POLICY RESEARCH: IMPLICATIONS OF LIBERALISATION OF FISH TRADE FOR DEVELOPING COUNTRIES

A CASE STUDY FOR INDIA

BY

VENKATESH SALAGRAMA

Project PR 26109

July 2004

Food and Agriculture Organization (FAO) of the United Nations, Rome
# Contents

ACKNOWLEDGEMENTS ........................................................................................................ 3
ABBREVIATIONS USED IN THE TEXT .................................................................................. 4
EXECUTIVE SUMMARY .......................................................................................................... 6
INTRODUCTION .......................................................................................................................... 10

CHAPTER 1: OVERVIEW OF FISHERIES AND EXPORT SUPPLY CHAIN ................................. 12
1. FISHERIES SECTOR IN INDIA ............................................................................................. 12
   People involved in fisheries sector ................................................................................. 12
   Fisheries resources ............................................................................................................ 12
   Fishing fleet ......................................................................................................................... 13
   Current level of exploitation ......................................................................................... 13
   Contribution of fisheries to national economy ............................................................ 13
   Institutional context of fisheries ................................................................................. 14

2. GROWTH OF EXPORT TRADE DURING 1961-2000 ....................................................... 14
   Performance of exports in the 1990s (i.e., the liberalisation decade) ......................... 15
   Infrastructure for the seafood processing industry (from MPEDA, 2001:40) ............... 15
   Exports from different ports in the country .................................................................. 16
   Country-wise exports of marine products .................................................................. 16
   Contribution of shrimp to total exports ....................................................................... 16
   Contribution from capture and culture sources ......................................................... 17
   Contribution of small-scale sector to shrimp production .......................................... 17
   Shrimp products exported from India ......................................................................... 18

3. MAIN STAKEHOLDERS IN EXPORT SUPPLY CHAIN IN INDIA ...................................... 18
   A. Producers ...................................................................................................................... 18
   B. The intermediaries ......................................................................................................... 19
   C. Processors & Exporters ............................................................................................... 20
   D. Other participants .......................................................................................................... 21
   E. Ancillary participants ................................................................................................... 21

4. THE POOR WITHIN THE EXPORT COMMODITY CHAIN .................................................. 21

5. VULNERABILITY IN FISHING COMMUNITIES .................................................................. 23

CHAPTER 2: IMPACTS OF TRADE LIBERALISATION ON FISHERIES SUBSIDIES AND SEAFOOD LEGISLATION IN INDIA .......................................................... 24

TRADE LIBERALISATION IN INDIA ....................................................................................... 24
   New Trade policies and fisheries sector in India .................................................. 25
   Impact of dismantling QRs on imports ................................................................. 25
   Impact of liberalised deep-sea fishing policy ....................................................... 26
   Impact on exports ......................................................................................................... 27

IMPACTS OF TRADE LIBERALISATION ON SUBSIDIES AND SEAFOOD TRADE ................ 28
   A. Subsidies in the Post-Liberalisation Period ............................................................. 28
   Fisheries Subsidies in the international context and implications for Indian fisheries ... 28
   Fisheries subsidies and the WTO negotiations, 2005 ............................................ 29
   Subsidies in the general macro-economic context in India ....................................... 30
   Liberalisation and direct subsidies in fisheries in India ........................................... 33
B. International seafood legislation on the Indian seafood industry.......................................................... 34
   Changes in seafood legislation: the international context........................................................................ 34
   SPS Agreement in the general macro-economic context of India............................................................. 36
   Changes in seafood legislation: the Indian context.................................................................................. 37
   Government support for upgrading the systems to international standards............................................. 39

CHAPTER 3: CHANGES IN SUBSIDIES AND SEAFOOD LEGISLATION: IMPACT ON THE SHRIMP EXPORT
INDUSTRY IN INDIA .................................................................................................................................. 40

I. CHANGES IN SUBSIDIES AND IMPACT ON SHRIMP EXPORT INDUSTRY........................................ 40
   A. Existing subsidies are removed or reduced......................................................................................... 41
   B. Stakeholders bear part or whole of the cost of common facilities .................................................... 45
   C. Reduction in lending support to fisheries......................................................................................... 45
   D. Tax preferences withdrawn for stakeholders .................................................................................... 46
   E. Changes in institutional structures and services ................................................................................. 46
   F. Stakeholders pay user charges for access to common property resources ....................................... 47
   G. Changes in open access regimes for conservation and management.............................................. 48

II. CHANGES IN SEAFOOD LEGISLATION AND IMPACT ON THE SHRIMP EXPORT
    INDUSTRY .............................................................................................................................................. 48
   A. Impact on seafood processing sector .................................................................................................. 48
      1. Cost of compliance with international standards .............................................................................. 49
      2. Relevance of standards .................................................................................................................. 50
      3. Effectiveness of implementation .................................................................................................. 50
      4. Impact on the profitability and viability of operations .................................................................... 50
   B. Impact on producers ............................................................................................................................. 51
   C. Impact on peeling sheds ....................................................................................................................... 51
   D. Impact on women ................................................................................................................................. 52

III. THE FUTURE SCENARIO ................................................................................................................... 52
   A. Possible impacts of withdrawal of existing subsidies ......................................................................... 52
   B. Possible impacts of a stricter seafood legislation ............................................................................... 53
   C. Overall impacts of changes in subsidies and seafood legislation..................................................... 54
      a. Impacts on environment .................................................................................................................. 55
      b. Impacts on trade .............................................................................................................................. 56
      c. Impacts on Livelihoods ................................................................................................................... 57

CHAPTER 4: CONCLUSIONS AND RECOMMENDATIONS ......................................................................... 58
   RECOMMENDATIONS .......................................................................................................................... 60
   REFERENCES .......................................................................................................................................... 62
   APPENDICES ......................................................................................................................................... 68
ACKNOWLEDGEMENTS

A number of institutions and individuals helped this study in various ways. Our grateful thanks are due to: Mr V Vivekanandan and his team at SIFFS, Trivandrum; Prof (Dr) Mohan Joseph Modayil, Director, CMFRI, Kochi; Dr R Narayana Kumar, CMFRI-Kakinada; Mr Nero Shahin, MPEDA and Dr S S Gupta, CIFT, both at Visakhapatnam; many serving and past officers of the Departments of Fisheries in Kerala, Andhra Pradesh and Orissa; and Mr B K Mishra at the Fishcopfed (NCDC) at New Delhi.

The field interactions have been made possible with the kind assistance provided by Mr Mangaraj Panda and his colleagues at the United Artists’ Association, Ganjam; Mr Samson and his colleagues at PENCODE, Puri; Mr M Srirama Murthy at FIRM; and Mr K Hemasundareswara Rao at the United Fishermen’s Association; thanks are due to each one of them. Three studies done by ICM in recent times – one each for SIFAR/FAO, Oxfam (GB) and NRI – came particularly handy in preparing this document and we are grateful to Mr Tim Bostock, Ms Shaheen Nilofer and Dr Peter Greenhalgh who had commissioned the original studies.

A special word of thanks to Dr John Kurien at the Centre for Development Studies, Trivandrum. And a big thanks to Sebastian, Chandrika, Ramya and especially Venugopalan at the ICSF, Chennai, but for whose timely help and support with advice and reference material, this study would have been much poorer.

Obviously, none of them is responsible for the abiding shortcomings and deficiencies, which are solely mine.

Venkatesh Salagrama
27 April 2004
ABBREVIATIONS USED IN THE TEXT

AAI  Aquaculture Authority of India
AP   Andhra Pradesh
APEC  Asia-Pacific Economic Cooperation
APFC  Andhra Pradesh Fisheries Corporation
ASCM (also SCM)  (WTO) Agreement on Subsidies and Countervailing Measures
BCV Palem  Boddu Chinna Venkataya Palem
BIS   Bureau of Indian Standards
BOBP  Bay of Bengal Programme
DAHD  Department of Animal Husbandry and Dairying (GOI)
DFID  Department for International Development (of the Government of United Kingdom)
DOF   Department of Fisheries
DRDA  District Rural Development Agency
EEZ   Exclusive Economic Zone
EIA   Export Inspection Agency
EIC   Export Inspection Council
EU    European Union
FAO   Food and Agriculture Organization of the United Nations
FRP   Fibre-reinforced plastic
GDP   Gross Domestic Product
GOAP  Government of Andhra Pradesh
GOI   Government of India
GOK   Government of Kerala
GOO   Government of Orissa
ha    Hectare
HACCP  Hazard Analysis and Critical Control Point
HPLC  High Performance Liquid Chromatography
HSD   High Speed Diesel
ICM   Integrated Coastal Management
ICSF  International Collective in Support of Fishworkers
IDP   Inter-Departmental Panel
IQF   Individually quick frozen
km    Kilometre
LPG   Liquefied Petroleum Gas
MPEDA  Marine Products Export Development Authority
MT    Metric Tonne
NABARD National Bank for Agriculture and Rural Development
NCDC  National Co-operatives Development Corporation
NIPFP  National Institute of Public Finance and Policy
NIRD  National Institute of Rural Development
OECD  Organisation for Economic Cooperation and Development
OGL   Open General Licence
PD    Peeled and deveined
PDS   Public Distribution Scheme
PUD   Peeled and un-deveined
QR    Quantitative Restrictions
SAT   Supervisory Audit Team
SEAI  Seafood Exporters Association of India
SIFAR  Support Unit for Fisheries and Aquatic Research
SIFFS  South Indian Federation of Fishermen Societies
SKO   Kerosene Oil
SPS   Sanitary and Phytosanitary
TED   Turtle-excluder device
UNDP  United Nations Development Programme
UNEP  United Nations Environment Programme
USA (also US) United States of America
USFDA  United States Food and Drug Administration
WTO   World Trade Organisation
Conversion rates (Source: The Hindu, 27 April 2004; rounded off):

<table>
<thead>
<tr>
<th>Currency</th>
<th>Conversion Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 US$</td>
<td>Indian Rupees (Rs.) 44</td>
</tr>
<tr>
<td>1 UK£</td>
<td>Rs. 78</td>
</tr>
<tr>
<td>1 €</td>
<td>Rs. 52</td>
</tr>
</tbody>
</table>

Denominations:

<table>
<thead>
<tr>
<th>Denomination</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Lakh</td>
<td>100 000</td>
</tr>
<tr>
<td>1 Crore</td>
<td>10 000 000</td>
</tr>
</tbody>
</table>
EXECUTIVE SUMMARY

Seafood export sector

1. The modernisation of Indian seafood industry began in 1950s and is inextricably linked to the growth of shrimp export trade. In turn, shrimp export trade is closely related to trade liberalisation from the beginning. Shrimp continues to dominate the fisheries sector in general and the seafood export sector in particular.

2. Subsidies and other assistance played a crucial catalytic role in the development of the export sector, although the quantum of assistance declined subsequently as private sector took over the activities. Promoting the sea as an open access resource has been an important subsidy in the modernisation period and other direct subsidies encouraged entry of outsiders and private capital into the sector in a big way.

3. Exports have come to account for a quarter of the contribution of fisheries to the GDP. Culture shrimp contributes four-fifths of the total shrimp exports, which is mainly because of the decline in marine catches than from increased production from culture sources.

4. Japan, the EU and the US import a major proportion of India’s exports, and the main export species is shrimp. This focus on a few developed countries on the one hand and on shrimp on the other has implications on the profitability and sustainability of the export trade. There is a growing trade in finfish exports to developing countries, characterised by large quantities and small margins.

5. The emphasis on production is not supplemented by developing adequate infrastructure facilities to support them; the availability and quality of infrastructure remains insufficient.

6. The growth of shrimp trade brought a number of new intermediaries into the market chain along with a complex range of trade relationships. It also necessitated entry of private capital and informal credit into the fisheries sector in a big way and led to overcapitalisation of fishing activities in due course.

7. There is little information on the role of different stakeholders – particularly the poor in the ancillary category – in the export sector. Consequently, the impact of any changes on the life and livelihoods of the poor is often overlooked at the policy and implementation levels.

8. Since 1990s, three issues dominated Indian export scene: decline in overall catches, particularly shrimp; fluctuations in international markets depressing prices and profitability; and overcapitalisation of the production and marketing activities increasing risk.

Trade liberalisation in India

9. India embarked upon a massive programme of liberalisation since 1990s and this has a far-reaching impact upon the economy and on the quality of life in general.

10. In spite of the strong emphasis on information and knowledge as fundamental features of the reform process, major knowledge gaps exist at the grassroots level on the process and the potential impacts of trade liberalisation.

11. Liberalisation of Indian economy coincided with the establishment of the WTO, and the structural adjustment policies had to contend with domestic fiscal reform and also make sure that the processes are in line with the global trade agreements.
12. The policy responses thus have been two-fold: at the domestic level, the focus is on fiscal discipline while at the international level, it is on arguing for exemptions for special conditions that prevail in developing countries like India.

**Subsidies in Indian fisheries**

13. At the global level, the debates on subsidies in fisheries focus mainly on their impacts upon trade and environment, and largely bypass other dimensions like equity issues, livelihoods and welfare. The debates take place at such a high level and in such abstruse language that the contribution of primary stakeholders to the evolving agreements has been extremely low.

14. Indian subsidies in fisheries, particularly those that are contingent upon exports, appear to be miniscule and are not likely to be affected in the context of a stricter disciplining of fisheries subsidies. In fact, by focusing the discussion on subsidies to their trade related impacts alone, the international community might actually tempt countries like India to spend more on subsidies of the ‘effort-and capacity-enhancing’ category.

15. In the general macro-economic context of India, subsidies are increasingly frowned upon at the policy level and there is a proposal to cut the existing subsidies across different sectors. However, in practice, there is evidence that the total subsidies have actually grown in the late 1990s.

16. In terms of direct subsidies in fisheries, there does not appear to have been any cuts in the reform period, due perhaps to the fact that the total outlay of fisheries in the national plans works out to a quarter of one percent and imposing fiscal discipline on such a miniscule sector does not help the economy significantly. Subsidies in fisheries are also miniscule when compared to other sectors like agriculture, prompting many people in the government itself to demand for more subsidies for fisheries, not less. Even if there is a cut in the direct subsidies in the fisheries sector, the impact on many stakeholders may not be significant, except in case of those providing some kind of social security.

17. The lifting of tariffs and quantitative restrictions in the fisheries sector during the 1990s is not followed by any perceptible benefits or ill effects, but apprehensions about their possible negative effect are widespread and generally justified. The possibility of fish imports swamping Indian markets and foreign deep sea fishing vessels allowed to operate in the Indian EEZ are two potential areas of concern for the producers.

18. In terms of exports, the new trade policies have not contributed much because of (i) decline in availability of shrimp and (ii) uncertainties in international markets. In fact, the Indian export trade has stagnated since late 1990s and in many cases declined.

19. Although the negative environmental and livelihood implications of the modernisation programme are quite evident, there is continuing support at the policy level for more technological interventions in the capture sector. This aspect needs consideration and a blanket ban on the ‘effort-and capacity-enhancing’ subsidies – irrespective of their professed benevolence – might be necessary.

20. Indirect subsidies in general category (i.e., not specific to fisheries) – such as petroleum products (HSD oil, Kerosene, LPG), electricity (affecting processing and ice making) and welfare (health and food) – have been reduced with serious impacts on the stakeholders.

21. Changes to direct and indirect subsidies cover a range of areas and the primary stakeholders have been finding it difficult to cope with the changes, not least because of unpreparedness and lack of alternatives. These changes have an impact upon the livelihood assets and
strategies of the poor, although in a context where change is occurring at different levels and dimensions simultaneously, the tangled skein of cause and effect is difficult to unravel.

22. The overwhelming impression among many informants is that the changes so far are only the tip of the iceberg, and that the real changes will become more significant in the coming years.

Seafood legislation issues

23. Many food exports from India – most notably, shrimp – have been affected adversely by selective application of sanitary and phytosanitary measures in the last decade. Shrimp faced rough weather over the issues of poor quality control, muddy smell and traces of antibiotics in farmed shrimp. The losses to the processing industry are quite high and affected the profitability of operations significantly.

24. Intense and pro-active efforts by the government and the seafood industry have helped the latter to survive the threats and actually emerge stronger after the ordeal, because the quality standards of the EU approved Indian plants are considered to be world class.

25. However the upgradation came with a big price tag: while some of the companies that upgraded ended up with no working capital to organise operations, many companies simply folded up, unable to find the capital. This has meant a loss of livelihoods for a large number of poor people, particularly women from single-headed households.

26. Besides high cost of adaptation, issues like irrelevance of foreign standards to local conditions, lack of timely and adequate information and consequent transaction costs, difficulties in understanding requirements as well as testing and monitoring them, perceived lack of scientific data for specific threshold or limiting values and the uncertainty that arises from rapidly changing requirements in overseas markets still persist and affect the industry.

27. The general feeling is that the Government of India’s quality inspection and monitoring system is very sensitive to the international food safety standards and is constantly evolving to meet the SPS requirements. The government involves the industry in determining the best course of action to meet the international demands and assisting it in various ways to cope with the changes. In fact, it is felt that the government accommodates whatever demands the importing countries might make, rather than take the issue up as an SPS measure.

28. At the international level, developing countries like India are constrained in their participation and contribution to standard setting in the SPS process, and there is a widespread feeling that developed countries manage not only set the agenda but also change it as they deem fit from time to time, adversely affecting the developing countries.

29. The exporting countries are also constrained because of poor domestic laws and quality control systems, lack or unaffordability of technology and infrastructure, poverty and unorganised nature of operations. These are exacerbated by the diversity in standards and verifying mechanisms prescribed by importing countries and the frequent changes to standards and lack of clarity at various levels.

30. Within the country, the debate on standard setting is confined to a few organisations and individuals, with the result that the country is not adequately prepared to offer effective alternatives. Constituting multi-disciplinary taskforces at various levels and for different sectors is an urgent necessity for a more comprehensive and forceful contribution to the standard setting process and to meet the other requirements of the SPS Agreement.

31. Strict implementation of international seafood legislation (i.e., SPS measures) related to the issues of harmonisation, equivalence and transparency could lead to marginalisation of the
small-scale operators from the export sector. Helping the small-scale producers to reach international markets through active state support might be considered an actionable, if not prohibited, subsidy although this may not happen immediately.

32. Stricter quality control would mean that, in the short term, there will be more serious losses and many of the producers and exporters might not recover. In the medium term, this will lead to a reorganisation of the export sector, concentrating the ownership in fewer hands and marginalising a number of poor stakeholders. In the long term, the international seafood legislation will begin to have an impact upon the domestic market chains as well and the quality requirements for domestic trade will begin to mount.

**Future trends**

33. Further changes in subsidies and seafood legislation are considered to have a positive impact upon the environment by reducing effort and making the users bear the cost of externalities.

34. In terms of trade, there is a likelihood of shrimp being replaced as *prima donna* of Indian exports by the entry of a number of other species and the international markets shifting from developed countries to developing countries and from export to domestic trade. From all accounts, this is a healthy, sustainable, environment-friendly and equitable trend.

35. These positive impacts on the environment as well as trade will however be accompanied by declining access to the poor to the natural assets (fish) and the physical assets (production and processing systems) on the one hand, and to the markets on the other. The reduction in access to livelihood assets is compounded by the state’s increasing withdrawal from its welfare agenda and reduction in social subsidies, which means that for the poor in the export sector, the worst may be yet to come, unless of course suitable safety nets are put in place.

36. Any new opportunities that liberalisation might offer are contingent upon certain basic requirements at the individual level – assured access to resources, ability, skills and knowledge – and also at the macro level – a radical transformation in terms of infrastructure and other basic facilities – which necessarily constrain the poor from taking advantage.

37. Improving information flows, forging stronger public-private relationships, strengthening the capacity of the organisations to engage proactively in formulation of international trade agreements, pleading effectively for a special consideration to developing countries to stand up to the international agreements and keeping the livelihood concerns of the poor stakeholders in the sector at the forefront of any debate are some of the recommendations made to address the negative impacts of trade liberalisation.
POLICY RESEARCH: IMPLICATIONS OF LIBERALISATION OF FISH TRADE FOR DEVELOPING COUNTRIES – A CASE STUDY OF INDIA

INTRODUCTION

This case study is an output of the FAO-commissioned (SIFAR-coordinated) project “Implications of Fish Trade Liberalisation for Developing Countries” co-funded by DFID and GTZ. The main objectives of the India case study are to:

- Review the key issues related to fish trade liberalisation in India focusing on, (a) changes in subsidies to the sector particularly during the period 1990 to 2004, and (b) international seafood legislation.
- Analyse, from a macro-level perspective, the implications of trade liberalisation measures for livelihoods issues based on secondary literature and primary data collected in field surveys in at least three locations of the country.

FOCUS OF THE STUDY

The issue of subsidies and seafood legislation are complex and are constantly evolving. In India, the issues have only recently begun to be discussed in any depth, which means that even the terms and contours of the discussion are not clear yet. Under the circumstances, the objective of the study is to provide a brief overview of the dimensions of the liberalisation process from the perspective of primary stakeholders using primary and, as much as possible, secondary sources of information in order to capture the diversity that characterises Indian fisheries sector.

For convenience, the study focuses largely – but not exclusively – on shrimp export marketing chain. The choice of shrimp is apt for two reasons: firstly, it is the development of shrimp export chain that has set the process of modernisation in Indian fisheries sector in motion and dictated the pattern of development of other market chains in the country. Secondly, shrimp has also come to dominate many fishing operations and changes in its production or prices have the widest – and the most acute – repercussions on the sector. It is the shrimp export chains that have been the most affected by the changes in international seafood standards from mid-1990s.

The study is located in three coastal states of India – Andhra Pradesh and Orissa on the east coast and Kerala on the west coast – and the data collection was done during March-April 2004.

METHODOLOGY

The field studies had two main objectives: one, to determine the different stakeholders in the export processing chain and to assess their relative poverty; and two, to assess the impact of changes in subsidies and seafood legislation on different categories of stakeholders.

Using a two-fold process of assessing poverty, food insecurity and vulnerability among the coastal fishing communities developed by ICM for FAO/SIFAR during 2002-3 (ICM 2003), participatory poverty appraisals were undertaken in selected locations. In the first stage, a tiered
process of interactions, beginning at the village level, followed by the export stakeholder level, which led to the household level, provided a number of features at the general, export stakeholder and household levels. At the household level, a checklist of 16 indicators was used to develop an aggregate score. The score thus obtained was used to assign the households in a particular stakeholder category – and, by common agreement, the export stakeholder group to which they belonged in the village – with a rank from 1 (destitute) to 8 (affluent). The simple arithmetic mean of the ranks received by a particular stakeholder group in different villages is consolidated and the different stakeholders are classified into four categories: well off, moderate, poor, very poor and the characteristics of poverty/wellbeing in each category are summarised and revalidated in selected locations.

It has been found necessary, when discussing the trade issues with the stakeholders, not to confine the interactions to what the actual changes and impacts have been, but also to explore (i) what is likely to happen if the existing subsidies are further reduced or withdrawn or the seafood legislation made more stringent, using the conclusions of the global and national debates on the two issues as the basis to formulate the future scenarios and (ii) the capacity of the individuals and institutions in the country to adapt to the challenges posed by these changes. The methodology used at the group/village level was informal discussions using checklists, while at the household level a number of informal tools – developed by ICM based upon the sustainable livelihoods (SL) framework – were applied.

The changes from the community’s perspective were brought out through:

- **Trend analyses**, where the key trends affecting the life and livelihoods of the key stakeholder groups were identified. The factors contributing to these changes were explored at the household level or at the village-level or in discussion with institutional stakeholders.
- **Open-ended discussions on the potential impact of changes in direct subsidies** in fisheries on different stakeholders yielded the relevance of the existing subsidies on their livelihoods and their impressions of the impact in case of withdrawal of the subsidies.
- **Key strands of the debate on subsidies at the international and national levels** – for instance, the different ‘modalities’ of subsidies as discussed by the APEC study (APEC, 2000) – were discussed in terms of their implications to the export stakeholder groups.

**STRUCTURE OF THE REPORT**

This report has four sections. The first section provides a brief overview of the fisheries sector and the export supply chains, including the key stakeholders involved in the export chains in the country. The section concludes with a description of the poor stakeholders in the export supply chains. The second section discusses the impact of trade liberalisation in terms of changes in subsidies and seafood legislation at the national level, while the third section explores the impacts of these changes upon the livelihoods of the primary stakeholders in the sector. The last section summarises the key changes and impacts and makes a few recommendations.
CHAPTER 1: OVERVIEW OF FISHERIES AND EXPORT SUPPLY CHAIN

With a land area of 3.3 million km², India is the seventh largest country in the world. It also has the distinction of being the second most populous country (after China) with a total population of 1,027 million (16.7 percent of the world population), which works out to a population density of 324 per sq km (GOI, 2003: 6-7). Some 742 million people or 72.25 percent of the population reside in rural areas (NIRD 2003: 4). 360 million people live in coastal areas (Hosch & Flewweling, 2004).

Agriculture is the lifeblood of Indian economy, contributing 25 percent of Gross Domestic Product, and about 70 percent of the population depending on it for a livelihood (GOI, 2003: 395). From 1951, when the First Five-Year Plan was launched, successive plans have given prominence to agriculture as a means to ensure food sufficiency as well as to support livelihoods. The viability of agriculture is dependent upon a number of subsidies – direct (for inputs and working capital) and indirect (income tax exemptions, minimum support price) – and any changes to subsidies in agriculture could prove catastrophic for the national economy as a whole.

1. FISHERIES SECTOR IN INDIA

People involved in fisheries sector

The coastal fishing communities in the country are recognised to be among the poorest sections of Indian society (ICM, 2003; Kurien, 1995; Tietze 1986; Vivekanandan et al, 1996), and there are indications that their vulnerability to a wide range of factors – both external and internal – has been on the rise. According to livestock census of 1992 (cited in GOI, 2000), the total number of fishers in the country is 6.7 million, of whom men numbered 2.4 million, women 2 million and children 2.3 million. Shrimp aquaculture provides livelihood to one million people, about a third of them employed directly in culture operations and the rest in ancillary activities (Mathew 2003). Just over one third of full-time fishermen are located on India’s east coast, and 70% of the marine fish production originates from the west coast (Vivekanandan, 2002). An important feature of the fisheries sector, particularly on the east coast, is the gender-based division of labour and the active role played by the women in the production and trade activities.

Fisheries resources

India has a coastline of 8,041 kilometres spread along nine coastal states and four union territories. The exclusive economic zone (EEZ) stretches over 2.02 million km², and the continental shelf covers 0.5 million km². Table 1 provides the state wise details of coastline and continental shelf. The potential resources available from the Indian waters are 3.9 million tonnes, (2.2 million t in the inshore and the rest in the offshore waters) (GOI, 1996). India also has inland water sources covering over 190,000 km and open water bodies with a water-spread area of over 66 lakh hectares (GOI 2000: 122). Brackishwater area available for aquaculture purposes in the country is 1.2 million ha, of which 165,000 ha have been developed.
**Fishing fleet**

The methods of exploitation of marine fisheries resources vary from simple traps to large trawlers and from simple hand-lines to sophisticated purse-seines. In the artisanal sector, there are 181,284 non-motorised and 44,578 motorised boats, while the mechanised boats number 53,684, making a total of 280,491 boats in all (GOI, 2000: 128). The mechanised sector is largely dependent upon trawling, although gill-netting, purse-seining and long-lining are also prevalent, mainly along the west coast of India. The design, size, construction, operations and economics of the fishing crafts – particularly the artisanal ones – are location-specific. Details of different artisanal fishing boats and the important nets used in Andhra Pradesh, Orissa and Kerala are provided in Table 2 (a, b, c). New boat designs, FRP and plywood boat building, motorisation, synthetic nets are recent developments in artisanal sector.

**Current level of exploitation**

In 1950-51, the total fish production in the country was 0.75 million MT, of which marine fish (0.5 million MT) accounted for 71 percent. By 1999-2000, the total production has grown to 5.6 million MT, but contribution of marine catches came down to 50 percent at 2.8 million MT, the fall being due to increased production in inland and culture sectors. Marine production has also remained static since 1993-94 (GOI, 2000) (Figure 1). The catches from inshore waters are reported to have reached their full potential (Vivekanandan, 2002) and further increases could only come from the cheaper species (e.g., small pelagics), supporting the contention that fishing effort in recent years has concentrated on specific high-value varieties (Salagrama, 2004).

The annual average landings by the trawlers increased from 300,000 t in 1980-1981 to 1.3 million t in 1999-2000, increasing their share in marine production from 29.4% to 48.8% (Vivekanandan, 2002). The annual per capita production of active fishermen in the artisanal sector declined from 2,590 kg in 1980 to 420 kg in 1996-97, while it increased from 5,260 to 8,130 kg in the mechanised sector (Sathiadhas, 1998: 466).

The composition of the Penaeid shrimp in the total marine fish catches ranged between 5 and 8 percent during 1991-98 (GOI, 1996 & 2000) (Figure 2), but there has been a decline in the overall landings of marine shrimp since 1994. The culture production of shrimp rose from 28 thousand MT in 1988-89 to 86 thousand MT in 1999-2000 making up for the shortfall in marine supplies (MPEDA, 2001). East coast, particularly Andhra Pradesh, West Bengal and Tamil Nadu, dominates culture shrimp production, with Andhra Pradesh producing more than half the total production in the country (GOI 2000: 128). The average production per hectare, which grew to 820 kg per ha during 1994-95, fell back to 550 kg by 1999-2000. Andhra Pradesh, which reached the one tonne per ha mark in 1994-95 slid down to 665 kg by 1998-99 (MPEDA 2001). Besides penaeids, scampi (*Macrobrachium rosenbergii*) is being cultivated in over 12 thousand hectares in the country with an estimated production of 7,140 MT during 1999-2000.

**Contribution of fisheries to national economy**

The gross investment on fishing component is estimated as Rs 8,000 crores (Vivekanandan, 2002), much of it in the private sector. Fisheries contributes Rs. 19,555 crore to the Gross
Domestic Product (GDP), which works out to 1.3 percent of the total GDP or 4.6 percent of the GDP from agriculture sector, which has increased consistently since 1970-71, when it worked out to 0.62 percent of the total GDP and 1.46 percent of the GDP from Agriculture (GOI, 2000: 130). India’s contribution to world fish production has gone up marginally from 3.7 percent in 1950 to 4.18 in 1997, but the contribution of marine sector declined from 2.97 to 2.86 percent during the period. Figure 3 provides the wholesale price index for different sources of protein in India indicating that the increase in real value of fish is much faster than that of the other food items (GOI, 1996: 117; GOI, 1997:121).

Institutional context of fisheries

Under the Constitution of India, fisheries is a state subject, i.e., individual states within the Indian Union can frame and implement fisheries policies of their own. The maritime states of India have control of the seas up to a distance of 22 kilometres from the shore, while the Central Government has control over the EEZ (Exclusive Economic Zone) beyond 22 km, stretching up to 200 km limit. In general, as Anjani Kumar et al (2003:15) have noted, the national policies in India have been export oriented, supporting relatively large-scale fisheries for shrimp, while for many states the primary concern was the welfare of local small-scale fishermen. A wide range of fisheries development programmes have been administered by a large number of central and state government agencies in the country. Annexure 1 provides an overview of the different institutions working in the fisheries sector.

2. GROWTH OF EXPORT TRADE DURING 1961-2000

The foundations of the modern fisheries sector in India were laid during the first two decades after the country’s independence in 1947. Rejecting the existing systems of fishing as ‘of a primitive character, carried on by ignorant, unorganised and ill-equipped fishermen,’ (Kurien, 1980), the fisheries policymakers embarked upon an ambitious programme of modernisation. The sector’s capacity to earn sizeable foreign exchange for the country is an important reason for its appeal at the national level; hence modernisation went hand in hand with export promotion.

It can be argued that modernisation of fisheries was based upon an open trade regime right from the beginning (Anjani Kumar et al 2003:9). The keywords defining ‘modernisation’ were the same as would apply to the current day liberalisation: market and price mechanisms as efficient purveyors of resources and benefits; private investment and technological efficiency as growth motors; opening of markets to international trade; and state’s role confined to being facilitator of economic growth and to ‘smoothening the road to liberalisation’ (Krishna Reddy, 2001). As Johnson (2001) puts it, “The development path advocated by modernisation relies on a variable mix of market incentives and state intervention, the latter specifically to stimulate growth in capacity through investment until such a time as the country or region builds sufficient momentum to maintain growth on its own”. Growth in capacity would come from developing new systems of fish production in place of the existing systems which are ‘by and large primitive, and consequently, according to modern standards, the return per unit of effort is relatively small’ (ICAR, 1997: 769). This is achieved by introduction of ‘a modern, capital-intensive, specialised technology’ (Kurien, 1991) and led the way to production that drew on industrial principles of organisation to feed international markets (Johnson 2001). The promotion
of the sea as an open access resource, overlooking the customary systems of sea tenure and organisation of fishing, has been an important subsidy in the modernisation period. Other, more direct, subsidies encouraged entry of outsiders and private capital into the sector.

Another important development in modernisation phase has been the sector’s growing dependence on shrimp, to the extent that shrimp has virtually come to determine the wellbeing of the industry. The benefits from the shrimp trade have been considerable and widespread in terms of their contribution to national economy, livelihoods and social and economic well being, but in the long run, three detrimental effects dominated the picture: increased social and economic inequality; environmental and resource degradation; and unsustainable livelihoods.

With the development of trawling, aquaculture, motorised fishing with ‘disco’ nets and, to a much lesser extent, ‘deep-sea’ fishing, Indian seafood exports have grown by over twenty times in the four decades from 1961-62 to 1999-2000. The export of seafood from the country increased from 15 732 metric tonnes (MT) in 1961-62 to 343 041 MT in 1999-2000 (Figure 4). In terms of value, the exports have gone up from a mere Rs. 4 crore to Rs. 5 117 crore or US $ 1 189 million during the period, and the unit value realisation increased from Rs. 2/kg to Rs. 149/kg. In terms of overall exports from the country, seafood stands at tenth place, accounting for 2.7 percent of total export earnings in 2001. Among seafood exporting countries, Indian exports stood 17th in terms of quantity and 12th in terms of value (Mathew, 2003). The contribution of exports to the GDP from fisheries in 1998-99 is about 24 percent, and to the national GDP is 0.3 percent (calculated from GOI, 2000: 1 & MPEDA 2001:27). In terms of volume, exports constituted 5.75 percent of the total production and 11.2 percent of the marine production in 1998-99, although much support for the sector is targeted at export promotion.

**Performance of exports in the 1990s (i.e., the liberalisation decade)**

Total exports grew at a faster rate in the 1990s than in any previous decade. While it had taken 14 years (from 1978-79 and 1991-92) for exports to double from 87 000 to 172 000 MT, it took only half the time, seven years, for them to double again to 386 000 MT. The export of shrimp grew less spectacularly, although still rapidly, growing by fifty percent in the first 14 years and 33 percent in the next 7 years, and this has more to do with failure of supplies than demand.

**Infrastructure for the seafood processing industry (from MPEDA, 2001:40)**

In marine fisheries, major developments in the last forty years include construction of 30 minor fishing harbours and 130 fish landing centres, apart from five major fishing harbours. The number of registered exporters in the country grew from 864 to 1549 between 1990 and 2000, although it is likely that the largest chunk of the market share is commanded by a very small number of companies. Significantly, the number of peeling sheds declined from 924 to 576 between 1990 and 2000, probably a casualty of the changes in the seafood legislation brought about by the EU and the USFDA in late-1990s. Ice plants increased from 132 to 157, but their capacity grew at a faster rate from 1 854 MT/day to nearly 3 000 MT. The number of freezing plants grew 70 percent (from 231 to 394) during the period, but their combined capacity grew nearly four-fold – from 2300 MT to 8500 MT – indicating a consolidation of freezing capacity within fewer plants. Cold storages increased from 304 to 479, but their combined capacity more
than doubled from 42,500 MT to 106,000 MT. In spite of such growth, the development of infrastructure has remained insufficient and, with stricter quality requirements, inadequate as became apparent in the late-1990s.

As of April 2004, a total of 138 processing plants and five freezer vessels were approved for export to the EU (www.mpeda.com), and the state-wise summary of the approved plants is given in Table 3. This indicates that nearly two-thirds of the processing plants have yet to receive the EU approval. That there are nearly four times as many registered exporters as there are freezing plants also needs to be noted for possible implications in the context of changing seafood legislation, which insists that the exporters have absolute control over their production systems.

Exports from different ports in the country

The east coast has traditionally exported low volume-high value products, mainly shrimp. In the year 2000, for instance, the total volume of exports from the east coast (95,520 MT) is less than a third of those from the west coast (325,555 MT), but in terms of value, the exports from the east coast were higher by more than 30% over those from the west coast (nearly 38,000 million rupees as against 26,000 million rupees on the west coast) (Table 4). During 1999-2000, Kochi Port handled 26.7 percent by volume and 22.2 percent by value of the total exports and stood first in the country. Chennai and Vizag Ports handled 7.5 percent and 6.9 percent by volume and 20.6 percent and 17.7 percent by value respectively, asserting their supremacy in value terms.

Country-wise exports of marine products

The main importers of Indian seafood are Japan, the European Union (EU), the United States of America (USA), Southeast Asia (including China) and the Middle-east. During 1996-2000, Japan accounted for 19 percent by volume and 46 percent by value of all exports from India. The EU’s imports work out to 16 percent by volume and 15 percent by value and the US’s imports to 10 percent by volume and 14 percent by value. The Southeast Asian countries imported 48 percent by volume and 20 percent by value of the total exports, which is in keeping with their preference for finfish, considered to be a large volume-small margin trade (Table 5 and Figure 5). China imported 42 percent by volume of the total exports, followed by EU and Japan (16 percent each) and the United States (10 percent). However, there has subsequently been a steep decline in the imports of finfish (ribbonfish, in particular) from China as a result of tighter import policies, which reduced Indian exports to that country to less than half (Elias Sait, 2001). The exports to the top 20 countries from India are given in Table 6. Major markets for Indian shrimp in value terms are Japan (60 percent), USA (16 percent) and EU (13 percent), with other countries together accounting for about 11 percent (Table 7). An important conclusion that emerges is that in value terms Japan, USA and EU account for a lion’s share of imports from India (75 percent of overall revenues and 89 percent of shrimp revenues), which has implications on the sustainability of trade.

Contribution of shrimp to total exports

The contribution of shrimp to overall exports has gone up from a mere 13 MT in 1953 (Kurien, 1985) to 110,275 MT during 1999-2000 (MPEDA, 2001:37), as shown in Figure 6. However, in
percentage terms, the contribution of shrimp by volume to overall exports has been showing a declining trend – from about 59% in 1978-79, it came down to a little over 32 percent in 1999-2000 (MPEDA 2001: 27 & 37)(Figure 7). The decline is caused by increases in exports of finfish, cuttlefish, squid, dried fish and live items (MPEDA, 2001: 29) (Table 8). In terms of value, the contribution of shrimp came down from 78.6 percent in 1988-89 to 71 percent by 1999-2000\(^1\)(Figure 8). Still, it is quite substantial and any changes in its production or trade aspects will have an impact on the seafood export industry as a whole.

**Contribution from capture and culture sources**

Shrimp from marine capture fisheries accounted for the entire quantity of shrimp exported until 1987-88\(^2\). However, between 1987-88 and 1999-2000, the contribution of capture shrimp has come down to 22 percent of the quantity and 24 percent of the value of the total shrimp exports from the country, and in terms of quantity, it has dwindled from a peak production of 55,736 MT to 24,275 MT (MPEDA, 2001: 37), and the declines are still continuing. In 1988-89, shrimp from culture sources contributed nearly half the total exports of shrimp, and further increased to 78 percent by 1999-2000 (Figure 9). In other words, cultured shrimp account for a quarter of the total seafood exports from the country (Figure 10). In value terms, the contribution of cultured shrimp to the total value of shrimp export has consistently grown from 49 percent in 1988-89 to 76 percent in 1999-2000 (MPEDA, 2001 Annex 5A). Mathew (2003) notes that in 2001, aquaculture contributed an unprecedented 60 percent of the total export value, thus emerging as the most important seafood export from India.

However, the increase in the percentage contribution of brackishwater production to exports is deceptive, and is related more to the poor performance of the capture sector and raising unit value (from Rs. 244 to Rs. 330) than to increased production. After reaching a peak 82,850 MT in 1994-95, the aquaculture production dipped and it was only in 1999-2000 that it went up beyond its previous peak to reach 86,000 MT. Even this achievement masks another factor: that between 1994-95 and 1999-2000, the total brackishwater area under culture grew by 56%, while the shrimp production grew only 4 percent, that too only in the final year (MPEDA, 2001:39).

**Contribution of small-scale sector to shrimp production**

From the available information, it is not possible to calculate the small-scale sector’s contribution to the exports at the country level, although field studies show that shrimp is not only a targeted catch, but is the mainstay of fishing in many artisanal operations, particularly on the east coast. In Andhra Pradesh, the artisanal sector contributes nearly half the total shrimp landings in the state (ICM, 2002), in Orissa they contribute 33 percent (CMS, 2002) and in Kerala, the motorised sector’s contribution is 21% (SIFS 2002). On average, it would be reasonable to assume that the shrimp from small-scale capture sector contributes between a quarter and a third of the marine shrimp landings in the country.

---

\(^1\) It has become necessary to use different timescales to compare different sets of data due to non-availability of information uniformly for all parameters for the same period. In order to compare the trends, the figures have been culled from different sources, as the references indicate.

\(^2\) Some quantity of shrimp from culture sources began to be exported from early 1980s, but was included with the marine production, so it is not possible to see the contribution of culture sector to exports before 1987-88.
Shrimp products exported from India

Traditionally the level of value addition of seafood exported from India has been very low. Many processing plants send their product in the conventional frozen forms such as headless, PUD and PD varieties, and let the importers do the value-addition. It is possible that a portion of the processed uncooked material that is shipped from India is routed through Thailand and Vietnam where it becomes value added and sent to western markets (SIFFS, 2002). However, many processors have reportedly begun exporting several value-added products in recent times (Shahin & Parameswaran 2001). MPEDA (2000) lists six categories of shrimp products in the exports, but the percentage of individual varieties to overall exports is not known. The investments that are needed to build brands in foreign markets are reportedly very high and are beyond the capacity of all but of a few processors.

3. MAIN STAKEHOLDERS IN EXPORT SUPPLY CHAIN IN INDIA

The largely informal nature of the seafood export chain allowed the participation of a number of poor and very poor people in the production, processing and distribution activities. However, there is little information on the role of different stakeholders. In spite of the strong emphasis on information and knowledge as fundamental features of the reform process, large knowledge gaps exist at the grassroots level on the process and the impacts of trade liberalisation.

The seafood export industry comprises of four distinct entities. They are: (i) producers (ii) intermediaries (iii) processing/export industry and (iv) ancillary workers. The last group constitutes numerically the largest grouping in the sector and includes a wide range of poor people involved in miscellaneous wage earning activities. Frequently, the people in this group have no direct stake in the economics of operation and any changes in the sector affect them secondarily, although no less drastically.

A. Producers

Capture operations are largely carried out by people from traditional fishing castes, while many outsiders are also involved in aquaculture.

Mechanised trawling fleet

In 1997, the mechanised fishing fleet in the country numbered over 47 000 boats and employed 200 000 people (Sathiadhas, 1998:466), of whom 150 000 were employed in trawling. However, considering that at least a quarter of the boats are idling at any given time, the actual numbers of people employed may be less.

Artisanal fishing fleet

According to GOI (2000:128), there are over 225 000 motorised and non-motorised boats in the country, so approximately 900 000 people are possibly employed in sea and estuarine fishing.

---

3 Drawn from ICM (2002) and SIFFS (2002) and revised and updated.
Sharing systems vary across the regions, but it is commonly understood that the crews earn a share in the catches and not a regular wage. Sizeable quantities of shrimp are caught using trammel nets and small gillnets in the artisanal/motorised sector. In Andhra Pradesh and Orissa, a motorised, open-sea based fishing boat targets shrimp for about 3 months spread over two peak fishing periods in a year. The income from shrimp might account for 60 percent of the annual income of a fisherman, and in some years, this could be much higher, although it has come down to 40-50 percent in the last couple of years. In non-motorised estuarine fishing, shrimp may contribute up to 90% of income.

**Culture sector**

The participants in export commodity chains from the culture sector are: (i) small-scale aquaculturists, owning farms of about 1 – 2 ha in size; aquaculture is largely a subsistence activity to them; and (ii) large-scale aquaculturists, who could be individual/family operators or the corporate operators. At present, there are only a few large corporate farms continuing with shrimp farming. The ownership of large-scale farms frequently rests with people of non-fishing backgrounds. Small-scale farmers, who constitute over 90 percent of the aquaculturists, generally obtained their landholdings under development programmes or by sharing the village commons among themselves.

**B. The intermediaries**

The commission agent and the middlemen-trader are relatively new phenomena, who arrived on the scene only after the shrimp export markets began to grow in the 1980s and 1990s. The numbers of commission agents and traders varies from place to place and from time to time. In rural areas, they come from the fishing community or a neighbouring agrarian community, but outsiders are also observed in this trade in urban areas. They play an important social and economic function and – in the absence of institutional safety nets – bear most of the risk that a highly risky trade like shrimp export carries.

Each commission agent has an arrangement with a particular company, which provides a soft loan in cash or kind to him in return for procuring shrimp from individual fishers/farmers. The commission agent in turn lends the money to the fishers and the farmers in return for the right to sell their products on commission basis. The independent traders do not borrow from processing/exporting firms and use their own funds in business, hence they obtain a better price by selling to whichever company or peeling shed is willing to pay them well. The owners of peelings sheds form an important category of independent traders in Kerala. Company agents are employed by processing plants to purchase raw material conforming to the price and quality specifications given to them by the company. They receive monthly wages (in Andhra Pradesh) or commission on a per kg basis (in Kerala).

Investments in trade by the individual traders could range between Rs. 25 000 to Rs. 1 500 000 or more. They frequently form cartels to control the prices and resort to various malpractices in rural areas. The interrelationships between the various categories of traders are amazingly complex, and a simple cost-benefit analysis to assess the profitability of this trade is almost impossible.
C. Processors & Exporters

Pre-processing and peeling centres

These pre-processing centres are individually owned. Until recently, pre-processing activities generally involved beheading and peeling, but increasingly peeling is being done at the processing plant itself. The number of people employed in a pre-processing centre varies depending on the place and season, as workers are employed on a daily wage basis depending on availability of shrimp. The peeling shed industry is an important source of employment in Kerala. There are regular (registered) and seasonal peeling sheds, employing between 25 and 100 women each – generally from the local fishing community – and pays a fixed rate based on the quantity peeled. Many women also collect raw material from the large peeling sheds for peeling at home, and are paid a fixed, but lesser, rate than those who peel in the shed. Decreasing work and increasing competition have caused many women to move out of this activity.

Processing industry

Processing for the export sector is different from the other activities in the fishing industry in that it is in the organised sector (even though the product it processes comes from the informal sector). SIFFS 2002 notes that 87 percent of the seafood processed in Kochi belt in Kerala during 1999-2000 was done by eight processors out of a total 69 processing plants in the area. Nearly 70-80 percent of the seafood in Andhra Pradesh is reportedly processed by four or five large companies. Some of the large processors also own factory vessels to have a better control over the quality of the catches and the operations. There are different categories of processors/exporters, depending on the extent of their involvement in both processing and exporting.

Workers in shrimp processing activities

The seafood processing plants employ women for pre-processing, grading, sorting and packing. MPEDA (2002) notes that nearly 80 percent of the workers in seafood processing plants are women from economically weaker coastal communities. The number of women employed in a processing plant ranges between 100 and 250, and considering there are about 400 registered processing plants in the country, the total number of women employed in these plants could range between 40,000 and 100,000. For many of these women, the wages from processing activities are the only – or the most important – source of income at the household level.

The fact that a large percentage of the processing workers are generally poor migrant girls from Kerala leading cloistered lives inside the factory premises under poor living and sanitary conditions makes them vulnerable to exploitation (Beena, 1992). Processing workers receive low wages (Rs. 1,200 to Rs. 1,500, going up to Rs. 2,000 per month) and work long and irregular hours (12 hours or more at a stretch). Many processing plants keep the girls in the ‘temporary labourer’ category, effectively blocking their chances for a fair deal through legal mechanisms. The Factory Act and the Inter-State Migrant Workers (Regulation of Employment and Conditions of Service) Act of 1979 are largely bypassed. The EU regulations impose certain basic standards on the status of employment as well as the quality of life of the processing workers, which reportedly have a positive impact on the conditions of the processing women.
D. Other participants

Aquaculture involves hatchery owners, operators and workers as well as daily wage labourers for preparation and management of pond operations and regular watch and ward staff. Processing and export activity depends on a large number of ancillary workers, technicians, transporters, carriers and very little quantitative or qualitative data exists on their existence and functioning.

There are 260 shrimp hatcheries in the country, with more than half of them – 133 – located in Andhra Pradesh and another 72 in Tamil Nadu (AAI, 2001: 15). There are 33 feed mills in the country, with Andhra Pradesh and Tamil Nadu accounting for 27 of them (AAI, 2001:15). Being sophisticated technological activities, which are operated along professional industrial lines often with active foreign collaboration or as subsidiaries of large international companies, the working conditions in the hatcheries and feed mills are considered to be superior to the other systems in the fisheries sector.

In sharp contrast to the ultra-modern aqua-hatcheries are the shrimp seed collectors who, until early 1990s, were the main source of seed for culture operations in the country. However, from being the lifeline of the aquaculture industry, natural shrimp seed collection became a banned activity by late-1990s, effectively criminalising and marginalising a vast number of coastal people. Still, lacking alternatives, many poor people continue to persist in shrimp seed collection.

E. Ancillary participants

Other ancillary participants in the seafood export chain include: carriers and transporters, pre-processors and processors, packers and handlers, ice makers and sellers, technicians, crate and basket makers, insulated systems manufacturers and service agents. Interactions with them reveal that their understanding of the rapidly unfolding processes of liberalisation and its impact on their own livelihoods is not very detailed.

4. THE POOR WITHIN THE EXPORT COMMODITY CHAIN

Using a set of 16 indicators based upon the livelihood assets of the coastal fishing communities (developed by ICM in 2003), the composite wealth ranking of different stakeholder groups in the export chain have been worked out and are as follows:

<table>
<thead>
<tr>
<th>Stakeholder group</th>
<th>Rank (1 – 8)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fishing crew – non motorised</td>
<td>3</td>
</tr>
<tr>
<td>Fishing crew – motorised (including BLCs)</td>
<td>4</td>
</tr>
<tr>
<td>Fishing crew – mechanised</td>
<td>5</td>
</tr>
<tr>
<td>Boat owners – non motorised</td>
<td>3</td>
</tr>
<tr>
<td>Boat owners – motorised (including BLCs)</td>
<td>5</td>
</tr>
<tr>
<td>Boat owners – mechanised</td>
<td>7</td>
</tr>
<tr>
<td>Shore-seine owners</td>
<td>5</td>
</tr>
<tr>
<td>Shore-seine labourers</td>
<td>3</td>
</tr>
<tr>
<td>Aquaculturists – large-scale</td>
<td>8</td>
</tr>
</tbody>
</table>

\[4 \text{ = Extremely poor} \quad 8 \text{ = Well off} \]
**Consolidation of different livelihood groups in Andhra Pradesh and Orissa into different wealth categories:**

<table>
<thead>
<tr>
<th>Well off (7-8)</th>
<th>Moderate (5-6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aquaculturists – large-scale</td>
<td>Shore-seine owners</td>
</tr>
<tr>
<td>Boat owners – mechanised</td>
<td>Boat owners – motorised</td>
</tr>
<tr>
<td>Commission agents</td>
<td>Fishing crew – mechanised</td>
</tr>
<tr>
<td>Large scale trader/financiers</td>
<td>Auctioneers</td>
</tr>
<tr>
<td>Processing factory owners</td>
<td>Suppliers of ice</td>
</tr>
<tr>
<td>Peeling shed owners</td>
<td>Engine mechanics</td>
</tr>
<tr>
<td>Exporters</td>
<td>Company agents</td>
</tr>
<tr>
<td>Transport owners</td>
<td>Hatchery workers</td>
</tr>
<tr>
<td>Hatchery owners and operators</td>
<td>Feed mill workers</td>
</tr>
<tr>
<td>Feed mill owners and operators</td>
<td></td>
</tr>
<tr>
<td>Feed mill workers</td>
<td></td>
</tr>
<tr>
<td>Poor (3-4)</td>
<td>Very Poor (1-2)</td>
</tr>
<tr>
<td>Fishing crew – non-motorised</td>
<td>Aquaculture labourers</td>
</tr>
<tr>
<td>Fishing crew – motorised</td>
<td>Shrimp seed collectors</td>
</tr>
<tr>
<td>Boat owners – non-motorised</td>
<td>Procurement and packaging assistants</td>
</tr>
<tr>
<td>Aquaculturists – small-scale</td>
<td>Basket weavers</td>
</tr>
<tr>
<td>Shrimp peelers – harbour based</td>
<td></td>
</tr>
<tr>
<td>Shrimp peelers – factory based</td>
<td></td>
</tr>
<tr>
<td>Shrimp peelers (village/household based)</td>
<td></td>
</tr>
<tr>
<td>Transport workers</td>
<td></td>
</tr>
<tr>
<td>Processing plant workers – women</td>
<td></td>
</tr>
<tr>
<td>Shore-seine labourers</td>
<td></td>
</tr>
</tbody>
</table>
Obviously, this categorisation is only indicative because of the complexity that characterises poverty in different locations, among different stakeholder groups within and between areas. Differences in terms of caste, religion, gender, occupation, and age play a role in deciding whether a family is sustainably employed or not. However, as an indicative measure of poverty among the different export stakeholder groups, this has been found to be a useful proposition.

5. VULNERABILITY IN FISHING COMMUNITIES

Since 1990s, three issues dominated Indian export scene: decline in overall catches, particularly shrimp; fluctuations in international markets depressing prices and profitability; and overcapitalisation of the production and marketing activities increasing risk. An important point to note is that virtually everyone in the sector – from the poorest shrimp peeler to the most affluent processor/exporter – is affected by the changes one way or the other and, more than poverty, it is insecurity that has serious impacts upon most occupations in the export sector.

The main cause of vulnerability is the single-minded dependence on shrimp. Shrimp production from both capture and culture sources has been quite uncertain in the last decade and the downward trend of production has an impact on everyone in the sector (see Elias Sait, 2001). The traders also face serious risks when they invest heavily in shrimp from capture and culture sources and in every village there are at least a few traders who lost heavily in shrimp trade. The lack of shrimp means that the processing industry operates at 15 percent of its capacity in all states, and its impact is felt on the profitability of operations and employment potential. Peeling operations in places like Kakinada have been folding up long before the EU regulations came along, and this is directly attributed to decline in catches.

The second source of vulnerability is the international fluctuations in seafood markets. The emphasis on shrimp and on two or three major developed markets (Japan, the EU and the US) has meant that even a slight fluctuation in the shrimp market has catastrophic consequences for everyone down the line. There are indications that such fluctuations are on the rise.

A third source of vulnerability comes from the cost of operations, which keep going up constantly and the demand for higher investment is almost always in inverse proportion to the profitability of operations, with the result that many stakeholders have begun to opt out rather than invest more and risk their future. An important reason for the overcapitalisation is, once again, shrimp! Because the returns on shrimp were extremely favourable, many producers and processors invested in excess capacity, leading to high investments and higher recurring costs, and when shrimp declined in catches, the cost of operations became suddenly very expensive.
CHAPTER 2: IMpACTS OF TRADE LIBERALISATION ON FISHERIES SUBSIDIES AND SEAFOOD LEGISLATION IN INDIA

TRADE LIBERALISATION IN INDIA

Faced with a serious balance of payments crisis, India embarked upon a massive programme of liberalisation in early 1990s. The reforms involved opening up the economy, reducing the public sector’s role, and liberalising and strengthening the financial sector (World Bank, 2000:2). Licensing for domestic manufacture was abolished for all but a few industries. The private sector was permitted to enter into areas hitherto reserved for the public sector. Import tariffs were drastically reduced. And the Indian rupee was devalued significantly.

Naturally, these changes have far-reaching impacts not only on the economy, but also on every facet of life both directly and, in many cases, indirectly. In practical terms, liberalisation has brought about a shift in policy focus from technology to market as the effective purveyor of growth and development, although technology still remains an important instrument of change in liberalisation programmes. In spite of the strong emphasis on information and knowledge as fundamental features of the reform process, major knowledge gaps exist at the grassroots level on the process and the potential impacts of trade liberalisation. This has implications not only on the direction that the reforms would take but also on the participation of the people in decision-making processes. Field studies during this research have strongly suggested that people’s role in the larger processes of liberalisation is gradually diminishing not only for lack of space, but also for lack of capacity.

The liberalisation of Indian economy in 1990s coincided with the establishment of the World Trade Organisation (WTO) and India became an important signatory to the various trade agreements. This has given a new dimension to the debate on the impact of liberalisation, because the structural adjustment policies guiding the domestic economy have to reckon not only with stabilising the Indian economic performance but also make sure that the processes are in line with the global trade agreements. The policy responses have largely been two-fold: at the domestic level, they are focusing on fiscal discipline while at the international level, they argue for special preferences to accommodate the conditions that prevail in the developing countries with large populations like India. On the other hand, there are differences between the two processes: for instance, within the fisheries sector, while the emphasis of the WTO has been on the economic and trade-distorting subsidies, that of the domestic liberalisation policies is upon reducing the social or welfare subsidies. Together, the removal of social and economic safety nets – in the context of declining viability of existing livelihoods and increasing need for external support – could effectively undermine the wellbeing of a large number of people.

The reforms process has been uneven in terms of the speed with which it has proceeded in different sectors and on different issues. The cautious pace of the reforms means that they have not run their full course yet – in fact, many people are of the opinion that the reforms are only

---

5 That the ‘information revolution’ taking place in the country is actually ‘information technology revolution’ makes the access to information not only more difficult for a vast majority of population but, for that same reason, makes it possible for a tiny minority to control it.
beginning in the fisheries sector. Thus, while there are definite indications of changes in policy, their actual implications at the primary stakeholders’ level are not often clear. On the other hand, a number of changes are already happening at the grassroots level and are having significant impacts on different stakeholders, but these changes and processes are more subtle and general (i.e., they are not specific to any one sector) that they simply seem to happen without anyone noticing, particularly at the macro-level.

At a different level, the last decade has also seen much debate on the pros and cons of ‘globalisation’, and the debate has only been growing with time; the only thing certain about it being that the last word on the subject is a long way off yet. In the meantime, one must be cautious while ascribing any and every change – either positive or negative – to ‘forces of globalisation’ because experience shows that many of these changes could have other causes as well. This is particularly so in the case of fisheries sector.

This suggests that the changes in subsidies and seafood legislation – the two trade issues covered in this study – and their impact on the different stakeholders, particularly the poor, will need to be discussed at two levels – at the national level and at the primary stakeholders’ level. This chapter will provide a macro picture of the changes due to trade liberalisation, while the following chapter focuses on the impacts on different stakeholders.

**New Trade policies and fisheries sector in India**

Import tariffs and quantitative restrictions (QRs) are considered protectionist measures which fall well within the definition of subsidies (of the ‘red light’ category), and these have played a major role in the pre-liberalisation period when self-sufficiency was the state’s motto. Under the new trade policy initiated since 1991, three major changes have been effected in agricultural trade (which are applicable to fisheries sector): (i) the government does not determine the value or nature of exports or imports, (ii) QRs on the agricultural trade flows were dismantled completely since April 2001 and (iii) tariffs were reduced and fish and fish products were allowed to be exported under the open general license (OGL) (Anjani Kumar et al 2003:10). While the actual impacts of these changes are not yet clearly apparent, there are apprehensions that some of the changes will have certain impacts upon the industry.

**Impact of dismantling QRs on imports**

It was the dismantling of QRs on imports that caused considerable alarm in the fishing industry. Under the Export-Import (exim) policy of 1992, import of most of the fisheries items was either restricted or prohibited. But in the next exim policy (1997-2002), the list of freely importable and importable items under Special Import License (SIL) was expanded considerably. In the latest exim policy (2002), almost all commodities were moved to the list of freely importable commodities, except for five groups (Anjani Kumar et al 2003:16) (Table 9). The lifting of QRs is also accompanied by a relaxation in tariffs on fish products, which have come down from 60 percent in 1988-89 to 35 percent in 2002-03.

As a result, it was feared, large-scale imports would swamp the Indian markets and, in the short term, this would lead to a crash in the market prices and in the long term, the marginalisation of
Indian fish producers (Anjani Kumar et al 2003: 11). The revival of the imports as a percentage of the value of exports from negligible quantities in 1992 to about 1 percent by 1998 boosted these anxieties. On the other hand, the lifting of QRs on imports was welcomed by the processing industry, which was working at an average 15 percent capacity and needed new sources of raw material very badly and had been clamouring for a change in import policy for a long time (SIFFS, 2001). The consumers were expected to benefit from availability of fish at cheaper prices.

In any case, for many reasons – flux in international seafood markets, sagging global production, commercial non-viability of imports for processing or domestic trade purposes (Swamy, pers.com) – fish imports have not gathered momentum and it becomes difficult to assess their true impacts already.

However, the issue remains important because it has potentially significant consequences for the Indian producers. A large majority of Indian producers depend upon the highly uncertain marine production, one which is characterised by multi-species fisheries. It will be extremely difficult for them to compete with a superior quality, standardised, aquaculture product from abroad, particularly when the latter is available consistently, at a cheaper price and in a much better packaged form. The imports from a country like China do not only stand up to the quality and packaging requirements (helped immeasurably by the fact that India still does not have production specification standards or quality requirements for imports; see Mehta and George, 2003: 3), but could also be substantial enough to swamp the local production many times over, if the rising tide of diverse Chinese products in Indian markets is any indication.

Already, there are at least a few examples in agriculture sector where imports from abroad have had a severe impact upon Indian production and trade. The import of palm oil from Malaysia (which drastically affected the groundnut and coconut markets), sugar, cotton and textiles, wheat and rice, livestock products (milk powder and butter oil) – in spite of the fact that India has a surplus production in most of these agricultural commodities – has had serious consequences for Indian producers (Chowdry, 2001). Fears have also been raised over the possible impacts of importing rice from China on the already severely stressed rice farmers in India.

Impact of liberalised deep-sea fishing policy

Another potential threat to Indian producers is likely to come from distant water fleets from other countries as a result of liberalised deep-sea fishing policy, which came into effect from November 2002. The government’s contention is that, considering the inability of the existing fleet to fish in the offshore waters, a vast resource remains untapped, which is an economic waste. Moreover, the argument goes, if India fails to make use of its EEZ productively, this may spur landlocked countries like Nepal and Bhutan in the region to lay claim to those waters and lease them to distant foreign nations anyway (GOI, 2001b:578). Constrained as the government is in extending direct support for developing indigenous capacity for harvesting deep-sea resources by the perennial resource crunches as well as by the winds of liberalisation – which frown on subsidies, but support foreign investments – blowing across the country, it expects that allowing the foreign vessels will help address several problems at once.
Sebastian Mathew (2003) notes that under the changed legal regime for foreign investment in India it is possible for excess fishing capacity in other countries to end up in the Indian EEZ. The experience of the ‘deep-sea’ fishing fleet on the east coast of India – which seldom fished beyond 100 metres depths and competed regularly with the small mechanised boats for the shrimp – shows that there is little to stop the new fleet from competing with the domestic sector for the same resources. The deep sea trawlers frequently took the plea that the real offshore waters were not productive at all and fishing there made operations non-viable. The fact of regular poaching by Southeast Asian boats in the offshore waters in the Indian EEZ makes this claim a bit dubious, but it might still hold water to help the new fleet to encroach into the nearshore waters. The fact that the country does not have an effective monitoring system, and the resources of the Coast Guard are already overstretched, will encourage this trend. Under the new regime, since there are no vessel quotas or license fees commensurate with the value of the catch, and no requirement to employ Indian workers or to land in Indian ports, the whole system is loaded in favour of foreign deep sea fishing vessel operators registered as Indian companies. There are also concerns related to safety problems (S Mathew in The Hindu, 6 January 2003).

On the other hand, going by anecdotal evidence, it is possible that many existing boats in the country – particularly on the west coast – have already begun fishing in the offshore waters. Estimates put the contribution of these offshore/deep-sea catches to overall landings at 10-20 percent on the west coast, but this gets to be recorded as the inshore catch and thus goes unnoticed. What this indicates is that, if a few changes are made to the designs and fishing methods, it is likely that the existing fleet could undertake operations in the offshore, and that there is no need to import new boats with no perceptible benefits to the country, but with considerable potentially negative implications.

**Impact on exports**

Although liberalisation is supposed to bring many new opportunities in its wake, these have not yet become visible to the export stakeholders, particularly the poor. The dependence on a fugitive resource, which is gradually declining, means that the new opportunities – like, for instance, to export more fish abroad – remain hypothetical. It has been argued that the lifting of QRs opens new marketing opportunities for Indian seafood in other countries and would benefit the producers in the medium- to long-run. However, there are indications that this is easier said than done. The remaining tariff barriers in some of the importing countries are not considered to be a problem by the Indian seafood industry, but they do pose an obstacle by way of exports to countries like China and even the EU (Mathew 2003). Moreover, the new opportunities come in conjunction with quality and other trade-related requirements that the producers would have to subscribe to for entering global trade. It will be an extremely difficult task for the hand-to-mouth coastal fishers of India to stand up to anything more than rudimentary standards. In a classic Catch-22 paradox, any efforts by the government to improve their capacity – particularly in terms of enhancing access to global markets – will most likely end up in the category of ‘red light’ or ‘prohibited’ category of subsidies!

Within the existing export trade, while the overall policy environment has become even more positive than previously to promoting the growth of exports, the opportunities for taking advantage of the new exim policy remain rather uncertain on account of production trends as
well as the market trends. In 1997, buoyed by the performance of the markets as well as the growth in production from aquaculture, the seafood export industry set an export target of US$ 3 billion by 2000. However, the export earnings actually fell below the 1997 level (Elias Sait, 2000). The export of shrimp, which is the mainstay of exports, has fluctuated at 100 000 MT since 1994-95, and the contribution of capture sources has consistently declined through the period. As indicated, even the culture production stagnated from 1994-95 onwards.

Secondly, on the market front, SPS measures have clearly played a major role in affecting the exports – it has been reported that nearly 15 percent of the total seafood exports from India in 1996-97 were lost because of detention by the USA (Jha, 2002 cited in Anjani Kumar, 2003: 21). Many companies and the quality implementation agencies in India consider the implementation of new regulations on fishery products is little more than a *de-facto* non-tariff measure against value-added products originating from developing countries (Anjani Kumar et al, 2003: 21; Mathew, 2003). The issue of quality control in India and the impact of SPS measures will be dealt with in more detail in a subsequent section.

Other trade fluctuations in late-1990s – turtle excluder device restrictions by the US, the Southeast economic crisis, the slashing of Indian seafood prices by the Japanese companies by 30 to 40 percent, the tightening of import regulations by China – which brought down China’s share in finfish exports from India from 40 percent down to 20 percent – have all had an impact on the trade and, consequently, on the viability of the industry (Elias Sait, 2000).

It is clear that the benefits of liberalisation are contingent upon the capacity to capitalise on the new opportunities with capital, knowledge, skills and other assets that many stakeholders in the sector do not have. And the opportunities also require a radical transformation at a larger level – improved services, infrastructure and other facilities – which is happening to some extent, but will continue to remain an uphill task. In other words, for the export poor to take advantage of the new opportunities that trade liberalisation offers are quite some distance away yet.

**IMPACTS OF TRADE LIBERALISATION ON SUBSIDIES AND SEAFOOD TRADE**

**A. Subsidies in the Post-Liberalisation Period**

At the macro-level, the issue of subsidies will be reviewed at three levels: (i) in the fisheries context at the international level; (ii) in the general macro-economic context at the national level; and (iii) in the fisheries context at the national level.

**Fisheries Subsidies in the international context and implications for Indian fisheries**

Internationally, fisheries subsidies have been attracting attention since early 1990s for two reasons: (i) their negative impacts upon the environment and (ii) their trade distortion effects. Studies by the World Bank (Milazzo, 1998), the Food and Agriculture Organization of the United Nations (FAO 2000 and FAO 2002), the Asia-Pacific Economic Cooperation (APEC) (PricewaterhouseCoopers 2000), the United Nations Environment Programme (UNEP) (Porter, 1998; Porter 2001; UNEP 2000), the Organisation for Economic Cooperation and Development (OECD) (Various) and several others have discussed the issue in detail, defining, classifying,
quantifying, evaluating the subsidies from various perspectives (Annexure 2). Within India, the debate on fisheries subsidies is just beginning so the information on the subject is meagre\(^6\).

The ongoing global debates of fisheries subsidies focus mainly on the impacts of subsidies upon the twin issues of trade and environment, and largely bypass other dimensions like equity issues, livelihoods and quality of life. This omission could potentially lead to a situation where a subsidy which does not explicitly distort trade or negatively affect the environment, but has serious consequences on the livelihoods of some poor stakeholders would pass muster as being legitimate, while the general air of suspicion that hangs over the issue of subsidies in current development thinking could mean phasing out even some positive ones, for e.g., those contributing to the general welfare of the poor, which, as this study shows, is already happening.

The current debate about what constitutes a subsidy – particularly of the indirect variety – has many serious implications for a developing country like India. When issues like tax rebates, subsidised lending rates, user fees for accessing common resources or trade-related infrastructure facilities (ports, jetties etc) begin to figure in the list of subsidies – whether ‘prohibited’, ‘actionable’ or ‘non-actionable’ – there is a need for a wider debate on the issue, particularly amongst the primary participants in the activity. Unfortunately, very little of the debate on the issue percolates to the primary stakeholder level and this can have negative consequences.

**Fisheries subsidies and the WTO negotiations, 2005**

During the Uruguay Round of Negotiations, fisheries was discussed in the Negotiating Group on Natural Resource Based Products (NRBPs), and fisheries subsidies were included under the remit of the WTO Agreement on Subsidies and Countervailing Measures (SCM), which covers all goods except agriculture (Porter, 2001). The 1994 SCM Agreement has been criticised, for instance by the group of countries calling themselves ‘Friends of Fish’ (of which India is one), as being mainly a trade agreement and, as such, was negotiated to address market distortions and respond to trade-related economic injury, and does not adequately address other negative trade, environment and development impacts of fisheries subsidies (Milazzo, 1998; Mathew 2003). There has been much debate on the need for a separate agreement on fisheries subsidies among the WTO members and the Fourth WTO Ministerial Conference held in Doha in November 2001, agreed to include fisheries subsidies in the new round of negotiations to be held in 2005.

This will lead to a question regarding the possible impacts of the next round of negotiations on India\(^7\). Within the framework of the SCM agreement, only export subsidies are to be treated as prohibited ones. And, as Mathew (2003) notes, “Even if we treat the entire annual budget of Marine Products Export Development Authority as a prohibited subsidy, which may not be the case if we do a careful analysis of all their schemes, it amounts to less than half percent of the annual seafood export value.” MPEDA (2002) provides a detailed assessment of the various

---

\(^6\) The International Collective in Support of Fishworkers (ICSF) did a major study on the issue of fisheries subsidies in the country for the Ministry of Commerce, Government of India in 2003, but the study and its conclusions remain confidential. The Center for Management in Agriculture, Indian Institute of Management, Ahmedabad, is reportedly working on a research project “Developing India’s Strategic Response to the Global Debate on Fisheries Subsidies”.

\(^7\) A more urgent reason for asking this question would also be the ongoing anti-dumping case filed by the Southern Shrimp Alliance (SSA) against India, Thailand, Vietnam, Ecuador, China and Brazil, accusing them of flooding the US market with cheap shrimp. It is urging for high tariffs on imports from those countries.
direct subsidies in fisheries sector. It estimates the subsidies provided by various government agencies and departments in the country and concludes that the total subsidy component spent by MPEDA and other departments contingent on export was less than Rs 100 crore (US $ 23.35 million) during the Ninth Five Year Plan. This is compared against the total worth of export of marine products during the 9th Plan period, which is Rs. 26 842 crores (US $ 6 268.57 million). This shows that the subsidy contingent on export is negligibly low (0.37 percent). However, even this spending was not only the subsidy directly but for various other sub-sectors which are not contingent on exports. Even when the total spending by the various Central and state governments on fisheries was compared against the total annual value of production, the total spending in the fisheries sector works out to only 2% of the revenue from the sector.

The MPEDA concludes that discipline on fisheries subsidies will not have major impact on India since the quantum of subsidies is meagre, which will become even less significant if the proposed agreement takes the special characteristics of the sector into consideration when dealing with fisheries subsidies.

A more disturbing conclusion that MPEDA draws from this analysis is that, considering the low level of subsidies given to the sector, the country could actually increase its current support programmes, particularly to support the development of mechanised and deep sea fishing sector, for encouraging harvesting of Oceanic tuna and deep sea shrimp and lobster resources. The potential implications of such a move on the environment and livelihoods – in the light of historical experience – can be far reaching. MPEDA also takes the view that traditional crafts and small mechanised boats, aquaculture and seafood processing should be exempted from being covered under any clause or agreement, because these sectors will be required to be assisted by various agencies in the coming years.

Thus, as pointed out earlier, going by the existing international frameworks of debate which focus on trade effects alone, the negotiations are unlikely to have an impact on the existing subsidies, but might in fact provide the temptation to a country like India, where fisheries subsidies have traditionally been a comparatively low-key affair, to spend more on capacity- and effort-enhancing subsidies. The other conclusion one can draw is that any changes to the subsidy regimes in Indian fisheries are more likely to come as a result of the liberalisation programmes within the country than by international trade negotiations, as the next section shows.

Subsidies in the general macro-economic context in India

NIPFP (1997) made an estimate of the total budget-based subsidies for the Central Government for 1994-95 and found that the subsidies in the non-merit category amounted to 3.8 percent of the GDP and those in the merit category amounted to 0.72 percent of the GDP. A discussion paper brought out by the Ministry of Finance, Government of India, in May 1997 based upon this NIPFP study, proposes a thorough overhaul of subsidies and suggests reducing the overall scale of subsidies (through phased increases in user charges etc) (GOI, 1997b: 16). The paper sets a target of reducing the subsidies on non-merit goods from 10.7 percent to 6 percent of GDP in three years, with a further goal of reducing it to three percent in another two years. Significantly, as a corollary to this Discussion Paper, a classification of publicly provided goods/services was made to categorise subsidies into ‘merit’ (i.e., deserving continued subsidisation) and ‘non-merit’
(i.e., deserving either no subsidisation or limited subsidisation) groups (Srivastava and Bhujanga Rao, 2002). According to this classification, most of the fisheries development programmes fall into the ‘non-merit’ category, to be withdrawn altogether or reduced in size.

More seriously, this exercise puts urban and rural health services, urban water supply programmes, labour and labour welfare, agricultural finance institutions, cooperation, minor irrigation, power, ports, road transport and other transport services, postal services, foreign trade and export promotion and civil supplies in the ‘non-merit’ category. Many of these changes could have disastrous consequences for the export poor.

Srivastava and Bhujanga Rao (2002:19) found that, despite of the Discussion Paper’s assertions on curbing unwarranted growth of subsidies within a particular timeframe, there is actually evidence that these may have sharply risen in the late 1990s. But it appears that a number of indirect subsidies have been targeted throughout this period. Subsidies to power and petroleum sectors have been drastically cut and the Ministry of Disinvestment began the process of divesting the government’s investments in the public-sector units. Private investment in basic infrastructure projects is increasing and these cannot but have an impact upon the seafood export sector as they do on every other walk of life. The following is a brief summary of the key changes that have a serious impact upon the livelihoods of the shrimp export stakeholders.

Reduction in indirect subsidies for Petroleum products (HSD oil, Kerosene, LPG)

Traditionally, High Speed Diesel (HSD) oil was cross-subsidised with the surplus from petrol and aviation fuel. This is to support the transport industry, which is essential to maintain flow of goods, food materials and other essential commodities throughout the country. As a result, the consumption of diesel has shown a consistent increase – between 1991-92 and 1995-96, it increased by 42 percent, and this in turn led to a massive increase in subsidies as well. Total petroleum subsidies in the country were estimated at Rs 18 440 crores in 1996-97, and the subsidy for HSD increased from Rs 430 crores in 1994-95 to Rs 8 340 crores in 1996-97.

An important strand of the trade reform process has been the reduction in the subsidies for petroleum products; between 1996-97 and 2002-3, the total subsidy has come down from 18 440 crores to 6 709 crores (GOI, 2004). The subsidies on HSD have been completely removed. As a result, the cost of HSD increased from Rs. 11.43 per litre in 1998 to Rs. 27.88 in April 2003 in Mumbai, an increase of 243 percent in five years. In Chennai the increase has been from Rs. 11.30 to Rs. 24.65 per litre during period, an increase of 218 percent. When the increase in diesel price at the beachside is seen from 1989 onwards, it is even more spectacular. Records of the AFCCS diesel outlet at the Kakinada fishing harbour show that HSD was being sold at Rs. 3.77 per litre in 1989, which has gone up to Rs. 23.37 by 2004 – an increase of over six times in fifteen years (AFCCS, internal records) ( Figure 11).

Kerosene (SKO) is another petroleum product that is heavily subsidised for household cooking purposes. It is made available to the poor through the PDS outlets at subsidised rates and even the open market product is subsidised to some extent. At the national level, the subsidy has come down from a peak of Rs 8 151 crore in 1999-2000 to Rs 3 018 crore in 2002-3 and the retail cost per litre has correspondingly moved from Rs. 2.55 in 1998 to Rs. 9.26 in 2003 in Mumbai, an
increase of over 3½ times. Simultaneously, the quantity supplied through the PDS outlets has been curtailed. The open market cost of kerosene is at least 50 to 100 percent higher than that of the PDS supply.

Similarly, Liquefied Petroleum Gas (LPG) which is used as a cooking fuel, and subsidised to the tune of Rs 6 724 crores in 2000-1, felt the impact of reforms in 2002-3, when the subsidy climbed down to Rs 3 691 crores. The cost of a single 14 kg LPG cylinder, which was Rs. 138 in 1998 (Mumbai price), has almost doubled to Rs. 250 by 2003.

*Increased cost of electricity*

In the power sector, against the background of constant efforts to mobilize additional resources and to help bridge the gap in demand and supply, the government formulated a policy in 1991 with the objective to encourage greater investment by private enterprises in the electricity sector. This was followed up with efforts to tighten expenditure, control budgetary deficit, and reduce subsidies. From 1999, several state electricity boards – including Andhra Pradesh, Kerala and Orissa – initiated the process of restructuring following reforms in the power sector. All three states decided on a set of tariff reforms, which would restore the viability of the state electricity boards, which took the form of revising the tariffs for supply of electricity ([www.teriin.org/energy/seb.htm#scenario](http://www.teriin.org/energy/seb.htm#scenario)). A direct impact at the consumer level has been a hike in the cost of electricity. In Andhra Pradesh, for instance, the cost per unit of electricity for ice plants has gone up from Rs. 1.65 in early 1993 to Rs. 3.85 by April 2001 – an increase of 2.3 times (APEPDCL, internal documents). In Kerala, prior to 1997, the cost per unit for industrial purposes was Rs. 1.25, which has gone up to Rs. 3.75 now (SIFFS, pers.com.).

*Reduction in social subsidies*

Nowhere has the debate on trade liberalisation thrown up more sharply divergent views than in case of its impacts upon quality of life. The World Bank, the UNDP and the DFID, among others, suggest that the quality of life indicators have done well during the 1990s, although they still have to go some way. On the other hand, there are equally critical reviews of the performance of the economy and the social indicators during the 1990s. The National Centre for Advocacy Studies (NCAS) (2003) analysed the impact of liberalisation on three basic services – education, healthcare and water – and concluded that these services were becoming increasingly unavailable and unaffordable to the poor. In education, the overall public expenditure has dropped from a peak of 4.4% of the GDP in 1989 to 2.75% in 1998-1999. Aggregate healthcare expenditure is 5.2% of the GDP, of which only 14% is from public resources. The trend in India shows a decline in the public financing of health care from 1.25% of GDP in 1993-1994 to 0.9% in 1999-2000. This, as NIRD (1999) says, ‘has disturbing long-term social and ethical implications’. Similarly, there are indications that the Public Distribution System is being dismantled rapidly (Chaturvedi, 2002). The impact of such changes on the fisheries sector and its participants is not recognised easily in spite of being very significant.
Liberalisation and direct subsidies in fisheries in India

Subsidies have traditionally played an important role in Indian fisheries and broadly fall into two categories: (i) those supporting the promotion and continued use of new technologies related to fish production and processing (i.e., the economic services) and (ii) those contributing to the improvements in the quality of life of the fishers (the social services). A third category is the indirect subsidies, which are not directly targeted at the fisheries sector, but contributed to the sustainability of operations. Annexure 3 provides an indicative list of different subsidies provided to the fisheries sector over the last nine Plan periods. Although the term ‘fisheries subsidies’ has been used in the recent debates to focus on the first of these categories, we also discuss the general welfare subsidies because (i) for the vast majority of poor stakeholders in the export sector, social subsidies are more important than the economic ones and (ii) trade liberalisation appears to have had more impact upon the social subsidies.

India does not yet have a separate fisheries policy. Successive 5-Year Plan documents set the thrust areas for fisheries and these provide a good idea of fisheries development in the country (Table 5). Looking at the budgetary provisions for fisheries development in successive 5-Year Plans, it does not appear that trade liberalisation has made any difference to the total outlays for fisheries, which went increasing through the 1990s. In the Seventh Plan (1985-90), the total outlay was Rs 547 crores; in the Eighth Plan (1992-97), this went up to Rs 1 205 crores and in the Ninth Plan, this stood at Rs 2 070 crores. It is only in the Tenth Plan, that the increase in allocation is meagre – it comes to only Rs 19 crores, i.e., the total outlay is 2 089 crores (GOI, 2001b: Vol II: A-10 & Vol III: 150), which in real terms will most certainly mean less than the allocation for the Ninth Plan. The various fisheries development programmes have also remained largely intact since early 1990s.

While the outlays show an increase in absolute terms, it has however to be noted that the share of fisheries in the total plan outlay has been decreasing – from 0.30 percent in the Seventh Plan, it has slipped to 0.24 by the Ninth Plan (Anjani Kumar et al 2003:5). Whatever it is, there is no denying that the budgetary outlay for fisheries is miniscule, which could be a reason why there has been no drastic change in subsidies. Simply put, at a quarter of one percent of the GDP, it does not make any difference at the macro-economic level to necessitate radical changes to the allocation. On the other hand, considering the quantum of subsidies going into agriculture, the amount for fisheries is negligibly small and at the current levels of investment, the cost benefits in fisheries must be significantly higher than in many other sectors, and it makes sense to maintain the allocation at the existing level.

Fisheries subsidies and environmental implications

Mathew (2003) notes, “Even though fisheries subsidies are small, from an overcapacity and overfishing point of view, their role is to be better recognised in India.” Unfortunately, this does not seem to receive much attention as yet. For instance, while the problem of overfishing and the need for a departure from the open access concept in territorial waters is underscored in the policies (GOI, Draft Marine Policy, 2002; GOI 2001), some of the measures suggested to
address the problem – such as introduction of ‘new generation resource-specific vessels’ including trawlers and gillnetters-cum-longliners to tap sources in the offshore waters, ‘development, demonstration and popularisation’ of fuel saving designs of fishing craft and gear, pelagic and mid-water trawling, new hull materials and so on (GOI 2001a: 75-78) – could potentially be a cure worse than the disease!

B. International seafood legislation on the Indian seafood industry

The lifting of QRs and tariffs by India in the 1990s coincided with similar changes taking place internationally. However, the gains of market access under WTO negotiations may be eroding as a result of non-tariff measures (Anjani Kumar and P Kumar 2003), because the lifting of tariff barriers has been frequently accompanied by introduction of new and less direct barriers in the shape of technical regulations and standards. The sanitary and phytosanitary measures (SPS) are considered an important non-tariff barrier to trade. While some of these measures are certainly based on genuine apprehensions, there are also others that are motivated by concerns other than health considerations. Food exports from India have been affected adversely by selective application of sanitary and phytosanitary measures in the last few years10, but the most outstanding of these measures in Indian context has been those concerning the export of shrimp.

The issues related to changes in seafood legislation will be discussed at three levels: (i) in the international context; (ii) in the general macro-economic context in India and (iii) in the fisheries context at the national level.

Changes in seafood legislation: the international context

Overarching the changes in seafood legislation at the international level is the WTO Agreement on Sanitary and Phytosanitary Measures, which attempts to address the fear that the SPS measures may be used for crafting trade distortion and used for protectionist ends. The SPS Agreement lays emphasis on institutional and legal mechanisms across the WTO member countries in order to address the issues of harmonisation, equivalence, transparency, technical assistance and processes for dispute settlement. Among other things, the SPS Agreement provides for special and differential treatment in favour of developing countries and least-developed countries (LDC), allowing, under certain circumstances, longer time-frames for compliance, time-limited exceptions from the obligations of the Agreement and facilitation of developing country participation in the work of the relevant international organisations.

Despite such provisions, developing countries are handicapped in tackling the sanitary and phytosanitary measures of the importing countries which may be inconsistent with the SPS Agreement and impede the flow of agricultural trade. As Zarrilli (1999) notes, the developing countries “lack complete information on the number of measures that affect their exports; they

9 This section draws mainly from Mathew (2003); Anjani Kumar and P Kumar (2003); Zarrilli (1999); Mehta & George (2003a); Mehta & George (2003b); Mehta, Saqib and George (2002); Deodhar (2001); Jha (Undated) and Saqib (2001).

10 The ban on Indian grapes by China citing the presence of a species of fruit fly that does not exist in India is one classic example (Mehta et al 2002:18). Insistence on particular technological processes – that are either not available in the country or are expensive and time consuming or yield uncertain outcomes – such as the Vapour Heat Treatment (VHT) of fruits is another good example of SPS being used as a key instrument for non-tariff barrier.
are not sure whether these measures are consistent or inconsistent with the SPS Agreement; they do not have reliable estimates on the impact such measures have on their exports; they experience serious problems on scientific research, testing, conformity assessment and equivalency’.

An important point in the product standardisation in India is that it does not have any quality standard for seafood for its domestic consumers – its standards apply exclusively to the export markets. This will have implications in terms of setting standards for imports on the one hand and in setting up equivalency standards at the international level on the other (Mehta & George, 2003). This is in stark contrast to the prevailing situation in the developed nations like US, EU and Japan, whose domestic standards have actually determined their international standards and, to a large extent, influenced the way standard setting processes evolved at the international level. The result has been that the standard setting process has been dominated by a few countries, and is widely criticised as not being sensitive to the needs of the developing nations. Transparency-related requirements represent a burden for developing countries, while they are often unable to benefit from them due to the lack of appropriate infrastructure. The provision of adaptation to regional conditions, which would be of great benefit to developing countries, has been little used because of the difficulties related with its scientific side. The provisions relating to special and differential treatment for developing countries remain rather theoretical and apparently have not materialized in any concrete step in their favour.

The result is that the developing nations face difficulties when forced to meet SPS requirements based on international standards. They also find it difficult to lodge complaints against a developed country. The regulatory mechanisms and domestic case law for testing such standards are not always adequate, and the complicated nature of SPS agreements mean that only countries with large governmental legal staff may have an advantage in SPS adjudication.

Moreover, as Mathew (2003) notes, strict implementation of the international seafood legislation could potentially marginalise the small producers from the export markets altogether. There is a need to develop the systems keeping the social and economic context in which they would be implemented: to expect a barely-clad subsistence fisherman working his non-motorised catamaran on the east coast of India to follow the same standards as a multi-million dollar export processing plant in Cochin is rather optimistic.

In terms of implementation, there are complaints that standards set in developed nations are frequently trade-distorting. Many processors complain about what Mehta and George (2003) have called the ‘shifting (goal)-post syndrome’, involving frequent raising/shifting of acceptable levels of chemical elements and foreign bodies in the food commodities. The banning of import of shrimp from India on grounds of drug residues is cited as an example. Advances in the technology of seafood analyses have been made to the point that pesticide and pharmaceutical residues can often be detected at the parts for billion, and in some cases, at the parts per trillion (ppt) levels. When zero tolerances are established based on the ability of a test to detect parts per million, the increase in sensitivity to ppb or ppt can turn a ‘safe’ product to an unsafe one. Using the HPLC method, the EU laboratories could detect traces of the antibiotics, chloramphenicol and nitrofuran, at 0.3 ppb and 1 ppb respectively in farmed shrimp from India, which led to rejection of Indian shrimp imports in the EU markets since February 2002.
The standards also vary from one market to another. Mathew (2003) notes that in the US, histamine in canned sardines, mackerel and anchovies should not exceed 50 parts per million, while in the EU, up to 150 ppm of histamine in canned fish is permitted. Whereas the EU requires that all imports should be accompanied by a certificate from an authorised national agency, in the case of US, the individual processor has to demonstrate an understanding and ability to produce seafood according to US regulations. Such differences between nations – within the EU each nation has a separate set of quality requirements spanning from extremely sophisticated to very poor\(^\text{11}\) – cause serious problems for a investment-strapped producer/processor from a developing country, because it is almost impossible to be prepared for the different requirements of different countries all at the same time.

**SPS Agreement in the general macro-economic context of India**

The SPS Agreement requires all member countries to put in place a reasonable implementation strategy, and the Government of India has taken appropriate steps since the Agreement came into force. The agencies dealing with exports in India fall into three categories. These are:

- Export promotion institutions, like the MPEDA, whose role is to act as nodal bodies for interaction between the industry and the government and help the exporters cope up with the demands of the international trade effectively.
- Standard setting bodies. The Bureau of Indian Standards (BIS) is the main standard setting body in India, and is the enquiry point of India under the WTO Agreement on Technical Barriers to Trade.
- Enforcement bodies. The Export Inspection Council notifies export commodities that will be subject to quality control; establishes standards of quality; specifies the type of quality control, and ensures that the export of a notified commodity takes place only if it conforms to the standards. All SPS compliant activities are generally handled by the EIC.

Keeping in view the presence of a large number of agencies, an integrated food law is being considered by the Government of India. It has also reconstituted the Ministry of Food Processing Industries in September 2001 to develop and implement standards.

In the background of the requirements of the SPS Agreement, the Central Committee of Food Safety (CCFS), the Central Fruit Products Advisory Committee (CFPAC), and the concerned apex export promotion institutions are regularly interacting to update and amend the existing domestic food laws. The relevant processing industry specific association – such as the Seafood Exporters’ Association of India – has become an integral part of these transactions. Mandatory regulations have become a norm for all export bound commodity lines. A legal framework – which is evolving into a web of inter-linkages between the different bodies – is already in place.

\(^{11}\) Spain has been known to ban imports of squid and other marine products on the grounds of heavy metal contamination due to presence of mercury. However, there is a curious coincidence between the time when this ban is imposed and excessive landings of these products by Spanish fishermen. The ban is removed when their own landings are low! (Deodhar 2001)
The Export Inspection Council (EIC) and its related agencies provide certification and inspection services to the Indian export. Three types of export inspection and certification systems are operational for agriculture and food products:

- Consignment-wise Inspection (CWI)
- In Process Quality Control (IPQC)
- Food Safety Management Systems based Certification (FSMSC)

Fish and fishery products are certified under the FSMSC system.

Thus, it has been said that the Indian quality inspection and monitoring system is very sensitive to the international food safety standards and is constantly evolving to meet the SPS standards.

**Changes in seafood legislation: the Indian context**

The issue of sanitary and phytosanitary measures (SPS) has been a major cause for concern for the India seafood industry since August 1997, when the European Union (EU) banned the import of seafood from India. The ban was precipitated on three primary counts: (i) serious deficiencies with regard to infrastructure and hygiene in fishery establishments and ‘there is not enough guarantee of the efficiency of the controls by the competent authorities’; (ii) potentially high risk for public health with regard to production and processing of fisheries products; and (iii) contamination by micro-organisms, which might constitute a human health hazard (Saqib, 2001).

Kerala bore the brunt of the impact of the EU ban. Prior to the ban in 1995/96, 48.5 percent of the total value of seafood exported from Kerala was to the EU. In 1996/97 this figure was 37 percent. However, in 1997/98, in the aftermath of the ban, this figure declined to 19.7 percent. Most of the large processors in Kerala were geared to cater to the EU market and the ban came as a rude shock to them.

Faced with the ban, the Indian government began putting in place elaborate process standards. The Commerce Ministry of the Government of India laid down stringent qualification norms for Indian firms to be eligible for export to Europe and ensured their rapid uptake and implementation by the industry. During November 1997, after a review team visited selected processing plants in the country and satisfied itself that the seafood industry was improving along the lines demanded by the EU, the four-month ban was lifted partially, and a few firms meeting the European hygiene standards were certified to export to the EU.

It is reported that there has been a marked improvement in quality after the EU ban was imposed. The processing industries place emphasis on better handling and preservation of raw and peeled material, because ultimately they are going to pay the price for lax quality. However, this emphasis is not always translated into practice, either because the cost of ensuring quality is too high or, more likely, it requires better infrastructure, a factor that is not within the control of individual players.

The greatest change in the perception and practice of quality control has undoubtedly taken place at the level of the processing plants. This is mainly because of tighter monitoring and regulatory
requirements. Since the EU approved plants are subject to surprise checks, the integrity of the process and the quality of the raw materials used have to be maintained at a basic minimum level at all times. The cost of ignoring quality issues can be high. In case of a rejection on quality grounds, in addition to the financial loss there is a real risk of losing the export licence altogether. Processor/exporters complain of harassment by government officials in the event of the rejection of a consignment and this acts as a deterrent of lax quality control. Post EU ban, the use of gloves, facemasks and caps has become mandatory for those working within the processing area. A high level of hygiene is maintained in most processing plants. Currently, the number of processing plants and freezer vessels approved for exporting to the EU stands at 138 and 5 respectively (MPEDA website, 21 April 2004).

The Export Inspection Agency is in overall charge of EU certification to be accorded to the processing units. Multi organisational teams consisting of representatives of EIA, MPEDA and CIFT are formed at two levels: Inter Departmental Panel (IDP) and Supervisory Audit Team (SAT), and these carry out a series of assessments before forwarding their recommendations to the EU for approval of the plant. The areas covered during these assessments cover as many as 36 areas and require a thorough investigation in each case. Subsequent to allotment of the EU approval, the plant has to undertake periodical checks using a checklist. The EIA, with the help of CIFT, undertakes periodical inspection of the factory premises. The system seems to be working effectively, efficiently and along the lines approved by EU.

The new EU standards were followed by the enforcement of the seafood Hazard Analysis and Critical Control Point (HACCP) law in the US from December 1999. This meant that the Indian exporters to the US had to upgrade to HACCP systems. HACCP is also part of the EU food safety standard, but the EU standards are higher than the HACCP standards, so those plants approved for export to the EU could also export to the US.

In December 2000, EU introduced residue monitoring requirements for veterinary medicines in fisheries products from third countries. In March 2001, it further introduced requirements for monitoring heavy metal contamination in a wide range of foods including fish products. Following the EU requirements, the Government of India issued a notification on 17 August 2001, specifying the limits for various antibiotics, pesticide and heavy metal residues in seafood products. During 2002-3, Indian shipments to the EU faced rejection when traces of antibiotics were found in the cultured shrimp. In another instance, consignments of shrimp from India also faced rejection when muddy smell was detected in them. With each crisis, the government swung into action and ensured that the standards of the importing countries were strictly applied at the production and processing stages.

Thus, thanks to the series of shocks from the EU and the US during the last few years, the seafood export industry in India is generally considered to be well prepared for the SPS regime. The government has also been pro-active both in addressing the quality requirements of the importing countries through legislative mechanisms and in helping the industry to adapt to the new requirements. The Australian Quarantine and Inspection Service (AQIS) recognised the Indian certifying agency, the EIC, which means that the seafood consignments from India accompanied by EIC certificate would undergo only random verification sampling not exceeding 5 percent of the consignments.
The experience with quality compliance in the shrimp exports applies at three levels:

- production and pre-processing (including shrimp capture and culture and handling of raw shrimp);
- processing issues (where water quality, source of water for ice making, infrastructure and transportation utilities come in for inspection); and
- post-processing, including testing, packaging and marketing.

There is evidence to show that the legislative dimensions to stand up the SPS Agreement in these three areas have been taken care of by the Indian government, although the implementation of the legislation, particularly at the first level – i.e., production and pre-processing – remains problematic, as shall be discussed later.

**Government support for upgrading the systems to international standards**

At the policy level, going by the Approach Paper to the Tenth 5-Year Plan and the Plan document, the changes to international seafood legislation, or the SPS Agreement itself, appear to receive only marginal interest. The Approach Paper suggests improving hygiene and sanitation in the existing fishing harbours by upgrading them to incorporate the HACCP and ISO 9000 requirements and developing a greater awareness amongst the fishers on the issue of hygienic handling and preservation of fish as the two areas that would need attention. The Tenth 5-Year Plan identifies ‘Creation of health and sanitary check facilities to ensure quality of products as per international standards’ as a thrust area during the plan period, but avoids any discussion of what this will involve.

In practical terms, however, the government has been extending considerable support to the seafood processing industry to upgrade the existing systems to meet the international standards. The various support programmes from MPEDA include (from MPEDA 2001): financial assistance for acquisition of fish processing machinery, installation of flake/chip/tube ice making machines, upgradation of cold storages, installation of generating sets, establishment of chill room facility, installation of water purification system and setting up of water effluent treatment plants. Besides, insulated iceboxes are provided at subsidised cost for use in capture and culture operations and interest subsidy is provided for seafood units to facilitate upgradation. Much of the support is in the form of subsidising a part of the cost (generally 25%) of the infrastructure, which means that the processing plants themselves would still need to invest sizeable sums on their own.
Chapter 3: Changes in Subsidies and Seafood Legislation: Impact on the Shrimp Export Industry in India

Obviously, the changes in subsidies and seafood legislation are having a serious impact in terms of changing the terms of access to different assets and increasing or reducing vulnerability. However, change has been a determining agent in every walk of life and while its direct impacts are ascertainable to a degree, its secondary/indirect impacts – particularly increased/reduced access to assets or increased/reduced vulnerability – are much more complicated and owe to a number of factors not all necessarily connected with trade liberalisation. Reduced fish/shrimp catches and overcapitalisation of fishing effort, to cite just two examples, have an all encompassing impact on the fisheries sector as a whole, and this means that piecing out the impacts of a change in a subsidy – which is frequently an indirect support – requires far too many assumptions. The study thus confines itself to discussing the direct impacts of changes to subsidies/seafood legislation on the stakeholders.

An important, if implicit, aspect of this inquiry has been to understand the information flows between the macro-level and the grassroots level concerning the processes of liberalisation. It is necessary to know how much the primary stakeholders (particularly the poor) understand about the reforms process, identify with it, and contribute to it, because many of the changes taking place in the name of liberalisation can have potentially significant impacts upon the life and livelihoods of their lives.

The field studies have consistently indicated that the information flows have been extremely poor and in many cases simply non-existent. At the producer level, with the possible exception of mechanised fleet owners and large aquaculturists, it does not appear that many people are even aware of the changes happening within the sector, although they are frequently affected by them. For instance, on the issue of the fluctuations in the beachside price of shrimp in the last five years, as many as eight different reasons were given by different primary producer groups and in all cases, it is clear that their information was grossly inadequate. Very few people outside the seafood processing and export sector are even aware of the changes in the seafood legislation, and this will certainly have an impact upon their ability to cope with ‘sudden’ decisions affecting their livelihoods, as happened when the antibiotics and muddy smell issues cropped up in aquaculture sector. Already, the gaps in information are wide enough: half the time spent at the meetings with the different stakeholder groups in fishing villages during this study was devoted to explaining the process of liberalisation (in very skimpy terms at that) to the participants. As the reforms gather momentum, these gaps will increase and the people’s capacity to deal with change will proportionately decline.

I. Changes in Subsidies and Impact on Shrimp Export Industry

The discussions with the different stakeholder groups have provided a broad – but by no means comprehensive – list of important changes that are attributable to trade liberalisation in the country. The changes to subsidies are taking many forms – they cover five of the six modalities (except ‘direct transfers’, which have never been a major subsidy anyway) as defined by APEC, and are discussed in the following sections.
A. Existing subsidies are removed or reduced

This is by far the most significant impact of trade liberalisation and will be discussed in more detail than the others.

1. Increasing costs of HSD (high speed diesel) and kerosene

The consequences of the diesel price hike are extremely serious on the mechanised and motorised categories in the capture sector and on all farmers in the culture sector (who use diesel extensively for pumping water) in all three states. Fishing costs in mechanised sector rose from Rs. 1 500 to Rs 10 000 for a single day fishing trip, with the cost of HSD taking 50-70 percent of the investment. The Government of India has exempted excise duty on the HSD oil used by the mechanised boats, but this works out to a little under ten percent of the cost of fuel, and is not considered adequate by the boat owners. In the motorised sector, the cost of fishing operations went up from Rs. 200 to Rs 1 500 for a single day trip, a major part of it paying for fuel. The motorised boats do not receive HSD oil subsidy. Cost of diesel for pumping in a small scale aquaculture farm worked out to 10 to 15 percent of the total recurring costs in 2000 and is nearly 20 percent now, even more than the cost of seed. The price hike coincides with reduced shrimp production and the motorised fishers estimate that they make a surplus in three out of every ten fishing trips, break even in four cases and lose in the remaining cases.

Kerala is the only state in the country where the motorised fishing crafts receive subsidies on the kerosene for their imported outboard motors from the government. There is no explicit subsidy component, but each boat owner receives a specific quantity of kerosene (determined based upon the engine horsepower) at the PDS price for fishing purposes. There are boats which had permits to receive up to 600 litres of kerosene through ration shops, averaging 300 to 500 litres, but have been receiving only 150 to 175 litres for the past couple of years, which is barely sufficient for a week’s fishing. Purchasing the shortfall in the open markets at Rs. 20 per litre (which goes up to Rs. 25-30 in black market) increases their costs enormously and leads to unprofitable operations (The Hindu, 19 April 2004).

The cost of transportation of shrimp from the landing centres to distant processing centres and from processing centres to the shipping centres has been reported to have increased dramatically. It costs nearly four times more to send shrimp from Puri to Vizag compared to mid-1990s. Obviously, this will be reflected in the prices paid to the primary producers.

The State Government of AP launched a new programme called Deepam in July 1999, which involved paying the cooking gas (LPG) connection fee for poor women who belong to self-help groups. As of March 2002, over 1.5 million LPG connections had been released through the Deepam scheme, including 1.2 million in rural areas. An evaluation of the programme conducted by NIRD in 2001 (World Bank, 2002) indicated that 89 percent of the users found switching to LPG to be an expensive proposition. Financial considerations confined the usage of LPG to incidental purposes or to periods when the opportunity cost of fuel wood use was high. Subsequently, the cost of LPG has gone up still higher, and during the field studies, it has been observed that in many households the LPG stoves were lying in a corner, apparently idle for some time, because their owners could not afford to buy refills.
The social, economic and environmental impacts of these changes are quite serious. In fact, increased expenditure on fuel is ranked next only to the decline in shrimp production and international price fluctuations as a reason for the crisis that the industry faces today. The raising cost of fuel means that even if the same quantity of shrimp are available now as previously, the costs cannot be recovered. Smaller mesh sizes, fishing in inshore fishing grounds and increased capture of juveniles are reported from the capture sector. Fishing duration has increased in all cases in order to reduce costs of operation. The number of days a motorised boat goes fishing has come down to 90-120 days in a year, because they cannot afford to launch the boats at every opportunity due to the cost factor. This leads to increased unemployment, perpetual indebtedness and serious food insecurity problems.

The increase in recurring costs has meant a restructuring of the sharing systems and the crew’s share has come down from about 40 percent in early 1990s to less than 25 percent now. Unable to finance the operations, many owners simply allow the boats to sit on the beach and work as crew on others’ boats (Salagrama, 2003c), or move into other occupations. Geographical and occupational migration is on the rise in Andhra Pradesh and Orissa as a result of non-profitability of operations (Salagrama, 1999), with the burden of supporting the household falling on women. Lack of savings and need for sizeable investment for every fishing trip mean taking loans on a daily basis, and it is reported that several fishers decamped from Puri-Pentakota, unable to find the means to repay their debts.

An interesting trend observed in several villages is that the non-motorised crew – who are among the poorest in a village – are considered to be more secure than the motorised crew. A new trend in all three states is to leave the engines on the shore and depend on traditional propulsion methods instead. New boats – plank-built or FRP – are made without provision for installing engines (S Nageswara Rao, pers.com. Ayyappa Boat Builders, pers. com.).

It has also been noted that there are fewer takers for the subsidies being provided for motorisation purpose in spite of the fact that, unlike in early times, a fisher nowadays would only need to apply to get the subsidy sanctioned. This might also be due to another change – or the lack of it – in the existing subsidies: the amount of subsidy given – which worked out to 50 percent of the total cost of engine in early 1990s – has not kept pace with the engine prices and constitutes only 20-25%, necessitating the fishers to invest more, which they cannot afford.

In the mechanised sector, in most fishing harbours, up to a third of the boats are idle at any time of the year (SIFFS, 2002). In order to reduce operational costs, many boats in Kakinada region use kerosene to run their diesel engines. Considering that 70 percent of the operational cost of a mechanised vessel goes for fuel cost alone, the owners claimed that it would work out cheaper even if they forego the tax exemption on HSD oil and replace the engine annually. In order to minimise costs, a number of boats work together, sending one boat to scout the fishing grounds and radio back for others to follow only if good catches are expected (P Sriramulu, pers.com.).

The mechanised boat owners of Andhra Pradesh do not have access to PDS supplies and buy their kerosene from open market at Rs. 15-16 per litre. This gives them a saving of Rs. 8 when compared to HSD oil, and the saving comes down to Rs. 5 when the GOI’s exemption on HSD oil is taken into account. Thus, the actual savings from kerosene are marginal, and a slight hike
in the price of kerosene will automatically have an impact on their operations. The boat owners in Kakinada predict that a further hike in kerosene price would rise the percentage of sick boats in the fleet from the current one-third to at least half of the total fleet.

An evolving strategy of the Kerala fishers to overcome the kerosene crisis takes exactly the opposite route: whereas the mechanised boats in Andhra Pradesh have shifted from HSD oil to kerosene for reducing their operational costs, the motorised OBM fleet in Kerala is on the look out for a shift from kerosene engines to diesel engines to overcome precisely the same problem. The ring-seine operators have already switched over to diesel engines. The use of more energy efficient diesel engines instead of the fuel-guzzling and faster moving OBMs is expected to counteract the additional costs of operations more than adequately (Baburao, pers.com.), and trials are currently underway to test the new inboard engines.

In aquaculture, the additional cost has meant making a choice between more expenditure or risking attacks by the disease with reduced water management. With the activity having become a lottery, many farmers are averse to spend more, but they do so anyway, and many take loans from the company agents to pay the cost of diesel.

2. Increased cost of electricity and impact on ice production

The cooperative NGO, South Indian Federation of Fishermen Societies (SIFFS) set up two ice plants, one in Tamil Nadu and the other in Kerala, which coincided with the power reforms and an increase in production costs. Poor fishing seasons and high cost of power affected profitability of the first ice plant from the beginning (SIFFS, 1999: 8). In the subsequent years, in spite of increase in ice sales, the ice plant could not earn profits, and SIFFS was forced to increase the sale price of ice in view of increased electricity rates (SIFFS 2001b:9). The uncertainties related to production and marketing also forced SIFFS to settle for lower margins with the second plant, and decide against setting up a third ice plant (ibid: 57). Another study by SIFFS in 2002 indicates that electricity is a major variable cost component affecting the profitability of ice plants in Kerala (SIFFS, 2002), amounting to 60 percent of the recurring costs (Rose, pers.com.).

In Andhra Pradesh, the increased cost of electricity has meant that the economics of operation did not work out well for many ice plants that came up in rural areas. In Uppada village, there were five ice plants in operation in early 1990s, but only three are operational now. This, despite the fact that usage of ice has gone up by three to four times in the meantime! This paradox of the numbers of ice plants declining in the face of increasing ice usage by the fishers has also been noted by SIFFS (2002) in Kerala. The seasonal nature of operations and the inability of the markets to pay beyond a particular price, coupled with the increase in electricity charges has been cited as a reason for the failure of many ice plants.

In most places, the increased cost of electricity is coupled with uncertainties of power supply. This has led several ice plants to install diesel engines to ensure continuous production, but the increased cost of diesel has meant that the cost of production goes up. The result has been inadequate availability of ice when required, poor quality of production (the ice blocks are frequently hollow inside) and increased price for the producers.
The increased cost of electricity – and diesel for standby power generation – has been a major expense for the newly revamped processing factories, and is said to work out to a sizeable proportion of the total recurring costs (going up from 8 to 20 percent of the total costs).

In the early stages, the processing plants provided ice free of cost to the mechanised boats and the aquaculturists, but nowadays, the cost of ice is deducted from the final payments. Although most boats tend to carry an insulated container onboard, they buy ice only when they are sure of getting good catches of shrimp. In early April 2004, a motorised boat from Suradapeta accidentally caught a huge quantity of shrimp, which spoiled by the time the boat reached shore because the crew did not take ice onboard on that particular day.

3. Reduction of social subsidies

Many fishers reported that the availability of foodgrains and other essential ingredients through PDS has decreased and that there has been a narrowing gap between open market prices and the PDS prices to the extent that there is really very little difference in prices between the two. The quantity of rice, kerosene, sugar, oil and other commodities supplied through the PDS has come down, although the poor still buy their foodstuffs from the PDS first and the shortfall from the open markets. This has food security implications particularly during lean periods, when a family can spend up to 100 percent of its income on food and yet remain hungry. This has an impact on livelihood security of the fishers – many fishers have reported they either pawn their livelihood assets or accept the most outrageous conditions for selling their shrimp catches to the traders, in order to get something to eat. This kind of deprivation is particularly severe in Orissa and the northern districts of Andhra Pradesh.

The field evidence points to a positive environment of growth in terms of education and many support programmes – midday meal scheme, for instance – do play an important role in attracting the children to schools. Free books and other study material too seem to be reaching the children so their own investment in education continues to be low.

On the health front, the promotion of user-financing and cost-recovery in health sector, though still in the early stages, has been having an impact upon the poor people’s access to healthcare. All government hospitals have begun to charge an entry fee, although the amount charged is not really significant. However, the various services provided are all charged separately and, depending on the nature of the illness, could add up to a tidy sum. There is unanimity of opinion that the public hospitals provide far fewer medicines to the poor than they used to and prefer instead to issue prescriptions for purchasing medicines outside. The result is that healthcare spending is an important cause of indebtedness among poor households – an ICM study in Orissa (Salagrama, 2003) indicated that a poor family could spend up to 40 percent of its income on healthcare. With the public healthcare institutions beginning to charge for everything, poor households seem to depend more on home remedies or local quacks.

12 Although not strictly a ‘trade’ related subsidy, this is included here because it is one of the important changes noted by almost all the stakeholder groups as being important.
B. Stakeholders bear part or whole of the cost of common facilities

A new trend in terms of government financing for public utilities which began in the 1990s was to make the users of a utility to bear a part of its cost, in cash or kind. In Andhra Pradesh, it is necessary for the villagers to bear a third of the cost of installing a service in the village. In BCV Palem village, the villagers paid Rs 50 000 in 1997 as their share for the setting up of a high school in the village. Whereas public taps were the responsibility of the government until mid-1990s, nowadays it is the villagers who bear the cost of installing the pipelines from the main water duct into their streets. For trade related infrastructure like fishing jetties, all expenses beyond a fixed sum – which is sufficient to build the bare structure – are to be borne by the villagers concerned.

The impacts of such investments do not yet appear to be particularly felt by the users. If the utility is useful for the village as a whole, the village elders collect the necessary sums or use the reserves from the village fund for the purpose. If the sum is large, communal fishing expeditions are organised. So far, the fishers in villages like Uppada avoided making payments of large sums of money by sourcing their contribution from another government department, or by making the estimates sufficiently high so that the government’s share itself would take care of the entire construction. However, this is unlikely to last and many fishers were sure they would be made to pay for more common services in future.

An important point that was raised in Palaman Peta about the payment of user charges for common utilities like taps is that, while the poor are not forced to share the costs, they also get to be considered only secondary users of the resource, while the more affluent treat the utility as their private property. The fundamental differences in economic status will determine access to resources. Also, by virtue of their ability to pay more, the more affluent can determine where a particular utility should be installed, reducing access to the poor.

An important way of recovering the cost of infrastructure is through charging user fees. The Vizag fishing harbour was upgraded to stand up to the changing quality demands, and the berthing fee for the mechanised boats was raised from Rs. 230 to Rs 1970 per month. The boat associations raised many protests against this and managed to get the berthing fee reduced to Rs 480 a month, which is still more than twice the original berthing fee.

New arrangements like ‘Build-Operate-Transfer’ (BOT) are increasingly promoted to make the private sector invest in large-scale infrastructure projects and these will certainly raise the costs for the public. Many newly laid roads and bridges collect a toll, and it is reported that when the nation-wide road expansion programme – which is currently underway – becomes operational, toll will be charged on a per kilometre basis on all traffic. Considering that shrimp trade relies on the road network regularly, the amount paid for using it could be sizeable. Obviously, the additional expenditure will be reflected in the payment made to the producer.

C. Reduction in lending support to fisheries

While no figures are available, there is a strong perception amongst the fishers that the credit support - at subsidised lending rates – from banks and other credit institutions for fisheries sector
has declined through the 1990s. The fishers themselves point out that this has largely to do with poor recovery performance of the past loans, but the influence of liberalising trends cannot be entirely ruled out. There is a clear perception among the fishers that banks have become more urban-oriented and also more concerned about their credit portfolios, particularly in the face of competition from the private international banks. There is a large scale reduction in bank staff – almost all national banks introduced ‘voluntary retirement scheme’ (VRS) in the 1990s – which literally emptied many banks of their staff. With the reduction in staff, some reorganisation too has taken place and the rural branches have been a major casualty in the process. There has also been a corresponding decline in the development support provided by weaker section development organisations like the BC Corporation and the SC Corporation, which had never been a sustainable source of credit anyway.

**D. Tax preferences withdrawn for stakeholders**

Seafood exports, by virtue of earning the much needed foreign exchange for India, were exempted from income tax. However, since 2001, the exemption has been withdrawn and the exporters are required to pay income tax. A previous controversy regarding the status of aquaculture as an allied activity of agriculture (which is exempted from income tax purview) was set at rest when the Income Tax Department decided to accord aquaculture with the status of an industry and make it taxable. Although aquaculturists managed to evade tax payment on the plea that the shrimp they produced was entirely intended for export, and that export income was exempt from tax (Santhanakrishnan, MPEDA Newsletter, ?2001), the withdrawal of the privilege forces them to pay – at least theoretically – income tax. The unfortunate point is that while there was indeed a time when the seafood processors and exporters could have paid sizeable amounts as income tax, this certainly is not a good time for it anymore because of the severe crises facing the sector already. As one seafood exporter lamented, the exporters cannot even fudge records to show nil returns because their business transactions are known to the government agencies to the last milligram. Obviously, this additional burden will ultimately fall on the prices paid to the primary producers.

**E. Changes in institutional structures and services**

Perhaps the most significant change in terms of providing livelihood support to the poor in the post-liberalisation period is the shift from individual support programmes to group-based programmes. The Integrated Rural Development Programmes (IRDP) which focused largely on creation of individual assets were deemed to have been a failure because the economies of scale did not work out and the individual’s capacity to increase production did not match with his or her access to markets. Keeping in line with the shift from technology-led growth to market-led growth in the 1990s, the emphasis shifted to group-based initiatives which – it was hoped – would enhance the access to distant and more lucrative markets for small producer groups. Women and youth were specifically targeted for receiving group-based support – finance, training and marketing assistance – and special markets have been set up in Andhra Pradesh and Orissa to help the groups to market their products. The fact that some of the major poverty alleviation and rural development programmes in Andhra Pradesh and Orissa are funded by international organisations like the World Bank and the DFID indicates that the shift in emphasis certainly has a global background.
One of the key features of trade liberalisation is reducing public sector’s role and streamlining the expenditure on maintaining a large bureaucracy. There are indications that this has been taking place in fisheries sector, and the two examples we have come from Andhra Pradesh. In Andhra Pradesh, the Andhra Pradesh Fisheries Corporation (APFC) – which ran a whole gamut of services, most of them loss-making propositions – was one of the first state-owned corporations to go in the post-liberalisation period (1998). Among other things, the APFC also owned a boat building yard in Kakinada, which was reputed to be the best of its kind on the east coast of India, and did a lot of service for small-scale fishing craft development and construction. Over time, it became a standard setter and, as such, acted as a check on quality in the private boat building yards.

However, the closure of the APFC meant that the boat building yard too had to go, and subsequent events show that this has been a serious loss for the fishers. The quality standards for boat building slipped drastically in the state, and the NCDC-funded integrated marine fisheries development programmes, which provided the fishers with FRP boats in the last six years have been an unmitigated disaster as a result (Salagrama 2003c). Forced to spend sizeable sums – over and above the NCDC support – for construction of the boat and subsequently on repairs, many fishers in Vizag district had to sell their agricultural lands. Still, not many of the boats are seaworthy or functional. In the interviews, the fishers in many villages made the point that, had the APFC boat yard still been around, their condition would have been far better.

There has also been a major – but subtle – change in the staffing in the Department of Fisheries in Andhra Pradesh, which has stopped recruitment to the middle-ranking positions – i.e., those that are generally involved in extension programmes – since early 1990s. Subsequently, as a number of people retired from the department, their places have remained vacant, and thus, between 1993-94s and 2001, the staff strength slipped from 2000 (Vivekanandan et al 1997) to 1787 (DOF, AP 2001: 2). Irrespective of numbers, a clear gap is perceived by the fishers in many villages, who felt that the extension services have certainly not been as effective as they used to be. The result is that the information flows between the Department of Fisheries and the fishers on various fisheries and trade related issues are reduced to a trickle. The lack of regular contact is also seen to be contributing to policy making which overlooks the needs of the fishers.

There have also been few new development programmes either at the national level or, more particularly, at the states’ level in the last decade. This is owing to resource constraints, but the new emphasis on ‘fiscal discipline’ has also been cited as an important reason.

**F. Stakeholders pay user charges for access to common property resources**

The marine fishing regulation acts of various state governments stipulate that all fishing vessels in the state be registered and levied an annual licensing fee. In Andhra Pradesh and Orissa, this could only be enforced with respect to the mechanised trawlers but the traditional sector remained largely unregistered. Because being registered did not provide any incentive and not being registered did not invite any sanctions either meant that the fishers had no particular interest in registering themselves. However, intense efforts by the officers of the Department of Fisheries began paying dividends by 1999, and most artisanal boats in Andhra Pradesh are now registered and licensed. The amount of money charged is not high, but the fact that this system
has now become operational means that the government has now reasserted its ‘ownership’ of the common property resources and that the fact is acknowledged by the fishers too.

Similarly, it is necessary for all aquaculture farmers to register themselves with the Aquaculture Authority of India and obtain a license, which is contingent upon their farming activities being environmentally friendly, but the long delays that the process of registration entails is said to deter many farmers from applying for registration. Only about a tenth of the farms in Andhra Pradesh are reported to have been registered with the Aquaculture Authority of India, although it is not legally permissible to undertake farming in the coastal areas without the registration.

G. Changes in open access regimes for conservation and management

A series of conservation and management measures – which implicitly underline the State’s ownership of the commons like the sea and the sensitive coastal ecosystems like mangroves – have been put in place to conserve the biodiversity and particularly vulnerable species like the sea turtles. There are also seasonal bans on fishing, bans on destructive fishing practices like shrimp seed collection and on entry into, or utilisation of, mangrove resources. Different state and central departments take a role in the conservation measures.

A ban on fishing implemented in Orissa for conservation of turtles has both environmental and trade implications. In 1996, the US made it mandatory for shrimp to be harvested with turtle excluder devices (TEDs) to be eligible to export to the US markets. Instead of simply making the TEDs mandatory, the government declared long stretches of the coastal areas in Orissa, where the threatened species of turtle is known to frequent for breeding purposes, as wildlife sanctuaries, thus prohibiting fishing and other activities. The impact of the ban has been felt by the fishers in the dozens of villages abutting the banned fishing zones and has led to serious livelihood problems (Mathew, 2004; ICM, 2003). The mechanised fishing operations also were adversely affected.

II. CHANGES IN SEAFOOD LEGISLATION AND IMPACT ON THE SHRIMP EXPORT INDUSTRY

So far, the direct impact of changes in seafood legislation has been experienced by the processing and exporting companies, while the other stakeholders in the sector felt the shocks only secondarily, although no less seriously.

A. Impact on seafood processing sector

The short-term impacts on the seafood processing industry were related to losses due to rejection of consignments. In the medium-term, this included finding the capital and technology necessary for upgradation and obtaining the necessary certification for export. In the long-term, continued survival in the face of declines in production as well as the unit realisation in the international market has become a serious problem area.

The seafood export industry responded to the ban by investing large sums of money on upgrading their plants to satisfy EU norms. In Andhra Pradesh and Orissa, the impact was less
marked mainly because the main market for their seafood is Japan. The exports to EU constituted only about 5 percent of the total exported from Andhra Pradesh. Still, a number of factors (see ICM 2002) necessitated the processing plants in this area also to upgrade.

Among the difficulties identified with the upgradation are the high cost of adaptation, the irrelevance of foreign standards to local conditions, the lack of timely and adequate information and consequent transaction costs, the difficulties in understanding the requirements as well as testing and monitoring them, the perceived lack of scientific data for specific threshold or limiting values and the uncertainty that arises from rapidly changing stringent requirement in overseas markets. Some of these are discussed below.

1. **Cost of compliance with international standards**

Following the norms substantially increases the cost of production, because most of the capital goods need to be imported from the developed countries. The EU requirement of infrastructure to meet standards involves heavy investment in equipment and building apart from the running cost. In order to upgrade their facilities to the required standards, the Indian processing industry spent US $25 million, according to the Seafood Exporters’ Association of India. It is now necessary for each factory to have potable water system, continuous power (with standby generators), effluent treatment plants, flake ice machines, chill rooms and laboratories. It is estimated that such upgrading involves an expenditure of Rs 1 to 2 crores per unit as a fixed cost. Considering that banks are unwilling to extend loans to seafood industry, the investment is funded through private sources at very high rates of interest, making the costs prohibitive.

As for recurring costs, the compliance costs have increased tremendously. It is estimated that for a medium sized plant, overhead cost goes up by as much as five times. The processing cost has gone up from Rs. 2 to Rs 7 per kg. The increased compliance cost comes from:

- Number of records to be maintained has gone up to 160 and the number of record keepers shot up from 2 to 16.
- The number of operators has gone up from 8 to 16 because of additional machinery like effluent treatment plants, chill room, flake ice machine etc
- Since peeling has been made an in-house activity under the EU regulation, the cost of peeling has gone up from Rs 1 to Rs 7 per kg
- Water consumption increased by five times and power consumption by three times.
- Better quality of staff, equipment and uniforms have added to the general overheads

On an average, an export processing firm is estimated to spend about Rs 2 million per year to maintain a HACCP plant (Anjani Kumar and P Kumar, 2003). The overall compliance cost, as estimated by the exporters and confirmed by MPEDA, for meeting the EU norms is between 15 and 40 per cent of the FOB value.

The small firms suffered most seriously as a result of the quality standards. They had to incur an additional cost of more than Rs 10 per kg on pre-export processing of fish products. These high investment and recurring costs have meant that many processing plants could not simply upgrade themselves to the standards. About two-thirds of the plants in the country are expected to be able
to upgrade themselves up to the new requirements, while the rest are expected to perish. Undoubtedly, this will create livelihood problems in the coastal areas.

2. Relevance of standards

Many of the standards adopted by the government are considered by the exporters as not relevant for the product quality or are too stringent given the Indian fishing conditions, besides being cumbersome and costly procedures. The standards set by the importing countries are even more difficult to justify and many of them can easily pass off as non-tariff barriers. Moreover, the equipment for conducting some of these tests is not even available in India. Many of the requirements are considered to be unnecessary or un-implementable. As per the standards, the water used in processing has to be tested in 62 different ways. The EU standards require that even floors and ceilings should be washed by *potable* water. In many coastal areas, drinking water continues to be a major problem for a vast majority of population and the women walk kilometres to fetch a pot of water. Under the circumstances, using 100,000 litres of water daily for washing and cleaning purposes in the seafood plants is difficult not only in practical terms, but also for moral reasons.

3. Effectiveness of implementation

Besides structural upgradation, the changes also involved upgrading the skills of the personnel employed in processing industry by providing appropriate training in various stages of production and processing. As a result, the EU approved plants are reported to be as good as, if not better than, any plant in Europe and USA, as the EU review teams themselves remarked (MPEDA newsletter 2001). But this level of improvement frequently required bending over backwards to be extra-accommodating to the importing country’s requirements. In what is seen by the processing industry as ‘going overboard in an effort to please the EU’, the Government of India officials who were in charge of inspecting the processing units (for granting EU approval) initially insisted that the walls and the floor of the processing area be covered with either marble or granite, both of which are very expensive. In face of such an interpretation of the EEC directive, which only required ‘smooth and easy to clean surfaces’, plant owners had no option but to comply. The result was the cost of upgrading processing plants to meet EU standards was pushed up significantly. The general opinion among seafood exporters is that, this single issue contributed significantly to weaken the overall financial position of many exporters.

4. Impact on the profitability and viability of operations

For many processing plants across the country, already suffering from the chronic problem of underutilisation of capacity (the average capacity utilisation was 15-20 percent in many parts of the country), steep declines in availability of shrimp and high cost of operations (as a result of hike in costs related to labour, electricity and diesel), the need for further investment simply acted as a final nail in the coffin. Of those which did upgrade, the high cost of investment practically drained them and led to a situation where they could not buy shrimp for processing anymore. Knowing that each processing plant offered employment to a number of people, predominantly women, it can be assumed that a sizeable number of livelihoods are lost with their closure.
B. Impact on producers

The impact of the EU ban on the fishermen in Kerala was immediate. The beach prices of shrimp dropped dramatically – to about 25 percent of the pre-ban price. Many trawler owners and artisanal fishermen did not venture out into the sea for about a week to ten days, as they feared that the prices would not be enough to cover their operating costs. The prices were slow to recover, as only those processors who were catering to the non-EU markets were buying. It took about a year for the situation to improve. The hardest hit by the ban was the trawling industry in Kerala as their operations are entirely focused on export species. The EU ban also had a long-term impact on the industry in that the prolonged period of low returns forced many trawlers to withdraw permanently. Trawling as a means of livelihood lost its appeal for many fishermen as income levels dropped drastically during 1998. The motorised artisanal sub-sector felt the effect of the ban to a lesser extent, since fishermen in this sub-sector depended mainly on domestic species with export species being an important source of additional income.

The immediate impact of the ban on producers in Andhra Pradesh and Orissa was minimal. However, as the large-scale structural changes that came in the wake of the ban took shape, the producers started paying the price. Put in market terms, since the buyer will not pay a higher price for better quality, the producer has the option to bear the additional expenses or not sell at all. The trend over the last few years is that the producer has been bearing the costs, which keep mounting, while the buyers kept paying less, and the margins of trade have reached a delicate stage where it is very likely that the producer simply refuses to come down any further and diversify his efforts to produce something else. Already this is happening in northern Andhra Pradesh, where shrimp fishing has come to be looked upon as a non-paying proposition. A similar thinking is prevalent among the aquaculture farmers, who have begun to explore the possibilities of finfish culture for domestic sale as a viable alternative to culturing the high risk shrimp.

C. Impact on peeling sheds

Prior to the ban the processing plants used to provide credit to peeling sheds to procure raw material and supply them the peeled material. However the ban was one of the major factors which turned this system around. Starved of buyers, many peeling sheds offered raw material on credit to processing plants. The high investment made on upgrading processing infrastructure meant that there was a resource crunch for purchasing raw material (a fact that actually led to stopping operations for extended periods by several processors) and the peeling sheds’ offer of shrimp on credit basis was eagerly accepted. What started as a short-term business tactic quickly became the established norm in the industry, and led to a change in the minimum requirements for setting up and operating a peeling shed significantly. Peeling sheds which could not provide supplies on credit basis found it difficult to find buyers and thus were quickly forced to adapt to the new reality or face closure. Closure seems to have been the option exercised by many in the business. While there are no reliable figures on the number of peeling sheds that have closed down after the ban, the numbers by all accounts seem to be significant.
D. Impact on women

The only areas where women have played an important role in export sector are in the pre-processing and processing operations. Both these activities have been adversely affected by the EU legislation and its aftermath, and several women found themselves without a job. For a number of women in Andhra Pradesh and Orissa, this meant losing one of their income sources, but for the girls from Kerala, this has meant the loss of their only livelihood. Anecdotal evidence indicates that the number of Kerala girls in processing factories is declining. Many women involved in peeling operations also came from single-headed households, and their income was generally the only source of subsistence for their families. It is said that many of the women now work as servant maids in urban households: the proximity of most fishing harbours to urban areas has thus come to their rescue, but at a considerable loss to their personal freedom and reduction in earnings.

III. THE FUTURE SCENARIO

The next question to ask would be the possible impacts of changes in existing subsidies and a further tightening of seafood legislation.

A. Possible impacts of withdrawal of existing subsidies

The general consensus, as far as the direct subsidies in fisheries are concerned, is that even their complete withdrawal is unlikely to affect the conditions very much at the primary producer level. This is because most technology promoting subsidies have largely been implemented as short term promotion measures involving one-time payments to the fishermen, and were drawn up as specific time-bound ‘schemes’ which might or might not be extended in the successive 5-Year Plans. As long as the target species was shrimp, which had a big market demand, the private sector took over the programmes rapidly and operated beyond the control of the government. Johnson says in the context of Gujarat (2001), “Although the government… has been an effective link to the source of technology and ideas about fisheries modernisation, it has not had the necessary resources necessary to restrain and direct expansion”. Private investment in fisheries is a lot higher than the state investment, and direct subsidies from the state played an ever diminishing role in the sector. In the 1990s, most fisheries subsidies involved providing assistance to run the existing systems – for instance, diesel subsidies, upgrading facilities, motorising boats assume the prior ownership of an asset – than to introduce new systems.

Thus none of the production systems owed its continued existence to direct state support, unlike in agriculture. Also unlike in agriculture, the number of actual beneficiaries from the fisheries modernisation programmes is small although their contribution to the overall shrimp exports may be proportionately high. Consequently, for a large majority of people, subsidies mean little.

Even for those who do receive the subsidies – tax exemption on HSD oil, for motorisation and upgrading processing infrastructure – the assistance is not very significant. In Kakinada, the

---

13 Two subsidies – HSD oil subsidy and lean season assistance can be considered to be the only regular ‘capacity-and effort-enhancing’ subsidies, but the quantum of support they provide is too paltry to make a significant difference.
mechanised sector prefers to forgo the tax exemption on HSD oil and use kerosene to run their boats. In many coastal districts, the subsidies available for engines are reportedly not utilised because the fishers find the cost of engine too prohibitive and the subsidy paltry in comparison. The processing industry received some assistance, but found itself in the doldrums anyway.

However, from the point of view of the poorer stakeholders in the sector, three welfare programmes – housing, insurance and lean season assistance – do have a significant positive impact. There certainly is a need to streamline their functioning, but it is undeniable that they are the only direct subsidies going to the poor people in the sector and that they play an important role, although it remains largely unrecognised. Any changes to these programmes will affect the poor significantly. If a change must be made to these programmes, it should be in terms of increasing their quantum and reach to include more numbers of poor people in a more sustainable manner. In the face unrelenting change in every aspect of trade, those who are marginalised should have access to social security nets. Kurien and Paul (2001) discuss a range of options for setting up social security nets for fishworkers, and there is a necessity to take the recommendations seriously and implement them with immediate effect.

B. Possible impacts of a stricter seafood legislation

It can be said that the 1997 EU ban affected only the processing and export companies, while leaving a number of people in the production and transport segments largely untouched. This is because a large part of the market chain – in fact, all of it, except the processing and the exporting companies – is in informal sector, spread over a vast area with dozens of intermediate players whose existence and functions were not even properly recognised.

However, recent history has shown that the 1997 ban was only a curtain-raiser, and sooner rather than latter, all stakeholders in the sector would be affected by the changes in the global trade legislation as well as fluctuations. Until 1980s, this kind of fluctuations would not have been so damaging for two reasons: one, the potential to increase production from the capture and culture sources seemed endless; and two, the systems were not hyper-capitalised to an extent where it was unprofitable to fish unless a certain minimum income was assured. In other words, profit margins were sufficiently large to accommodate even a major slump in the market prices. This margin of safety is no longer available to the fishers because much of it is absorbed to pay for the fishing operations or to service past loans.

As the number of such scares increases, so will the efforts of the Government of India and the seafood industry to keep up with the international standards because seafood is an important foreign exchange earner for the country. The potential negative consequences (while not denying that there may undoubtedly be some positive ones as well), should the seafood legislation be made more stringent, can be predicted from past experience.

In the short term, the impact is most likely to be on the producers – in both capture and culture sectors. As the market prices for shrimp slump, the producers will lose heavily and many of them might not recover. Although the impact of such measures would be felt by everyone in the sector, it will be the poorer producers who will be the most affected because of their inability to find investment for future operations. Should the food legislation be extended to cover the
producers in a more efficient manner, one of three things would happen: (i) the fishers would continue to operate the same way as they always did, but would have to ensure that the enforcing officials are kept in sufficiently good humour – meaning that neither the producer nor the consumer will get any benefit, but the ‘middlemen’ – i.e., the enforcers of the regulation – will reap the benefits of a criminalising regulation, (ii) the fishers would take to other non-export species, but this is highly unlikely in the short to medium term because the economies of scale would not any more favour reverting to the old ways, or (iii) the fishers would simply have to stop fishing and go into other sectors in search of work – and this is already happening in most coastal areas.

In the medium term, more stringent seafood legislation will lead to a reorganisation of the processing and export industries which will come to be owned and controlled by fewer players, as the smaller players, who will be unable to find the investment or the markets to help them upgrade, will move out. The consolidation of the processing activity in fewer hands could mean reduced work opportunities in the processing activity. More importantly, this will mean more organised systems of production and trade. Already, many large processing companies have their own fleet of vessels and there is a likelihood that the capture and culture systems will come to be more closely integrated with processing and export systems. Considering that it is the informal nature of the fisheries operations that allow entry for some of the poorest people to make a living out of the sector, it is possible that the change to more formal systems would mean a loss of opportunities for a large number of people.

In the long term, the legislations affecting the export industry will begin to have an impact upon the domestic marketing chains as well, forcing them to keep up or ship out. The Draft Marine Fishing Policy of the Government of India (2002) envisages harmonising the existing domestic standards for fishery products and by-products with the international standards so as to ensure quality of fish and fishery products ‘for domestic consumption at par with global standards’ (3.2), which is easier said than done but, all the same, a cause for concern from a livelihoods and poverty perspective, particularly as the point has been made in a policy document. When this materialises, many small-scale producers will have to undertake major changes to their current systems of production and transport. The generally gloomy situation in which most stakeholder groups in the fishing industry find themselves today does not allow one to believe that they will be able to upgrade their systems – with or without government support – to the required levels. When that happens, its impact on many categories of poor producers, processors and traders, including vulnerable sections like women and old people, will be considerable.

C. Overall impacts of changes in subsidies and seafood legislation

The impact of changes is felt at all levels and by all categories of stakeholders. As a mechanised boat owner remarked during a poverty assessment exercise, “If someone is in export trade, he is either already poor or will soon be!” The key changes in the shrimp export market chains concerning subsidies and seafood legislation appear to be: (i) changes in terms of access to resources and markets; (ii) increasing cost of production and trading activities; (iii) shift from informal to formal operations; (iv) better integration of production and marketing chains (both for quality considerations as well as for economic viability); and (v) reducing social support. The
impacts of such changes on environment, trade and livelihoods will be summarised in the following sections:

a. Impacts on environment

The key changes that have an impact on environment are:

Reduction in ‘capacity- and effort-enhancing’ subsidies: This study has indicated that the impact of direct subsidies in shrimp export chains has not been positive in terms of its impact upon environment. Reducing direct subsidies to these areas could then be considered to be a positive outcome from an environmental perspective, but for three factors: one, the quantum of subsidies in the sector has come down so low that their withdrawal may not amount to much; two, there is no evidence that the direct subsidies to fisheries are coming down; and three, the review of the current programmes and prospective plans shows that the essential features of the modernisation framework continue to remain valid in policymaking.

On the other hand, the changes to indirect subsidies like HSD oil and kerosene may have contributed to more prudent use of fossil fuels. The number of fishing days has come down, but its usefulness is doubtful when it is considered that the intensity of fishing effort increased. The reported shift in some fishing operations from shrimp to non-shrimp catches too will have a positive impact upon the shrimp stocks and to the food chain in general.

Changes in terms of access to inshore waters: Traditionally the coastal waters adjacent to a village were treated by the local communities as common property resources, and even where there was no ostensible mechanism to ‘protect’ resources, there was certainly a system to ensure equality of access to all members of the community (Bavinck, 2001; Thomson, 1989; Schombucher, 1986; Salagrama, 2003b). An important subsidy in the modernisation programme has been to treat the coastal waters as an open access resource, to allow entry of outsiders and to enhance technical efficiency of extraction methods. However, the focus has once again shifted to controlling access, and at least two influential GOI documents (the draft marine fisheries policy and the approach paper to X-5 Year Plan) discuss the need for implementing a stricter access regime to conserve the nearshore resources.

The strategies to deal with this are two: one, controlling access to inshore and promoting diversification into offshore. Controlling access to inshore waters will take the form of closed seasons, regulations on fishing effort and measures such as licensing and user fees. The increasing unsustainability of operations and integration of production and marketing chains in tune with the international trade requirements will also favour a much leaner fishing fleet operating in the coastal waters.

The diversification of fishing effort to the offshore waters is a more doubtful proposition. It assumes that it is the fishing vessels currently operating in the inshore waters which are going to shift offshore. The current condition of a majority of the mechanised boats shows that it is unlikely that it will be the same boats which will upgrade particularly when the costs of upgradation will be almost equal to rigging a new boat. This means that a majority of the new

14 As contentious a term as any, and is used in a very general sense here.
boats will be over and above the current size of the fleet. Further it is assumed that the offshore operations are sufficiently lucrative to keep the new boats off the inshore waters and that the government can effectively control their ingress into inshore waters as well as proliferation in the offshore waters (and overexploiting the resources there in due course). Unfortunately, past experience shows that these assumptions are rather too optimistic. Also, if the fishing potential in the offshore waters should indeed prove to be lucrative, a pertinent question posed by a noted fisheries biologist in the country would be worth repeating: “If it has taken us thirty years to overfish and overexploit the inshore waters (containing two-thirds of the total estimated yield), how much longer would it take us to do the same to the remaining one-third?”

b. Impacts on trade

Shrimp export sector has always been a ‘top-down’ industry and all changes generally started at the top and came down to the grassroots levels in due course. In the case of seafood legislation and its impacts too, what is happening at the top is instructive to draw conclusions about the likely changes in the whole sector in due course. A lot of consolidation of market share is taking place in all states, with a handful of companies accounting for a lion’s share of exports. Many of the top companies are also into production – both from capture and culture – and where they do not directly run operations, they provide sizeable advances to keep a hold on the activities. As fewer companies control the markets and also influence or control the integration of production and marketing activities, the sector will become more systematic and organised, which will make it more sustainable in the long run, but at the expense of equity and, generally, increased poverty.

The most obvious impact on trade is the reduced profitability of operations in shrimp trade. Generally, considering that it is the shrimp export trade that has received attention from the perspective of subsidies and seafood legislation will mean that there will be a shift in focus to other, less controversial, varieties. It is possible that the income from seafood export trade will continue to stagnate or decline for a while yet, until the industry re-focuses its strategies and develops alternative markets for other species. The reduced profitability will mean reducing the cost of operations and settling for smaller margins, but as the size of these markets grows, so does the profitability.

The shift from shrimp to other species also necessitates – and encourages – another shift: from traditional developed country markets to non-traditional developing country markets, whose standards are largely similar to those pertaining in India. The new trade policies also encourage this diversification.

But a more important shift is in terms of focusing the attention of the industry to developing the domestic markets. An important impact of trade liberalisation is the growing middleclass with large disposable incomes. That the Indian middle class can afford the best that the world can offer is vouched by the fact of almost all important international brands now appear in India and flourish. The potential for developing domestic markets has never been greater for Indian seafood industry, and already there are moves afoot to set up retail stores across the country for selling various fish and fish products processed and packed according to international standards (Meena, pers.com.).
Thus, in terms of trade, there is a likelihood of shrimp being replaced as *prima donna* of Indian exports by the entry of a number of other species, including finfish and the markets shifting from developed countries to developing countries and from export to domestic trade. From all accounts, this is a healthy, sustainable, environment-friendly and equitable trend.

c. Impacts on Livelihoods

The conflict between environmental conservation vis-à-vis livelihoods has become sharper in the post-liberalisation period, and there is evidence that the government has increasingly focused on the first objective – i.e., conservation – through the 1990s. The establishment of a rights-based common property regime would necessarily mean exclusion of a section of the existing users of the resource. Considering that at least some of these rights will come from the ability to invest in improving the current systems, or from paying a ‘user fees’, it will mean that those with limited resources to capital – i.e., the poor – are likely to be among the marginalised.

Diversification of fishing effort into offshore waters is necessarily linked to high investments in new technology and that again is beyond the scope of the small-scale producers, even if a sizeable part of the investment is provided as subsidy by the government (which is very unlikely). Once the offshore fisheries establishes itself (provided it does not survive by encroaching upon the inshore waters), it will encourage the government to put more restrictions on access to the inshore waters, or simply increase the conditions for allowing access to a level that many producers will not be able to buy into the system and have to move out. In environmental terms, this will certainly be a positive outcome, but in terms of the livelihoods of the poor, it will be a disaster.

The shift from informal to formal operations and consolidation and integration of production and marketing chains will necessitate excluding many poor people from the production and processing activities. For instance, the artisanal sector – which contributes a sizeable proportion of shrimp for exports – is increasingly finding itself in an ‘odd man out’ situation, and many people in the activity think that its contribution to exports will dwindle further until it stops completely.

Thus, the most important impact in terms of livelihoods is going to be the exclusion of a large number of poor from the export supply chains. This may not be a serious threat by itself considering that people have already been facing uncertainties for the last five-six years and are on the lookout for alternatives anyway. But the indications are that the changed context is also reducing people’s access to various assets which affects their ability to diversify in a sustainable manner. Changes in terms of access to natural assets (the sea and the fish), physical assets (infrastructure) and institutions (markets and government) can reduce the poor people’s capacity to buy into the system and thus marginalise them completely. The reduction in access to livelihood assets is compounded by the reducing the social subsidies and the state’s increasing withdrawal from its welfare agenda, which means that for the poor in the export sector, the worst is yet to come.
CHAPTER 4: CONCLUSIONS AND RECOMMENDATIONS

Trade Liberalisation and shrimp trade

Trade liberalisation in India has had to contend with trade reform and structural adjustment policies at the domestic level and with the WTO and the various trade agreements at the international level. The policy responses thus have been two-fold: at the national level, the focus is on fiscal discipline while at the internationally, it is to argue for a consideration of the special conditions that prevail in developing countries with large populations like India. The lifting of tariffs and quantitative restrictions in the fisheries sector during the 1990s have so far not brought any perceptible benefits or ill effects, but apprehensions about their possible negative effect are widespread. The possible import of foreign fish and fishing systems remains a threat, while the export opportunities remain unutilised because of poor catches and systems of organisation.

Subsidies

At the international level, the debates on subsidies in fisheries focus mainly on their trade and environment implications, and bypass other dimensions like equity issues, livelihoods and welfare. The contribution of primary stakeholders to the evolving agreements concerning their trade is extremely low. There is continuing support at the policy-making level for introduction of more technological interventions in the capture sector, which can be potentially counter-productive. By focusing the discussion on subsidies to their trade related impacts alone, the international trade agreements might encourage countries like India to spend more on subsidies of the ‘effort-and capacity-enhancing’ category.

In terms of direct subsidies, while there are changes at the policy level, they have not moved to the implementation stage, hence their impacts at the stakeholder level are difficult to assess. On the other hand, there have been many changes in terms of indirect subsidies, whose impacts are serious, but whose origins and scope remain murky.

There does not appear to have been any cuts in the direct subsidies in fisheries, due perhaps to the fact that the total outlay of fisheries in the national plans works out to a miniscule percentage. In any case, direct subsidies in fisheries, particularly those that are contingent upon exports, appear to be small and are not likely to be affected even in the context of a stricter disciplining of fisheries subsidies. Also, a reduction in direct subsidies to fisheries is not considered to have much impact on many export stakeholders, because their contribution to reduce the cost of production is small and their reach is confined to a very minute segment of the industry anyway.

Indirect subsidies have been cut sizeably and this has a serious impact upon all categories of export stakeholders and their livelihood assets and strategies. Further reduction in indirect subsidies will certainly affect many people, particularly the poor, very badly, lead to increasing disparities in terms of poverty, food security and vulnerability. An overwhelming impression is that the changes witnessed so far have been only the tip of the iceberg, and that the real changes will become more significant within the next few years.
Seafood legislation

Many food exports from India have been affected adversely by selective application of sanitary and phytosanitary measures in the last decade and the most outstanding of these is the case of shrimp. The frequency and the impact of different SPS related trade measures have been increasing and the seafood industry has suffered badly as a result. Poor domestic laws and quality control systems, lack or unaffordability of technology and infrastructure, poverty and unorganised nature affect the seafood export trade, aggravated by constantly changing standards, variations in standards adopted by different importing countries and lack of clarity.

At the international level, developing countries like India are constrained in terms of participation and standard setting in the SPS process, and there is a widespread feeling that developed countries manage not only set the agenda but also change it as they deem fit from time to time, adversely affecting the developing countries. Within the country, the debate on standard setting is confined to a few organisations and individuals, with the result that the country is not adequately prepared to offer effective alternatives.

The Government of India’s quality inspection and monitoring system is very sensitive to the international food safety standards and is constantly evolving to meet the SPS requirements. Active efforts by the government and the industry helped in the seafood trade to emerge stronger and the quality standards of the Indian plants are now considered to be world class. However the cost of upgrading the systems has been enormous and affected the operations and also forced some companies to simply close down. This has led to loss of employment opportunities for a number of poor people. Their work status in the existing plants – the non-EU recognised ones – is changing from regular employment to daily wages/piece rate.

Stricter quality control would mean reduced profitability in the short term, marginalisation of traditional players and consolidation of activity in fewer hands in the medium term and the international seafood legislation having an impact upon the domestic trade in the long term. In all instances, this could potentially lead to marginalisation of the small-scale operators from the export sector. Helping them to reach international markets with state support might be seen as an actionable, if not prohibited, subsidy.

Further changes in subsidies and seafood legislation are considered to have a positive impact upon the environment by reducing effort and the cost of externalities. In terms of trade, shrimp is likely to be replaced as prima donna of Indian exports by the entry of a number of other species and the markets shifting from developed countries to developing countries and from export to domestic trade. These changes might be accompanied by declining access to the poor to the natural assets and physical assets on the one hand and to the markets on the other. This is compounded by the state’s increasing withdrawal from its welfare agenda and reduction in social subsidies. Any new opportunities that liberalisation might offer are contingent upon certain basic requirements at the individual level – assured access to resources, ability, skills and knowledge – and also at the macro level – a radical transformation in terms of infrastructure and other basic facilities – which necessarily constrain the poor from taking advantage.
RECOMMENDATIONS

While liberalisation of the economy and taking part in global trade arrangements is no longer an issue of debate, the direction, scope and focus of the process needs much careful thought and attention. The experience with liberalisation within the country as well as elsewhere clearly indicates that the markets are not very efficient purveyors of equity and sustainability, particularly when different countries and the players within each of them do not operate from a level playing field. Under the circumstances, the State’s role, if anything, becomes more – and not less – significant in directing the liberalisation process along more equitable lines.

The recommendations can be summarised into a few broad categories, as discussed below. Any strategy to implement the recommendations must necessarily involve the participation of many players – the government, the private sector and the people’s organisations at various levels, besides international and national aid and development agencies – not only to derive a wider consensus of opinion but also to make the strategies work effectively.

A. Information needs

1. Understanding the key issues concerning international trade in order to (i) develop cohesive responses to deal with the adverse impacts and to maximise the benefits and (ii) participate in the international decision-making bodies and ensure that the particular needs of developing countries are properly addressed and incorporated into the trade agreements.

2. Developing a comprehensive picture of the various stakeholders involved in production, processing, trade and ancillary activities to understand the implications of changes in trade liberalisation on their livelihoods (i) to ensure that the changes do not adversely affect the livelihoods of the poor and (ii) (if the changes are inevitable and do affect the poor) to develop appropriate measures adequately and sustainably compensate them.

3. Assessing the potential availability of marine (inshore and offshore) and brackishwater resources and their current levels of exploitation in order to develop a comprehensive marine fisheries policy for the country which addresses both the trade-related and management-related needs in a comprehensive and holistic manner.

4. Understanding the impact of reduction in indirect subsidies and social subsidies on various stakeholders, particularly the poor, in order to undertake measures to alleviate the hardships caused due to this.

5. The current systems of information generation, review, analysis, documentation and dissemination should be strengthened and better integrated with the international systems.

B. Awareness generation and capacity building

6. Institutional capacity building – through, *inter alia*, training, workshops, manuals and exposure visits – in building skills in negotiation processes, technical areas, and identifying trade opportunities in order to safeguard the interests of the poorer stakeholders.

7. Improving and refining the extension services for effective dissemination of information – in simple and jargon-free language – on the international trade requirements to enhance the primary stakeholders’ capacity to cope with the changing needs and to enable them to participate actively in defining the scope and direction of trade arrangements at the international and national levels.

8. Ensuring that measures like lifting of trade barriers and QRs are followed up with (or, preferably, preceded by) programmes for increasing the capacity and competitiveness of
different categories of Indian producers to take benefit of the measures and supporting them in reaching international markets through pro-active support measures.

9. An integrated programme for developing infrastructure in order to address the requirements of the ‘farm-to-fork’ principle, with strategies that are specific to each category of stakeholders, keeping their special characteristics in consideration.

10. Improved storage capacity at key locations will help the producers/processors to retain their product for extended periods when the market prices are not remunerative, and thus overcome a significant problem they face: international price fluctuations.

C. Lobbying and advocacy

11. To develop a strong case for negotiating for a ‘special and differential treatment’ for developing countries in the SPS and subsidies agreements, highlighting the prevailing conditions of high levels of poverty and poor infrastructure

12. To negotiate for greater harmonisation of SPS standards across the world in order to ensure that (i) frequent changes in the standards are avoided and (ii) developing countries can plan better for setting up equipment and infrastructure to meet the standards.

13. To highlight the need for taking cognisance of factors other than trade and environment that have a bearing on the stakeholders in the international and national debate on subsidies and to lobby for continuing or enhancing support for social subsidies to the poorer stakeholders.

14. To negotiate for better technical and legal information, advice and support for developing countries in order to overcome adverse trade barriers.

15. To advocate putting a stop to all ‘capacity and effort-enhancing’ subsidies, irrespective of their professed objectives, taking Gareth Porter’s advice that ‘It would be unwise… to base international policy towards the fisheries subsidies regime on the theoretical presumption that well-managed fisheries can neutralise the negative impacts of subsidies”(Porter 2001:16).

D. Diversification

16. Exploring options for diversifying the export basket to include more commodities and reorient the production systems to focus on species other than shrimp.

17. Exploring options for diversifying the markets from the ‘Big Three’ – Japan, the EU and the US – to a larger number of developing countries.

18. Exploring meaningful, viable and sustainable alternate livelihood options for people who are (or likely to be) marginalised from the sector as a result of the changes.

19. Exploring opportunities for reducing production costs at every level from production to export, which might also take the form of giving incentives for ecologically sound practices.

20. Developing suitable mechanisms to enhance the stake of poorer stakeholders in the markets through exploring new options like cooperative marketing.

E. Management

21. An effective fisheries management programme is an essential prerequisite for accessing international markets on a sustainable basis, but this will succeed only when (i) access to resources is not limited based on one’s ability to pay a user fee (in monetary terms); and (ii) the primary stakeholders are given a defining role in deciding and implementing it.

22. The fact of prior existence of community-based fisheries management systems should be recognised, their functioning and effectiveness studied and the positive features of the traditional systems should be incorporated into the new management programmes.
REFERENCES

NOTE: The following list retains all references used in the preparation of the original – larger study – to help future researchers; consequently, some of the references cited here may not find mention in the body of this abridged report.


CMS 2002. *Research Project on Globalisation and Seafood Trade Legislation: The effect on Poverty in India; Final Report for Orissa*, study prepared under Project R7970: Globalisation and Seafood Trade Legislation: The Effect on Poverty in India, funded under DFID’s Post-Harvest Fisheries Research Programme and managed by Natural Resources Institute, United Kingdom


DOF Andhra Pradesh, 1978. *Two Decades of Fisheries Development in Andhra Pradesh*, Department of Fisheries Andhra Pradesh


FFPI 2001. *Conservation and Management of Shrimp Resources of the East Coast of India*. Forum of Fisheries Professionals of India & Fishery Survey of India, Visakhapatnam


GOO, 1996. *Orissa District Gazeteers: Cuttack*, Gazetteers Unit, Department of Revenue, Government of Orissa


Gordon, A. (1991) The bycatch from Indian shrimp trawlers in the Bay of Bengal - the potential for its improved utilisation, BOBP/ WP/68, Bay of Bengal Programme.


ICM 2002. Research Project on Globalisation and Seafood Trade Legislation: The effect on Poverty in India; Final Report for Andhra Pradesh – a study prepared under Project R7970: Globalisation and Seafood Trade Legislation: The Effect on Poverty in India, funded under DFID’s Post-Harvest Fisheries Research Programme and managed by Natural Resources Institute, United Kingdom.


Mathew S 2003. Trade in Fisheries and Human Development: Country Case Study – India for Asia Pacific Regional Initiatives on Trade, Economic Governance and Human Development, United Nations Development Programme.


MPEDA 2002. *The Study on Subsidisation of Fisheries Sector from India’s export angle in the context of possible sectoral negotiations at the WTO*, Note for discussion, MPEDA: Kochi.


Salagrama V 2003a. *Poverty, Food Insecurity and Vulnerability in Coastal Fishing Communities of Orissa*, developed as part of the FNPP-SIFAR (FAO) Project on ‘Assessing the Vulnerability of Poor Coastal
Communities to Food Insecurity and Poverty’, Draft (November 2003); Integrated Coastal Management: Kakinada
Salagrama V 2004 A study of market supply chains in fisheries in the southern districts of Orissa, study done for Oxfam (GB), Bhubaneshwar. Integrated Coastal Management: Kakinada
Sathiadhas, R. 1998 Exploitation, employment, earnings and marketing aspects of marine fisheries in Indian economy, in Advances and Priorities in Fisheries Technology (ed. Balachandran et al) p. 463-472 Society of Fisheries Technologists (India), Cochin
SIFFS 1993. Continuity and Change in Artisanal Fishing Communities: a study of the socio-economic changes of artisanal fishing communities on the south-west coast of India following motorisation of fishing crafts, Programme for Community Organisation and South Indian Federation of Fishermen Societies: Trivandrum
Sivasubramaniam, K.1990. Biological aspects of shrimp trawl bycatch, Bay of Bengal News no 40: 8-10
Zarrilli, S 1999. WTO Sanitary and Phytosanitary Agreement: Issues for Developing Countries. Trade-Related Agenda, Development and Equity (TRADE), South Centre
APPENDICES

A. ANNEXURES

Annexure 1: Institutions working in fisheries

The following section will provide an overview of the institutions working in the sector along with the nature of support they extend to the seafood export industry.

Central Government organisations

At the central level, fisheries is under the purview of the Department of Animal Husbandry & Dairying (DAHD) which is part of the Ministry of Agriculture, Government of India. The Fisheries Development Commissioner in the DAHD heads the fisheries wing. The division implements and monitors the central sector schemes and centrally sponsored schemes implemented through the state governments. It also undertakes pilot projects and acts as a conduit for externally funded development projects in several states (GOI, 2000).

Other central ministries, such as Ministry of Food Processing Industries, Ministry of Commerce (through MPEDA and EIA), Ministry of Environment and Forests (conservation and management), the Ministry of Shipping (fishing ports), the Ministry of Rural Development, Ministry of Ocean Development, and the Ministry of Defence (Coast Guard) play a determining role in the fisheries sector. The National Cooperative Development Corporation (NCDC) provides assistance to fishermen cooperatives on liberal terms, implements some schemes to enable the fisheries cooperatives to take up activities related to production, processing, storage and marketing.

The Marine Products Export Development Authority (MPEDA) functions under the Ministry of Commerce, Government of India and acts as a coordinating agency with different Central and State Government establishments engaged in fisheries sector. 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), financial assistance (in the form of subsidies and loans) and promoting its products abroad. The MPEDA’s subsidy assistance schemes cover marine capture fisheries, culture fisheries, processing industries and export promotion and, in terms of seafood export, the most significant and substantial support received by different stakeholders.

The Export Inspection Council (EIC) was set up in 1963 under the control of the Ministry of Commerce in order to ensure sound development of export trade of India through quality control and inspection. The EIC is the apex authority under the Government of India, which is responsible for monitoring of quality standards and issuing of licences. The EIC works through the regional Export Inspection Agencies, which are the implementing arms of the council and issue certification of quality to exporters of fish and fish products.

State government organisations

The State Department of Fisheries (DOF) is the nodal agency responsible for formulation of policy, development and management programmes and their implementation. The DOF provides direct support for increasing supply from both capture and culture fisheries. It monitors and promotes improved management of the resources, and actively promotes the involvement of small-scale and poorer participants in the sector. Its main activities include construction of fishing harbours and setting up marketing and processing infrastructure,

15 The latter have a component of contribution by the state governments
technical support, training and extension, subsidies and credit assistance to fishermen for acquiring fishing equipment, support to fishermen cooperatives, compiling fisheries statistics, and implementing various welfare measures and activities for the fishers (DOF-AP, 1998). Many states like Kerala have programmes for social insurance, fishermen’s relief funds, rehabilitation programmes, special transport services, schools and scholarships, assistance for repair of houses, and even for diversification of occupation (GOI, 1983: 14-19). Village access roads, transport facilities and provision of infrastructure for drying were some of the programmes that most state governments have taken up. Many state departments of fisheries have set up apex cooperative bodies to source funds from the NCDC. Some state departments started corporations to undertake input and output marketing with poor results.

The Department of Rural Development (through the District Rural Development Agency – DRDA), Department of Forests, Shore Area Development Authority (SADA), Department of Ports and various bodies set up for development of weaker sections, such as the Backward Classes (BC), Scheduled Castes (SC) and women and child welfare, have a role to play at the state level in the fisheries sector.

Research organisations

Fisheries research is undertaken by both the central government and the individual state governments. The central government research institutions generally fall under the control of the Indian Council of Agricultural Research (ICAR). Fisheries research in the states is done by agricultural universities and their colleges of fisheries. The following are the fisheries related institutions under the control of the ICAR.

- **Central Inland Capture Fisheries Research Institute** (CICFRI), Barrackpore, W Bengal, conducts research on open inland water systems and undertakes extension and training.
- **Central Institute of Brackish water Aquaculture** (CIBA), Chennai, Tamil Nadu conducts research for development of finfish and shellfish culture in brackish water.
- **Central Institute of Freshwater Aquaculture** (CIFA), Bhubaneswar, Orissa conducts research on production and productivity issues in freshwater aquaculture.
- **Central Institute of Fisheries Education, Mumbai** (CIFE), Mumbai, Maharashtra is the only fisheries university in India undertaking education and research in fisheries.
- **Central Marine Fisheries Research Institute** (CMFRI), Kochi, Kerala carries out work on marine fisheries resources and their exploitation; and training and extension programmes.
- **Central Institute of Fisheries Technology** (CIFT), Kochi, Kerala undertakes research in fishing technology, craft and gear, processing and preservation; it also helps in quality control certification for export of seafood.

Two other fisheries research organisations – National Research Centre on Coldwater Fisheries (NRCCWF), Bhimtal and National Bureau of Fish Genetic Resources (NBFGFR), Lucknow are also affiliated to ICAR.

Financial institutions

The **National Bank for Agriculture and Rural Development** (NABARD) has a special component for preferential lending to the fisheries sector at subsidised rates of interest. NABARD’s support to fishing sector included refinancing mechanised and other boats and aquaculture (Upare, 2004:66). In the X-5 Year Plan period, NABARD plans to refinance loans worth over 6 thousand crores (GOI, 2001a: 41). Mechanised trawling was financed by the commercial banks until 1980s (see next chapter), and the brackishwater boom in the early 1990s also encouraged financial institutions like Industrial Finance Corporation of India (IFCI), Industrial Development Bank of India (IDBI), Shipping Credit and Investment Company of India (SCICI), State Finance Corporations (SFC) and NCDC to lend credit, but much of this support dried up by mid-1990s for a number of reasons (Anjani Kumar et al 2003: 13-14).
Trade associations

The **Seafood Exporters Association of India** (SEAI) is the representative body of seafood exporters. It takes an active part, in conjunction with the MPEDA, in conducting the International Seafood Fairs in India, besides participating in the various international fairs and exhibitions. It brings out the Seafood Exporters Journal.

### Annexure 2: International categorisation of fisheries subsidies

**APEC**

In 2000 APEC undertook a Study into the Nature and Extent of Subsidies in the Fisheries Sector of APEC Member Economies. Among the requirements for the study were development of a comprehensive inventory of generic types of subsidisation employed globally in the fisheries sector, including multi-sectoral subsidies applying also to fisheries. On the basis of the inventory the report identified financial transfers in six categories or “modalities”:

- Direct assistance to fishers and fisheries workers
- Lending support programmes
- Tax preferences and insurance support programmes
- Capital and infrastructure support programmes
- Marketing and price support programmes
- Fisheries management and conservation programmes

The authors also suggested a further categorization of these programmes according to whether they would have the effect of increasing or decreasing fish stocks, and expanding or constraining fishing efforts.

**OECD**

A study of government financial transfers in the fisheries sector in OECD countries used the following categorization as a basis for its analysis:

- Fisheries infrastructure
- Management, research, enforcement and enhancement
- Access to other countries’ waters
- Decommissioning of vessels and licence retirement
- Investment and modernisation
- Income support and employment insurance
- Taxation exemptions

**United States**

A paper submitted to the Committee on Trade and Environment by the United States in 2000 suggested categorising subsidies according to their economic/commercial impact. The two broad categories proposed were (a) cost-reducing subsidies and (b) subsidies that supported incomes and prices. Under the two broad headings the paper listed 10 specific categories as follows:

- Cost Reducing Subsidies
- Commercially applicable research funding
- Capital cost-reducing subsidies
- Reduction of income and sales taxes
- Risk mitigation
- Government ownership and State trading if inconsistent with market terms
- Assistance to shipbuilding specifically for fishing vessels
- Foreign access payments and assistance to foreign fishing ventures
- Subsidies that support Income and Prices:
  - Price support programmes
  - Trade-promoting subsidies
  - Sector-specific social assistance programmes

The paper specifically excluded from the list government programmes for fisheries management, science, enforcement, and most publicly financed port and landings facilities, as well as government-funded programmes that facilitate the transition to sustainable fisheries.

**FAO**

The FAO held an Expert Consultation on Economic Incentives and Responsible Fisheries in Rome in 2000. The experts outlined four “sets of subsidies”:

- Set 1 Subsidies are government financial transfers that reduce costs and/or increase revenues of producers in the short term.
- Set 2 Subsidies are any government interventions, regardless of whether they involve financial transfers that reduce costs and/or increase revenues of producers in the short term.
- Set 3 Subsidies are Set 2 Subsidies plus the short-term benefits to producers that result from the absence or lack of interventions by governments to correct distortions (imperfections) in production and markets that can potentially affect fisheries resources and trade
- Set 4 Subsidies are government interventions, or the absence of correcting interventions, that affect the costs and/or revenues of producing and marketing fish and fish products in the short, medium or long term.

In addition to the “sets of subsidies” the experts defined “categories of subsidies” which are grouped under two broad headings: cost-reducing and revenue-enhancing subsidies. They suggested a further break-down under “trade” and “sustainability” headings.

**UNEP**

A paper commissioned by the United Nations Environment Programme and published in 2002 suggested a synthesis of the above approaches. The simplified categorization proposed in the UNEP paper comprised the following:

- Fisheries management services
- Subsidies to capital costs including infrastructure
- Decommissioning and licence retirement
- Subsidies to access to foreign fisheries
- Subsidies to incomes
### Annexure 3: An indicative summary of subsidies in Indian Fisheries

The following inventory employs the framework used by APEC, with one additional category or ‘modality’ – ‘Social Subsidies’. The list is by no means comprehensive and is intended mainly to give an account of different kinds of subsidies available in the sector at various times in the last fifty years. It has to be noted that some of the subsidies are no longer available, but considering their importance in the overall pattern of development of the sector, have been included.

<table>
<thead>
<tr>
<th>1. Direct assistance to fishers and fishworkers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>a. Direct transfer</strong></td>
</tr>
<tr>
<td>- lean season assistance</td>
</tr>
<tr>
<td>- disaster relief payments</td>
</tr>
<tr>
<td>- subsidy component provided in cash (HSD oil)</td>
</tr>
<tr>
<td><strong>b. Revenues foregone</strong></td>
</tr>
<tr>
<td>- Leasing of tanks on subsidised rates for extensive aquaculture</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2. Lending support programmes</th>
</tr>
</thead>
<tbody>
<tr>
<td>- special component plans for lending to fishers (NABARD; trawler development funds)</td>
</tr>
<tr>
<td>- loan guarantees: for e.g., the World Bank-funded ‘shrimp and fish culture project’ – central government standing guarantee (for the state governments) to World Bank; the state governments’ loan guarantee for various programmes given by NCDC</td>
</tr>
<tr>
<td>- subsidised loans from commercial and cooperative banks as well as from weaker section development bodies like BC Development Corporation and SC Development Corporation;</td>
</tr>
<tr>
<td>- margin money support, over and above subsidised loans</td>
</tr>
<tr>
<td>- interest subsidies on loans for acquisition of deep sea fishing vessels (GOI, 1996:217)</td>
</tr>
<tr>
<td>- loan restructuring (deep sea sector; hatcheries)</td>
</tr>
<tr>
<td>- loan waivers (in late-1980s)</td>
</tr>
<tr>
<td>- interest subsidies for modernisation of processing plants to achieve conformity with international requirements</td>
</tr>
<tr>
<td>- exemption from collateral security for mechanised and deep-sea trawlers, deep-sea sector</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3. Tax preferences programmes</th>
</tr>
</thead>
<tbody>
<tr>
<td>- HSD fuel tax exemption for mechanised boats</td>
</tr>
<tr>
<td>- tax exemption on kerosene for motorised boats (in Kerala)</td>
</tr>
<tr>
<td>- income tax exemption and sales tax exemption (for sales) for cooperative societies</td>
</tr>
<tr>
<td>- sales tax exempted for fish and dried fish</td>
</tr>
<tr>
<td>- seafood exporters exempted from income tax (until recently)</td>
</tr>
<tr>
<td>- reduced cess on seafood exports</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4. Capital and infrastructure development programmes</th>
</tr>
</thead>
<tbody>
<tr>
<td>- subsidies or grants for buying or modernising boats, engines, fishing gear and other fishing equipment (iceboxes, GPS, communication systems, fish finders) in artisanal and mechanised sectors;</td>
</tr>
<tr>
<td>- subsidies for land, capital costs and working capital assistance in aquaculture for small-scale and large-scale operatives;</td>
</tr>
<tr>
<td>- equity participation (GOI 1996:217);</td>
</tr>
<tr>
<td>- setting up, management and upgradation of ancillary industries – ice plants, freezing plants, hatcheries;</td>
</tr>
<tr>
<td>- exploratory fishing and gear/aquaculture development (GOI 1996:217);</td>
</tr>
<tr>
<td>- state investments in fisheries enterprises – the Fisheries Development Corporations</td>
</tr>
<tr>
<td>- grants for safety equipment; disaster preparedness and mitigation infrastructure and equipment</td>
</tr>
<tr>
<td>- infrastructure – ports, fishing harbours and jetties, fuel stations, access roads to</td>
</tr>
</tbody>
</table>
### 5. Marketing support programmes
- Export marketing promotion programmes
- Generic product promotion (MFPI)

### 6. Fisheries management and conservation programmes

<table>
<thead>
<tr>
<th>No/inadequate management</th>
<th>Open access</th>
<th>lack of licensing and registration</th>
<th>no obligation to report catches and earnings</th>
<th>non-enforcement of existing legislations</th>
<th>Poor pollution control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management without user charges</td>
<td>programmes for development of artificial reefs and fish aggregating devices</td>
<td>environment and biodiversity conservation programmes – concerning mangroves, turtles, sharks and shells, shrimp seed</td>
<td>fisheries management programmes – seasonal bans, mesh-size regulations</td>
<td>aquaculture regulation programmes – such as the Aquaculture Authority of India</td>
<td>sea ranching</td>
</tr>
</tbody>
</table>

### 7. Social services
- food subsidies from PDS
- subsidised public healthcare
- subsidised education
- subsidised housing, drinking water, sanitation and other basic needs
B. TABLES

Table 1: Distribution of marine fishery resources in India

<table>
<thead>
<tr>
<th>State/Union Territory</th>
<th>Approx length of coastline (km)</th>
<th>Continental shelf ('000 km)</th>
<th>No of landing centres</th>
<th>No of fishing villages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andhra Pradesh</td>
<td>974</td>
<td>33</td>
<td>508</td>
<td>508</td>
</tr>
<tr>
<td>Goa</td>
<td>104</td>
<td>10</td>
<td>88</td>
<td>72</td>
</tr>
<tr>
<td>Gujarat</td>
<td>1600</td>
<td>184</td>
<td>286</td>
<td>851</td>
</tr>
<tr>
<td>Karnataka</td>
<td>300</td>
<td>27</td>
<td>29</td>
<td>221</td>
</tr>
<tr>
<td>Kerala (P)</td>
<td>590</td>
<td>40</td>
<td>226</td>
<td>222</td>
</tr>
<tr>
<td>Maharashtra</td>
<td>720</td>
<td>112</td>
<td>184</td>
<td>395</td>
</tr>
<tr>
<td>Orissa</td>
<td>480</td>
<td>26</td>
<td>63</td>
<td>329</td>
</tr>
<tr>
<td>Tamil Nadu</td>
<td>1076</td>
<td>41</td>
<td>362</td>
<td>556</td>
</tr>
<tr>
<td>West Bengal</td>
<td>158</td>
<td>17</td>
<td>47</td>
<td>652</td>
</tr>
<tr>
<td>A &amp; N Islands</td>
<td>1912</td>
<td>35</td>
<td>57</td>
<td>45</td>
</tr>
<tr>
<td>Daman and Diu (P)</td>
<td>27</td>
<td>-</td>
<td>7</td>
<td>31</td>
</tr>
<tr>
<td>Lakshadweep (P)</td>
<td>132</td>
<td>4</td>
<td>11</td>
<td>10</td>
</tr>
<tr>
<td>Pondicherry</td>
<td>45</td>
<td>1</td>
<td>28</td>
<td>45</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>8118</strong></td>
<td><strong>530</strong></td>
<td><strong>1896</strong></td>
<td><strong>3937</strong></td>
</tr>
</tbody>
</table>


Table 2a: Distribution of marine fishing craft and main fishing gears in Andhra Pradesh (Revised from ICM, 2000)

<table>
<thead>
<tr>
<th>Fishing craft</th>
<th>Zones where represented</th>
<th>Main fishing gears used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Catamarans</td>
<td>North and south (Marine)</td>
<td>Gillnets, Trammel nets</td>
</tr>
<tr>
<td>Masula Stitched boats</td>
<td>North zone</td>
<td>Gillnets, shoreseines</td>
</tr>
<tr>
<td>Plywood sandwich</td>
<td>North zone</td>
<td>Gillnets, trammel nets</td>
</tr>
<tr>
<td>catamarans</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small navas/dhonis</td>
<td>Central (estuarine)</td>
<td>Gillnets, lines, tidal wall nets</td>
</tr>
<tr>
<td>Shoe dhonis</td>
<td>Central (estuarine)</td>
<td>Gillnets, tidal wall nets</td>
</tr>
<tr>
<td>Medium navas</td>
<td>Central (estuarine and marine)</td>
<td>Gillnets, trammel nets</td>
</tr>
<tr>
<td>Large navas</td>
<td>Central (marine)</td>
<td>Gillnets, longlines</td>
</tr>
</tbody>
</table>

Table 2b: Distribution of marine fishing craft and main fishing gears in Orissa (From ICM 2000)

<table>
<thead>
<tr>
<th>Fishing craft</th>
<th>Zones where represented</th>
<th>Main fishing gears used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Catamarans</td>
<td>South</td>
<td>Bottom &amp; surface gillnets, trammel nets, hook &amp; lines</td>
</tr>
<tr>
<td>Barboats</td>
<td>South</td>
<td>Shore-seines</td>
</tr>
<tr>
<td>Nava</td>
<td>South</td>
<td>Gillnets, trammel nets, hook &amp; lines</td>
</tr>
<tr>
<td>Salti</td>
<td>North</td>
<td>Encircling nets, driftnets, shore-seines</td>
</tr>
<tr>
<td>Dingi/Danga</td>
<td>North</td>
<td>Encircling nets, driftnets</td>
</tr>
<tr>
<td>Patia</td>
<td>North</td>
<td>Encircling nets, driftnets</td>
</tr>
<tr>
<td>Sabado</td>
<td>North</td>
<td>Encircling nets, shore-seines, gillnets</td>
</tr>
<tr>
<td>Choat</td>
<td>North</td>
<td>Encircling nets, driftnets, shoreseines</td>
</tr>
</tbody>
</table>
Table 2c: Distribution of marine fishing craft and main fishing gears in Kerala (From SIFFS 2002)

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

Table 3: State-wise summary of the list of EU approved units in India (http://www.mpeda.com last visited 21 April 2004)

<table>
<thead>
<tr>
<th>Maritime State</th>
<th>PP</th>
<th>ZV</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gujarat</td>
<td>14</td>
<td>0</td>
<td>14</td>
</tr>
<tr>
<td>Maharashtra</td>
<td>15</td>
<td>0</td>
<td>15</td>
</tr>
<tr>
<td>Karnataka</td>
<td>5</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Kerala</td>
<td>52</td>
<td>0</td>
<td>52</td>
</tr>
<tr>
<td>Tamil Nadu</td>
<td>19</td>
<td>0</td>
<td>19</td>
</tr>
<tr>
<td>Andhra Pradesh</td>
<td>24</td>
<td>5</td>
<td>29</td>
</tr>
<tr>
<td>Orissa</td>
<td>4</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>West Bengal</td>
<td>5</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>138</strong></td>
<td><strong>5</strong></td>
<td><strong>143</strong></td>
</tr>
</tbody>
</table>

PP  Processing Plant  
ZV  Freezer Vessel

Table 4: Port-wise Export of Marine Products from India in 2000 (MPEDA 2000)

<table>
<thead>
<tr>
<th>Name of Port</th>
<th>West Coast</th>
<th>East Coast</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Quantity (Tons)</td>
<td>Value (Rs. Lakhs)</td>
</tr>
<tr>
<td>Cochin</td>
<td>96678</td>
<td>115957</td>
</tr>
<tr>
<td>Mangalore</td>
<td>3277</td>
<td>1659</td>
</tr>
<tr>
<td>Marmugao</td>
<td>11206</td>
<td>3491</td>
</tr>
<tr>
<td>Mumbai</td>
<td>27102</td>
<td>24288</td>
</tr>
<tr>
<td>Jawaharlal Nehru Port</td>
<td>78409</td>
<td>60135</td>
</tr>
<tr>
<td>Porbandar</td>
<td>24990</td>
<td>10564</td>
</tr>
<tr>
<td>Kandia</td>
<td>44783</td>
<td>26609</td>
</tr>
<tr>
<td>Karwar</td>
<td>602</td>
<td>208</td>
</tr>
<tr>
<td>Trivandrum</td>
<td>461</td>
<td>1120</td>
</tr>
<tr>
<td>Pipavav</td>
<td>38047</td>
<td>17815</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>325555</strong></td>
<td><strong>261846</strong></td>
</tr>
</tbody>
</table>
Table 5: Major markets for Indian marine products (MPEDA, 2000)

<table>
<thead>
<tr>
<th>Country</th>
<th>Q: Quantity (Tonnes)</th>
<th>V: Value (Rs Lakhs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan</td>
<td>64698</td>
<td>71948</td>
</tr>
<tr>
<td>European Union</td>
<td>185967</td>
<td>226195</td>
</tr>
<tr>
<td>USA</td>
<td>72229</td>
<td>45227</td>
</tr>
<tr>
<td>South East Asia</td>
<td>76628</td>
<td>52079</td>
</tr>
<tr>
<td>Middle East</td>
<td>76515</td>
<td>111729</td>
</tr>
<tr>
<td>Others</td>
<td>6086</td>
<td>9869</td>
</tr>
<tr>
<td>Others</td>
<td>13328</td>
<td>11305</td>
</tr>
<tr>
<td>Total</td>
<td>353676</td>
<td>398977</td>
</tr>
</tbody>
</table>

Table 6: Seafood export to major 20 countries (by Value)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Japan</td>
<td>1576.69</td>
<td>45.0</td>
<td>1886.04</td>
<td>45.8</td>
<td>2326.09</td>
<td>49.5</td>
</tr>
<tr>
<td>2</td>
<td>USA</td>
<td>366.26</td>
<td>10.5</td>
<td>436.05</td>
<td>10.6</td>
<td>583.75</td>
<td>12.4</td>
</tr>
<tr>
<td>3</td>
<td>China</td>
<td>87.15</td>
<td>2.5</td>
<td>306.88</td>
<td>7.4</td>
<td>695.55</td>
<td>14.8</td>
</tr>
<tr>
<td>4</td>
<td>UK</td>
<td>229.45</td>
<td>6.6</td>
<td>231.22</td>
<td>5.6</td>
<td>92.17</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>Spain</td>
<td>156.48</td>
<td>4.5</td>
<td>113.54</td>
<td>2.8</td>
<td>81.45</td>
<td>1.7</td>
</tr>
<tr>
<td>6</td>
<td>Hongkong</td>
<td>144.93</td>
<td>4.1</td>
<td>236.58</td>
<td>5.7</td>
<td>121.38</td>
<td>2.6</td>
</tr>
<tr>
<td>7</td>
<td>Belgium</td>
<td>77.47</td>
<td>2.2</td>
<td>94.69</td>
<td>2.3</td>
<td>46.33</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>UAE</td>
<td>54.31</td>
<td>1.6</td>
<td>49.4</td>
<td>1.2</td>
<td>134.59</td>
<td>2.9</td>
</tr>
<tr>
<td>9</td>
<td>Italy</td>
<td>181.23</td>
<td>5.2</td>
<td>112.07</td>
<td>2.7</td>
<td>62.76</td>
<td>1.3</td>
</tr>
<tr>
<td>10</td>
<td>Thailand</td>
<td>65.24</td>
<td>1.9</td>
<td>75.85</td>
<td>1.8</td>
<td>96.62</td>
<td>2.1</td>
</tr>
<tr>
<td>11</td>
<td>Singapore</td>
<td>108.25</td>
<td>3.1</td>
<td>95.27</td>
<td>2.3</td>
<td>93.62</td>
<td>2</td>
</tr>
<tr>
<td>12</td>
<td>Netherlands</td>
<td>72.86</td>
<td>2.1</td>
<td>69.24</td>
<td>1.7</td>
<td>19.82</td>
<td>0.4</td>
</tr>
<tr>
<td>13</td>
<td>Malaysia</td>
<td>54.35</td>
<td>1.6</td>
<td>78.26</td>
<td>1.9</td>
<td>68.7</td>
<td>1.5</td>
</tr>
<tr>
<td>14</td>
<td>France</td>
<td>59.56</td>
<td>1.7</td>
<td>45.48</td>
<td>1.1</td>
<td>18.65</td>
<td>0.4</td>
</tr>
<tr>
<td>15</td>
<td>Canada</td>
<td>6.79</td>
<td>0.2</td>
<td>20.2</td>
<td>0.5</td>
<td>21.06</td>
<td>0.4</td>
</tr>
<tr>
<td>16</td>
<td>Germany</td>
<td>21.09</td>
<td>0.6</td>
<td>33.38</td>
<td>0.8</td>
<td>16.64</td>
<td>0.4</td>
</tr>
<tr>
<td>17</td>
<td>Portugal</td>
<td>30.36</td>
<td>0.9</td>
<td>29.47</td>
<td>0.7</td>
<td>17.28</td>
<td>0.4</td>
</tr>
<tr>
<td>18</td>
<td>Taiwan</td>
<td>16.87</td>
<td>0.5</td>
<td>27.55</td>
<td>0.7</td>
<td>18.71</td>
<td>0.4</td>
</tr>
<tr>
<td>19</td>
<td>Greece</td>
<td>56.51</td>
<td>1.6</td>
<td>45.92</td>
<td>1.1</td>
<td>48.88</td>
<td>1</td>
</tr>
<tr>
<td>20</td>
<td>R Korea</td>
<td>16.53</td>
<td>0.5</td>
<td>26.24</td>
<td>0.6</td>
<td>14.13</td>
<td>0.3</td>
</tr>
<tr>
<td>Others</td>
<td>118.73</td>
<td>3.4</td>
<td>108.03</td>
<td>2.6</td>
<td>119.3</td>
<td>2.5</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>3501.11</td>
<td>100.0</td>
<td>4121.36</td>
<td>100.0</td>
<td>4697.48</td>
<td>100.0</td>
<td>4626.87</td>
</tr>
</tbody>
</table>

Integrated Coastal Management, India
Table 7: Major Markets for Indian Frozen Shrimp (MPEDA, 2000)

<table>
<thead>
<tr>
<th></th>
<th>1996</th>
<th>1997</th>
<th>1998</th>
<th>1999</th>
<th>2000</th>
<th>Average</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan</td>
<td>165359</td>
<td>206491</td>
<td>221264</td>
<td>198331</td>
<td>235180</td>
<td>205325</td>
<td>60</td>
</tr>
<tr>
<td>USA</td>
<td>34416</td>
<td>46534</td>
<td>45684</td>
<td>54067</td>
<td>99724</td>
<td>56085</td>
<td>16</td>
</tr>
<tr>
<td>European Union</td>
<td>45503</td>
<td>29394</td>
<td>30484</td>
<td>45916</td>
<td>62754</td>
<td>42810</td>
<td>13</td>
</tr>
<tr>
<td>Others</td>
<td>17913</td>
<td>28534</td>
<td>40408</td>
<td>37924</td>
<td>55845</td>
<td>36125</td>
<td>11</td>
</tr>
<tr>
<td>Total</td>
<td>263191</td>
<td>310953</td>
<td>337840</td>
<td>336238</td>
<td>453503</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 8: Contribution of non-shrimp varieties to exports

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Finfish</td>
<td>38.3</td>
<td>10.5</td>
</tr>
<tr>
<td>Cuttlefish</td>
<td>9.6</td>
<td>5.6</td>
</tr>
<tr>
<td>Squid</td>
<td>10.2</td>
<td>5.8</td>
</tr>
<tr>
<td>Dried items</td>
<td>1.9</td>
<td>0.8</td>
</tr>
<tr>
<td>Live items</td>
<td>0.5</td>
<td>0.8</td>
</tr>
<tr>
<td>Others</td>
<td>7.4</td>
<td>5.3</td>
</tr>
</tbody>
</table>

Table 9: Status of import policy of fishery products

<table>
<thead>
<tr>
<th>Period</th>
<th>Total no of fishery commodities</th>
<th>Special Import License (SIL)</th>
<th>Free</th>
<th>Restricted/Prohibited</th>
</tr>
</thead>
<tbody>
<tr>
<td>1992-97</td>
<td>121</td>
<td>-</td>
<td>7</td>
<td>114</td>
</tr>
<tr>
<td>1997-2002</td>
<td>121</td>
<td>62</td>
<td>21</td>
<td>38</td>
</tr>
<tr>
<td>2002-07</td>
<td>127</td>
<td>-</td>
<td>122</td>
<td>5</td>
</tr>
</tbody>
</table>
C. FIGURES

Figure 1: Fish production in India 1950-51 to 1999-2000 (from GOI 2000)

Figure 2: Contribution of shrimp to marine fish landings (GOI 1996 & 2001)
Figure 3: Wholesale price indices

Figure 4: Export growth of Indian Marine Products 1961-62 to 1999-2000 (MPEDA, 2001)

Figure 5: Annual average exports by quantity and value during 1996-2000 (from MPEDA, 2000)
Figure 6: Growth of shrimp exports from India 1953-2000 (from Kurien, 1985; MPEDA 2001)

Figure 7: Percentage of shrimp to total exports by quantity (MPEDA 2001: 27 & 37)

Figure 8: Percentage of shrimp to total exports by value (MPEDA 2001: 27 & 37)
**Figure 9: Contribution of cultured shrimp to total shrimp exports**

![Figure 9: Contribution of cultured shrimp to total shrimp exports](image)

**Figure 10: Contribution of cultured shrimp to overall exports**

![Figure 10: Contribution of cultured shrimp to overall exports](image)

**Figure 11: Cost of HSD Oil at Kakinada Fishing Harbour, 1989-2004**

![Figure 11: Cost of HSD Oil at Kakinada Fishing Harbour, 1989-2004](image)