gets it iced at the auction site and arranges for transportation to the peeling shed (in cases where the peeling shed does not have its own vehicle or is unable to send one to the auction site). The cost of icing and transportation is borne by the peeling shed. This category of buyers is the largest and procures the largest amount of export species raw materials from the Kochi and Neendakara harbours.

3. Company agents. They generally work exclusively for one export house and their responsibility is to procure raw material matching company specifications, get it iced at the auction site and have it transported to the company premises. Such agents are relatively few in number but procure significant quantities of raw material.
4. Individual women peelers. The phenomenon of individual women peelers participating in the auction for shrimp is seen at the Neendakara harbour. These women directly participate in the auction process, procure small quantities, peel, grade and sort the material and sell it to local peeling sheds which in turn sell the peeled material to processing plants.

The buyers inspect the catch at the auction site. Freshness is assessed by noting the colour and the odour. Size is a major consideration as the price depends as much on the count (or size) as it does on the freshness. The buyers make their own assessment of the quantity; count and quality of a particular lot and quote their price. The auctions are based on an escalating bid method and the material is sold to the highest bidder. The raw material is then transferred into plastic crates, iced and transported to the peeling shed/pre-processing plant in vans (insulated vans or open vans as the case may be).

Stage three (Peeling/Pre-processing)

Pre-processing is one of the most important activities in the export chain for shrimp.

These activities are carried out by either independent peeling sheds or pre-processing plants attached to processing plants of export companies or by individual women peelers.

Peeling of shrimp involves the following activities:

1. Deheading and deveining. This depends on the species in question. In the case of large count white Tiger shrimp, deheading is not done as the "head on" variety fetches a higher price. In the case of most of the other major species, the head is removed. In addition to deheading, deveining is done (resulting in PD material, i.e. peeled deveined) or not done (resulting in PUD material, i.e. peeled undeveined) depending on customer demand.
2. Sorting and washing. The raw material is then sorted into various counts and washed.
3. Icing and transportation. The material is then iced and sent to processing plants in vans (either insulated or open as the case may be).

Stage four (Processing and packing)

Once the peeled material arrives at the processing plant it is checked for quality (freshness, chemical residues etc). The material is accepted only if it meets minimum standards. The material is then washed and sorted and graded once again and it is block frozen (BF) or individually quick frozen (IQF) depending on the order on hand. The material is then packed and transferred to freezers where it is stored at minus eighteen degree Celsius until it is exported. The product is transferred to the port of dispatch in insulated containers for export.

9.3 Cultured Shrimp

The export chain for shrimp from cultured sources differs from that for captured sources only in stage one. All the other stages are common for shrimp from both sources.

Stage one of the export chain for shrimp from cultured sources

The shrimp is harvested from the aquaculture fields. The harvesting is generally done by locals. In the Aroor belt, which is the aquaculture heartland of Kerala, seagoing fishermen from nearby communities do much of the harvesting. The farm owner generally announces the harvest date a week or so in advance. The farmer is also free to arrange for labourers of his own.

In case the seedlings are purchased by the farm owner and cultured, then the labourers are given a mutually agreed upon remuneration per kilogram that is caught by them. However, if the seedlings were let into the farm from the local backwaters, then the locals can keep a certain percentage of what they catch (in Aroor for instance the locals can keep half of what they catch).

On the appointed day, peeling shed agents, company agents and local buyers congregate at the farm in order to take part in the public auction. The catch is generally sold to the highest bidder. However in some cases the farm owner may decide to favour a slightly lower quote if he is assured of getting the payment promptly.

Stages two, three and four are the same for export from cultured and captured sources.

9.4 Cuttlefish

Cuttlefish is the second most important item in the Kerala's export basket, accounting for 15% of seafood exports in value terms. The following describes the various stages involved in the export of cuttlefish from Kerala.

Stage One (capture and onboard storage)

The first stage is the capture of cuttlefish. A significant portion of the cuttlefish landed in Kerala is caught by mechanised trawl boats. This is the second most preferred species for

the trawling industry after shrimp. In certain areas (e.g. Marianadu village in Trivandrum district) cuttlefish is caught in significant quantities by artisanal motorised units.

The cuttlefish is caught, iced and stored on board.

Stage two (landing and auctioning of the catch)
Once the boat comes ashore, the catch is auctioned at the auction site and sold to the highest bidder. In certain areas the cuttlefish is sold on weight, whereas in other landing sites it is sold in lots.

The buyers inspect the catch. Freshness is assessed by noting the colour and randomly checking firmness. The count is the major determinant of price. The buyers make their own assessment of the count and quality and quote their price. Once purchased, the raw material is then transferred into plastic crates, iced and transported to peeling sheds/pre-processing plants in vans (insulated vans or open vans as the case may be). In some cases the agents who procure for peeling sheds keep the material in ice and water for about a day before they sell it to the peeling shed, as there is reported to be some weight gain.

Stage three (Deskinning/Pre-processing)

The cuttlefish is sent to the next stage in the export chain as either whole, whole cleaned or filleted as the case may be. In case it is whole cleaned or filleted the following activities are done.

1. Deskinning and filleting. The skin is peeled and the ink sac and the tentacles are removed and washed in freshwater. Depending on the nature of the order on hand the meat is either left as it is or filleted to specifications.
2. Storage in salt water. The meat and the tentacles are kept for a day in a mixture of ice, salt and water. This is in order that they may absorb water and gain weight. This treatment also supposedly makes the meat whiter and hence more acceptable to the processing plants.
3. Icing and transportation. The material is then iced and sent to processing plants in vans (either insulated or open as the case may be).

Stage four (Processing and packing)

Once the meat arrives at the processing plant, it is checked for quality (freshness, chemical residues etc). The material is accepted only if it meets minimum standards. The material is then washed, graded and block frozen (BF) or individually quick frozen (IQF) depending on the order on hand. The material is then packed and transferred to freezers where it is stored at minus eighteen degree Celsius until it is to be exported. The processed material is transferred to the port of dispatch in insulated containers for export.

9.5 Squid

Squid is the third most important item in the export basket accounting for 13% of Kerala's seafood exports in value terms. The export chain for squid is much the same as that for cuttlefish. However, squid is not preserved in salt-water mixture, as it does not significantly gain weight by this. Also, in addition to being filleted, squid can also be sliced into rings. The rest of the activities in the export chain for squid are the same as for cuttlefish.

9.6 *Fin fishes*

Finfishes form the fourth most important item in the export basket accounting for 28% by volume and 9% in value terms. Several varieties of finfishes are exported from Kerala. The main among these are the reef cods, emperor breams, white snapper and seer fish. The various stages involved in the export of the various varieties of finfishes are quite similar and hence will not be described separately.

Stage One (capture and onboard storage)

The first stage is the capture of finfish. The finfish is iced and stored on board.

Stage two (landing and auctioning of the catch)

Once the boat comes ashore, the catch is auctioned at the auction site and sold to the highest bidder.

The buyers inspect the catch. Freshness is assessed by noting the colour. The size and weight are the major determinants of price. The buyers make their own assessment of the count and quality and quote their price. Once purchased, the raw material is then transferred into plastic crates, iced and transported to pre-processing plants attached to processing plants in vans (insulated vans or open vans as the case may be). Unlike in the case of shrimp, cuttlefish or squid, virtually none of the pre-processing activity for finfishes is carried out by the peeling shed industry. This is mainly because finfishes in comparison do not require much pre-processing. Hence the pre-processing of finfishes is generally carried out at the pre-processing units attached to processing plants. While the pre-processing of finfishes is not labour intensive, it requires a high degree of skill as the yield depends to a large extent on this factor. Hence, normally most pre-processing plants have just a few pre-processors specialising in finfishes and they are well paid.

Stage three (/Pre-processing and processing)

The following are various forms in which finfishes are exported and the various pre-processing and processing activities associated with each form.

Table 2: Processing activities for fin fishes

If exported as	Then
Whole	The fish is washed, graded and IQF at minus forty degree Celsius.
Whole gut (WG)	The fish is washed, the gut is removed, the fish is graded and IQF at minus forty degree Celsius.
Whole gut trim	The fish is washed, the gut, fins and tail are removed, the fish is graded and IQF at minus forty degree Celsius.
Trim	The fish is washed, the fins and tails are removed, the fish is graded and IQF at minus forty degree Celsius (the gut is not removed)
Fillet (skin on)	The fish is WG trimmed, filleted and IQF at minus forty degree Celsius. In certain varieties some of the bones may have to be removed (in which case it is called deboned fillet (skin on)). But this is done only if the buyer demands
Fillet (skin less)	The fish is WG trimmed, deskinned, filleted and IQF at minus forty degree Celsius.
Portion cuts	After filleting, the fillets are cut into portions of the weight specified by the buyer. Then it is IQF at minus forty degree Celsius.
Loins	In case of certain species like the yellow fin tuna, the fillets are cut into standard shapes. Then it is IQF at minus forty degree Celsius.

Stage four (Packaging, storing and transportation)

The material is then packed in individual plastic wrappers, packed into master cartons and transferred to freezers where it is stored at minus eighteen degree Celsius until it is to be exported. The processed material is transferred to the port of dispatch in insulated containers for export.

10. A Note on the Peeling Shed Industry

The peeling shed industry in Kerala plays an important role in the export chain for shrimp, cuttlefish and squid. The peeling sheds play the role of pre-processors and aggregators of raw material. Their importance seems to stem from the fact that they reduce the raw material collection costs and pre-processing costs of export processors. They aggregate raw material from various landings centres (including those outside the state), pre-process the material depending on the order they get from their buyer (i.e. the export processor) and transfer the material to the processing factory premises.

There are 121 peeling sheds in Kerala (including pre-processing units attached to export processing factories) that are registered with the MPEDA (MPEDA internal document 1999 - 2000). There are likely to be at least an equal number of unregistered peeling sheds. The vast majority of these sheds are located in and around Kochi, particularly in the Aroor-Chandrur region. The main reason for the high density of peeling sheds in this region seems to be the following:

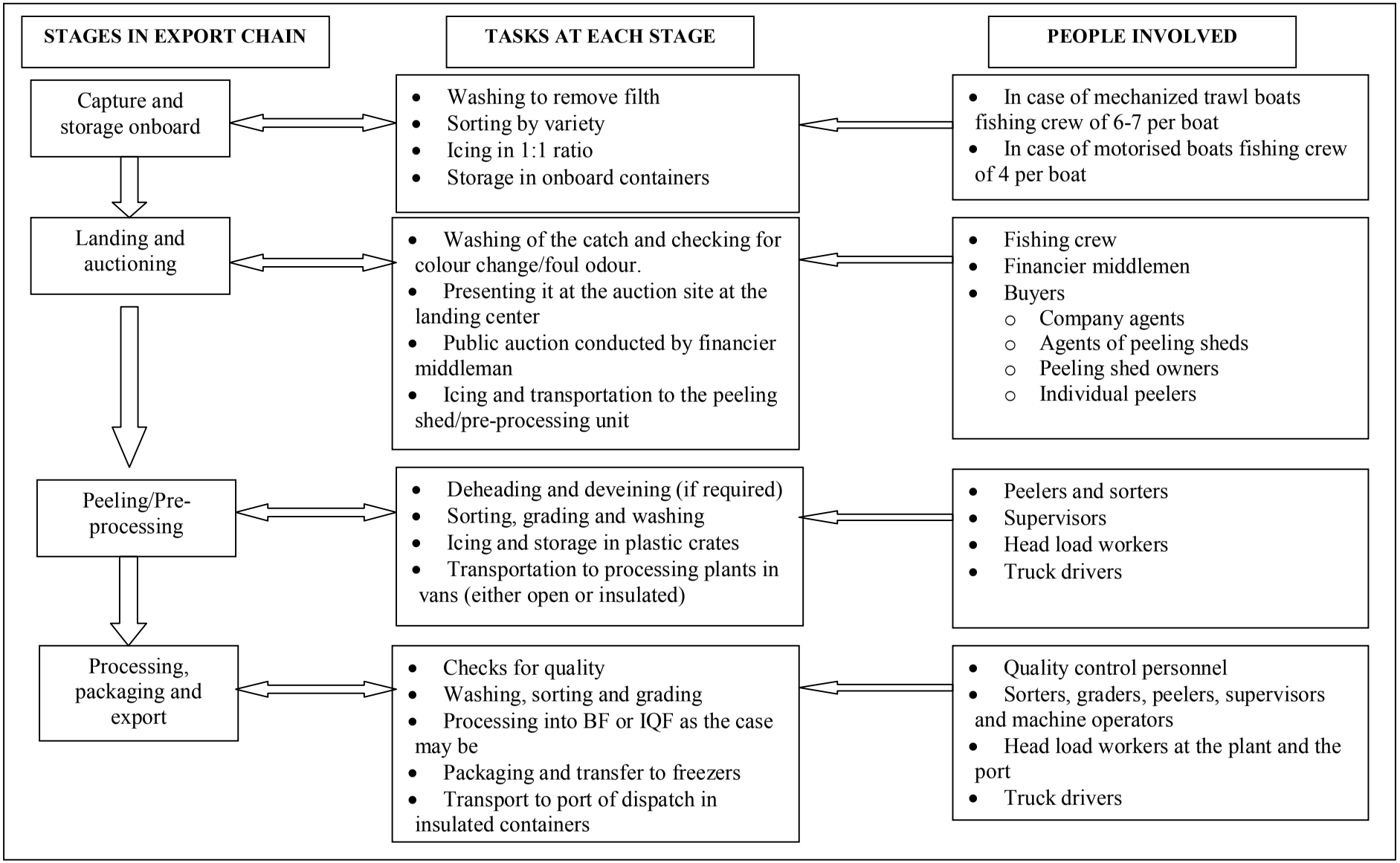
1. The Kochi harbour is one of the major fish landing centres in Kerala. Until a decade ago enough fish was landed in this one harbour to supply raw material to a

thriving peeling industry. The availability of raw material prompted many local entrepreneurs in the Aroor area to set up more peeling sheds.

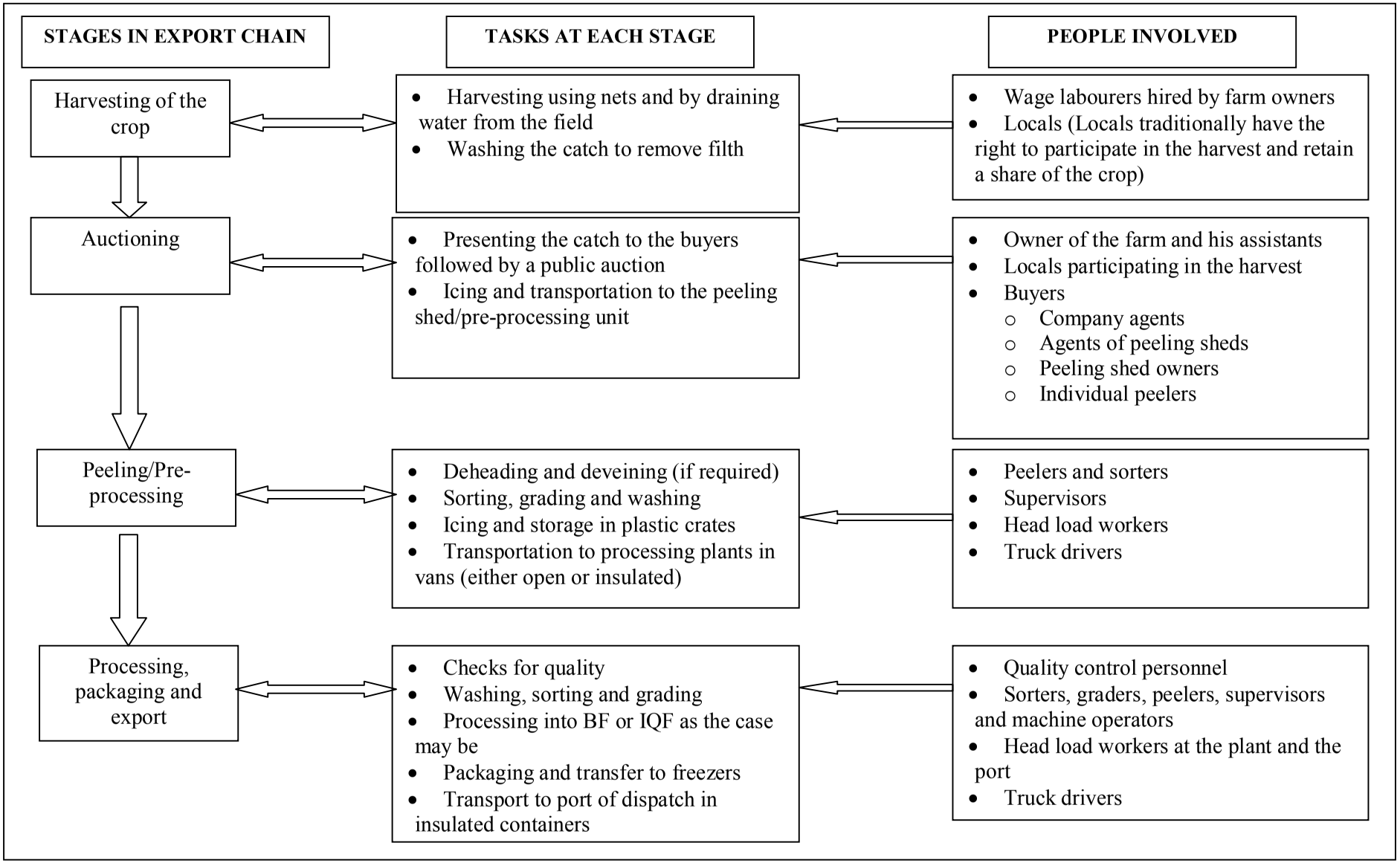
2. The Kochi region also has the vast majority of export processing plants within the state. 81 out of the 91 registered exporters in Kerala are situated within the Kochi and Cherthala taluks.
3. The presence of a large number of water bodies in and around Aroor makes wastewater disposal easier.
4. The women from this belt who are involved in peeling are considered more skilled than their counterparts elsewhere as they are said to be faster in peeling shrimp and recover more meat.

Apart from the Aroor- Chandrur region, the other significant concentration of peeling sheds is in and around the Neendakara – Shaktikulangara harbour in Kollam district. Peeling evolved into an unorganised industry in this region mainly on account of the abundant supply of raw material available from the harbour. With the dwindling catch at Neendakara, many of the smaller and less efficient peeling sheds have had to close down because there is increased competition for raw material.

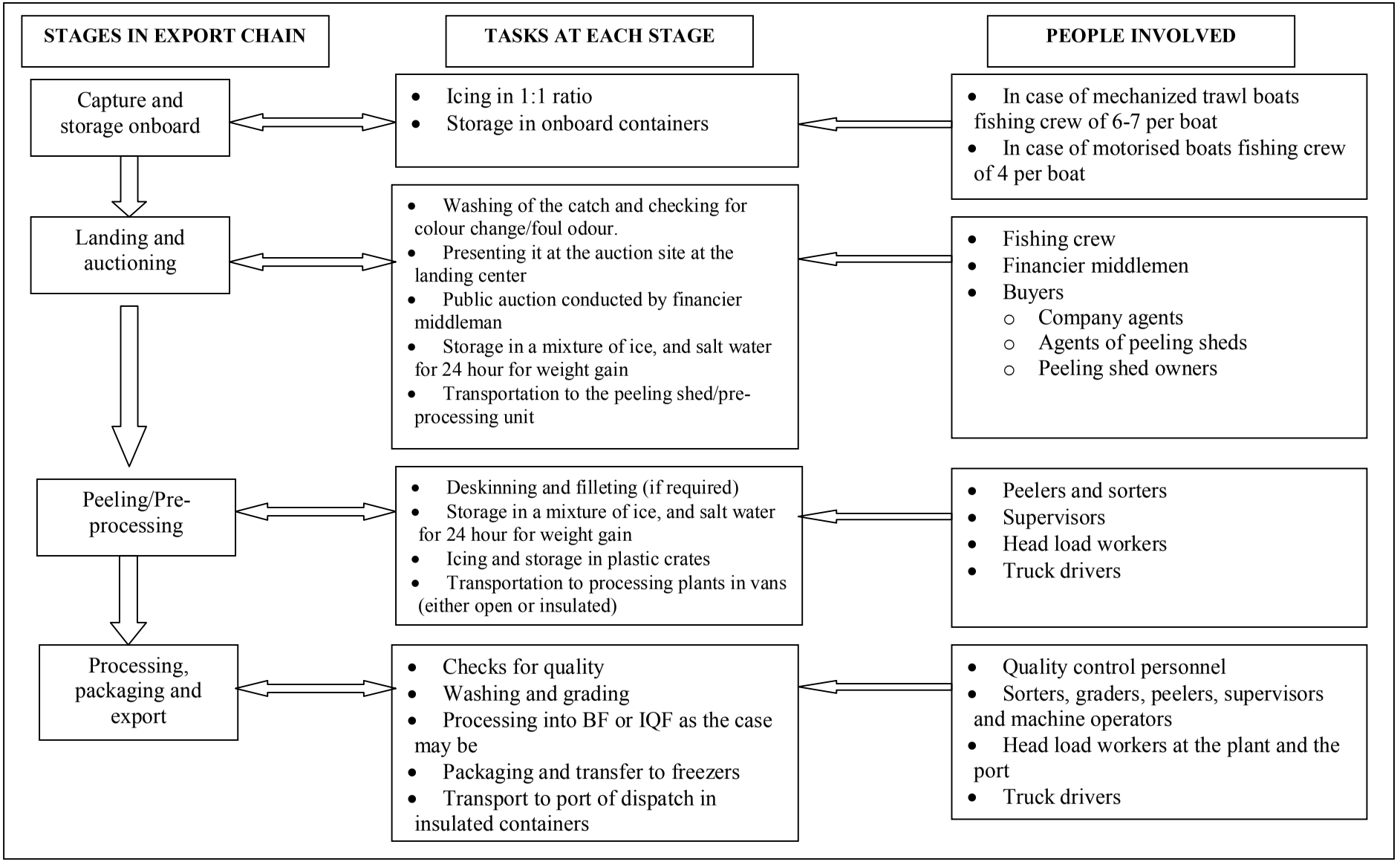
Stages in the export of captured shrimp from Kerala (mechanized and non mechanized boats)



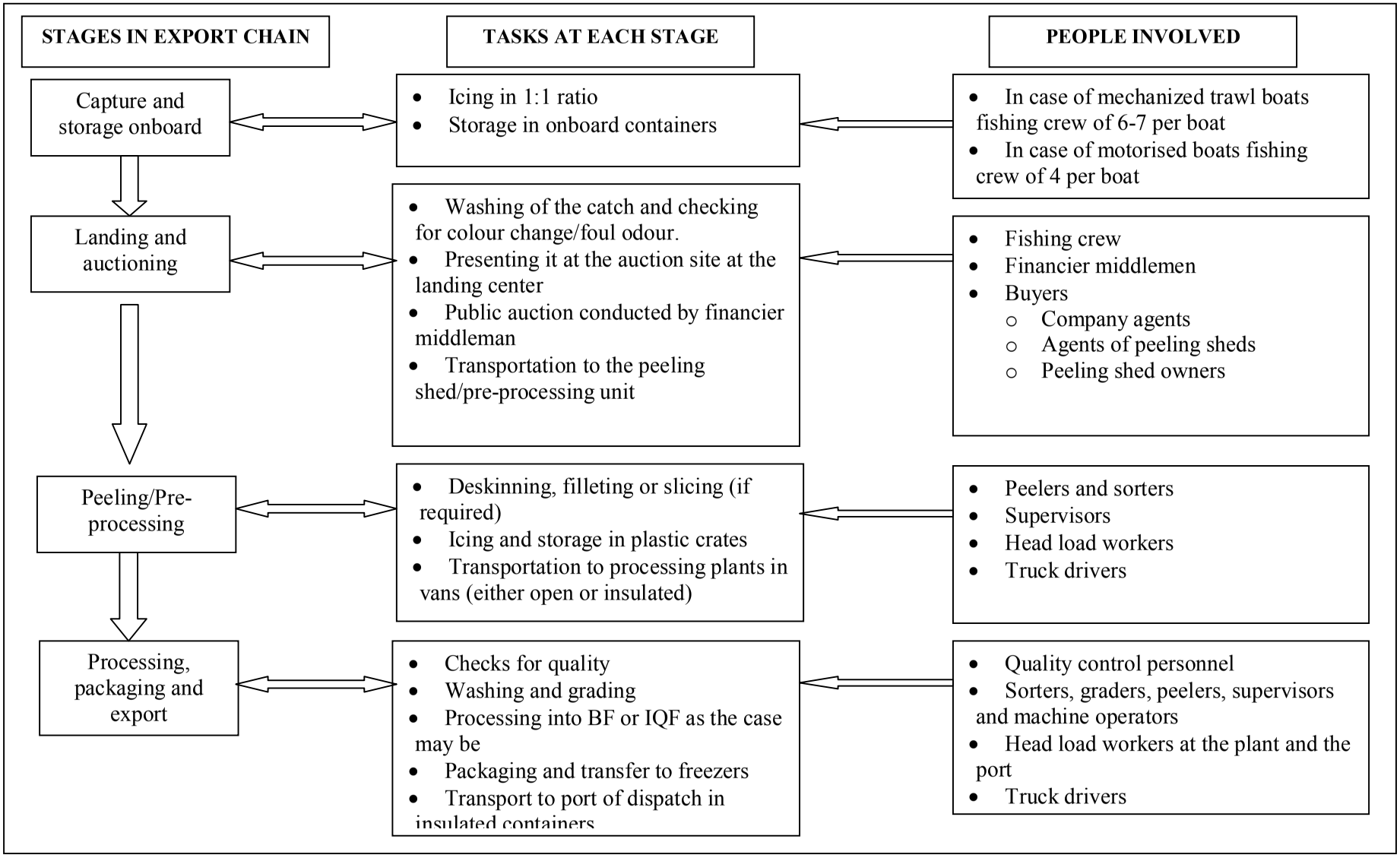
Stages in the export of cultured shrimp from Kerala



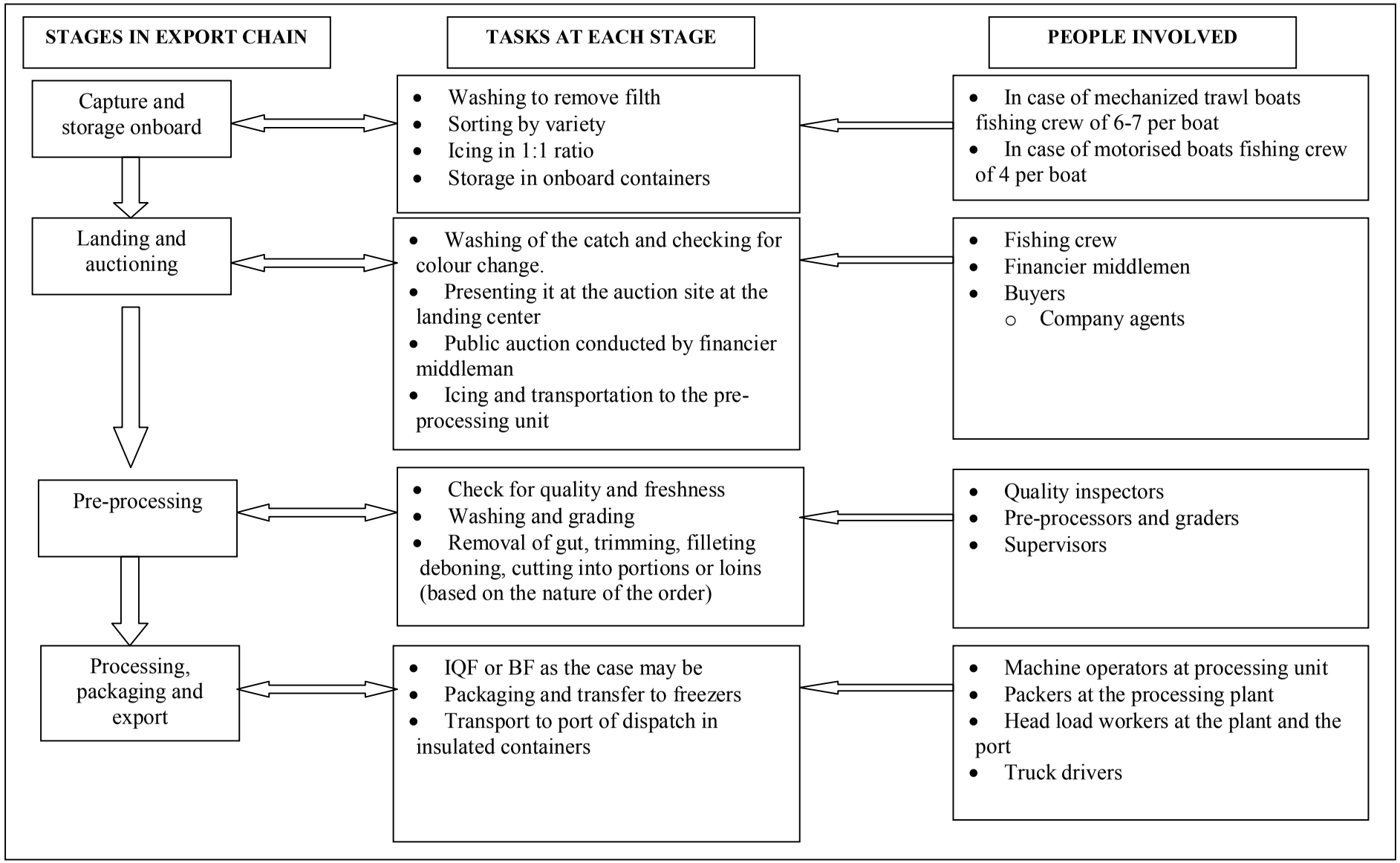
Stages in the export of cuttlefish from Kerala (mechanized and non mechanized boats)



Stages in the export of squid from Kerala (mechanized and non mechanized boats)



Stages in the export of fin fishes from Kerala (mechanized and non mechanized boats)



11. Seafood Exports and the Poor in Kerala

Among the various actors in the marine fisheries sector in Kerala, the following categories are generally classified as poor (SIFFS, 2001).

1. Fishermen crew in the mechanised sector
2. Fishermen crew in the artisanal sector
3. Craft and gear owners in the artisanal sector
4. Prawn peelers within and outside the state, mainly women.

The above categories of actors depend directly and indirectly on seafood exports among other things for their livelihood. The degree of dependence and the overall economic vulnerability may vary from one category to another.

The mechanised trawling industry, which is almost entirely dependant for its survival on the availability of export species such as shrimp and cuttlefish, employs around 30,000 fishermen as crew (SIFFS, 2001).

The artisanal sector, which accounted for 21.5% of the total penaeid prawn landings in Kerala during 1997/98 (Expert Committee, 2000) has a constant employment generation potential of 146,000 (Kurien, 2000). Export species such as shrimp and cuttlefish are very important to the fishermen in this sector during the monsoon months of July and August. These species represent their best chance of generating a surplus.

The peeling shed industry which is almost entirely geared to cater to the export processing industry employs a large number of peelers, almost all of whom come from the poor within the fishing community. There are 121 registered peeling sheds (MPEDA figures) and perhaps an equal number of unregistered peeling sheds within the state. Given that a peeling shed on average employs about 70 peelers, the number of peelers employed by the industry as a whole can be safely put in the region of 18,000.

It can be inferred from the above that the poor within the fishing communities of Kerala depend to an extent on seafood exports for their livelihood, although the exact extent of this dependence has not been established.

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APPENDIX

EU approved plants in Kerala state
PP = Processing Plant, FV = Factory Vessel, ZV = Freezer Vessel

Apv. No	Name and Address	Vill/Dist/State. Date of EU Apvl.	Category
509	**Baby Marine Exports** Temple Road, West Hill, Calicut, Kerala 673 005 **Mr. K C Babu**, Chief Executive Ph.++91 495 383110, Fax++ 91 495 382028 E-mail: babymars@md3.vsnl.net.in	Calicut Kerala Sept. 98	PP
514	**Bell Foods {Marine Division}** 18/1553, Pallichal Road Cochin, Kerala 682 005 **Mr. R. Vikraman**, Chief Executive Ph. ++91 484 232066, Fax ++91 484 232972 E-mail: bell@bellfoods.com	Cochin Kerala April, 98	PP
517	**A S F Seafoods** 18/254 Nadakkadavu Road, Palluruthy, Cochin 682 006 **Mr. Mohammed Azeez**, Managing Partner Ph. ++ 91 484 232263 / 234195 Fax: ++91 484 231506	Cochin Kerala Oct. 2001	PP
520	**Capithan Exporting Co**. Sakthikulangara, Quilon, Kerala 691 581 **Mr. Alphonse Joseph**, Chief Executive Ph:++91 474 794499, Fax:++91 474 795164 E-mail: capithan@md3.vsnl.net.in	Quilon Kerala Dec. 97	PP
521	**The Canning Industries Cochin Ltd** Edacochin, Cochin, Kerala 682 006 **Mr. Alex Ittycheriah,** Chief Executive Ph:++91 484 232735, Fax:++91 484 232735	Cochin Kerala June 2000	PP
528	**Esmario Export Enterprises** Kavanadu P O, Quilon, Kerala 691 003 **Mr G J Fernandez,** Chief Executive Ph++91 474 794136. Fax++91 474 793794 E-mail: esmario@md3.vsnl.net.in	Quilon Kerala Feb. 99	PP
536	**Geo Sea Foods** P B No. 906, Pallichal Road, Thoppumpady, Cochin, Kerala 682 006 **Mr. K G Lawrence**, Chief Executive Ph++ 91 484 232695. Fax ++91 484 232665 E-mail: geosf@md2.vsnl.net.in	Cochin Kerala Feb. 99	PP

Apv. No	Name and Address	Vill/Dist/State. Date of EU Apvl.	Category
545	**King Fisheries Ltd** Neendakara, Quilon, Kerala 691 001 **Mr. Mathew B John,** Chief Executive Ph++91 474 794334, Fax++91 474 794362 Email: kingsgra@giasmd.01.vsnl.net.in.	Quilon Kerala Feb. 99	PP
572	**Oceanic Fisheries (India) Ltd** Sakthikulangara, Quilon, Kerala 691581 **Mr. Peter Damien**, Chief Executive Ph++91 474 793651, Fax++91 474 794918 E-mail: oceanic@md2.vsnl.net.in	Quilon Kerala Dec. 98	PP
584	**Relish Foods** Valanjavazhy, Alleppey 688 005 **Mr. K S Jayakrishnan,** Chief Executive Ph ++91 477 272029, Fax ++91 477 272229	Alleppey Kerala October 2000	PP
585	**Ruby Marine Foods** Palluruthy, Cochin, Kerala 682 005 **Mr. Thomas J Vayalat**, Chief Executive Ph. ++91 484 231047, Fax ++91 484 232391 E-mail: rubyvtj@md3.vsnl.net.in	Cochin Kerala April, 98	PP
604	**Fanci Foods** P B No. 314, Cochin, Kerala 682 002 **Mr. ARM Kassim**, Chief Executive Ph ++ 91 484 227043. Fax ++ 91 484 227951 E-mail : fancifoods@suigroup.com.	Cochin Kerala Feb. 99	PP
605	**Koluthara Exports Ltd.,** Keltron Road, P.B.No 7, Aroor, Alleppey -688 534 **Mr. Antony Varghese Koluthara**. Chief Executive Ph++91 0478 872263 Fax++91 0478 872796 E-mail: koluthara@vsnl.net.in	Alleppey Kerala June, 99	PP
611	**Raymon Gelatine** (at M/S Raymonds Foods Pvt Ltd.) Cheriyakadavu, Kannamali Kochi, Kerala 682 008 **Mr. Antony Bastian,** Chief Executive Ph. ++91 484 229556, Fax. ++91 484 228129 Email: raymon@bom5.vsnl.net.in	Cochin Kerala March, 2000	PP
626	**Abad Fisheries** Vizhinjam P O., Trivandrum **Mr. Nazar Zacharia**, Chief Executive Ph ++ 91 471 480443/480757, Fax ++ 91 471 480342 Email: info@abadgroup.com	Trivandrum Kerala August 2001	PP

Apv.No	Name and Address	Vill/Dist/State. Date of EU Apvl.	Category
641	**M.F.V. Yeduguri – 3** X111 /1097 Chullical , Cochin, Kerala 682 005 **Mr S.B. Mohan**, Chief Executive Ph++91 484 222788, Fax ++ 91 484 220984 E-mail : ysrreddy@vsnl.com , welbilt@vsnl.com	Cochin Kerala May, 98	ZV
642	**M.F.V. Yeduguri – 4** X111 /1097 Chullical ,Cochin, Kerala 682 005 **Mr S.B. Mohan,** Chief Executive Ph++91 484 222788, Fax ++ 91 484 220984 E-mail : ysrreddy@vsnl.com , welbilt@vsnl.com	Cochin Kerala May, 98	ZV
644	**Premier Exports International,** XII/800 Chandiroor P.O, Alleppey -688 547 **Mr K.M. Abdulla,** Chief Executive Ph++91 0478 872312 Fax++91 0478 872404	Alleppey Kerala June, 99	PP
645	**M.F.V. Yeduguri – 1** X111 /1097 Chullical, Cochin Kerala 682 005 **Mr S.B. Mohan**, Chief Executive Ph++91 484 222788, Fax ++ 91 484 220984 E-mail: ysrreddy@vsnl.com, welbilt@vsnl.com	Cochin Kerala Sept. 98	ZV
646	**M.F.V. Yeduguri – 2** X111 /1097 Chullical, Cochin Kerala 682 005 **Mr S.B. Mohan**, Chief Executive Ph++91 484 222788, Fax ++ 91 484 220984 E-mail : ysrreddy@vsnl.com , welbilt@vsnl.com	Cochin Kerala Sept. 98	ZV
658	**Cochin Frozen Foods Exports (P) Ltd** IV, 475, Arookutty Ferry Road, Aroor Alleppey, Kerala 688 534 **Mr. K Prabhakaran,** Chief Executive Ph++91 478 872706 Fax++ 91 478 872707 E-mail : cffeltd@giasmd01.vsnl.net.in	Alleppey Kerala Sept. 99	PP
661	**Integrated Rubian Exports Ltd**. Rubian Complex, Aroor, Alleppey, Kerala. 688 534 **Mr. K A Kunjumoideen,** Chief Executive Ph. ++91 478 873182, Fax ++91 478 872477 E-mail : milas@md3.vsnl.net.in	Aroor, Alleppey Kerala April, 98	PP
664	**Euro Marine Products Ltd** Post Box No.1243, Puthenthope Trivandrum – 695586 **Mr. S Andrews,** Managing Director Ph++91 471420306, Fax ++91 471 4200042 Email: euro@kelnet.xl.web-com	Trivandrum Kerala Sept. 99	PP

Apv. No	Name and Address	Vill/Dist/State. Date of EU Apvl.	Category
665	**Gold Farm Foods PVT Ltd** 22/1396, Edacochin, Cochin, Kerala 682 006 **Sajan Mathew Mangalam**, Chief Executive Ph++91 484 231447, Fax++91 484 232848 E-mail : goldfarm@vsnl.com	Cochin Kerala June, 99	PP
669	**Baby Marine International** 18/46-51, Thoppumpady Cochin 682 005 **Mr. Alex K Ninan**, Chief Executive Ph++91 0484 231251 Fax++91 0484 232544 E-mail : baby@md2.vsnl.net.in	Cochin Kerala June, 99	PP
671	**Kay Kay Exports** Vallithode, Ezhupunna South, Sherthala Alleppey, Kerala **Mr. K Krishna Kumar,** Chief Executive Ph.++91 478 562526, Fax. ++91 478 562920	Alleppey Kerala March, 2000	PP
673	**Kings Marine Products** Uliyakovil, Kollam 691 019 **Mr. T M Varghese, Proprietor** Ph ++ 0474-742563 & 741 368, Fax ++ 0474-742136 E-mail: KMP124@vsnl.com	Kollam Kerala December, 2000	PP
676	**Seapearl Enterprises** Chandiroor, Alleppey, Kerala 688547 **Mr. K A Ahmmedkutty**, Chief Executive Ph.++91 478 872735, Fax++ 91 478 873359	Alleppy Kerala Sept. 98	PP
677	**Tri Tee Seafood Company**, 24/1480, Kings Building, 5th Main Road, W. Island, Cochin, Kerala 682 003. **Mr Tom Thomas**, Chief Executive Tel++91-484-668241,Fax++91-484-668239 E-mail : tritee@md3.vsnl.net.in	Cochin, Kerala Sept. 98	PP
678	**Abad Exim Ltd** Plot No. 32 & 33 B, Cochin Export Processing Zone Kakkanad, Cochin, Kerala 682 030 **Mr. Anwar Hashim**, Chief Executive Ph.++91 484 422547, Fax++91 484 422967 E-mail : abadexim@vsnl.com	Cochin Kerala Dec. 98	PP
679	**Uniroyal Marine Exports Ltd.** Vengalam, Calicut, Kerala 673 303 **Mr Sajan George**, Chief Executive Ph. ++91 495 683731, Fax ++91 495 715028 E-mail : uniroyalcalicut@dartmail.dartnet.com	Calicut Kerala April, 98	PP

Apv. No	Name and Address	Vill/Dist/State. Date of EU Apvl.	Category
680	**Ameena Enterprises (P) Ltd** APX/103, Chan diroor, Alleppey 688547 **Mr. T J Francis,** Chief Executive Ph++91 478 872630, Fax ++91 478 872650	Alleppey Kerala Sept. 99	PP
682	**GKS Business Associates** GKS Complex, Arookutty Road Aroor – 688 534 **Mr. T K Govindan Kutty,** Chief Executive Ph+91 478 874555 Fax ++91 478 872283 E-mail : gksgkuty@md3.vsnl.net.in	Alleppey Kerala Sept. 99	PP
683	**Torry Harris Seafoods Ltd** V/143 A P B No 2, Eramalloor, Alleppey, Kerala 688 537 **Mr. S.Lalji**, Chief Executive Ph ++91 47887 3340, Fax ++91 47887 3262	Eramalloor, Alleppey Kerala Dec. 97	PP
686	**Cap Seafoods,** (A Dvn. Of Abad Fisheries) 1/171, Vypeen, Ernakulam Kerala 682 510 **Mr. Anwar Hasim**, Chief Executive Ph;++91 484 227178, Fax:++91 484 222333. E-mail: abadcap@vsnl.com	Vypeen Island, Cochin, Kerala Dec. 97	PP
687	**Lansea Foods Pvt. Ltd.** 10/434 Cheriyakadavu, Kannamali Cochin Kerala -682 008 **Mr V Madhu Ganesh**, Chief Executive Ph:++91 484 247224, Fax:++91 484 222192	Cochin, Kerala Dec. 97	PP
691	**Nas Fisheries Pvt. Ltd**. Edakochi, Cochin, Kerala 682 006 **Mr A Anwar Sait,** Chief Executive Ph++91 484 232373, Fax++91 484 231582	Cochin Kerala Sept. 98	PP
694	**Choice Canning Co**. Unit III 21,1391-A, Thangal Nagar, Cochin , Kerala -682 006 **Mr. Jose Thomas**, Chief Executive Ph:++91 484 232629, Fax:++91 484 232990 E-mail : choice@vsnl.com	Cochin Kerala Dec. 97	PP
696	**R.F.Exports** Eramalloor, Alleppey, Kerala, 688 537 **Mr F M Farook**, Chief Executive Ph:++91 478 874416, Fax:++91 478 873354 E-mail : rfexport@md2.vsnl.net.in	Eramalloor, Alleppey Kerala April, 98	PP

Apv. No	Name and Address	Vill/Dist/State. Date of EU Apvl.	Category
701	**Bhatsons Aquatic Products** Aroor, Alleppey, Kerala 688 534 **Mr M R Suresh Bhat**, Chief Executive Ph ++91 484 231730. Fax ++91 484 232750 E-mail : bhotsons@md2.vsnl.net.in	Alleppey Kerala Feb. 99	PP
704	**Abad Fisheries (Unit VI)** Nambiapuram, Palluruthy Cochin-682006 **Mr.Nazim Zacharia**, Chief Executive Ph++91 0484 234084 Fax++91 0484 232907 E-mail: abadfish@vsnl.com	Cochin Kerala June, 99	PP
710	**Chemmeens (Regd.)** Karuvelipady, Cochin , Kerala 682 005 **Mr P C Cherian**, Chief Executive Ph.++91 484 226549, Fax++91 484 228103 E-mail : chemmeens@satyam.net.in	Cochin Kerala May, 98	PP
715	**Frontline Exports Pvt Ltd**. 11/814 Industrial Estate Aroor, Alleppey 688 534 **Mr N M Divakaran,** Chief Executive Ph++ 91 0478 874497 Fax++ 91 0478 874797 E-mail : frontlyn@satyam.net.in	Alleppey Kerala June, 99	PP
716	**Abad Exports Pvt. Ltd.** Aroor, Alleppey, Kerala 688 534 **Mr Zaheer Ismail**, Chief Executive Ph++91 478 87 4170, Fax++91 478 87 4022 E-mail : abadfish@vsnl.com	Alleppey Kerala April, 98	PP
718	**Baraka Overseas Traders** (At Amison Foods Ltd.), Amir Complex, Edacochin, Cochin, Kerala 682 006 **Mr. K H Saleem**, Chief Executive Ph.++91 484 235622, Fax++91 484 232279 Email : baraka@satyam.net.in	Cochin Kerala Sept. 98	PP
724	**Deep Sea Products** Sakthikulangara, Quilon, Kerala 691 581 **Mr.S.Chandrakumar**, Chief Executive Ph.++91 474 795971, 796025 Fax++91 474 796521 E-mail : deepsea@pn3.vsnl.net.in	Quilon Kerala Dec. 98	PP
725	**Rabia Sea Foods** 20/550, Nambiapuram Road Palluruthy, Cochin 682 006 **Mr. K A Hashim**, Chief Executive Ph++91 484 231783 Fax ++91 484 231783 E-mail: rahims@satyam.net.in	Cochin Kerala Feb. 99	PP

Apv.No	Name and Address	Vill/Dist/State. Date of EU Apvl.	Category
728	**Seafresh Exports Ltd.** Industrial Estate, Aroor, Alleppey 688 534 **Mr. Jacob J Taliyat**, Chief Executive Ph++91 0478 872705 Fax++91 0478 873279 E-mail : jacob@giasmd01.vsnl.net.in	Alleppey Kerala June, 99	PP
729	**FEMP Exports (India) P Ltd** Industrial Chemical Estate, Aroor Alleppey, Kerala Mr. V. Raghu Ganesh **,** Chief Executive Ph.++91 478 874234, Fax. ++91 478 874473 Email: mail@lansea.com	Alleppey Kerala March 2000	PP
730	**Abad Fisheries** (Unit VII) 1/99, Pallipuram, Munnambam Ernakulam, Kerala 683 515 **Mr. Anwar Hashim,** Chief Executive Ph. ++91 484 222178, Fax. ++91 484 222333 Email: info@abadgroup.com	Munnambam Kerala March, 2000	PP
732	**Geo Aquatic Products Pvt Ltd** Veluthully Road, Chandiroor P O, Alleppey 688 547, Kerala **Mr. K G Felix,** Chief Executive Ph ++ 91 484 231804 Fax ++ 91 484 232665	Alleppey Kerala October 2000	PP
735	**International Freezfish Exports(Unit II)** A.P 11/660, Chemical Industrial Estate Aroor 688 534, Alleppey Dist. Kerala **Mr. Vamana Kini,** Chief Executive Ph++91 478 873046/874046, Fax++91 478 872846	Aroor Kerala June 2001	PP
737	**Malabar Arabian Fisheries Ltd** Mamachanthuruthu, Neendakara, Quilon 691 582 **Mr. Thomas J Vayalat,** Chief Executive Ph ++91 474 680128, Fax ++ 91 474 681427 Email: thomasvtj@eth.net	Quilon Kerala August 2001	PP