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DEVELOPMENT**

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**SOME ECOLOGICAL AND  
SOCIAL IMPLICATIONS OF  
COMMERCIAL SHRIMP FARMING  
IN ASIA**

**by Solon Barraclough and Andrea Finger-Stich**

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**March 1996**

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## ◆ UNRISD Preface

A number of recent media reports have given vivid accounts of the current and potential environmental impacts of shrimp farming in Asia and South America. These include mangrove destruction, destruction of fish stock, pollution and other forms of land and water degradation. The social impacts on local communities which live in the tropical coastal regions where shrimp aquaculture is a growing source of income have, however, received only scant attention. Shrimp aquaculture affects livelihoods by disrupting traditional systems of production, distribution and social relations. This paper highlights such social dimensions of shrimp aquaculture. It is based on the data available in the case studies covered in the current literature on the subject. The broader conceptual framework utilized to analyse policy issues is derived from the Institute's research programme on **Environment, Sustainable Development and Social Change**.

The paper looks at the recent trends of expansion of shrimp aquaculture in Asia, which supplies some 80 per cent of cultured shrimp in global markets. The remarkable growth in production over the past decade has been facilitated by evolving technologies and expanding pond areas. At the same time, however, customary production systems have been systematically replaced by more intensive ones.

Shrimp is mostly produced for export to meet the demands of rich consumers in developed countries. The governments in producing countries consider shrimp aquaculture a vital source foreign exchange and a small section of the population is apparently able to draw lofty immediate earnings. However, the main beneficiaries have been powerful national and international investors.

The paper identifies the principal actors of the shrimp industry, at the cultivation, processing, trading and consumption stages. The industry's financial sources are also considered. At one end, there are small shrimp farmers and workers and, at the other, rich farmers, fry collectors, manufacturers, processors and marketing agents, national and international investors and agencies, and high purchasing-power consumers. The paper focuses in particular on the actors which are negatively affected by the "externalities" of shrimp aquaculture, and by reduced access to natural resources.

The roles played by market forces, institutions, policies and official discourse in the growth of the shrimp industry and its social and environmental impacts are assessed critically in the paper. The partial remedial actions being attempted by private and public actors to mitigate the negative outcomes of the industry are also examined. The authors conclude that effective policy and institutional reforms are required at all levels. The possibilities of bringing about such reforms will largely depend upon the active participation of the key social actors at the grassroots level and of alliances of concerned parties in both producing and consuming countries.

The authors point out the clear need for more field-based studies in order better to understand the social and environmental implications of shrimp

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aquaculture in specific social and ecological contexts. There is also the need for more policy oriented analysis, both to assist the elaboration of market and regulatory mechanisms involving all concerned stakeholders, and to control the industry from inducing further damage. The paper includes a short appendix proposing further research on these issues, and on some related questions. For example, how could commercial shrimp aquaculture bring more benefits to local groups that have so far been largely prejudiced? How could tropical coastal resources be better used for meeting the present and future food, employment and income needs of local people, while taking into account foreign exchange requirements at the national level? How could such activities be made more environmentally sustainable?

Solon Barraclough, Director of UNRISD from April 1977 to January 1984, is currently acting as Senior Consultant for several of the Institute's environmental projects. Andréa Finger-Stich, an independent environmental consultant, has been a member of the research team under the Institute's programme on The Social and Environmental Impact of National Parks and Protected Areas. The production of this paper at UNRISD was co-ordinated by Krishna Ghimire.

March 1996

Dharam Ghai  
Director

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## ◆ WWF Preface to the Second Printing

Since this Discussion Paper was first published in March 1996, several events related to shrimp production and its social and environmental impacts have taken place. Many organizations have published reports on the negative effects of shrimp farming and have debated the appropriateness of launching a shrimp boycott. Interestingly, the United States has banned imports from many Asian countries because they have not used anti-turtle devices when fishing for shrimp. Though the ban was primarily to save turtles, it raised several questions about the entire shrimp trade, as well as about the appropriateness and effectiveness of the unilateral decision by the United States.

The shrimp market is not divided on the lines of production from wild catch or aquaculture. Retailers are not obliged to inform their customers about the origin of the shrimp they sell. Many countries affected by the US ban argued that most of their shrimp exports are from aquaculture and that therefore the ban was not applicable. While they were right, they ignored the production process of the farm-raised shrimp, which is at least as much of a threat to the environment — and even more so for local communities.

During the last couple of years, the shrimp industry — well aware of what it was doing to mangroves, coastal waters and local livelihoods — has been anticipating some form of opposition from consuming countries. Considering, however, the way the industry ignored multiple protests from small NGOs and poor local farmers and fishermen in the producing areas, it probably did not expect judicial intervention from the highest court in India. The Indian Supreme Court judgement declaring that shrimp farms within the 500-metre high tide zone are to be closed came as a shock to the entire industry. The Supreme Court based its judgement on five major studies, including this Discussion Paper. Several pages of this document were quoted in the court's judgement of 11 December 1996. India produces annually about 70,000 metric tons of farm-raised shrimp, worth half a billion dollars. Several public and private financial institutions and international aid agencies, the World Bank and the Asian Development Bank have actively promoted this industry; and governments have extended subsidies for technical help to boost the industry.

The most important aspect of the court's judgement is not just the technicality of violating the Coastal Zone Regulation Act (CZR-1990) but the conclusion that the shrimp industry is causing more damage to the natural resources and local economies than it raises benefits from the export of cultivated shrimp. The Supreme Court had commissioned the National Environmental and Engineering Research Institute (NEERI) to undertake an impact assessment in several Indian states in order to substantiate its decision with precise estimates of costs and benefits.

As expected, the industry is not giving up and has launched several appeals. At the time of writing of this preface, the Indian Supreme Court has, in fact, extended the deadline for implementation of its order to demolish all installations built within 500 metres of the high tide line from April 1996 to the end of July 1997. The shrimp industry is not only powerful in India but

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in all of Asia (which produces about 90 per cent of the world's cultivated shrimp). The investments, both private and public, are substantial. Even though it is difficult to estimate these amounts, the investments are important enough to influence parliaments and state legislatures in most Asian countries.

The success of this Discussion Paper and the work of many local, regional and international NGOs should lead to the re-emergence of a shrimp industry that, in future, will be ecologically and socially responsible. It has certainly contributed significantly to the ongoing debate on unsustainable, quick-profit practices versus sustainable economic development, taking into consideration the environment and people.

The shrimp industry will not be the same in India or in Asia after the general raising of awareness that has occurred in the wake of the Supreme Court's decision and all the material and campaigns that motivated it. For its own survival, the shrimp industry should take serious note of the Supreme Court judgement and work without delay towards improving its own sustainability.

The present study and its organizational backing by WWF and UNRISD have played a major role in lending support to the local people whose lives have been devastated by the shrimp industry: depleting and polluting their freshwater sources; causing salinization; confiscating their land, often irreversibly,<sup>1</sup> and destroying mangroves as breeding grounds for fisheries, water cycle regulation, erosion control and buffering against floods, as well as the production of forest-related goods and services.

The present edition of this paper has not been updated from its 1996 version. However, the general analysis remains valid. This study also illustrates a fruitful partnership between an international non-governmental organization and a United Nations organization.

12 June 1997

Claude Martin  
Director-General  
WWF-International

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<sup>1</sup> Biksham Gujja and Andrea Finger-Stich have estimated that about 150,000 hectares of coastal areas were abandoned worldwide between 1985 and 1995. See "What price prawn? Shrimp aquaculture's impact in Asia", *Environment*, Vol. 38, No. 7, September 1996, pp. 12-15 and 34-39.

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## ◆ Contents

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### I. INTRODUCTION

1

---

### II. RECENT TRENDS IN ASIAN SHRIMP PRODUCTION

6

---

### III. VARIOUS ACTORS IN THE SHRIMP INDUSTRY

13

---

- ◆ Shrimp Farmers and Labourers  
13
  - ◆ National and Transnational Investors and Agencies  
16
  - ◆ Fry Collectors and Hatchery Workers  
19
  - ◆ Manufacturers, Processors and Marketing Agents  
20
  - ◆ High Purchasing-Power Consumers  
21
- 

### IV. ENVIRONMENTAL AND SOCIAL IMPACTS: CONFLICTS AND “EXTERNALITIES”

23

---

- ◆ Natural Resource Degradation: Pollution, Biodiversity Loss and Health Hazards  
24
  - ◆ Changing Natural Resource Use and Deteriorating Livelihoods  
27
  - ◆ Social Disruption and Disempowerment  
35
- 

### V. POLICY AND INSTITUTIONAL DETERMINANTS

38

---

- ◆ Market Forces  
39
- ◆ Policies and Institutions  
42

---

◆ Implications  
51

---

APPENDIX: FILLING A RESEARCH GAP  
53

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◆ Bibliography  
55

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