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SUMMARY REPORT ON
‘GLOBALISATION AND SEAFOOD TRADE LEGISLATION: THE EFFECT ON
POVERTY IN INDIA’

DFID POST HARVEST FISHERIES RESEARCH PROJECT R7970

PRESENTED AS DISCUSSION DOCUMENT AT THE FINAL WORKSHOP ON
GLOBALISATION AND SEAFOOD TRADE LEGISLATION: THE EFFECT ON
POVERTY IN INDIA HELD IN VISAKHAPATNAM, ANDHRA PRADESH, INDIA
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Glossary

CIFT	Central Institute of Fisheries Technology, India
CMS	Catalyst Management Systems (Cirrus Management Services), India
DFID	Department for International Development, UK
DoF	Department of Fisheries, India
EIA	Export Inspection Agency, India
EIC	Export Inspection Council, India
EU	European Union
FAO	United Nations Food and Agriculture Organisation, Rome, Italy
FGD	Focus Group Discussion
HACCP	Hazard Analysis of Critical Control Points
HDI	Human Development Index
ICM	Integrated Coastal Management, India
IDP	Inter Departmental Panels
MPEDA	Marine Products Export Development Authority, India
NGO	Non Governmental Organisation
NRI	Natural Resources Institute, UK
PHFRP	Post Harvest Fisheries Research Programme, UK
PPA	Participatory Poverty Assessment
PPP	Public Private Partnership
QAMS	Quality Assurance Management System
Rs	Indian rupees
SAT	Supervisory Advisory Team
SEAI	Seafood Exporters Association of India
SIFFS	South Indian Federation of Fishermen Societies
SPS	Sanitary and Phyto-Sanitary
UK	United Kingdom
USA (or US)	United States of America
USFDA	United States Food and Drug Administration

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1. Background

The Department for International Development of the UK Government (DFID) Post Harvest Fisheries Research Programme (PHFRP) is endeavouring to improve the livelihoods of poor fish producers, processors and traders and develop strategies which will improve the post harvest utilisation of fish in a sustainable way for these stakeholders. India is a target country for this programme along with Bangladesh, Uganda and Ghana. Under the programme a number of research projects have been funded which, in a variety of ways, attempt to bring a greater understanding of the problems associated with post harvest fisheries development in these countries and alleviate any problems that might exist now and in the future.

A review undertaken for the programme of research needs in India (Stirrat, Clucas and Salagrama 2000)¹ identified globalisation and overseas marketing of fishery products from India as possibly having impacts on the poor involved in the seafood industry.

The market for Indian sea products world-wide has grown considerably over the last two decades. Many Indian frozen seafood factories started exporting prawns to Europe and North America before EU directives on food safety and US standards became fully enforced. With the enforcement of these standards and the shortage of prawns from Indian landings many companies have diversified their markets and product ranges ignoring their traditional markets, thus exporting products to countries and regions where standards are less stringent such as Japan, S E Asia and the Middle East. As the enforcement of import regulations by traditional markets (particularly the EU) becomes more rigorous it is thought that there may be impacts on those involved in the export industry supply chain. These might include poorer members of the fisheries community such as artisanal fishermen, women involved in pre-processing activities, auctioneers, basket makers etc.

2. Introduction

In order to address the above topic a research project was submitted to the programme management in April 2001 entitled "**Globalisation and Seafood Trade Legislation: The Effect on Poverty in India**". The objectives of this project were as follows:

- 1 Improve the understanding of the link between globalisation, post-harvest fisheries and the livelihoods of poor communities in India.
- 2 Produce a methodology to assess impact of legislation on the poor in the post-harvest fishery sector.
- 3 Develop policy recommendations related to poor people's livelihoods, poverty eradication and access to global seafood markets.

The outputs from the research activities can be summarised as follows:

¹ Stirrat R L, Clucas I J and Salagrama V (2000). An assessment of research needs in India for the DFID Post Harvest Fisheries Research Programme. Project A0967, NRI Chatham.

- An improved understanding of the link between international trade legislation, post-harvest fisheries and livelihoods of poor communities in India.
- Policy recommendations related to poor people's livelihoods, poverty eradication in India and access to global seafood markets developed and disseminated.
- In collaboration with two other PHFRP projects, produce a methodology to assess the impact of export market legislation on the poor in the post-harvest fisheries sector based on the livelihoods approach and tailored to the needs of researchers and development practitioners.

The partners involved in the research activities included:

Natural Resources Institute (NRI), University of Greenwich, UK
 Cirrus Management Services (CMS), Bangalore, India
 South Indian Federation of Fishermen's Societies (SIFFS), Trivandrum, India
 Integrated Coastal Management (ICM), Kakinada, India

An inception project workshop of partners along with a number of stakeholders was held in Visakhapatnam in June 2001 at which the specific foci of the research project activities were elaborated.

This workshop decided that within the time and financial constraints available the project should concentrate its efforts on the impact of sanitary and phyto-sanitary (SPS) regulations by importing countries on livelihoods and the implications of food safety legislation for workers in the fisheries industry in India. Three Indian states were chosen as targets for this research, namely Orissa, Andhra Pradesh and Kerala. These three states would be the subject of intensive field research so that an in-depth understanding of the issues might be formed. In addition, a number of desk studies would be undertaken on more general topics to inform and expand on the state-specific information.

Although there are different processes of globalisation, such as those incorporating market liberalisation, as well as environmental and food safety legislation, it was decided that the research project would focus on the impact of food safety legislation on the Indian fishing sector. The seafood export industry is an important source of foreign exchange for India. However, food safety regulations, imposed by the EU, US and Japan challenge the extent to which the Indian fisheries, in particular the seafood export sector, is able to comply with these food standards and thus to compete with other seafood exporting countries such as Thailand and Vietnam. The EU is currently in the process of revising the food safety directives both for domestic and imported food products, which will entail a greater emphasis on the total food chain, incorporating the 'farm to fork' principle. This will require further changes to the infrastructure and processes put in place within the Indian fishing sector regarding seafood for the export market. Traceability of produce, proving that products are from a secure supply source, will become an integral part of food safety policies as all stages of the food chain will be subject to more rigorous quality assurance systems, starting from the fishing boat or fish pond to the export processing plant through to the point of export. This may prove problematic when, for example, small quantities

of produce are coming from many different sources. In addition, supply may come from different production systems such as:

- 1) Wild caught prawns from small fishing units, producing small quantities per trip
- 2) Wild caught prawns from larger vessels producing large quantities from several trawls of the net per trip
- 3) Aquaculture units with no particular links to a processing plant, likely to be small scale fish farming units
- 4) Aquaculture units integrated with established links to processing plants and/or owned by processing and/or export companies, likely to be capital intensive and large scale fish farming units.

The assumption is that it may be easier for large scale producing units, in particular aquaculture units integrated within a processing system, to comply with future food safety regulations including the 'farm to fork' principle than for small scale fishing units. It may result in a further polarisation and concentration of the fishery export sector, with aquaculture producing units having a comparative advantage over fishing units and in particular over small scale fishers and fish farmers. Before anything can be said about the potential impact of more stringent food safety regulations, a better understanding is required about current processes and impact of international food legislation on the various stakeholders, as this is currently poorly understood and inadequately documented.

It was agreed that the research should explore:

- a) What has been the impact of present international food safety regulations on the poor participants in the Indian fishery sector; small scale fish producers and other fish-based livelihoods, such as traders, shrimp peelers, fish processors and ancillary industries which provide services to the fishing sector.
- b) To what extent the present regulations (including HACCP) pose challenges to existing and would-be producers, processors, and exporters?
- c) To what extent there is capacity for compliance with current international food legislation. This not only includes the costs involved but also the extent to which institutions within India have the management and facilities to undertake this work?
- d) What would be the impact of more stringent food safety regulation, including traceability of fish produce, for the different supply systems, in particular the small scale producers, how would and could they cope?
- e) Recommendations for policy makers on likely impacts on local livelihoods, possible scenarios and ways to off set some of the negative impacts for the poor.
- f) To what extent does the Quality Assurance Management System (QAMS) operated by the Indian authorities need to be broadened to take into account these future challenges?

The activities in summary were therefore as follows:

1. An overview of international seafood legislation (NRI)
2. A literature review of globalisation and sustainable livelihoods, with particular reference to the fishery sector (NRI).

3. An analysis of trends in Indian seafood exports and trends in major markets (NRI)
4. A review of the 1997 EU import ban on shrimp exports from India (SIFFS).
5. Indian actions and re-actions to external Sanitary and Phyto-Sanitary (SPS) regulations and legislation, including a history of fish inspection in recent times (SIFFS)
6. A review of export supply chains in Andhra Pradesh (ICM)
7. A review of export supply chains in Kerala (SIFFS)
8. A review of export supply chains in Orissa (CMS)

On completion of these desk studies, detailed fieldwork was undertaken in three selected states; Andhra Pradesh, Orissa and Kerala.

The following outputs have been produced through the project:

- Report of Inception Workshop on Globalisation and Seafood Trade Legislation: The Impact on Poverty in India
- Globalisation, Seafood Industry and Livelihoods containing sections on: Potential Impacts of Globalisation on the Fishery Sector in India and Indian Seafood Exports and International Seafood Safety Legislation
- A Review of Export Supply Chains in Orissa
- The Export Supply Chain of Kerala
- A Preliminary Study of the Seafood Exports from Andhra Pradesh

These mainly desk and secondary data based studies have been followed by field based studies in the three target states. Reports of the field studies are in the final stages of preparation and it is these documents that are the main basis of the discussion that follows and at a Workshop held in Visakhapatnam 23 -24 January 2003.

3. Research Methodology

- ◆ The research methodologies for the field investigations were based on collection of secondary data from key informants from government authorities, central agencies, published documents of various previous projects and workshops/meetings, magazine and periodical articles, the world-wide web and from the previous studies of export chains in the three states.

In each of the three states a number of sites for gathering of field information and conducting research were chosen so as to try to represent, as far as possible, a cross-section of stakeholders and interests from the interviewees. These selections were based on a number of factors such as the geographical features covering a number of coastal zones which in turn govern types of fishing activity, the inclusion of export species in the catch of those locations, the location of aquaculture activities which produce products for export, the presence of traders and processing activities which deal in export species.

The field research can be divided into three components:

Mapping the export supply chain

In order to be able to assess the effects of export legislation on the poor it was necessary to construct a map or supply chain showing the way in which product moves from primary production system to export and identify the players within the chain.

Field research in the form of focus group discussions with primary stakeholders, individual interviews and meetings with secondary stakeholders was undertaken in order to construct the supply chain.

Primary stakeholders included:

- ◆ Fishermen in traditional sector
- ◆ Boat owners in traditional sector
- ◆ Crew members in traditional sector
- ◆ Crew members of mechanised sector
- ◆ Owners of mechanised boats
- ◆ Aqua-culture farmers
- ◆ General fishing communities
- ◆ Traders
- ◆ Independent peeling shed owners/pre-processors
- ◆ Processing plants & exporters
- ◆ Local fisheries department officials
- ◆ Officials from organisations such as MPEDA, CIFT and SEAI

These interviews with stakeholders were undertaken using a predetermined but flexible set of questions in semi structured interviews. From the supply chain information the most appropriate groups of people were determined for the assessment of livelihoods.

Livelihoods/poverty assessment

Participatory Poverty Assessment was undertaken in order to gain an understanding on who constitute the poor within the fishing communities. PPAs were conducted using a common framework in the three states. Efforts were made to encourage participants from the communities to come up with their own definitions of social and economic categories (relative wealth) that are relevant to their village and to place the various stakeholders, such as artisanal fishermen, trawler crew and peelers in these categories based on their observations. These assessments were made at community level to understand the poverty within the village situation and at stakeholder level so as to characterise poverty as it is relevant to the export sector and thus to try to identify the “export poor”

Analysis of the quality factors in the supply chain

Combined with the above interactions with stakeholders, interviews were conducted using participatory principles regarding their perceptions of quality, export legislation and the effects that changes in this legislation has had or might have on their

livelihoods. These were designed to ascertain whether respondents were aware of SPS legislation that affected their livelihoods and whether they had suffered or benefited because of its implementation.

4. The Institutional Context

Fisheries in India is considered a sub sector of the larger agricultural sector and thus falls under the purview of the Department of Fisheries which is part of the Ministry of Agriculture, Government of India. However, under the Constitution of India, fisheries is categorised as a state subject. What this essentially means is that the individual states within the Indian Union can frame and implement fisheries policies of their own. For instance, a state government can decide the period of the monsoon ban within the territorial waters within its control. The maritime states of India have control of the seas up to a distance of 22 kilometres from the shore. The Central Government has control over the seas from the 22-kilometre ring to 200 kilometres from shore (the Exclusive Economic Zone of India).

The Department of Fisheries (DoF) of the Ministry of Agriculture Government of India has overall control over some aspects of fishing in Indian territorial water. The DoF is headed by the Fisheries Development Commissioner. For instance, it is the DoF that decides on issues such as whether foreign fishing vessels should be given access to Indian marine resources. Also, issues relating to imposing bans on the capture of endangered marine species are the prerogative of the Ministry of Environment & Forests Government of India. The state governments have little say in these matters.

For the fishing export industry *per se* there are a number of institutions and agencies which are responsible at the national level but have state level representation in most instances.

Export Inspection Council (EIC)

The Export Inspection Council which is under the control of the Ministry of Commerce, Government of India, was set up in 1963, in order to ensure sound development of export trade of India through Quality Control and Inspection. The EIC operates through five Export Inspection Agencies. (EIA), one each at Chennai, Delhi, Kochi, Kolkata and Mumbai. One of the main activities of the EIA is to issue certification of quality to exporters of fish and fish products. Any seafood exporter who wants to export to the EU market for instance must get the approval of the EIA before he can export a consignment. Thus this organisation plays an important role in the seafood export sector and is responsible for monitoring of quality standards, issuing of licences etc. The EIC works through the regional EIAs, which are the implementing arms of the council. The EIAs constitute Inter Departmental Panels (IDPs), which perform inspections of seafood export processing plants and recommend on the issue/withdrawal of export licences based on the inspections. The IDPs form Supervisory Audit Teams (SAT) which undertake the actual audits of processing premises reporting back through the EIA. These Supervisory Audit Teams draw membership from the Export Inspection Agencies, MPEDA and CIFT and ensure that the monitoring system is effective and being uniformly applied throughout the country. Major deficiencies observed by the teams are reported to the Export

Inspection Council which will take action against the processing establishment in question. It is on this basis that the “competent authority” issues approval and produces lists for the EU.

Marine Export Development Authority (MPEDA)

MPEDA also functions under the Ministry of Commerce, Government of India and acts as a coordinating agency with different Central and State Government establishments engaged in fishery production and allied activities. The role envisaged for the MPEDA is comprehensive - covering fisheries of all kinds, increasing exports, specifying standards, processing, marketing, extension and training in various aspects of the industry. The MPEDA has the mandate to develop the local seafood industry by providing technical assistance (through extension services and contact programmes) and financial assistance (in the form of subsidies and loans) and promoting its products abroad. The MPEDA has offices in major importing countries including the USA (in New York) and Japan (in Tokyo) through which it seeks to promote Indian seafood in the world market.

Central Institute of Fisheries Technology (CIFT)

CIFT is a premier research institute that undertakes basic and applied research to address the problems related to a wide spectrum of marine and inland fisheries activities in relation to the global scenario. The research programmes of the Institute aim at solving technological problems of the fisheries industry in the country. The CIFT falls within the control of the Indian Council for Agricultural Research. It is a multidisciplinary organisation researching into diverse areas including chemistry, biology, preservation, boats, gear nets, instrumentation and fish packaging etc. The Institute contributes to the export sector by developing appropriate technologies to help the Indian seafood industry maintain international standards. They also play a vital role by contributing technical manpower to the Inter Departmental panels (IDPs) and Supervisory Audit Teams.

Seafood Exporters Association of India (SEAI)

The SEAI acts as a platform for the seafood exporters representing their interests in relevant fora. It takes an active part with MPEDA in international fairs and exhibitions to promote the interests of its members and it publishes the Seafood Exporters Journal to keep members and the industry informed of developments of relevance to the sustainability of their industry.

5. General Context of Andhra Pradesh, Kerala and Orissa

The three target states represent different levels of development both in the general context and with regard to fisheries. Orissa is the least developed with little industrial development; 80% of the population live in rural areas, 47% of the population live below the poverty line and only 51% are literate. Andhra Pradesh has a mainly agricultural economy producing a surplus of rice for instance and 70% of the population rely on agricultural activities for income. In comparison with Orissa only 16% of the population are estimated to be below the poverty line and 54% are literate. Kerala is by far and away the most developed of the three states with only 13% of the

population below the poverty line and 93% literacy rate. Once again the population is mostly rural with over 73% living in villages. Various development indices are shown in Table 1 comparing the three states in question with India as a whole.

The three states rely to varying extents on the fishing industry for employment and income for people's livelihoods as well as revenue for the state in the way of exports. In Andhra Pradesh the fisheries sector contributes very significantly to rural employment particularly for the poorest groups. The 1993 Livestock census estimated that there were 872,000 fishworkers in the state with 134,000 of these involved in fish marketing and processing. In Orissa there are estimated to be 319 fishing villages with a population of some 175,000 who rely on marine fishing for their livelihoods. In Kerala fisheries provide employment to about 1,000,000 people directly and 200,000 people indirectly.

Table 1: Development Indices for select states of India – 1991-92

State	Life Expectancy at Birth (years) - 1993-97	Percentage of population below poverty line	Literacy Rate (7+) – 1997	State Domestic Product Per Capita (Rs) – 1999-2000	Human Development Index (HDI) – 1996	Gender Development Index (GDI) - 1991-92
Kerala	73.3	13%	93%	18,262	0.60	0.565
Andhra Pradesh	62.4	16%	54%	14,715	0.39	0.371
Orissa	57.2	47%	51%	9,162	0.36	0.329
India	*61.1	26%	*62%	15,562	0.42	0.388

Source: The Union Budget of India 2001-02, <http://indiabudget.nic.in> except column on GDI which is from "The Road to Human Development, India Development Forum, Paris, 23 - 25 June 1997"

* excluding the state of Jammu and Kashmir

6. The Seafood Export Industry

In the late 1980s the Indian fishing industry began to expand considerably and in the six years between 1985 and 1991 exports doubled to 163,000 tonnes and then more or less doubled again to 313,000 tonnes by 1998. The value of the exports rose along with quantities and by 1998 earned India over 1,168 million US\$. In the decade 1989 to 1999 marine product exports from India have constituted between 2.3 and 4.3% of total value (in US\$ terms) of exports from the country averaging 3.3% over the decade.

For the three states that are the subject of this research the rise in exports has also increased but to varying degrees. It has proved difficult to ascertain exact figures for exports on a state-wise basis and in the cases of Andhra Pradesh and Kerala export

data have been derived from figures provided from the main ports of export – namely Visakhapatnam and Kochi respectively.

For Kerala 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. However, this increase is significantly lower than the 49% increase, which All India seafood exports registered during the period. This probably reflects the fact that Kerala was one of the early leaders in the seafood export industry and the dramatic increases seen elsewhere in the late 1990s took place earlier in the development of the Kerala industry.

Exports through Visakhapatnam which are deemed to represent a fair estimate of the exports from Andhra Pradesh have more or less doubled during the period 1991 to 1999 (see Table 2).

Table 2: Exports through Visakhapatnam excluding those from Orissa

Year	Tonnes
91-92	10,501
92-93	13,114
93-94	16,327
94-95	20,315
95-96	19,942
96-97	18,544
97-98	23,747
98-99	21,572

For Orissa, exports of fishery products are difficult to derive since most exports from the state pass through Visakhapatnam and the port authorities and MPEDA do not disaggregate the figures on a state-wise basis. Figures from the Orissa Department of Fisheries however indicate changes in exports shown in Table 3.

Table 3 Exports from Orissa

Orissa exports		
Year	Quantity in tonnes	Value in Rs. '000
1991	1,851	325,119
1992	2,718	542,410
1993	2,527	616,532
1994	4,178	1,163,900
1995	4,781	1,255,500
1996	7,099	1,743,150

The three states differ in the type of export species produced and the countries to which they export.

Kerala

Kerala export species are many and varied as shown in Figures 1 and 2. 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% 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.

The EU 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 (see Figure 7).

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 exported are 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 after the EU for the high value species such as shrimp.

The dominance of the EU is probably explained by a number of factors which include the early emergence of Kerala in the export industry with a marine capture based shrimp industry producing relatively small shrimp specimens of various species suitable for traditional European tastes. The European market is very important for the exporters as it has a diverse market demand for many products, which do not have a market either in Japan or the US. This has meant that the Kerala industry built up links with European importers before the Asian and US markets. These links have remained and cephalopods (approximately 50% each of cuttlefish and squid) have added to the European exports in recent years.

Figure 1 Exports by Quantity from Kerala 2000-2001

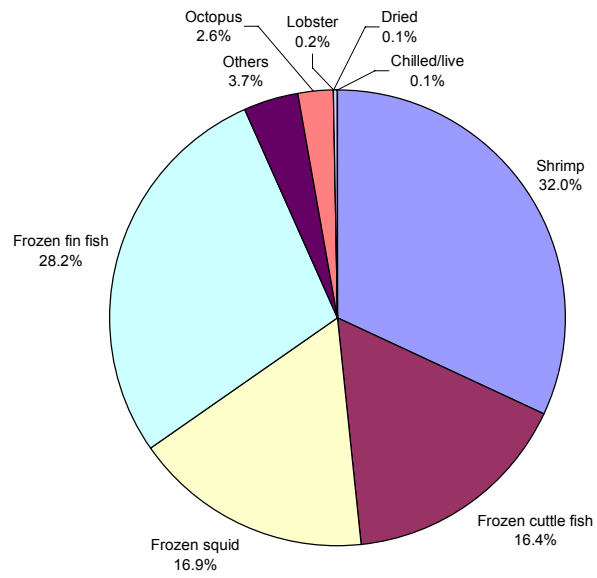


Figure 2 Exports by value from Kerala 2000-2001

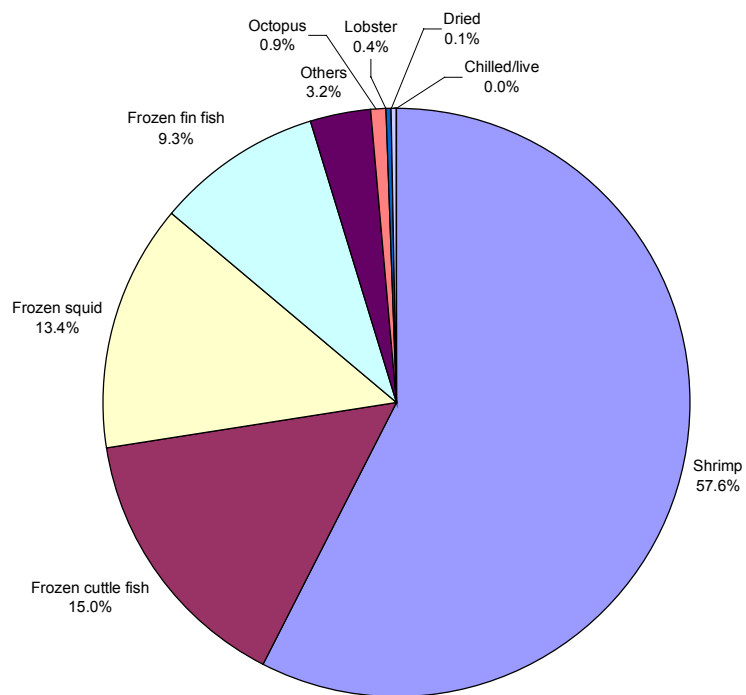
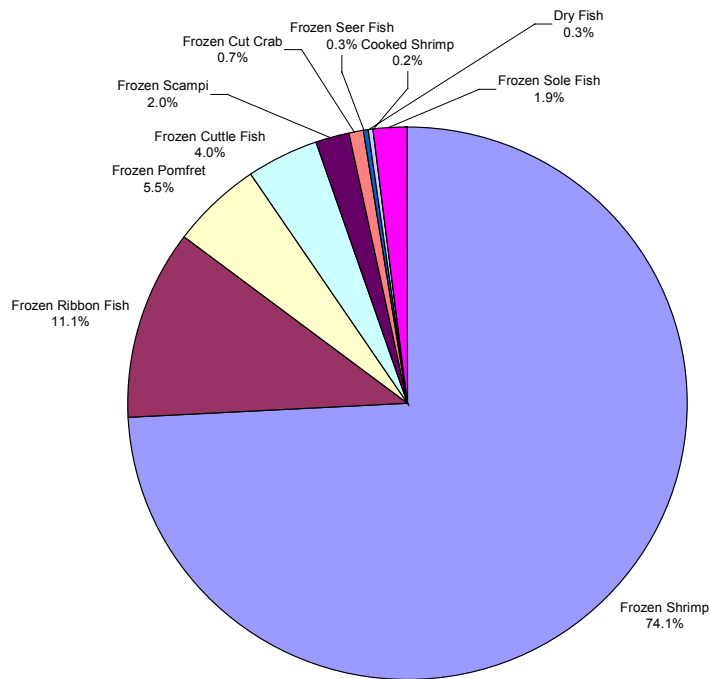


Figure 3 Exports from Orissa in terms of quantity 2000-2001



Orissa

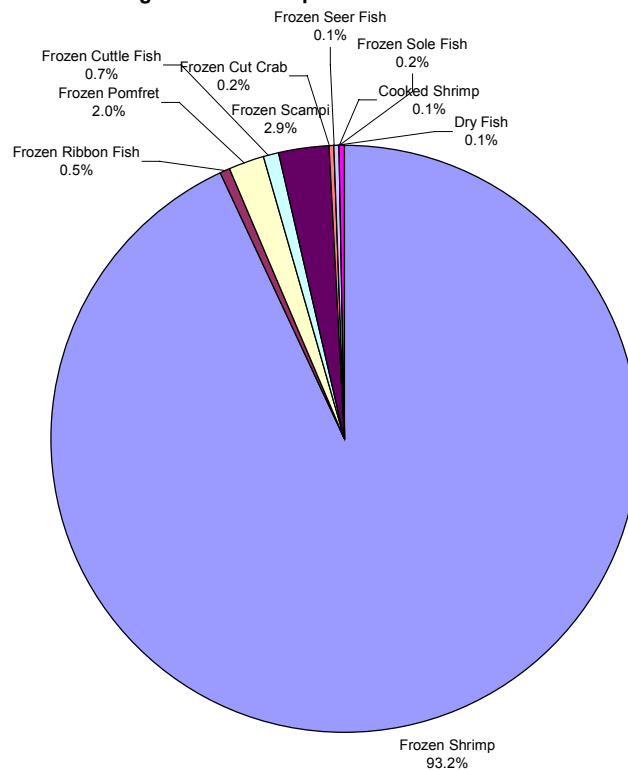
Export species from Orissa are much less varied than from Kerala and are very much dominated by frozen shrimp as the Figures 3 and 4 show. Roughly $\frac{3}{4}$ of the exports are frozen shrimp contributing 94% of the value of exports. These products are from both marine capture sources and the recently established aquaculture industry for brackish water prawns. More than a third of total prawn exports from Orissa is from cultured sources and this proportion is growing².

Brackish water aquaculture is emerging as a very important source of production of prawns. It grew very rapidly from almost non-existent levels in the early 1980s to more than 12,500 hectares in 1996-97.

Beyond 1996, there has been stagnation in the growth of aquaculture, mainly because of the outbreak of viral disease (white spot disease). In the Chilka Lake area, the growth of aquaculture stopped after the Supreme Court judgement in 1996 banning aquaculture within the lake.

² Handbook of Fisheries Statistics, DOF 1997-98

Figure 4 Orissa exports FOB value 2000-2001



In terms of destination countries, Japan has been the largest importer of marine food from Orissa. Seafood exports from Orissa started with export of prawns to Japan in the 1970s and for some time (till early 1980s) Japan was the only importer of seafood from the state. Gradually the dependence on the Japanese market for exporting seafood has been reduced and new markets including the USA, EU and Middle East have emerged (see Figure 7). It can be seen that the USA has emerged as a very important destination followed by the EU. The importance of Japan has declined over the years. Currently Japan's share in the exports is less than half.

In terms of demand for specific products, these three major markets again differ widely from each other. Japan imports mostly block frozen prawns (head on) of large size which is well catered for from the aquaculture sector, whereas the United States has a mixed demand for large as well as smaller size of prawns. The European market prefers smaller, peeled items and also value added products. In spite of its smaller size, the European market is very important for the exporters as it has a diverse market demand for many products, which do not have a market either in Japan or the US.

Andhra Pradesh

Exports from Andhra Pradesh are similarly dominated by shrimp/prawn products as is illustrated in Figures 5 and 6 which are for Visakhapatnam and so include some exports from Orissa and exclude those exports which go through other ports such as Chennai. The catch of marine shrimp has declined over the years but the rapid growth

in aquaculture has enabled exports to increase. The data for exports through Visakhapatnam suggest that about 50% by weight of exports are now of cultured shrimp accounting for nearly 70% of the value. Shrimp catches from the capture sources in Andhra Pradesh have fluctuated widely through the 1990s, and have mostly showed a downward trend. The overall shrimp exports from the state however managed to grow thanks to the increased production from culture sources. For the capture fishing industry, these fluctuations in supply have meant increased risk, uncertainty and expenditure. This is also the reason why more boat owners concentrated on landing more of the finfish in better conditions than before in order to maximise their returns. The improved quality, in turn, seems to have spurred a demand for some of the varieties – such as eels, ribbonfish – to be exported in frozen condition.

After shrimp products, surimi is shown as the next most important export item. However it is understood that the one remaining surimi plant in India closed in 2002 and thus exports data for coming years will presumably be zero.

The high production of cultured shrimp has meant that the Japanese market which requires large size and uniform shrimp products has emerged as the major market for exports absorbing as it does about $\frac{3}{4}$ of the quantity of exports and accounting for 86% of the value.

Figure 5 Value of Exports through Visag 2000

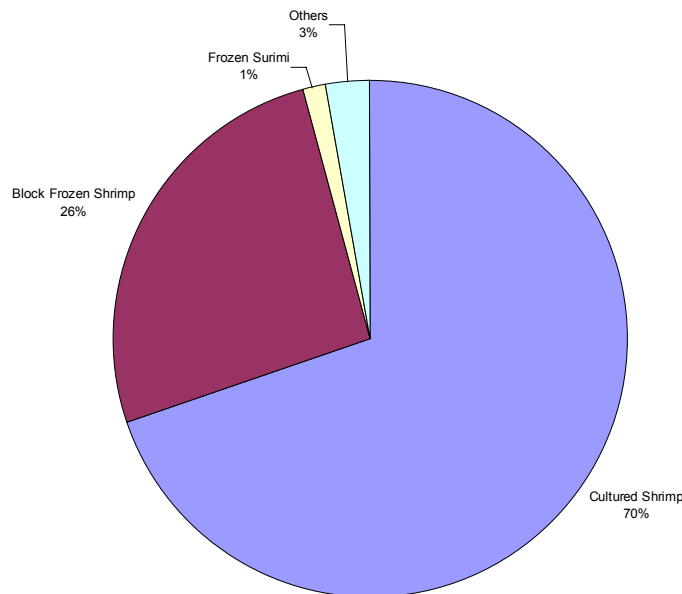
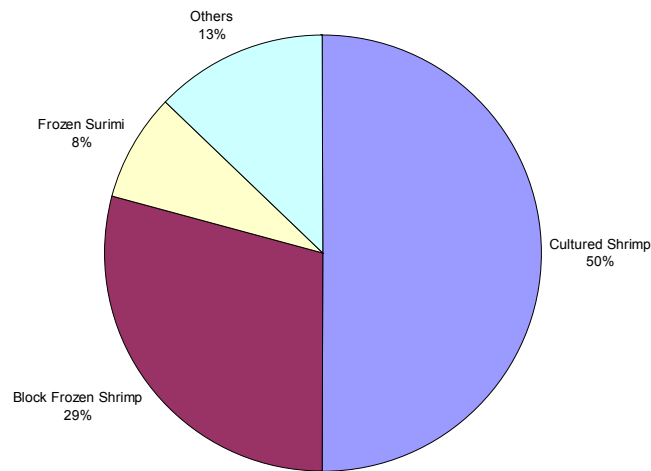


Figure 6 Quantity of exports through Visag 2000

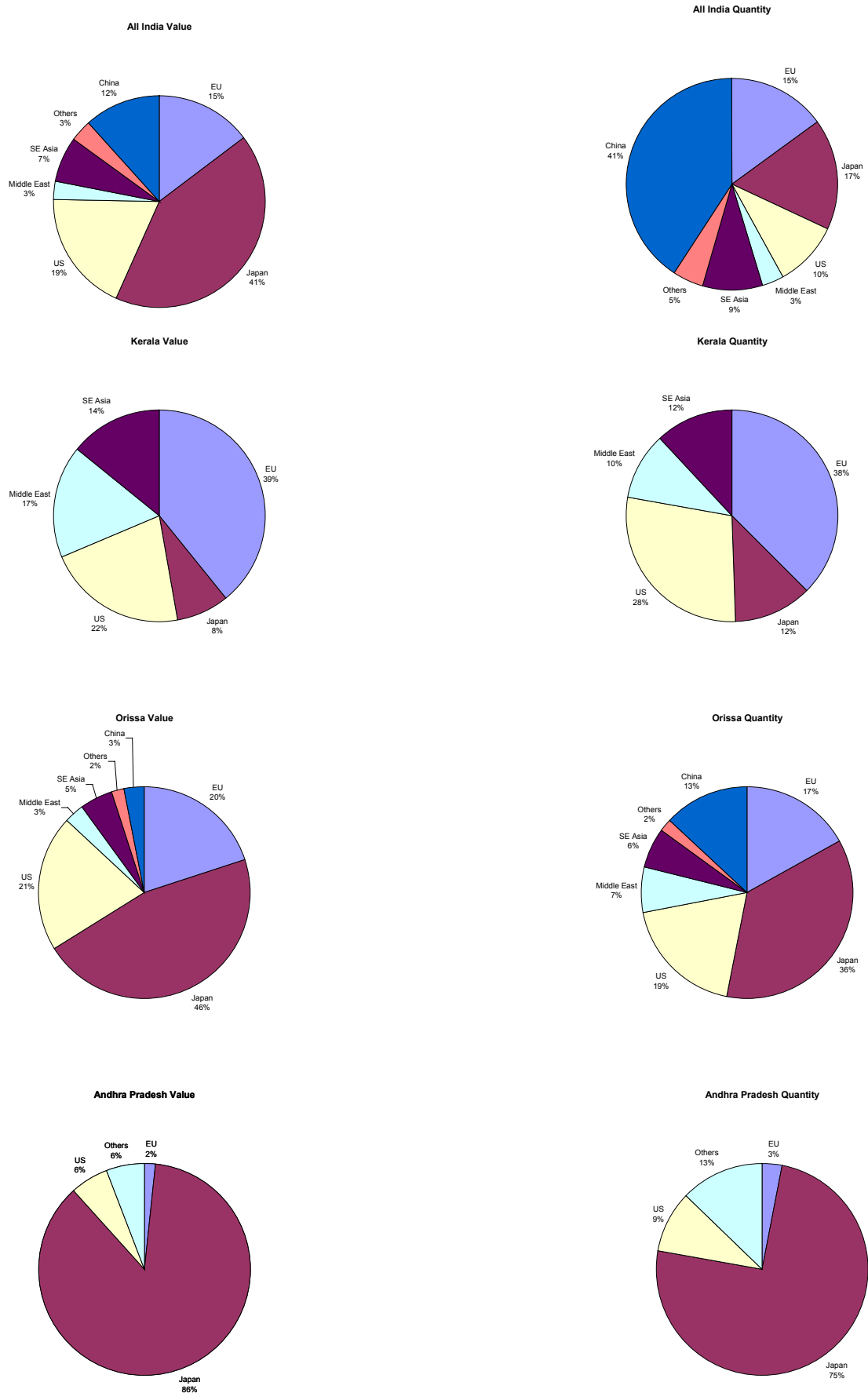


Export Destinations

The exportable species composition to a great extent governs the destinations for the various products and these vary considerably from state to state.

Taking India as a whole the most important export destinations in terms of value for Indian seafoods are Japan, the United States of America, the European Union and the Peoples Republic of China. However in terms of quantity exported China is very important contributing over 40% of the exports. For the three states being studied by the programme however Chinese exports play only a relatively minor role and then only for Orissa. For Kerala the dominant market is the European Union with the USA, Japan, markets in the Middle East and South East Asian also having important roles. For Orissa, Japan has a strong position followed by US and EU markets. For Andhra Pradesh, Japan is by far the most important with other markets having a relatively minor role. These comparisons are shown in Figure 7

Figure 7 Exports from India and the target states to main destinations



7. The Export Chain and the Poor

The research undertaken in the three states included studies of the pathways through which products destined for export pass and attempted to identify the various stakeholders and particularly the poor in the chain.

Using Participatory Poverty Assessment the research identified various people in each state who could be classified as poor or vulnerable. The general categories are shown in Table 4.

Table 4: The Poor Identified in the Export Supply Chain on a State by State Basis

Orissa	Kerala	Andhra Pradesh
<ul style="list-style-type: none"> ◆ Head loaders /labourers at godowns ◆ Fishermen crew on traditional craft ◆ Fisherman, boat and net share owner ◆ Trawler crew member 	<ul style="list-style-type: none"> ◆ Trawler crew ◆ Owners of artisanal fish craft and gear ◆ Workers in peeling sheds ◆ House peelers 	<ul style="list-style-type: none"> ◆ Crew of traditional (motorised and non motorised vessels) ◆ Owners of non motorised vessels ◆ Resellers/intermediate traders ◆ Processing workers in processing plant ◆ Processing workers at landing site ◆ Small scale aquaculture producers

In spite of the diversity of the fishing systems and processing activities in the three states it can be seen that the research has shown some commonality in those who might be defined as poor and involved in the export trade. In addition to low incomes and low material wealth *per se* the majority of the poor were also perceived to be vulnerable to external factors. These external factors contribute to their inability to cope with change. These factors were identified variously as the uncertainty of income because of seasonality and uncertainty of supply, lack of alternative sources of income, the need to access credit and thus the need to repay loans, lack of control over the resources on which they depend for a livelihood etc.

In moving from production to eventual export all commodities pass through a number of generalised stages as shown in Table 5. The table also indicates where the research identified poor or vulnerable participants in the chain (taken from Table 4) and whether control of quality is apparent at the stage in question. There is variation in the details of those involved in the chain depending on commodity being traded and location and this is reflected in the studies conducted in the three individual states. There is however some commonality between them which can lead to broader generalisations as shown in Table 5.

Table 5: Generalised Supply Chain for Export Products

Stage	Post-Harvest Activity	Poor or Vulnerable Identified?	Control over quality present?
<ul style="list-style-type: none"> - Primary production: Capture on vessel or - Culture and capture from aquaculture facility 	<ul style="list-style-type: none"> - Sorting, grading preservation (icing) and containerisation. 	<ul style="list-style-type: none"> - Trawler crews - Crew on traditional craft - Small scale aquaculture producers - Owners of artisanal fish craft and gear 	<p>Weak Some present in the larger aquaculture units</p>
<ul style="list-style-type: none"> - Landing and first sale: - At fishing harbour - On beach - At landing site - At pond side 	<ul style="list-style-type: none"> - Auction - Sale to agents - Secondary sorting at landing site by purchasers 	<ul style="list-style-type: none"> - Head loaders/labourers at godowns - Processing workers at landing site - Resellers/intermediate traders 	<p>Weak</p>
<ul style="list-style-type: none"> - Transport from landing 	<ul style="list-style-type: none"> - Icing, boxing and loading 	<ul style="list-style-type: none"> - 	<p>No</p>
<ul style="list-style-type: none"> - Pre-processing (Optional) 	<ul style="list-style-type: none"> - Washing, deheading, peeling, skinning, deveining 	<ul style="list-style-type: none"> - Workers in peeling sheds - House peelers 	<p>Weak in independent units May be present where link to approved export unit</p>
<ul style="list-style-type: none"> - Transport to export processing plant 	<ul style="list-style-type: none"> - Icing, boxing, loading 	<ul style="list-style-type: none"> - 	<p>Weak</p>
<ul style="list-style-type: none"> - Export processing 	<ul style="list-style-type: none"> - Receiving, grading/sorting, processing, freezing, cold storage 	<ul style="list-style-type: none"> - Processing workers in processing plant 	<p>Generally strong</p>
<ul style="list-style-type: none"> - Transport to export point 	<ul style="list-style-type: none"> - Loading into refrigerated transport and unloading at port 	<ul style="list-style-type: none"> - 	<p>Generally strong</p>

In Orissa it was found that head-loaders/labourers at the landing centres and godowns used for export material were poor. These were often women who headed households

and were the sole earning members of that household. In both Orissa and Andhra Pradesh members of the crew of traditional fishing boats were found to be poor. They did not own their own vessels and acted as wage labourers on other people's boats or participated on a share-of-catch basis. In all three states, owners of traditional/small scale motorised vessels were also found to be poor and/or vulnerable to poverty. The investment and capital required to own and operate motorised fishing vessels mean that only the more prosperous sectors of the society are able to participate in this part of the fishing system which allows access to fish resources unavailable to non-motorised. However, the investment brings with it added risk of loss in that the increased burden of fuel purchase and engine maintenance makes owners extra-cautious in deciding whether to undertake fishing operations when catches are uncertain. The reduction of catches in areas of sea accessible to these fishing craft has meant that the investments made during times of better catches are now thought of as liabilities rather than assets. In some cases, fishermen who own boats would rather become crew on other boats rather than take the risk of putting their own boat to sea.

Trawler crewmembers were also identified as being amongst the poor in both Orissa and Kerala. The reduction of catch per unit effort and high operational costs have affected the mechanised sector such that many trawlers do not operate as they used to and a large number of trawler crew have lost their main means of livelihood. Today, working as a crew member on a trawler is considered a last resort for many fishermen requiring as it does long times at sea, harder work and poor wages. These crewmembers were considered particularly vulnerable within the community as most of them do not have other means of livelihood and became entirely dependent on trawler owners for work.

In parts of Andhra Pradesh marine caught fish is auctioned at the beach. At these auctions there are a group of what might be termed "resellers" who are often women. They operate by purchasing fish at the auction and more or less immediately sell it on to other traders/commission agents at the landing site. Most of the fish that they buy and sell is non export varieties but they may also deal in shrimp. This group of people are considered very poor but their main income comes from non export varieties and so they would not necessarily be affected by changes in the export conditions. The same sorts of problems were found in Kerala where women sellers on the beaches were found to be vulnerable to poverty.

It was generally found that the people involved in the processing of products for export were also poor and vulnerable. These included graders and sorters at processing plants, workers in peeling sheds, house peelers, processing workers in processing plants and processing workers at landing sites. These groups of workers would arguably not have employment at all if it were not for the export industry and indeed many jobs such as these have been created through the growth of the industry. However, the workers in Kerala involved in the peeling sector for instance tend to be female and from the economically weaker sector of the fishing community. In many cases, the women work in peeling sheds in order to supplement the family income where the main breadwinner works as crew on a mechanised vessel. In other cases, the head of household does not work and the woman may be the main breadwinner. In either case, the family income stream is vulnerable to fluctuations in supply. The peelers are paid on the basis of the quantity they peel and even the most experienced peeling shed worker can earn only up to Rs 100 on a good day. Compared to this,

unskilled daily wage labourers working at construction sites are paid a fixed amount of Rs 175 for a day. Agricultural labourers earn in the range of Rs 150 a day (fixed rates). Typically the income can vary from day to day depending on the availability of raw material. However there are other employment opportunities for these women. In areas where there is construction activity, these women can choose to work as labourers at construction sites. This is considered a more attractive option as the wages are fixed. However, the bulk of the construction activities are in the major cities and towns and women who want to work there have to travel by public transport for long distances. Generally, women who do this have little control over their time and are often unable to do justice to the role they are expected to perform at home. Therefore, while construction activity may seem a better alternative on paper, it is only a viable option for women living in fishing communities quite close to major cities like Kochi.

The situation in Andhra Pradesh illustrates the position with regard to women processing workers in factories in the state where they also appear vulnerable because of their working conditions. The fact that a large percentage of the processing workers are women, and that a significant proportion of them are migrant workers from Kerala, makes them doubly vulnerable to exploitation. ICSF (1995)³ provides a detailed picture of women and girl migrant workers in the processing industry, their background, recruitment, the contractor-system, terms and conditions of employment, the work they are involved in, and details of the accommodation and social life of the girl workers. The study unfortunately is not detailed enough for Andhra Pradesh, but the conditions it describes more or less fit the picture that emerged out of the field research. For instance, the study says of a processing plant in Andhra Pradesh, that ‘it is well organised and well maintained, the working conditions for the girls are also good. All the same, the young girls are confined to the four walls of the factory, which is at some distance from the town. They go out mainly to attend the Sunday mass, when they also do some shopping. Their recreation is watching the TV at the factory site itself’.

However, not all processing plants offer such conditions, particularly in terms of work. From the information that could be obtained from the girls themselves, it appears that what Beena (1992)⁴ described as the problems of women workers in the fish processing industries continues to remain valid. She notes that the processing workers are characterised by low wages (currently, a processing worker earns about Rs. 1,200 to Rs. 1,500, although more experienced girls could earn up to Rs. 2,000 per month), long and irregular working hours (12 hours at a stretch) the time of work being determined by the arrival of shrimp for processing, hard and tedious work compounded by the management’s efforts to get the most out of them, etc. Such long hours of work in ice cold conditions often leads to headache, back pain, muscle cramps and skin problems, and many workers apparently suffer from anaemia, perhaps due to malnutrition. The plight of the workers was worsened by the added

³ ICFS, 1995. Public hearing on the struggles of women workers in the Fish Processing Industry in India, 23- 24 June 1995 Cochin. Women in Fisheries No 1 – Samudra Dossier, International Collective in Support of Fishworkers, Madras

⁴ Beena D, 1992. Problems of Women Workers in the Fish Processing Industry, In Suhindhra R Gadagkar, Proceedings of the Workshop on Women in Indian Fisheries. May 1999 Special Pub – Asian Fisheries Soc. Mangalore India.

competition from women belonging to other communities, which reduces their bargaining power considerably.

Another group of people that were found to be poor and vulnerable was the small-scale aquaculture operators of Andhra Pradesh. Under a government development scheme many landholdings were obtained for small-scale aquaculture in the state which led to a boom in aquaculture production. The DoF figures show that there were 70,000 shrimp farmers with ownership of less than 2 hectares in 2000. With the outbreak of white-spot virus in the late 1990s most of the large scale farmers moved out of aquaculture and those with between 2 and 5 hectare holdings almost completely disappeared leaving the small scale producers as the mainstay of the industry. This has meant that export companies have paid more attention to these producers than previously being willing to extend them credit for feeds, stock and other necessities as well as providing them with support services such as ice and transport. Small scale producers are not immune to the ravages of the white-spot disease and it is reported that they could lose 1/3 to 2/3 of their crops as a result, but the large margins that they hope to make from the good crops keeps the businesses afloat. However, farmers reported that the situation has resulted in the families depending more and more on the work of their wives for meeting subsistence needs. In addition, many of the stakeholders have secondary occupations such as fishing to fall back on, although the margins from small-scale fishing operations are small.

However the research question that we were endeavouring to answer was "does export legislation have an impact on the poor": are they made poorer or more vulnerable to poverty? Conversely, of course, there could be advantages to the poor brought about by the export industry. There is no doubt that the export of seafood products from India has had a profound impact on the work opportunities for those involved. Work opportunities have been created in all sectors from primary production through trading and final processing for export for many people that would not have existed without the rise of the export industry. As has been mentioned however some of these opportunities are less secure and more vulnerable than others. The extent to which the legislation pertaining to export of products from India impacts on the poor is not easy to assess.

8. Impact of the EU Ban of 1997

One way of assessing the impact that legislation has on the poor in the export fishing industry was to gather information from stakeholders on the impact that the export ban imposed by the European Union on 1st August 1997 had on their livelihoods. This followed inspections by the EU Commission's Food and Veterinary Office, which showed serious deficiencies in the structure of establishments, the hygiene quality of raw material, and in processing operations. The inspections also showed that the level of control by the national authorities was insufficient. This lack of adequate control by the Indian authorities was sufficient reason to impose a ban on all exports and resulted in a review and strengthening of Indian national standards and regulations in order to comply with the requirements of the EU. Exports to the EU are very important for the fishing industry in Kerala and to a lesser extent for Orissa. For Andhra Pradesh, EU exports are small. In view of this, the immediate impact of the ban was felt most sharply in Kerala. Large sums of money were spent by processing plants in the state

to upgrade in order to satisfy the new requirements and of the seven plants given licences to start exporting again in November 1997 six were located in Kerala.

The immediate impact of the EU ban was felt to some extent in Orissa. Some exporters from the state had products rejected and lost ongoing relationships with European importers as a result. It seems that markets in Japan and South East Asia benefited by absorbing products at lower prices and business took a long time to recover after the ban was lifted. Indeed many exporters went out of business or are still trying to obtain approval for export to the EU. For Andhra Pradesh where EU exports are a minor part of the trade the immediate impact of the ban was minor. There were apparently a few rejections of product but the main impact was much less than that felt in Kerala or Orissa.

The research indicated that although there were immediate and quite drastic consequences for the export processing companies as a result of the EU ban these were not necessarily apparent to many of the other stakeholders in the export chain. The recollection of the export ban amongst stakeholders in Andhra Pradesh was vague or non-existent for most. In Orissa similar responses were apparent during the focus group discussions with only a few fishermen, traders and processors recollecting that there had been a period of reduced shrimp prices. However, the fact that other stakeholders did not recollect or see any noticeable impact associated specifically with the ban does not mean that there was no impact from the ban. Livelihoods in many sectors in the chain are fragile and ascertaining the short and longer term impacts of such events is difficult.

As might be expected the most impact was felt in Kerala where the industry is much more reliant on Europe as a market for products. As has been mentioned, large amounts of money were spent on upgrading processing plants themselves but there were knock on effects in other parts of the supply chain. Peeling sheds prior to the ban had relied on credit from the processing plants for the purchase of raw material. Immediately after the ban came into force processors stopped purchasing product from peeling sheds and as a consequence the peeling sheds drastically reduced their purchases from fishermen. The prices paid for raw material dropped and only those peeling sheds producing product for non-EU markets purchased raw materials. The credit situation was reversed in the immediate post-ban period with some peeling sheds offering credit to processing plants in order to remain in business. This situation meant that some peeling sheds went out of business and those that were able to supply credit strengthened their hand in the industry. Being entirely dependent on the processing industry for their survival, the peeling sheds underwent a major shake-up with only the strongest surviving.

Although there was a great reduction in landed prices to fishermen in the immediate post ban period most fishermen interviewed did not put the price reduction down to the EU ban as such. Beach prices are variable and affected by many other external factors. The Gujarat plague of 1995 that resulted in a USFDA ban on exports, the Kargil conflict of 1999 and the events of September 11th 2001 all resulted in drastic changes in beach prices and the EU ban of 1997 was just another instance of external factors affecting the industry. The trawling industry felt the impact of the ban at a time when catches were already in decline and this further blow to their viability has resulted in trawlers being laid up and some sold on. The crews that worked on the

trawlers were laid off and many returned to their villages to find work, often to work on small-scale vessels in local waters. This influx of returning workers had an impact on those fishermen already in the villages and led to an over-manning situation for the traditional vessels. This lasted some time until more vessels were introduced to local fleets or alternative work was found.

It can be seen from the above that the EU ban had most impact in Kerala with the livelihoods of peeling shed workers, trawlers crews and probably others adversely affected.

One of the long-term effects of the EU ban is the emergence of a small group of powerful players in the processing industry. It is estimated that in 1999/2000 8 out of the approximately 80 seafood processors in Kerala handled around 80% by volume and value of the total seafood that was processed in the state. There are concerns that this same group could exercise greater control over the supply chain in the years to come, manipulate prices and thus hurt the other players in the industry. These companies benefited by being able to take advantage of low prices caused by the ban and so gain a head start over their competitors.

9. Possible Impact of Future Developments in Legislation

Given this background, the impact of import regulations vary between the three states. The main brunt of the tightening of regulations for exports to the EU was felt by exporters in Kerala. However, the general tightening of internal regulation by the Indian authorities following the EU import ban in 1997 meant that all states felt some effects particularly at the processing plant level. The export regulations for the three major markets for India seafood products, EU, USA and Japan differ in the onus that is put on the various stakeholders to ensure the safety of the products. As a trading block, the European Union has had a profound influence on the development of the seafood export industry not only in India but also in other developing economies. This is because it has been in the forefront of the development of food safety standards. The EU standards are enforced and regulated at the country level and thus a restriction of exports to the EU under the regulations affects all members of the export community rather than individual export companies. For exports to other countries, such as the USA and Japan, their food safety import regulations are generally enforced at a company level and so a restriction on imports may only affect one particular exporter. The ban on imports to the EU which was imposed in 1997 was partly as a result of weaknesses in the system for ensuring compliance by exporters imposed by the regulatory authorities in India. This resulted in the tightening of Indian standards and regulations affecting all products for export not just those to the EU.

This system known as the Harmonised “Quality Assurance and Monitoring System” (QAMS) instituted by the Indian authorities was harmonised to meet the requirements of both the EU Directives and the USFDA regulations and at the same time to be flexible enough to meet the individual National Standards of importing countries. Contractual arrangements between export and import companies are also recognised so that certain minimum specifications are met. Processing of fishery products are only permitted in establishments or on board factory vessels that meet the approval of the Export Inspection Council. These approved units are regularly monitored by the

Export Inspection Agencies (EIAs) to ensure they comply with the requirements. Approved units are allotted a distinct approval number, which is required to be marked on export packaging. In addition to the Council itself there are Inter Departmental Panels (IDPs) and Supervisory Audit Teams (SATs) which comprise representatives drawn from Government authorities such as the Export Inspection Agencies, Marine Products Export Development Authority (MPEDA) and the Central Institute of Fisheries Technology (CIFT). The SATs supervise the actions of the EIAs in order to verify that the monitoring system is effective and implemented uniformly throughout India. Major deficiencies observed during monitoring by staff of the EIAs or SATs are reported to the Export Inspection Council which takes action against the processing establishment. It is on the basis of these mechanisms that the competent authority issues to the Indian seafood industry approval for exports to the EU and produces the approved list of exporters.

Thus, the implementation of the legislation through the Indian system has impacted not only on those exporters targeting the EU markets but also on all exporters by requiring recognition under the EIA approval scheme. However, the immediate impact of these regulations has so far been apparent only at the processing plant level where they have been enforced across the board and in the opinion of some processors with too much rigor.

The EU is in the process of implementing legislation that requires control at every stage in the export supply chain from capture/culture to plate, or in the jargon of food safety implement in the "farm to fork" principle. Thus, future legislation is likely to make it mandatory for fishing boats, culture operations, landing centres, fishing harbours, ice plants, peeling sheds, transport vehicles etc. to have approval in order to be able to be part of the export chain to European Union countries.

This represents a real challenge and the question remains as to whether the Indian export industry can meet this challenge. The main problem that may affect compliance is the dispersed nature of the fishing industry. Unlike many developed countries, India has a fishing industry, which consists of large numbers of small fishermen spread over a long coast dotted with fish landing centres. This is perhaps the one feature of the industry that is most likely to undo any effort to introduce quality control. Introducing a quality control and monitoring mechanism that covers all fishing vessels and all the landing centres involved in fishing for export species (large trawlers and small motorised units) is likely to be very difficult. However broadening of the Indian Quality Assurance Management System (QAMS) will be essential if the industry is to cope with these challenges. The remit of EIC/EIA and MPEDA for implementation of the system and support to the entire industry will need strengthening and broadening in this respect.

The potential impact (of strict enforcement of EU regulations related to "farm to fork" traceability) is significant, especially on poorer small-scale operators least capable of undertaking the investments and changes needed for compliance. Some likely provisions expected and their effects are summarised below:

Traceability of the material

As traceability from capture or production of raw material becomes standard practice, it will make it extremely difficult for the traditional fishermen (especially in the remote landing centres) to be able to supply their catch to the exporters. There are large numbers of traditional fishermen, scattered all along the coast. They often depend on a few local traders who accumulate and supply to larger commission agents for exporters. In many places the catches are auctioned off at the same auction centre. Many smaller landing centres have no communication facilities. It would be extremely difficult therefore to track the movement of the catch through the supply chain and thus “prove” that the end product has come from secure sources.

Quality enforcement on inputs like ice

If quality regulation on inputs like ice are enforced stringently, there could be a crisis in the industry. Apart from ice plants in the premises of the processing plants, none of the independent ice plants seem to be complying with quality regulations. Although there are domestic regulations, which specify quality parameters for ice and water used, there is very little enforcement of these regulations.

Regulation of hygiene conditions at landing centres and on board fishing craft

The current hygiene conditions prevalent in most landing centres (especially in the remote centres) are quite poor. There is scarcity of clean water for washing, the catch is generally unloaded on sand (in the absence of platforms for unloading), there are no electricity and communication facilities, and ice and transport are not always readily available. Although there are proposals with the government, aimed at improving facilities at the landing centres, government officials admit that implementation and enforcement could be difficult and slow. Under a strict enforcement regime, most sites especially those used by the traditional fishermen, would be pushed out of the export supply chain.

In term of on-board facilities, most traditional craft do not have proper storing facilities or iceboxes and they carry little or no ice with them. It would be very difficult and costly for these craft to comply with quality regulations, and they too would be forced out of the export supply chain. Even mechanised boats would find it difficult to comply with quality regulations; many of them are not even registered.

Peeling sheds

The present reliance of exporters on the use of peeling sheds to pre-process material is a major challenge. Conditions at most pre-processing establishments would need upgrading to comply with these regulations as it is likely that many would be unable to comply. The knock on effects on poor and vulnerable workers in these establishments could be very negative and the opportunity for income generation by less established members of coastal communities would be lost. The fact that the peeling shed industry is still operational is itself testimony to the degree of implementation of EU directives. Not only are they functional (they should not be, if EU directives are strictly enforced), there are few peeling sheds that conform to the process and infrastructure requirements as laid down in the EU guidelines. Seafood

continues to be peeled in unhygienic conditions and sold to EU approved processors for processing and exporting to the EU.

Already, there is concern amongst those in the industry that the inability to control quality at the production and pre-processing levels is going to be a serious constraint. But with this legislation in the pipeline, particularly for the export sector, it is likely that the whole range of stakeholders will be brought under the legislation. When this happens, its impact on vulnerable sections particularly women, the poorer producers, processors and old people will be considerable. The extent of the impact remains to be investigated and will be dependent on the exact legislation and the level of enforcement.

Aquaculture sector

This future legislation will affect both capture and culture producers and indications of the probable impact that it might have on the culture industry are already apparent in the recent problems regarding the residues of antibiotics found in cultured products exported. The occurrence of Chloramphenicol and, more recently, Nitrofurin in shrimp exported around the world has resulted in blacklisting particular companies and a ban on exports being imposed by SEAI. This type of occurrence could be alleviated by the strict imposition of the principles of HACCP where traceability and control of product from (in this case) fish farm to fork. Where primary production systems such as aquaculture can have an impact on food safety there will be a need for the monitoring of those systems to ensure that products are being produced safely. The auditing by purchasers of their suppliers will be necessary so that they can be assured that banned or unsafe practices are not being used.

10. Conclusions and Possible Policy Options

The major problems facing the fisheries export sector in India are concerned with reduction in catches and over capacity in the capture sector – these are having negative consequences for the livelihoods of the poor. However the focus of this research is not concerned with policy recommendations in these areas, despite their importance.

The research has indicated that seafood safety legislation enforced by the importing countries and subsequently by the Indian authorities is of secondary importance. This section of the report poses a number of questions that were discussed and considered at the final workshop of the project.

Food safety like globalisation is a complex issue. But with rising incidence of food borne disease and concern over new potential hazards (e.g. antibiotics) there is increasing global interest in food safety. Concomitantly there is a growth in international food trade generally and world demand and trade in fish is rising. Stricter food safety legislation, like globalisation is irreversible and is evolving rapidly. Although the drive for stricter and more complex legislation might appear to those involved in the industry to be coming from governments it is consumer driven.

Management of food safety risks and their regulation has changed dramatically in the past decade and will continue to do so.

So far, India's response has been to react to crises as they arise rather than be proactive. The research suggests that India needs to become more proactive and try to better anticipate changes in requirements and regulations before they harm the industry.

With the anticipated strengthening and better enforcement of legislation there is a need for stakeholders to make preparations or downsizing of the sector may continue.

This project is concerned with alleviating poverty amongst the most vulnerable groups involved in seafood exports – so capacity building, provision of information and credit, etc may provide some solutions at this micro level. To meet the anticipated changes in legislation and enforcement it will be necessary for major changes to take place at higher levels such as in the control systems and infrastructure throughout the supply chain from primary producer to final processor and exporter.

At another level we are dealing with very complex issues covering the whole area of globalisation, international legislation, seafood production and trade. Thus, for example, it may be that recommendations and lobbying in the EU could lead to a small change which could effectively have a greater impact on alleviating poverty than all the proposed training, capacity building, public private partnership initiatives put together.

Therefore, in the remainder of this section we review a number of options, policies and needs at three inter-related levels, namely:

- A. Challenges facing the individually poor and vulnerable in the Indian fisheries supply chain in implementing food safety standards – the micro level.
- B. Common interests of producers, processors, exporters, importers, government and donors: – the meso level
- C. Interventions at the National and International Level – the macro level

A. Individual/Community Level Options and Interventions

At the individual level there are a number of possible options that might be taken by those involved in coping with these anticipated changes. These might include:

- ◆ Individuals may continue to operate in the way that they do at present but will seek to circumvent the regulations, for example by diversifying to other export markets or certifying products incorrectly (e.g. wild shrimps rather than cultured shrimps)
- ◆ They may opt out of involvement in export species and revert to domestically marketed species only
- ◆ They may opt out of the sector altogether and find alternative means of livelihood
- ◆ They endeavour to operate within the system.

In order to minimise the losses from the industry and ensure that stakeholders take the last option there various policies that can be pursued.

Community Based Actions

There needs to be community participation both in resource management and in quality assurance systems. Being involved in the exercise as a direct stakeholder, and realising what the consequences would be of not complying with food safety and legislative requirements, the different stakeholders could work out practical and cost-effective measures to enforce the regulations in a more people-friendly manner, and in such a way that quality would not be compromised. Currently, there is a very low level of involvement of fishermen, traders or exporters in the upkeep or running of the landing centres, jetties or harbours that they use and in which they have a large stake. In most cases they pay a fee but have no control or influence on what happens at the centre. This has resulted in a lack of co-operation between the prime users and those who are supposed to maintain and service the facilities.

There are a number of programmes being undertaken by the government – both at the central level and at the state level – to increase the participation of the communities in decision making processes. The need to take the lessons and initiatives apparent from such programmes into the area of the fisheries industry is apparent and should be pursued.

A number of key constraints were identified which presently preclude or hinder stakeholder and community involvement in the type of decision making and influence envisaged if participation is to be realised. These include:

- lack of information;
- the costs of compliance and conversion to meet standards,
- the need for capacity building and training; and
- certification/approval

(i) Information on standards and legislation in importing countries appears to be complex, fragmented and scattered, and difficult for Indian stakeholders to obtain. Also there appears to be a problem with the interpretation and implementation of legislation. To overcome this, could MPEDA/EIA establish a ‘One Stop Shop’ or ‘Enquiry Point’ to collect, evaluate and disseminate all the necessary data and requirements impacting on exports – to some extent they do this already but is there a need for improvement and wider disbursement so that all stakeholders have access to information? Are the existing institutional structures adequate to provide this information point rather than creating some new institution? Related to this, is there a need for better two-way communication between government agencies/import buyers in the EU, USA and Japan and Indian suppliers (this is partly dealt with below under Public Private Partnerships below). It would seem that currently much of the communication is one-way with the North telling the South what to do. Are there ways in which the South can have a greater input? Promoting supplier involvement in seafood safety and standard discussions is a worthy cause that donors might wish to support.

(ii) Conversion or compliance of costs - Sharing responsibility for food quality and safety should also mean cost sharing. Presently all (or the bulk) of costs now lie with producers and processors. Is there some way that costs could be more evenly distributed over the whole supply chain, possibly through introducing cash funds? At

the moment we do not know the extent of costs involved in implementing and enforcing the standards and one outcome of the Workshop may be that we recommend that further research is necessary to explore the both the costs and other actions needed to meet new strictly enforced EU and other importing country standards. Depending on the outcome of this research, some possible steps could be taken including the development of a business model in which a tracking and tracing system (which is likely to become obligatory in the EU in 2005) can be used as a fund raising tool to enable supply chain partners to make the required investments. This could lead to a kind of revolving fund that could be managed by exporters.

(iii) Capacity building and training – There appears to be an obvious need for capacity building and training, but what form should these take? As with the issue of information, the requirements for training and capacity building are scattered, and there are considerable differences in knowledge and skills amongst the various stakeholders in the supply chain. Should efforts be made to try to standardise and optimise training and capacity building – is it desirable, does it make sense, and is it feasible? What are the current training activities? Do they need co-ordinating for example through pooling of experts, the establishment of regional/state working groups to developing basic training materials, such as handbooks on national standards, good practices, compliance issues, label requirements and generic business skills? Is there a need to develop “train the trainers” programmes to ensure consistency; certainly more local auditors will need to be accredited to ensure traceability and ensure certification costs. Which organisation(s) within India could undertake this work?

Various organisations are already directly or indirectly involved in aspects of this work and it may be simply a matter of expanding their activities. For example, the government through MPEDA is already providing support to the processing industries to enable them to cope with more rigorous export standards; this takes the form of financial and technical support, lobbying and advocacy on behalf of the industry etc. This will need to be extended further along the supply chain both horizontally (i.e., to people working in the processing industry as wage earners) and vertically (i.e., to people in the production chain – crewmembers, small-scale aquaculturists etc). It is obvious that they must be in tune with the government thinking in this respect both for their own and the country’s benefit, it is necessary that they be given a more important role in planning and implementing the changes necessary.

B. Common interests of producers, processors, exporters, importers, government and donors

Industry and government have realised that effective food control systems require shared responsibility in aspects of their design, operation and verification. Governments are required to set the overarching limits within which these systems operate, and industry must design and operate to meet these limits. It is apparent that the export industry does not just consist of relatively high tech fish processing plants but a chain of stakeholders whose livelihoods depend on the continued sale of products into foreign markets. The need to involve all these parties in the formulation of a quality management system is essential if the industry is to be sustained. Table 5 indicates where in the supply chain the control and management of the system appear weak and therefore where efforts need to be directed. Whilst government might be

responsible for legislation, the industry itself will need to be self-monitoring and take responsibility for auditing the supply chain. Whilst the end product producer will take the brunt of a rejection of a consignment or a blanket ban on exports to a particular market the effects will be felt by all. The need for supply sources to be audited taking into account the conformity with food safety principles will be a real challenge for those conducting the audits and those being audited but the end result should be a more secure future for the industry.

In specific terms there are a number of items of particular concern.

Landing centres - A bottleneck to overall improvement on the ground is the state of landing centres and hygiene at these centres. A study by MPEDA and EIA concluded that in spite of world class processing facilities for processing the final product the main reason for the rejection of consignments of Indian seafood was the lack of hygiene at the initial stages of the chain, at fishing harbours, landings, ice plants and transport vehicles for example. This resulted in the SEAI calling on the Kerala Government to create a corporation to manage the five main harbours in the state. In addition, there is also a possibility that all fishing vessels in the state will need to be registered so that some measure of on-board hygiene and quality control can be instigated.

The situation at landing centres in remote coastal districts cannot be improved unless certain infrastructure prerequisites are in place. It is a fact that many such places are lacking **adequate electricity and clean water supplies**, both of which are essential for maintaining the quality of shrimp/fish for export. With the lack of these two prerequisites goes the **lack of clean ice supplies** for preservation.

In aquaculture, there is obviously a need to regulate the use of **antibiotics** and other such potentially harmful substances. The white-spot disease leads to the widespread use of antibiotics which has led to the current problems with exports to many markets not only for Indian exporters but from other sources. MPEDA – in association with the Department of Fisheries in Andhra Pradesh – is undertaking awareness programmes on this issue, and this will need to be further strengthened.

The studies identified a distinct **lack of information** on specifics regarding the export trade. In Andhra Pradesh for instance it is apparent that we needed to make assumptions based on trade through Visakhapatnam Port to arrive at an estimate of the amount of exported seafoods, little information exists on the numbers of people involved in the trade, the livelihood profiles of those people and their vulnerability to poverty. Several groups of the poor in the export sector – carriers, transporters, sorters, peelers etc – continue to remain invisible from a policy perspective, and their needs will need to be assessed. In Orissa there are also large gaps in the information relating to numbers of stakeholders involved in post harvest fisheries activities. The estimates in the studies are based on Department of Fisheries statistics and are at best sketchy. In order for realistic policy decisions to be made it is extremely important for us to understand the number of players and their roles in the post harvest sector.

In spite of the efforts by agencies like MPEDA, and state governments, the **awareness of quality regulations** at ground level (including the local government extension officials) is far from satisfactory from the EU regulation point of view.

Implementation of the regulations would be much more effective if there is awareness about the details and better understanding and consistency in interpretation of quality norms. Before any more stringent quality regulations are implemented it is essential to create the requisite awareness of the importance of the regulation and its would-be effect on the fishermen.

As can be seen, there are a number of agencies directly involved in seafood exports and others which have an indirect role to play. ***The linkages between these various agencies often seem to be tenuous and need to be strengthened.*** There also appears to be duplication of effort and funding support and it seems that there is a need for a more focused and coordinated approach to export promotion to ensure its sustainability. The support extended by MPEDA and the Export Inspection Council to the processing industry to cope with the changes to legislation will need to be extended throughout the supply chain. It is important that all players must be cognizant of the needs of the industry and be able to adhere to the changes which are coming if the industry is to continue and those employed within it care to sustain their livelihoods. Industry and government need to realize that effective control systems require shared design and responsibility. Government can set the required norms with industry working within those norms. However, it seems that the agencies involved have equated “the industry” solely with the final product processing sector of the industry rather than with all the others within the supply chain. The viability of the industry as a whole depends on the “health” of all those involved throughout the supply chain. Thus, issues such as traceability, need to be linked to policy decisions to control poor practice throughout the chain from primary production through processing to export.

Public Private Partnerships

Public Private Partnerships (PPP) are seen as a new model for development co-operation. Could they be developed to overcome some of the problems being faced with regard to the impact on international legislation on the India seafood export sector and particularly the most vulnerable stakeholders in the sector? PPP could be an important component of future development, although many aspects need to be addressed and worked out, including greater clarification of the role of the public and private sectors. Also the dynamics of PPP are different from ‘regular’ trade and businesses.

Thus, the Workshop may like to initially to consider (and possibly recommend further research on):

- Defining common objectives of public and private sector participation in development of the seafood export supply chain in India
- Clarify for the seafood supply chain what are (should be?) the typical public and private functions particularly with regard to the most vulnerable within the sector.
- Identify the specific contributions and comparative advantages for each of the players e.g. business, government, NGO’s, donors
- Outline models for co-operation between the private and public sector either on a case by case basis or as an integrated approach to the seafood export sector.

It would seem from the research that most seafood exports from India (and indeed from most developing countries) have been from small and medium sized operations, which while competing internationally, appear to have lacked the necessary skills and contacts. The need to satisfy the rising standards set by overseas governments and buyers will necessitate much extra work for those in the supply chain if they are to maintain a presence in the major export markets. They will need to educate/train producers, traders and workers on safety hazards and quality assurance; organisational capabilities will need to be developed and improved; there will be the need to develop monitoring tools and evaluation criteria to satisfy the overseas customers; investments in landing centres and post harvest facilities will have to be undertaken etc.

The rise in standards combined with greater enforcement will almost certainly continue the shift in processing (and increasingly production) into larger units and the growing concentration of exports into a few, larger companies. As a result, smaller and medium-sized operations are (and will continue to be) increasingly excluded from the major export markets. It is these operations in which most of the poor and vulnerable are employed. Thus, there is a need to improve the production, managerial and organisational skills of these smaller operations if they are to survive in the major export markets. Could (should?) the Workshop come up with ways in which the public and private partnership initiatives can work together to support and improve market access for these smaller operations. Are there some ways of integrating their needs; do the private and public sector players have common interests and links?

There is a need for ***clear guidelines for co-operation and partnerships*** on how to start and maintain PPP – this is a fairly new topic in which there are many questions arising, hence a set of guidelines would be very helpful. Rather than reinventing the wheel, existing experiences and projects should be used as ‘best (or good) practices’, to learn from and to expand. Given the involvement of several Indian states in seafood exports, perhaps we should consider the ***Creation of a Regional/State Public Private Platform*** to work on seafood safety and quality, (as well as environmental and social issues) to facilitate capacity building. If a visible structure were in place, guidelines could be developed, discussions can take place and lobby leverage can be build up.

Again there are a number of related themes:

(i) Capacity building is much needed, because the standards imposed from outside have proved to work as thresholds for processors and will increasingly do so for others in the chain. Training can help them to overcome these thresholds and meet the standards required – is there ***an organisation that provides training services?*** As the need for standard enforcement and inspection intensifies then an essential part of local capacity building will be to train more local inspectors and auditors.

(ii) Financial resources and commitment will be needed to help stakeholders in the supply chain to implement and meet these standards - *how can this be provided?*

(iii) Who are the potential public and private partners – what are the interests and competencies and responsibilities – how can joint activities be developed? Existing PPPs suggest that activities should be demand driven and partners should be carefully matched. However, different partners can hold different – or even opposing or conflicting – interests and yet still be a successful partnership in the sense of meeting

the specific objectives of the partnership. PPP should offer more than private initiatives can manage on their own. The public side can invest in areas that in the short run are too costly or too difficult for the private side. The public side can mediate, lobby, educate or inform the partners about relevant business aspects, but also about each others' culture and help them to understand each others' outlook on business, economics and on co-operation. The public side can also influence laws, rules and regulations.

(iv) Sharing market access responsibility in food safety between public and private sectors. Trade regulations (and subsidies) restrict market access for Southern producers and there is a need to debate as well as increase public awareness about these issues. Issues such as poverty alleviation and sustainable development in the fisheries sector obviously involve governments. Can donors be linked to national governments in order to influence government commitment and influence laws and trade regulations, both nationally and internationally?

Could the project/Workshop ***develop a project proposal to public and private funding sources*** bearing in mind that private funding is usually granted for specific goals that are limited in time while public sources may have wider objectives and goals.

One conclusion of the State and Summary Reports is that many of those involved in the Indian seafood export supplies, especially the smaller operations, are finding (and will increasingly find) it difficult to export because of the impact of the standards being set by Northern markets. Therefore, these producers/processors will need various forms of support including financial, capacity building, training, transfer of knowledge and skills, better procedures of auditing etc. Ideally, the costs of meeting the criteria should be spread more evenly throughout the seafood chain. The larger stakeholders need to take greater responsibility, including making a greater commitment, particularly financially.

C. Interventions at the National and International Level

As part of the move towards more effective food safety management systems, many developed countries have developed unitary authorities for food safety management (e.g. the Food Standards Agency in the UK). In the case of the EU, a Europe wide agency is being developed (European Food Standards Authority) that will come into effect in 2005. I do not know what India is doing on the Food Safety/Standards area but the experience of the UK and EU would suggest that unitary authorities help to focus national and regional efforts, and make more efficient use of resources and contribute towards harmonisation of food safety policies standards and regulations in the case of regional bodies. The WHO and FAO are actively encouraging the development of unitary food control authorities across the world, but most developing countries lack the resources to adopt this approach. However, where these have been established there appear to be substantial benefits. Assuming such a body exists in India does it face constraints and can we legitimately make recommendations to help overcome these deficiencies? For example, is there a lack of the technical and financial resources, trained manpower, an effective institutional framework, sufficient information about food safety hazards and the risks involved? If not, should we get

involved in making recommendations in order that the organisation can respond to existing and emerging seafood safety problems?

Many countries are signatories to the Sanitary and Phytosanitary (SPS) and Technical Barriers to Trade (TBT) Agreements administered by the WTO. The current Doha Round of WTO talks are likely to lead to greater involvement of the WTO in fisheries. Again should the Project/workshop become involved in this? Do we have sufficient expertise to make comments/recommendations? The SPS agreement has certainly proved particularly difficult for the developing countries with resultant difficulties in accessing the lucrative markets. The major constraints have been the lack of expertise and capacity to carry out risk assessments. The need to adopt risk-based approaches to food safety management such as HACCP has been recognised but has proved difficult to implement particularly in the small-scale food production sector, which is characteristic of the seafood export industry in India. As one source noted “Success in HACCP implementation in the small to medium sector was registered in Tanzania fish industry following the 1997 cholera outbreak. It cost Tanzania US\$ 36 million in lost trade from February 1998 to August 1998 when the ban on trade in freshwater fish was lifted. Risk assessment was only possible through intervention and technical assistance from WHO and UNIDO. This case demonstrated the limitations of developing countries in terms of both capacity and expertise but clearly showed that the transfer of risk assessment technology is possible through a modular approach that facilitates practical implementation.”

“Food safety legislation in many developing countries is outdated and lacks the scientific basis as required by WTO. Food control activities are fragmented and often hampered by inadequate resources. Lack of baseline data for use in risk assessments and the lack of capacity to carryout exposure assessments for both chemical and biological hazards hamper effective participation in international standards development work. Developing countries therefore become recipients of standards and rules whose development they cannot influence.”

Can/should the project become involved in making policy recommendations to address these issues?