NATIONAL FISHWORKERS' FORUM

NFF REPORT
1993

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CONTENTS

92

FOREWORD

I am very happy to present the NFF report of 1993. Unfortunately I was not in a position to include all the state level reports since they have not given me written reports except Tamil Nadu Fishworker's Union. However I'm very happy to include two Supreme Court judgements concerning the ban on Purse-seining and monsoon trawling. These are two landmark judgements concerning fisheries development. I have also included the issue of aquaculture, which is becoming very important in India today. Another live question of course, is about joint ventures. These issues will determine the activities of NFF in 1994.

Once again I take this opportunity to thank each and every person who supported the NFF one way or other. Above all, I thank each and every FISHWORKER, whose struggle has made the NFF a reality in the National and International scene.

Thomas Kocherry
(Chair person)

Hare Krishna Debnath
(General Secretary)

Trivandrum
1-11-1994

NFF REPORT - 1993

1.Indian political Scenario

Our ruling class has taken our country into a very serious crisis. On the one hand, multinationalisation is taking place at a very rapid pace so that sectors such as agriculture, industry, pharmaceuticals and fisheries will be under the complete control of the multinational companies. Together with this, world Bank, IMF and Dunkel of GATT are threatening our political sovereignty, economic autonomy and cultural identity. India is caught in a foreign trap and heading towards a new slavery. On the other hand, from within, communalism, casteism terrorism and corruption are poisoning the life blood of the nation. Religious is being used to come to political power. This is a very dangerous trend which can destroy the identity and survival of this country as one nation. Religious fundamentalism is linked up with caste superiority and domination in a very subtle way. The worst victim of this tendency are the Dalits, tribals and the backward classes.

Destructive policies in the name of development are being pursued, as a consequence of which common people, artisans and traditional workers are being displaced from waters, forests and lands. Development process takes place for the benefit of the rich class. Big dams, mega projects and agriculture are becoming a big threat to environment and sustainable development.

Political vacuum is engulfing the country and criminalisation is spreading fast in politics, as a result of which people are being deprived not only of human rights but even of 'Right of Life'.

2. Fisheries scenario

In 1992, India's fisher people caught 23 lakhs tonnes of fish. The exploitation of the territorial waters have reached a saturation point. Both the small mechanised sector and the artisanal sector feel that they have a lot of strains and conflicts. With the existing quantity of them still remain at subsistence economy levels.

Despite such a grave situation, the Government of India feels that 16 lakhs tonnes more fish can to be caught from the deep sea. Therefore the G.O.I appointed a Technology Mission. The mission recommended 2,600 deep sea fishing vessels is the range of 12-40m and recommended the promotion of joint ventures. A number of big industrial houses have queued up to enter deep sea fishing with foreign equity participation. Most of these are 100% export oriented units. The past experience of deep sea fishing was not taken into account. All the deep sea fishing vessels including the public sector ones are being operated from Vishakpatanam. Out of 148 vessels, only 20 are running at a profit. In spite of this, the food processing ministry has already issued 39 licences to the Indian entrepreneurs and 3 joint ventures - a Japanese, an American and a Mexican. It is interesting to note that the Mexican vessels have six purse-seines are each 15 km long.

These are going to be a big threat to the artisanal fisher people and the small mechanised sector. This conflict has already appeared in West Bengal between the gillnetters and the 148 deep sea fishing vessels. In spite of continuous request, the Central Government has refused to do anything to

resolve the crisis. Despite several declarations on its Intention to enact deep sea fishing regulations, the food processing Ministry has not done anything concrete in this regard.

Although fresh water aquaculture generally remains within the small-scale sector, brackish water aquaculture — particularly prawn cultivation — is becoming large scale and highly intensive. Most of the these artificial feeds and fertilizers which will create a large scale environmental destruction. World Bank is funding many of these private entrepreneurs. Through Chilka Bachao Andolan won a major battle against Tatas, still greater struggles are ahead to thwart the control of Chilka by-nonfishing people. All the brackish waters aquaculture areas have become tension areas.

3. New Executive Body and the Secretariat

The last general body held at ISI, Banglore, in December '92 elected a new executive committee for the years 1993, 1994 and 1995. consisting of Thomas Kocherry (Chairperson), Here Krishna Debnath (Genrad Secretary), Ramesh Dhuri (Secretary - 1), Tattaya .K. (Secretary-2), Francis De Sales (Secretary-3), Matanhi Saldanha, Ravi .P, M.P. Abdul Rassik, Mercy Alexander, B. Jaganadh Rao, Bhai Bandarkar, Santhosh Das, Samudralu. S., Mary Therese and R.K. Patil. The executive met once in Banglore during the General body Meeting.

The Secretariat consists of Chairperson, General Secretary and the 3 Secretaries, Nalini Nayak, A.J. Vijayan or Aleyamma Vijayan. The Secretariat met once on 3rd and 4th April in Trivandrum. It worked out the details of the NFF Training Programme and the deep Sea Fishing Seminar in Bombay, evaluated Calcutta Refugee Meet and other details of the functions of Chairperson, General Secretary, and the Secretaries. Chairperson was to be responsible for co-ordinating with different peoples' movements, and to co-ordinate various affiliated unions. The General Secretary was responsible for Kalinga Fishermen Forum, Tattaya was responsible for organizing A.P. Union, Ramesh Dhuri was responsible for Maharashtra and dealing with Narmada Bachao Andolen, and A.J. Vijayan was deputed to organize A.P. Meet and Bombay Meet. Kalinga Fishermen's Union is a registered Trade Union now. Since Francis De Sales is gone away to Australia, he was not able to do much. All the office-bears have put in a lot of work. The Secretariat also met once and it was very useful. However the executive did not met after the general body. It was really difficult to meet again due to the financial burden. What way can the executive committee function is still a question to be answered.

4. Study of Fisheries in the Narmada River

Narmada Bachao Andolan requested us to depute somebody to study of the Fisheries situation in Narmada River. Mr. Vincent Benedict kindly agreed and visited different fishing areas. His report is still awaited. Chairperson, James Culas, Elsamma Prayikulam and Theremma Prayikulam visited the downstream areas of Sardar Sarovar. The construction of the Dam would wipe out 50,000 tonnes of hilsa that is available at present. Many other species also will be affected. Hilsa needs movement from brackish water to fresh water and the dam will block this movement. In the downstream areas there are 10,000 fishermen operating. Their future is uncertain.

5. National Alliance of People's Movements

The National Alliance of People's Movement are a reality today. 12 movements are represented in the committee.

Dr. Banvarilal Sharma of the Azadi Bachao Andolan is the National Convenor. there are 4 Regional Convenors. The NFF actively participated in all the National Alliance meetings in Calcutta together with a Mass Rally; a public meeting of Bangladesh Refugees on March 22, in Puri, together with a Dharna in front of the collectorate on 7th of may by the chilka Bachao Andolan and the NFF in Bangalore together with a Mass Rally and public meeting, on 10th May by the construction workers and the NFF, in Baroda, on 7th and 8th july hosted by Narmada Bachao Andolan and in Delhi during 9th and 10th October, hosted by Azadi Bachao Andolan. The National Alliance has decided to organize protect rallies all over India in every capital on December 3rd, rejecting Dunkel Draft. The NFF is organizing the same on 1st December in Bhabaveswar. On March 8th there will be a National Rally in Delhi rejecting Dunkel Draft. During our next General Body meeting in Gopalpur we must plan the details of our participating the in the Delhi Rally. The General Body also must discuss how effective we can boycott multinational companies and their products.

6. Refugee Issue

About 10 million refugees from Bangldesh are in West Bengal. Among them there are teachers, lawyers, engineers, doctors, coolies, hawkers and skilled workers. Some of them have obtained citizenship. A vast majority of them are without citizenship, yet most of them have ration cards and their names are in the voters list.

Among them there are outstanding freedom fighters. With their help they are having a Refugee Organization. Under its banner and in collaboration with the NFF, they raised the issue of the plight of the refugees on 22nd March 93, in connection with the meeting of the national Alliance Meeting of Peoples' Movements. Justice G.R. Krishna Iyer, Medha Patkar, Suderlal Bahuguna, Banvarllal Shrama, M.P. Swamy, Thomas Kocherry, Harekrishna Debanath addressed the Rally. It is highly a political issue. How can we raise this issue on the national level and make it and International Issue ?

7. Marine Park in Malwan

The Malwan Taluka Union has been raising the issue of Marine Park. They have been saying that this will displace fisher people from their occupation. Notice was served to the fisher people to vacate their coastal belt to protect their Marine Park.

Medha Patkar also was involved. She requested us to have a dialogue with the Institute of Oceanography. A.J. Vijayan took interest and went to Malwan and Goa together with ramesh Dhuri met the scientists concerned. We also obtained a copy of the project proposal. According the project, the idea of Marine Park is a conservation idea. Artisanal fishing will be allowed. There is no question of displacing fisherpeople. Purse seining, trawling and mechanised fishing will be prohibited.

However we must continue our pressure on the government and the administrators to have the Marine Park only for conservation and not for tourism. Tourism will destroy environment and

will evict the fisher people due to monetary benefits. So it is important how we plan to mobilize the fisher people to step up a continues pressure. Congratulations to Ramesh Dhuri and the Union for taking up this issue and mobilizing fisher people.

8. Narmada Bachao Andolan and the NFF

For last 7 years NBA has been waging a relentless battle against big dams. From Harsur Rally of 1986 onwards the NFF has been collaborating with Narmada Bachao Andolan. Against that background only we took up the study of down stream fisheries of Narmada. This year a team from the NFF went to the Narmada area to express solidarity with the struggles of the NBA. If fact we were present during their struggle of Panisamadi. We stayed in Manibali on the previous day of the submergence of Manibali and we visited the 1000 year old Siva Temple of Manibali. Also the NFF hosted a big reception to Medha Patkar when she arrived in Trivandrum. Together with other groups in Trivandrum we organised a Rally, Public Meeting and an open discussion on various issued facing NBA and other peoples movements.

In fact NBA promised to send 2 persons to attend the NFF training programme. Unfortunately they did not come. It is important that we discuss how we can collaborate with the NBA building up the organization of fisher people in the down stream areas.

9. Chilka Bachao Andolan

The NFF has collaborated with the CBA in many ways. Many activities from NFF visited Chilka and studied the problems due to bunding and brackish water prawn cultivation. These will lead to total environmental destruction of Chilka and the nearby paddy fields. Though CBA succeeded is very active in the area. So the next stage of struggle has to be planned well. The high court committee submitted its report and we are awaiting the High Court verdict. The NFF collaborated with CBA in organising a Dharna in front of the Puri collectorate. Also 5 people from the CBA attended the NFF Training Programme. We are expecting CBA participation with next General Body Meeting. We also have planned an exposure programme for the members of the General Body in and around Chilka.

It is important that we discuss the possible collaboration with the CBA in the next stage of struggle in keeping the mafia and the non fishing community out of Chilka. It is important how the fishing community and the agricultural community collaborate and work out a joint action programme. It is also important how organise fishing community in the area.

10. Ganga Mukti Andolan

The NFF has been in touch with the GMA right from their organisational struggle. Recently they have stepped up their struggles against pollution as well as their right to control the fish resources and their fishing right over the Ganga. The General Secretary and the team visited two of their meetings in Bhagadalpur. They are expected to be present at the general body meeting in Gopalpur.

We are hoping to work out possible and realistic collaboration by linking up West Bengal and Bihar organizations. Let us work out some modalities during the General body meeting.

11.Joint Action committee in West Bengal

Since 1991 there has been a joint action committee composed of representatives from Daksin Banga Matsyajibi Forum, Kakdilp fisheries Association representing mechanical gillnet operations. The committee took up the issue of ice price and with their efforts, they were able to keep the price steady. But their demand that ice factories contributes 1 % to the union has not materialised. Then the JAC went into the net making issue. They wanted to raise the wage. Unfortunately the merchants do not come under the purview of JAC. But now the JAC is planning to get the women involved in the net making. The boat operators are prepared to by the nets provided they are of good quality. The discussions are presently taking place about the modalities of this.

Boat operators always faced lack of proper repairing yards. Mr. Paul calvert from ITDG studied the issue and suggested various possibilities. However the slip-way can be a possibility only if all the sections of the JAC collaborate and co-operate with one another. With this in view, the JAC got involved in the refugee issue and the celebration of the bicentenary of the birth of Rani Rashmoni and the net making. The boat operators have the responsibility of obtaining land for the construction of the slip-way. They are in search of the same. If they succeed in this, the JAC will have to proceed with the construction of the slip-way. Mr. Indirajit from SAREEK has agreed to co-ordinate activity.

This is a new activity where we have to mobilise the co-operation of various organizations. This is a very challenging area and it is important that we discuss issue thoroughly and see the possibilities and dangers.

12. ICSF and women's programme.

ICSF is involved in building up women's perspective among the organisations of fish workers, particularly among women workers in the international level. As part of this programme, the ICSF is collaborating with NFF. The ICSF co-ordinators contacted the women leaders in Maharashtra and Gujarat and are going to conduct a training session for these leaders in February 1994. They organised a 7 day training programme for the leaders of other states from 16th September to 22nd September 1993 in Culcutta. The group has worked out a follow up programme. We take this opportunity to thank Nalini Nayak, Aleyamma Vijayan, Mercy Alexander and Xavier Pinto for their generous and committed leadership and team work in building up this women's perspective in the NFF.

We must discuss how best we can utilise their service in disseminating women's perspective in the grass root level in the various state level unions.

13.Rani Rashmoni Celebrations

The JAC in West Bengal has taken up task of having a year-long celebration of the bicentenary of the birth of Rani Rashmoni. Rani Rashmoni was a freedom fighter against the British. She championed the cause of the fishworkers in West Bengal and fought for the rights of women. The celebrations began with a rally taken out from the house of Rani Rashmoni and ended up with a public meeting near the statue of Rani Rashmoni. All the units of the JAC participated in these celebrations. A street play with the active collaboration of the Service Centre attracted a big crowd. The JAC is planning to have a similar celebration in all the units of the JAC.

It is necessary that we discuss how the message of Rani Rashmoni can be taken to all the states.

14. The National Seminar on Deep Sea Fishing

It was for the first time in the history of the NFF that the small mechanised sector and artisanal sector are coming together to discuss the issue of deep sea fishing in India. The Gujarat and Maharashtra Mechanised boat operators, the Gill net mechanised boat operators of West Bengal, the Thuthoor deep sea small Mechanised boat operators and the different artisanal units of the NFF assembled in Bombay University Campus on 28th and 29th September 1993. We analyzed the problems of the existing deep sea fishing. There are 148 deep sea fishing vessels operating from Vishakapatanam. Out of them only 20 are economically viable. They have incurred a debt in excess of Rs. 100 crores of to the financial Institution called SCICI. According to an FAO study of 1991, out of an estimated 16 lakh tonnes of fish available in the deep sea, only 2.265 lakhs tonnes can be viably exploitable. The existing 148 deep sea fishing vessels are capable of catching 2.265 lakhs tonnes of fish provided they diversify the units and in which case they will be able to run the business profitably.

In spite of all these studies and problems, the central government is advocating the introduction of 2600 deeps sea fishing vessels. Already they have issued 39 licences including 3 joint ventures in collaboration with an American Company, a Japanese company and a Mexican Company. This unscientific and unrealistic fisheries policy will lead to over exploitation of territorial resources, which will lead to depletion, environmental destruction and displacement of artisanal fish workers.

Hence the NFF made a representation to the Prime Minister, Food Processing Ministry, Commerce Ministry, and the Technical Committee to study the problems of Deep Sea Fishing. We also have planned different state level seminars to bring together the small mechanised sector and the artisanal sector to plan together to face the onslaught by the new deep sea fishing vessels. After the series of state level seminars we are replanning to have an All India Fisheries Bandh during the first week of February 1994. During the Bandh there will be neither selling fish, nor landing of fish nor fishing. During the NFF general body meeting let us take the final decision. We express our gratitude to A.J. Vijayan and Bhai Bandarkar for organising this Bombay Seminar very successfully.

15. The Parliament of World's Religions in Chicago

The Second Parliament of World's Religions took place at Palmer House in Chicago from 28th August to 5th September 1993. The First Parliament of World's Religions was addressed by the revolutionary monk from India, Swami Vivekananda. He was trained under Swamy Ramakrishna at the temple Dhyaneswar in Calcutta founded by Rani Rashmoni. Swamy Vivekananda foretold a new India being born through the struggles of fisher people, Dalits and the backward classes. It was a mere coincidence that Thomas Kocherry was invited to address the Parliament of World's Religions. He spoke on the story of the struggles of India's dispossessed fisher people. He also addressed two workshops, one on human rights and another on the dispossessed during the Parliament. He also addressed the South Asian Departments of Madison and Austin Universities on Technology, Dispossession and Human Rights.

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16. The Self Reliance Movement and the NFF

Different cultural groups, literary groups and science groups and their leaders have together in Kerala and Tamilnadu to initiate a new movement called Self-Reliance Movement (Swashraya Samithy). This movement wants to protect our own technologies, our skills, our indigenous medicines, home industries and our own political, economic and cultural sovereignty. The Samithy conducted a month long padayathra to spread the same message from Payannur to Kanyakumari attracting many people all along the padaytathra. It ended on 7th November 1993. In Trissur, Medha Patkar participated in the padayathra and addressed a big public meeting. Thomas Kocherry and a team participated in the padayathra and addressed the public meeting in Attingal. KSMTF also took part in the padayathra in Trivandrum.

We should discuss how we can spread this message of self reliance and protect our Sovereignty.

17. Conclusion

We are passing through a critical period in history. On the one hand we are face with the internal threat of "Hindutva" and on the other by the external threat by the joint ventures, multinational companies and the American Imperialism challenging our economic, cultural and political sovereignty. We are also losing control over our waters and the resources. We have to come together, the small mechanised sector and the aritsanal sector together with all the peoples movements to establish our sovereignty. We have to take control over forests, waters and land to establish our constitutional and therefore it is anti national. This struggle is the second freedom struggle to establish out constitutional rights and our sovereignty.

Thomas Kocherry
(Chairperson)

Hare Krishna Debnath
(General Secretary)

Thiruvananthapuram
1-12-1993

NEW POLICY FOR FISHING - I

Government of India (GOI) has conceived Deep Sea Fishing (DSF) as a core scheme in the eighth five year plan with the main objectives of augmenting fish production and sea food export earnings. A technology mission constituted by the GOI has drawn up a massive programme for the introduction of over 2,600 deep sea fishing vessels in the range of 12 m to 40 m sizes. These vessels are capable of harvesting 120 to 2000 tonnes/unit (depending on the size and class of vessel) totalling 0.83 million tonnes of fish, which is half of the potential available in our EEZ. For the past few years, the new department of food processing industries has been actively involved in the promotion of deep sea fishing in our country. This new department is under the commerce ministry, and they look at our valuable fish resource - which is natural renewable resource - only as a commodity for export and for earning foreign exchange. This new department is working parallel and in addition to the Department of Fisheries under the ministry of agriculture. Licences are issued by the Government through this new department to many Indian business houses to import fishing vessels and enter into collaboration with foreign fishing companies involving crores of rupees. A few large factory ships have already started fishing operations in our high seas.

The broad implications of this programme implemented on a massive scale are manifold. The relevant questions are briefly referred to below:

a Are we sure to increase fish production from the deep seas at sustainable levels? Will export also be follow up a similar trend?

b Will the DSF programme deliver more fish to the domestic consumers ?

c What will be the ecological consequences of deep sea fishing on a massive scale? How will it affect the bio-ecological aspects or resource recovery?

d What have been our past experiences in Deep Sea Fishing? the new thrust on DSF based on our own experiences in DSF in the country and those of other countries?

e What effects will all these have on the lives of the small scale fishermen? Are they being integrated in the DSF Programme or being sidelined?

We are pretty sure that Government in their over-anxiety to push through the new Deep Sea Fishing Programme in reality have not taken these basic questions into serious consideration.

2. What does NFF stand for?

The National Fishworkers Forum (NFF) stands for the small fishermen as well as conservation of the fishery resources. It cannot remain a passive witness to the unbridled exploitation of the virgin deep sea fishery resources, leading to its devastation. The fishermen cannot conceive another sight of resource destruction as we had in the inshore sea through iii conceived and inappropriate technology interventions. We

believe, it is our sovereign duty and responsibility to forewarn and administrators and policy makers, the danger of throwing open our seas to the multi-national companies.

3 Present fishery scenario in the inshore sea of India.

We have in India a large number of marine fishermen whose population has been growing at a faster rate than the overall population growth in the country. While they have been harvesting the resources within the sustainable limits the advent of mechanised boats using modern fishing gears like trawling and purse-seining have virtually exhausted the inshore resource,leaving little for the growing population to fall back. The over-exploitation tends to deplete the resources. We already have signs of overfishing and depletion of fish resources in many important marine fishing centres of the country. This has also led to competition, conflict and clashes among and between different sections of fishermen in many states.

For the growing fishermen dependent on inshore fisheries, the use of offshore/deep sea resource is one way to find additional employment and succour for their growing population. A number of the off shore resources are common with the inshore resources. A good portion of these lying outside the inshore sea could be harvested by our own fishermen provided they are given improved craft, gear and other necessary infrastructure facilities.

The deep sea fishing in India which began in 1970s had hither to been confined to the Upper East Coast for shrimp and other valuable species. In this the merchant capitalists were the beneficiaries, side lining the traditional fishermen in *toto*. Their main interests were to avail of the Government subsidies and other quick monies in the process. Many of these so called entrepreneurs who had no background in fishing, made good money in this manner. Their interest was not development of deep sea fishing but accumulation of profit at any cost. They seldom cared to repay the loans even in good seasons. So they actually made good capital at the cost of public exchequer.

The deep sea entrepreneurs at Visakapatanam were guilty of discarding large quantity of trawl by-catch and thus wasted protein-rich fish in the deep seas. They brought to the shore only export varieties and quality fish caught during the last few days of a voyage.

The labour unrest in the large vessels were quite frequent. This was because the vessel-owners were heavily exploiting the crew. They were not paying the labour proper wages and incentive shares. Many of the large vessels based at Visakapatanam were left idling for uneconomic reasons consequent to fall in shrimp catches.

Government did not play any role in management of the resources. Unlimited effort of the large vessels in shrimp trawling at Visakhapatanam and the scramble for prawns tended to result in fail in profits, and the vessels owners began to leave the vessels at the disposal of Shipping Credit and Investment Corporation of India (SCICI).

The lessons learnt from the deep sea operations by the Indian companies at Visakhapatanam could be summed up as follows:

» the traditional fishermen were bypassed in the exploitation of the offshore deep sea fisheries.

» the DSF fleets were interested only in export varieties and valuable species, thus in no way satisfied the needs of the domestic consumers.

» in their pursuit for shrimp, they discarded other species, thus destroying and depleting large quantities of fish wealth.

» the DSF caused mheavy financial loss to public exchequer

4. Chartered Vessel Operations

Government of India introduced the schemes of chartering of foreign vessels during the year 1977. The charter scheme had the following objectives.

» to establish the abundance and distribution of fishery resources in deep seas in Indian EEZ.

» to assess suitable craft and gear for economic operations.

» transfer of technology.

» to enlarge deep sea fishing fleet on ownership basis and

» to establish overseas market for non-conventional fish species.

The charter policy of 1977 could not fully achieve its desired objectives in the absence of any statutory powers to regulate the operation of chartered vessels. The policy enunciated in 1981 helped to reduce incidents of poaching chartered vessels in areas which did not come into conflict with the traditional sector and the mechanised boat operators. Although the Fishery Survey of India has commended the operations of the chartered vessels, the fishermen's organisations have reported that these vessels very often crossed into the inshore sea, destroying the gears of the small fishermen. These vessels also completed with them to exploit the inshore resources.

Eventually the Government was forced to intervene and issued a directive to prevent any more new "bull trawling" within the 40 fm. depth. Bose Committee (1989) observed that this measure has helped the small fishermen to increase their catches subsequently.

Indian entrepreneurs with their experiences of deep sea operations are not keen on pursuing Deep Sea Fishing on their own in the EEZ of India, for they know the limitations of economically unimportant species in the deep seas.

NEW POLICY FOR FISHING - II

A new boom in Foreign Investment in the EEZ of India

Our new economic reforms and liberalised investment policies have removed all barriers for the foreign entrepreneurs to invest in fishing in Indian EEZ. The terms are now more easy for the foreign investors. They use Indian entrepreneurs just as their agents who have no *defacto* control in decision making.

Why are the foreign entrepreneurs so fascinated to enter the deep sea fishing sector of India where the Indian companies miserably failed? The foreign investors actually have so many advantages. They are:

- No new vessel investment: The seas of most of the foreign countries are already over-exploited. Their fishing in homeseas is governed by strict management measures, including quota system. This has forced them to keep a large number of vessels idle and many have become virtually redundant. Quite probably they must have already recovered the capital costs. Hence they need not incur any new capital costs in entering deep sea fishing in the EEZ of India. They need to cover only operational costs to remain in fishing and the rest is their profit.

- The Indian EEZ will be only one of the many areas of operation for the foreign entrepreneurs. They will operate here, only when the season is good. When the bad season strikes they will move out to other seas, as these foreign entrepreneurs will have similar deep sea collaborations with other third world countries which have untapped deep sea resources.

- Absence of strict management measures and regulations to conserve our fish resources in our EEZ is an added advantage for the foreign vessels. They can catch whatever species of any quantity, using highly sophisticated technologies.

Consequences Of Indiscriminate Fishing By Foreign Vessels

After exhausting the valuable species, which hardly constitute 15% of the total deep sea potential of India (260,000 tonnes) these new entrants will go in for the cheap varieties also for making products like fish meal for

which there is good market in the west to feed pet animals like cats and dogs and also for growing chicks, pigs, etc. It is a fact that the cats and other pets of the western countries have more purchasing power than the human in the third world countries!

(a) Impact on Resources

We can imagine what will happen to our fishery wealth when along with the over-exploitation of the inshore resources, if the deep sea potential is also harvested beyond the sustainable limits.

The fishing technologies of the imported vessels are actually more suited to the

temperate waters, where large stocks of each species is available. So when similar technology is applied here to tropical seas, where comparatively only smaller stocks of many different species with varying sizes are found, it will definitely lead to depletion at a much faster rate. As fish is a renewable natural resource, the large fishes like tuna, perches, shark and cat fish etc once depleted will take many years to recover. Each fishery in a particular region is a link on the chain of total fish resources. Destruction of one link will break the entire fish chain which can lead to a total collapse.

(b) Impact on employment

Promotion of deep sea fishing will not accelerate employment opportunities of the existing fisherman in India. Why?

- The deep sea fishing is based on highly intensive and specialised technology which requite much less labour. The highly-paid, skilled jobs will be for the foreigners. It is the menial jobs like deck hands and cooks which will go to the Indian labour.

- There is no need for shore-based labour as the catches will not be landed in the Indian ports. The processing and grading of the products will be done on board. The markets will be in foreign countries, hence the labour opportunities on these fronts will also be closed to the Indian people on the shore.

- The Indian labour on board the fishing vessels will be mere stooges and they will have no control over the management and pricing of the catches.

(c) Information gaps

(i) There may be fish trade in the high seas. There will be a tendency to give a false picture about the product and product value.

(ii) The Indian authorities will never be able to get a clear picture about the catches and catch values. Whatever the skipper (he will be a foreign national) says will be the final word and shall have to be accepted by the Indian Company/Indian authority)

(d) Waste of costly fuel

The fuel consumption of these sophisticated vessels will be very high. This will result in huge erosion of fuel which will be too costly to bear for a developed national like ours.

Future Strategy

The present approach to deep sea fishing leading to indiscriminate destruction of resources as well as endangering the sustenance of the fishermen should be strongly opposed. This does not mean that the fishworkers are against a policy of deep sea fishing aimed at sustainable development of the sector, sharing the benefit to the fishermen and the national economy. 100% EQUs and defacto full control of the vessels in the hands of the foreign skippers will be suicidal to the interests of the nation.

We wish GOI evolve a new policy approach in deep sea fishing. In fact, the following aspects must be accorded due consideration.

1. The new deep sea fishing policy should ensure expansion of the ambit of operations of the small fishermen to deeper waters for harvesting the resources. Encouragement and supermen to move into off shore waters should be given top priority. Plan allocations shall be made with this perspective. To facilitate this the following steps may be taken.

   Low cost and small scale communication equipments should be made available and training for its use may be imparted to small scale artisanal fisherman.

   Safely equipments be made popular and available for fishermen. Liberal insurance schemes with subsides for small crafts and gears must be implemented.

   Beach landing artisanal crafts should be improved and squid jigging, drift netting and long line fishing should be encouraged among the artisanal fisherman, training and exchange/extension programmes in this line should be promoted.

2. The present policy of investment support to the big business houses and other merchant capitalist s should be curbed. Instead, the new policy should ensure liberalised central subsidies and credit for our small fishermen who venture into the deep sea.

3. The deep sea fishing policy should lead to increased supply of fish for domestic consumption and this should be given equal importance with export promotion. GOI should evolve a fish subsidy plan in the line of food grain subsidy to promote deep sea fishing as well as to cater to rural consumers.

4. The Government should confer suitable legal rights and reserve exclusive fishing zones for small scale artisanal fishermen at least upto the contiguous zone.

5 Ensure adequate measures for proper resource management to protect our fishery wealth at sustainable level avoiding overfishing and depletion. Introduction of quota systems, fishing holidays, surveillance etc should form a part of the management measures. Annual fishery management plans with estimates of total allowable catch (TAC) and fishing efforts required shall be formulated regularly. The implementation of these plans shall be entrusted to an enforcement authority to prevent overfishing with the backing of necessary legal provisions.

THE ENVIRONMENTAL AND SOCIAL COSTS OF DEVELOPING COASTAL SHRIMP AQUACULTURE IN ASIA

By

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Introduction

Aquaculture has a long history in Asia. Local farmers and fishers in many Asian countries have cultured fish and crustaceans for generations, using traditional methods and local ingenuity to improve their living conditions through aquaculture. In the past harvests were small but sufficient for the needs of local residents. No processed feeds, chemicals or aniti-biotics were used with these extensive systems, and tidal action was relied on for water-exchange.

But coastal shrimp aquaculture has changed a lot since the 1960s and 1970s when industrial processes were widely introduced so that large quantities of shrimp could be intensively raised for primarily Japanese, American and European export markets. These new techniques resulted in the expansion of coastal shrimp aquaculture throughout Asia, and this expansion is continuing today. Large tracts of coastal farmland and mangrove forests have been dug out to make way for these new industrial-scale operations, and multi-national corporations have invested heavily in the multimillion dollar industry. In 1990, 556,500 metric tons of shrimps were cultured in Asia, representing 80% of the world's shrimp aquaculture production. At that time, it was estimated that 819,500 hectares of land was being utilised for coastal shrimp aquaculture in Asia (Rosenberry, 1991).

While many individuals, multi-national corporations, and governments have greatly profited from the industry, its expansion has also brought numerous social and environmental problems to areas where shrimp aquaculture development has taken place on a large-scale. Apart from being responsible for the deforestation of much of Asia's coastal mangrove forests, the industry has also been responsible for a wide range of natural resource-use, land-use, and population problems in Asia. As a result, many disadvantaged and indigenous peoples have paid high social costs for the development of large-scale shrimp farming.

This paper analyses the coastal shrimp aquaculture industry in Asia (excepting Hongkong, Japan, and North and South Korea) on a country to country basis. The environmental and social problems associated with the shrimp farming industry in each country are examined.

Taiwan

Shrimp aquaculture has been taking place in Southern Taiwan for several hundred years, and the country is known as the forerunner of shrimp aquaculture development. Before shrimp aquaculture became industrialized, captured juveniles of *Penaeus monodon*, also known as the black-tiger prawn or shrimp, were released, with milkfish fry, *Chanos chanos*, into one to three hectare coastal ponds relying entirely on tidal action for water-exchange. At that time, shrimps were only a by-product, with the milkfish being the main crop (Csavas, 1988). This low-yield natural method is known as "extensive" aquaculture, as opposed to modern "semi-intensive" and "intensive" methods, which depend on large inputs and high-density stocking.

The "blue revolution" in shrimp aquaculture began in 1968 when important new developments were made in artificial propagation. In the late 1960s the Taiwanese also started to prefer shrimps to milkfish. Little by little shrimps became the dominant crop in

the polyculture, increasing the demand for more shrimp seed. Between 1968 and 1979 Taiwanese hatcheries expanded their production from 6,000 juveniles in the first year to 300 million individuals. Ponds were also deepened in order to fulfil the requirements of shrimp as opposed to milkfish, and with this came smaller ponds of 0.25 to 0.5 hectares per unit. Aerators also started to be used to help oxygenate the water. By 1980, around 2,000 hectares of farms were producing 5,000 metric tons of shrimp along with some milkfish (Csavas, 1988).

In 1984, a huge increase in shrimp aquaculture took place due to the low prices and high availability of shrimp postlarvae (1.3 billion in 1984 and 3 billion in 1985)(Csavas, 1988). Processing and marketing also improved and Taiwan's exports, especially to Japan increased exponentially. By 1987, Taiwan was producing 21% of Asia's cultured shrimps, the highest output for the region (Csavas, 1990).

However, Taiwan was unable to keep its production at 1987 levels (approximately 100,000 metric tons) due to a series of serious environmental problems that have since been shown to be inherent to much of the industry in Asia. The gold-rush mentality of many of the investors that developed in the highly profitable industry resulted in poor management decisions being made. Many investors thought only of obtaining maximum short-term profits, rather than sustainably maintaining ponds. Almost every single patch of mangrove forest in Taiwan was sacrificed to the industry and other development projects, which became highly concentrated along the coasts. The environment was hardly considered in the development process, and soon diseases typical of large-scale monoculture and struck at epidemic proportions. Viruses, bacteria, and infecting protozoans decimated crop after crop, and since farmers commonly dumped their waste-waters directly into canals and coastal waters their neighbours began to pump this contaminated water into their ponds. Greed induced actions like overstocking (60 to 100 shrimp per square metre), having too many crops a year (3 to 3.5), and using processed feeds incorrectly increased the crises (Csavas, 1990).

Another major problem was the indiscriminate use of dangerous chemicals and anti-biotics to culture fish and shrimp (Csavas, 1990). This over use, apart from decreasing the resistance of shrimps to diseases, also adversely affected the coastal environment and caused health risks to farmers and shrimp consumers. With diseases rampant in 1988, the use of chemical controls failed miserably, and only 30,000 metric tons was produced that year. Only 20,000 tons reached the market in 1989 (Rosenberry, 1991). The industry was shocked by the environmental and management problems that decimated the greedy Taiwanese shrimp farmers but by that time little could be done to save the industry, which paid a heavy price for unsustainable management practises and overexpansion without consideration for the natural environment.

Apart from the already mentioned problems, the over exploitation of ground water supplies by investors who required large amounts of fresh water to mix with salt water from the sea also proved to be unsustainable. Apart from diverting large amounts of scarce water reserves to other purposes, overpumping caused large amounts of ground subsidence in

the areas where intensive shrimp aquaculture had boomed. In some areas land sunk several metres within just a few years (Csavas, 1990).

China

In 1991, China was the largest producer of cultured shrimp in Asia, capturing 26.1 percent of the Asia's production with 145,000 metric tons produced (Rosenberry, 1991). This is amazing considering that China only produced 460 metric tons of cultured shrimp in 1975 (Csavas, 1988). But as with Taiwan, environmentally, China has paid a heavy price for its "progress".

China's shrimp farming industry, which mainly relies on a semi-intensive system, started to boom in 1982. With shrimp aquaculture activities taking place from close to the Vietnamese border in Southern China up to the Gulf of Bohai, China's production increased to 42,600 mt. in 1985, 82,800 mt. in 1986 (Csavas, 1988) and finally peaked in 1988 with close to 200,000 mt. being produced (Rosenberry, 1991).

In 1989, just a year after Taiwan's production dropped due to diseases and environmental degradation, China experienced its own environmental backlash. As water quality became a problem and toxic wastes began to accumulate on pond bottoms, diseases spread and many of the crops were lost (Rosenberry, 1991). While China's environmental problems were less intense than those of Taiwan the previous year, they were basically caused by the same expansionist mismanagement, in which there was little if any consideration for maintaining natural ecosystems and the environment in general (Wang Dong-shi, 1992).

While China is now desperately trying to solve the environmental problems associated with the shrimp culture industry, they have only had a minimal amount of success and production continues to fall each year.

Thailand

The history of Thailand's shrimp aquaculture development process is shorter than Taiwan's, but Thailand has basically followed the same course, eventhough Taiwan's example should have provided a sufficient warning regarding problems related to unsustainable and environmentally destructive development.

Extensive shrimp aquaculture was first practised in Thailand some 50 to 60 years ago. Like in other countries, no processed feeds, chemical additives, or anti-biotics were used in the early stages of shrimp farming. Tides regulated the water quality of the shrimprice rotating systems that developed. While some mangrove forests were cut down to make way for these ponds, destruction was minimal because shrimp aquaculture was only conducted on a small scale. However, by the early 1970s 10,000 hectares of the country's mangroves had been converted to shrimp farms (Csavas, 1988). It was only the beginning of what was to follow.

While the shrimp culture industry grew slowly in Thailand thought the 1970s, the country soon began to expand its hatchery potential, largely with Taiwanese assistance,

so that production could be increased. Taiwanese investors eagerly invested shrimp aquaculture joint-ventures in Thailand in the 1980s, and before long the industry started expanding at a phenomenal level. By 1991, Thailand was producing 110,000 metric tons of cultured shrimp (mainly black tiger shrimp) Rosenberry, 1991)

While China and Indonesia both produce more cultured shrimp than Thailand, is the number one exporter of cultured shrimps in Asia. Of the 236,911.46 mt. of cultured shrimp that Japan and the US imported in the first six months of 1992, Thailand's share reached 38,454.93 mt. While Indonesia exported more cultured shrimps to Japan than any other country, its total exports to the US month period (Bangkok Post, October 1992).

Despite Thailand's success in increasing cultured shrimp production from just 17,886 in 1986 (Bangkok Post, June 15 1992) to 110, 000 tones in 1991, the country has had to bear heavy environmental and social costs as a result of the expansion of the shrimp farming industry. Apart from Taiwan, Thailand may very well be the best example of a country that has faced serious problems as a result of the shrimp farming industry.

One of the biggest problems that has resulted from the rapid expansion of the shrimp farming industry in Thailand has been the massive conversion of mangrove forests into shrimp farms. Although it is not known exactly how much of Thailand's mangroves have been lost to shrimp farming, it has been estimated that shrimp farms encroached on the majority of the 689,129 rai (approx. 6 rai per hectare) of mangroves that were lost up to 1986. Between 1986 and 1989 another 99,230 rai of mangroves were destroyed throughout the country, and shrimp farms were destroyed throughout the country, and shrimp farms were also responsible for of that destruction. From 1989 to 1991 mangrove forests in the five eastern provinces of Thailand alone decreased 59,067 rai again, shrimp farming was largely to blame (Chansnoh, 1993). It is presently estimated that shrimp farming is being conducted in 500,000 rai of encroached upon mangrove areas (Petchtae, 1993).

Although Thailand has no official policy to allow shrimp farming in most of the country's mangroves, influential people, large companies, politicians, and even law enforcement agents have managed to flaunt the law and encroach on large tracts of mangroves to open up shrimp farms (Katesombun, 1992; Bangkok Post, April 18 1993). In 1992, the government decided that the problem was out of control. With virtually all of central Thailand's mangroves gone, and much of the mangroves in eastern and south eastern Thailand already converted to shrimp farms, the Forestry Department announced that all illegal shrimp farming in mangroves would have to cease by December 31, 1994 Bangkok Post , January 24 1992). This measure is aimed at saving that last large tracts of mangroves in the country, including that largest tracts of mangroves in the country, including the largest tracts on Andaman Sea Cost in the south western part of the country, but industry and a number of politicians have been pressuring the government to allow the illegal shrimp farming to continue after 1994 (Luengutai, 1992).

Although the Department of Fisheries (DOF) has been very supportive of the shrimp farming industry, a large amount of wildcat expansion, increased mangroves destruction, overstocking, poor drainage and pollution problems in the industry prompted the DOF

to introduce new licensing requirements and stricter pollution controls for shrimp farmers 1991 (Rosenberry, 1991). However, these measures have proven to be largely ineffective because very few of the shrimp farmers have agreed to register their farms, which are often illegally located in mangrove forests (Kokilakanit, 1991).

Concentrated intensive shrimp farming has caused a large amount of coastal pollution in many of the country. As a result of this pollution, many shrimp farms in Thailand have failed, especially in central and eastern Thailand (Quarto, 1992). In other areas where coastal pollution has become critical, excessive amounts of chemical additives and anti-biotics have been used to keep diseases from killing off whole crops of shrimp (Csavas, 1992). In many cases, these additives have not only failed to control diseases, but they have also contributed to greater pollution problems and even the chemical contamination of the cultured shrimp themselves. 1991, Japan rejected a large quantity of Thai cultured shrimp because they were chemically contaminated (Csavas, 19923); Rosenberry, 1991 Board of Trade, 1991). While Thailand has made an effort to keep shrimp contamination levels down, there has made very little effort made to reduce the chemical contamination of coastal waters as a result of the use of these often dangerous chemical (Trisawasdichal, 1991).

Another problem that has plagued thailand has been the contamination of orchards, rice farms, and fresh water canals by brackish waste waters released by shrimp farms. This problem has severely affected coastal areas in the many provinces, including Nakhon Srithammanarat and Songkhla, were shrimp farming developed quickly and carelessly in the late 1980's and early 1990's (Quatro, 1992). Many small-scale rice farmers have been forced to helplessly look on as the shrimp industry has destroyed their farms and livelihoods (Traisawasdichal, 1991). Small-scale fishers have also found that the coastal pollution and mangrove destruction generated by the industry has caused local fisheries to decline thought the country (Quarto, 1992), making life difficult for many of society's poorest people (Fishing Community Integrated Development Project, 1992; Quarto, 1992; Chansnoh, 1993). The environmental problems have become so severe in some places, like Husai district, Nakhon Srithammarat, that shrimp farmers, rice farmers and fishers have all suffered from the rapid growth of the shrimp culture Industry (Quarto, 1992). Some shrimp farmers havebcome wealthy, but at least as many have been ruined after the environment became poisoned and their valuable crops of shrimp became disease-ridden (The New Light of Myanmar, May 12, 1993; Quarto, 1992).

Since intensive shrimp farming requires large qualities of both salt and fresh water, the industry has also pumped up excessive amounts of ground water to fill shrimp ponds in many parts of Thailand. This has led to serious subsidence and water shortage problems in many areas. It has also made it easy for shrimp farm waste waters to contaminate ground, water aquifers and village wells. In many cases, this has left locals without even enough drinking water, let alone water for agricultural purpose (Quarto, 1992) while shrimp farming has already failed in many parts of Thailand, prompting major shrimp farming Companies like Charoen Pokaphand (CP) to predict that Thailand's production of cultured shrimps is likely to decrease in the future (Bangkok

Post, December 31, 1991), reckless expansion continues in the mangroves of South western Thailand, Like the Taiwanese did after their shrimp industry failed, CP and other large companies are aggressively looking for shrimp farming opportunities in other countries. They are undaunted by the problems facing the shrimp farming industry because they stand to gain more from selling processed feed and additives to smaller shrimp farmers than they do from engaging in shrimp farming themselves. In Thailand, for example, CP controls 70% of the country's huge shrimp feed industry, selling 250,000 mt. of feed a year in Thailand alone (Bangkok Post, February 19, 1992). Unlike poor people, who have suffered as a result of the shrimp farming industry in Thailand, big companies have benefited a great deal in Thailand.

Philippines

The Philippines has long been practising brackish water aquaculture, in which milkfish was the primary species being cultured using the original extensive system. Shrimps were second most important crop, as was the case in Taiwan and Indonesia under the old systems (Casavas, 1988).

In 1940, 61,000 hectares of land was already being used for brackish water aquaculture in the Philippines, but by 1990 the amount of land had increased to 210,000 hectares. Brackish water aquaculture saw its first peak in the 1950s and 1960s before experiencing a slowdown in the early 1970s followed by a second boom in construction beginning in the late 1970s when investors stated to introduce intensive shrimp farming to the Philippines (Casavas, 1988). At that time, multi-national corporations like the San Miguel Corporation started investing in both intensive shrimp farms and semi-intensive contract shrimp farms, while it proved difficult to convert many of the large extensive ponds to intensive shrimp farming due to differences in pond design, 50,000 hectares of ponds were, nonetheless, switched from extensive polyculture systems to intensive shrimp monoculture by 1985 (Csavas, 1988).

This switch from traditional extensive systems to intensive systems triggered a significant increase in the exports of cultured shrimp from the Philippines to Japan (80%) and the USA (13.6%). Between 1968 and 1991 shrimp exports increased from 179 mt. valued at US$ 149,000 to 30,460 mt. valued at US$273 million (Primavera, 1992b). As the export industry grew, businesses rather than locals became dominant in the Philippines shrimp culture industry. Local small-scale farmers and fishers, who often disagreed with the large projects, had little to say about the shrimp farming that was being developed.

In the Philippines most of the 210,000 hectares of brackish water ponds were constructed from mangroves (Primavera, 1992b). The country's mangrove forest area decreased from 450,000 hectares in 1920 to just 149,000 hectares in 1988 (Primavera, 1992). While most of the mangrove forests were destroyed by extensive shrimp farming before the 1970's the boom of the 1980's resulted in another 30,000 hectares of shrimp monoculture ponds being constructed (New Straits Times, May 2, 1993). This amplified the already critical problems dealing with mangrove forest conservation in the country.

Mangrove forests are important as primary energy and nutrient sources for adjacent marine ecosystems, breeding grounds and nurseries for marine-life, physical barriers for protecting coastal areas from typhoons and

storms, and soil stabilizers through sediment accumulation (Primevara, 1992b). In November, 1990 a super typhoon devastated shrimp farms in the central Philippines (Rosenberry, 1991). The damage was extensive, and amplified by the fact that most of the mangroves in the regions hit the hardest had already been converted for shrimp farming before the disaster took place.

The depletion of coastal fisheries is another problem that has partially resulted from large-scale conversion of mangroves into shrimp farms and the discharge of intensive shrimp farm wastes into adjacent waters. Small-scale traditional fishers have been marginalized by the development of the industry in the Philippines, and rarely receive any benefit from the industry (Primavera, 1992b). In Negros Occidental Province, villagers dont' even have enough water for household use because intensive shrimp farming activities contaminated and over exploited ground water supplies throughout the province. Orchards have died and rice farms have become infertile throughout much of the areas as a direct result of intensive shrimp farming (Primavera, 1992b).

Other significant environmental problems resulting only form intensive shrimp farming include Organic matter overloading, nutrient enrichment and eutrophication, chemical toxicity, development of anti-biotic resistance, displacement of native species and the spread of diseases through species introductions, soil and water salinisation, and land subsidence (Primavera, 1992a).

Yet, despite the grave social and environmental problems resulting from shrimp farming, the Philippines and other Asian countries have received a high level of financial support from international financial institutions like the World Bank, the Asian Development Bank, IBRD, and others for shrimp farming (Primavera, 1992c). These multilateral development agencies have contributed significantly mangrove forest destruction and coastal pollution through their promotion of intensive shrimp farming.

Indonesia

Indonesia, like Taiwan and the Philippines, has a long history of brackish water aquaculture. The old "tambaks", or ponds, relied on an extensive systems in which milkfish was the primary species cultured, with various species of shrimp being a valuable secondary crop. It is believed that these shallow, tidal-fed ponds began to be used in Java during the 14th centaury before spreading to Sulawesi and North Sumatera soon after (Csavas, 1988).

Like many other countries in Asia, Indonesia has adopted a policy aimed at encouraging large-scale shrimp culture in the country. In 1991, Indonesia and 200,000 hectares of shrimp ponds which produced 140,000 metric tons of cultured shrimp, second only to china. It is expected that Indonesia will soon overtake China in terms of cultured shrimp production. With its 81,000 kilometres of coastline, warm temperatures, freedom from hurricanes, good supplies of seedstock, Japanese capital and government support, Indonesia is now planning a number of big projects that could double production in the near future (Rosenberry, 1991).

While Indonesia's biggest export market for cultured shrimps has been Japan, the US market is becoming increasingly important. While the US imported just US$9 millions worth of shrimp in 1980, imports increased to

US$12 million in 1987 before jumping to US$83 million in 1990 (Rosenberry,1991).

While Indonesian and foreign businessmen eager to invest in intensive brackish water aquaculture in Indonesia, there is a considerable amount of concern that the expansion of shrimp aquaculture activities will lead to the destruction of large tracts of mangrove forests in the country. At present, Indonesia has an estimated 4,152,000 hectares of mangroves, of which 2,943,000 hectares are located in Irian Jaya alone. There are also large tracts of mangroves in Sumatra and Kalimantan (PHPA/AWB, 1988). Indonesia has more mangroves than any other country in the world. While the value of mangroves forests to local economies and coastal fisheries is well documented (Macintosh and Phillips, 1992), many investors and government officials prefer to see the mangroves as potential sites for shrimp farms rather as important wetland that are valuable to the country and local people. The government recently allocated 840,000 hectares of mangroves for the future development of semi-intensive and intensive shrimp farms (Malaisiddh, 1992).

Summing up industry's perception of mangroves, Sujint Thammasart, Vice President of CP Aquaculture Business, recently told the press, "Indonesia has great potential for prawn farming due to its abundant mangrove forest" (Kokilakanit, 1992). At present, CP is just one of many multi-national corporations that are investing in shrimp culture in many part of Indonesia. Having imported intensive shrimp culture methods from Taiwan in 1948, Indonesia is seemingly oblivious to the environmental problems its mentor has already faced, and is continuing has also starting implementing a project designed to set up a number of large-scale shrimp farming estates with financial support from foreign investors like CP (Malasiddh, 1992).

Already in Java, where much of the mangrove cover was lost to extensive aquaculture a long time ago, 20,000 hectares of the island's last 28,513 hectares on mangroves was lost to new shrimp farms between 1985 and 1088 (PHPA/AWB, 1988). The destruction of mangroves on Java and other islands has resulted in a serious loss of habitat for various species of birds, animals and marine-life (PHPA/AWB, 1988). Coastal fisheries have also declined in some areas as a direct result of mangroves forest destruction.

In some parts of Indonesia, including the provinces of Riau and Aceh, acid sulphate, soil activated by the conversion mangroves to shrimp farms have led to the failures of many ponds (PHPA/AWB,1988).

For small-scale fishers, who make a large production of coastal peoples in Indonesia, the expansion of shrimp farming is causing a number of environmental and social problems. Fishers have been witnessing a depletion of local fishers as a result of mangrove destruction, environmental pollution from intensive ponds, and other ecological changes brought on by the shrimp farming industry. Activities and locals have argued that fishers should not have to make such scarifies so that the Japanese and Americans can have black tiger shrimp on their dinner tables (ACFOD, 1992). As in other countries, a big business is becoming increasingly dominant in the shrimp culture industry in Indonesia and traditional systems

of aquaculture are becoming marginalized by the new export-oriented industry.

Malaysia

Malaysia produced just 1.0%, or 6,000 mt., of Asia's cultured shrimps in 1989 (Csavas, 1990). However, the Malaysian government has been vigorously promoting intensive a aquaculture along the country's coasts since 1990.

In response to Malaysia's supportive policies towards the development of coastal aquaculture, many private companies and multi-national corporations have begun investing in various aspects of Malaysia's shrimp farming industry. For example, the Thai company, Charcon Pckaphad (CP), has invested in a large feed processing plant, and a number of intensive shrimp farming projects in Malaysia over the last few years (Kokilakanit, 1992; The Nation, May 20, 1992).

In the government's Sixth Malaysia Plan (1991), 110,000 hectares of coastal area (mainly mangrove swamps) were set aside for coastal aquaculture. The government's ambitious plan is to eventually produce 240,000 mt. of cultured shrimps in the areas allotted for shrimp farming. They also plan to increase exports of cultured shrimps of M$ 5,000 million. They hope to become Asia's fifth largest cultured shrimp exporter by the end of 1993 (Durante, 1992). This policy has come under heavy criticism from small-scale fishers and environmentalists in Malaysia who claim that the country can't afford to lose such large amounts of mangroves to the industry. Moreover, activities say that the livelihoods of hundreds of thousands of small-scale fishers are being jeprodised by the policies of the government (Utusan Konusumner, December 1991).

In Selangor province, more than 50% the mangroves forests in Kaula Selangor and Port Klang have already been converted into shrimp farms, and there is now considerable concern that the acid-sulphate soils that are being activated by the development of the intensive shrimp farms will cause an increased number of diseases to infect the operations and kill large quantities of shrimp culture industries of Taiwan, Thailand, the Philippines and others. The unsuitable pH levels of mangroves forest soils has been shown to make shrimp farming in mangroves forest soils has been shown to make shrimp farming in mangroves unsustainable and inappropriate (Macintosh and Phillips, 1992; Primavera, 1992a-c; Csavas, 1988), but unfortunately most Malaysian policy makers still dont's see the value of mangrove forests or understand the long-term problems of shrimp farming in mangrove areas (Albela, 1991; Bangkok Post, January 27, 1992).

Recently, Malaysian NGOs have been campaigning against a number of large-scale aquaculture projects, including a 2,000 hectare intensive eel farm that was developed in mangrove forests in Parang province (Abdullah et. al., 1993), shrimp farming projects in the Kuala Muda region of Kedah province, and large-scale shrimp farming in Johor province (Utsan Konsumer, December 1991). In Kaula Muda, 3,000 fishers and their families are suffering as a result of large-scale shrimp farming operations that have caused the destruction of mangrove forests and contributed to coastal pollution. Incomes of the fishers have apparently fallen from M$30 a day before the shrimp farms arrived to just M$5 afterwards, and the fisher's catches are

continuing to fall (Utusan Konsumer, December 1991). As in other shrimp farming countries in Asia, the small-scale fishers and farmers, and the environment they depend upon to make their living, are being adversely affected by the shrimp industry. Environmental and social problems along the coasts are likely to increase with the continued development of the shrimp farming industry in Malaysia.

India

India has long had a traditional rice/shrimp rotating aquaculture systems developed so that rice can be grown parts of the year and shrimp and other fish species can be cultured for the rest of the year. By not using processed feeds, chemicals, and anti-biotics, this low-input extensive systems has been proven to be sustainable and suitable for small farmers without requiring large amounts of capital. In the 1970's there were 30,000 hectares of farmland devoted to this system, mainly in West Bengal, Kerala, and Karnataka (Csavas, 1988).

By the early 1980s this traditional polyculture system, which apart from producing fish, produced 100-140 kilograms of shrimps per hectare of land, began to give way to more intensive methods of shrimp monoculture which could produce 1,000s of kilograms per crop (Csavas, 1988). These new methods to maximize production levels without considering the long=term repercussions of high-input and technologically advanced systems on the environmental and local people.

Considering the size of India, and the length of its coasts, the country's shrimp aquaculture industry is still small. In 1990, only 35,000 metric tons of shrimp were produced aquaculturally, but the country has big plans to increase its production of shrimp through various promotional and privatisation schemes. The Marine Products Export Development Authority (MPEDA), within the Ministry of Commerce, has taken the lead in the promotion of shrimp farming in India by setting up research and training facilities and two large shrimp hatcheries in Orissa and Andra Pradesh (Rosenberry, 1991) The government is hoping that shrimp aquaculture can compensate for decreasing catches of wild caught shrimp (Csavas 1988).

A large number of private companies and multi-national corporations have begun investing in shrimp farms, feed processing plants and hatcheries in India, including the Indian Tobacco Company, a subsidiary of British America Tobacco, Waterbase, Ltd., Tata Co. Ltd., Hindustan Lever Co., and the Thai aquaculture giant Charcon Pokaphand (CP) (Rosenburry, 1991). In every case, these large companies are promoting semi-intensive and intensive farming so that short-term profits can be maximized.

In its effort to promote industrial shrimp farming, India has identified 100,000 hectares of what it calls "poorly utilized coastal lands" for the development of shrimp farming, but many activists claims that much of this land is actually productive farmland and mangroves.

While the Indian government is fully supporting the development of intensive and semi-intensive aquaculture along the coasts, there is a growing of Indian environmentalists and social activities who are opposed to the government's aquaculture development policies. These people are concerned that the development of intensive and semi-intensive shrimp aquaculture in India will lead to the

same sort of environmental and social problems that other Asian counties, including Thailand, Taiwan, and the Philippines have had to deal with.

One of India's most published disputes between a shrimp farming conglomerate and local people is taking place in state of Orissa at the brackish water Chilika lake. Small-scale fishing communities living on the lake and supporting non-government Organizations (NGOs) are opposing Tata Company's plan to lease part of the are in order to develop 50 semi-intensive shrimp ponds (Shankar, 1992). Fishermen and other local people are afraid that the processed feeds, chemicals, and anti-biotics that the company plans to use to raise the shrimp will contaminate the lake and adversely affect artisanal fisheries (Indian Express, April 10, 1993). They argue that large companies should not be allowed to degrade the lake, which is only 1 to 2 meters deep in many places and very susceptible to water pollution because of its closed nature. Local fishers also insist that they are being unfairly displaced from fishing in areas of the lake that have always been open to them. Activists are also opposed to the one hundred 200 hp. pumps that will be used to supply ground water to the ponds and flush out the fowled waters of the 50 ponds. Activists have demanded an that an EIA be conducted on the project to determine if it will adversely affect the lake (Shankar, 1992). The Minister of State for Environment and Forest said in New Delhi that no approval for the project would be granted until a major environmental study had been studies in detail (Rao, 1992).

Other areas in India are also experiencing the beginning signs of social and environmental upheaval as a result of the development of large-scale shrimp aquaculture projects, which rarely benefit local people and are usually in the hands of the rich (Sanjeeva Raj, 1992).

Bangladesh

Bangladesh's shrimp farming industry has had many problems recently. In April 1991, a powerful cyclone devasted a large part of Chittogong, a province with 30,000 hectares of extensive shrimp farms. Over 4,000 tons of shrimp were lost and damage to the shrimp industry was estimated at US $ 20 million. officials working for the Bay of Bengal Programme have speculated that the destruction of mangroves by shrimp farmers and derision of coastal embankments amplified the effects of the cyclone. Recovery is expected to be slow. (Rosenberry, 1991).

Bangladesh shrimp farms are generally less of a pollution threat than in Thailand or Taiwan, because they use the extensive system, which requires less processed foods, chemicals and antibiotics. However, extensive farms have been criticised for consuming large tracts of mangroves forests and farmland for relatively small returns. It has been shown that one hectare of mangrove can yield at least 767 kilograms of wild fish products a year. Since extensive ponds only produce between 100 and 500 kilograms of shrimp over the same period, converting mangroves for shrimp cultivation seems to make no economic sense at all (Macintosh and Phillips, 1992). Yet, since 1980 shrimp farmers have been increasingly encroaching on the vast mangrove areas of the Sundarbans to establish more shrimp farms. 6% of the country's shrimp farms were in mangroves by 1988 (Csavas, 1988). This percentage has been increasing sharply since then.

Unlike many of the leading shrimp farming countries in Asia, there are very few shrimp hatcheries in Bangladesh. Wild fry are still

widely relied on for stock. They are both collected from the sea, and allowed to drift into the ponds with the tides. Tides are also used to regulate water-exchange for the extensive ponds (Csavas, 1988). It is likely that excessive shrimp larvae collecting wastes and destroys much of the larvae caught, and that this could affect wild shrimp stocks in the future.

Like in India, much of Bangladesh's traditional shrimp aquaculture is done as part of a rice/shrimp rotating system. This sustainable system is, however, being increasingly changed to more profitable shrimp monoculture systems. Semi-intensive and intensive methods are also being increasingly introduced.

With shrimp farming becoming big-business and export-oriented, most of the shrimp culture has landed in the hands of rich investors. As a result, many small rice farmers are suffering. Already 100,000 hectares of shrimp farms cover the southern coastal belt of the country. Rice farmers' crop are often destroyed when salt water, which has been channelled to the shrimp farms, seeps into neighbouring farmland. After a few years of this abuse, the lands of non-shrimp farmers often become completely infertile. The shrimp farmers then move in and buy the land at dirt cheap prices, leaving thousands of families landless. A study conducted by the Chittagong University Economics Departments found that the rice production of Satkhira region decreased from 40,000 metric tones in 1976 to only 36 tons in 1986. The study also concluded that the development of shrimp farming in the region has been directly responsible for the displacement of 300,000 people from their farmlands (Utusan Konsumer, 1991). Frustrated villagers are now facing serious land-use and land-lease conflicts with the big companies and government agencies that dominate the industry (Csavas, 1988). And with shrimp farming activities increasing in the country, more problems are certainly on the way.

Vietnam

Shrimp culture has a long history in Vietnam. Originally, two traditional systems were developed for culturing shrimp, each adapted to the specific conditions prevailing in different parts of the country. The first is an intensive systems in which large trapping ponds rely on tidal action for water-exchange. This polyculture fish and shrimp raising system is widespread along the 3,200 kilometres of coasts in Vietnam, but is most prevalent in the central and southern parts of the country, where yields tend to be higher than in the cooler north. The second system is an apparently sustainable shrimp/rice rotating system developed in the Mekong Delta and similar to traditional systems in India and Bangladesh (Csavas, 1988). Neither of these systems relies on processed feeds, chemicals or anti-biotics.

In 1991, Vietnam produced 30,000 mt. cultured shrimp, mainly through extensive culture, but the government is now promoting foreign investment in intensive shrimp farming and hopes to increase production by expanding the area allocated to shrimp farming and intensifying the production of many of the country's extensive ponds. In 1991, there were already 160,000 hectares of brackish-water ponds in Vietnam (Rosenberry, 1991). One of the first multi-national corporations to invest in shrimp farming in Vietnam was the Thai giant, Charcon Pokaphand (CP), which is supporting a number of shrimp farming projects, feed processing and marketing projects, and shrimp hatcheries in the country

(Bangkok Post, February 26, 1992, Dhanasettakorn, 1992; Bangkok Post August 19, 1992). As they have done in all countries, CP is promoting intensive shrimp farming even though this method has proven to be less sustainable than semi-intensive and extensive systems (Durante, 1992). Another Thai group is proposing a US$25 million joint-venture involving shrimp farming, and fishmeal and shrimp feed processing. The Japanese company Nissho Iwai has invested in shrimp farming in Minh Hai Province, where the country's largest tracts of mangrove forests exist (Kanwerayotin, 1992). Other aquaculture companies are also being encouraged to invest in intensive shrimp farming in Vietnam (Kano, 1992). There are also said to be a large number of Vietnamese Americans who are waiting for the lifting of the US trade embargo with Vietnam so that they can invest in intensive shrimp farming there too (Rosenberry, 1991).

There is a considerable amount of concern in Vietnam regarding the amount of mangrove forests that are being lost to shrimp culture, and the negative effects this development process is having on coastal fisheries in the country. These used to be 400,000 hectares of mangrove in Vietnam, but now only about one third remind (Mangrove Ecosystem Research Centre-Hanoi, pers. comm.) Much of these remaining forests have been allotted for future aquaculture development. (Vietnam Ministry of Aquatic Resources, pers.comm). In the Mekong Delta, extensive mangrove forest deforestation for shrimp farming is expected to cause serious depletion of coastal fisheries stocks (Mekong Secretariat, 1992). Mangrove deforestation in other provinces may also lead to similar problems, and considering the country's heavy reliance on coastal fisheries, this could prove a difficult problem for small-scale fishers who have traditionally utilized mangrove forests as sources of food, medicines, and building materials.

In response to growing concerns about the environmental effects of intensive shrimp farming and shrimp farm induced mangrove destruction, the NGO OXFAM has started experimenting with a new system of semi-intensive shrimp farming that encourages the conservation and restoration of mangrove forests rather then their destruction. Initial results look promising (Macintosh, 1992).

While the Vietnam Government has attempted to restore mangrove forests destroyed by chemical defoliants during the Vietnam War, and protect some areas from being degraded by shrimp farming (Kanwerayotin, 1992), it seems likely, nonetheless, that Vietnam will continue its present policy and make many of the same environmental mistakes that other Asian countries have made in developing large-scale shrimp aquaculture.

Cambodia

Cambodia is not yet doing much shrimp aquaculture on its coasts, but Thai investors have been trying to convince the Cambodian government to enter into joint-ventures with Thai companies interested in expanding the shrimp culture industry in that country. There is considerable reason for concern that these proposed shrimp farming projects could cause the destruction of large tracts of mangrove forests in Cambodia and contribute to coastal water pollution and other environmental and social problems in the

same way that shrimp farming has affected Thailand's coastal environment.

In September 1992, the shrimp aquaculture giant, Charcon Pokaphant (CP) asked top cambodian officials for their support in permitting foreign investment in shrimp farming in the southern Cambodian province of Kampot (Bangkok Post, Sept. 19, 1992). In 1992, CP also drafted a proposal for Cambodia to borrow US $100 million from the World Bank to finance the development of 4,000 hectares of coastal lands into intensive shrimp farms in the provinces of Kampot, Kampongsom, and Koh Kong. Under the proposed plan, CP would provide all the technical assistance to the Cambodian's for the project, market cultured shrimp from Cambodia, and sell the Cambodians all the equipment, processed feeds, anti-biotics, and chemicals needed for the large project (CP Group, 1992).

The CP Group would gain immensely from the project by being able to seel all the processed feeds for the project. CP has a giant feed factory in Thailand that would supply the feed. Profits would be great because feed costs often represent 50-60% of the total investment for intensive shrimp farming. Regardless of the success of the project, Cambodia would have to be responsible for replying the large loan, even if the intensive aquaculture promoted by the Thais proved to be as unsustainable in Cambodia as it has been in Thailand. CP would not have bear any of the risks involved.

Suspecting that the plan would not be beneficial to the Cambodian government or coastal peoples, the Fisheries Department of Cambodia government or coastal peoples, the Fisheries Department of Cambodia has since cancelled the project, fearing that mangrove forests and water quality would be unnecessarily sacrificed for the industry (Chea Chhaeng Peng, 1992). It is; however, rumoured that CP is hoping that the project will be approved after a new government is established in accordance with the UN sponsored elections in Cambodia.

In April 1993, the Cambodian Fisheries Department discovered that the country's first 200 hectares of intensive shrimp farms had become established in the mangroves of Koh Kong province, near the Thai border. Surprisingly, Investigations by the Fisheries Department determined that none of shrimp farmers in the province had been given permission to legally set up shrimp farms in Koh Kong. Instead, Thai investors and their Cambodian partners/frontmen had illegally brought in their own excavating equipment, shrimp farming equipment, processed feeds, chemicals and anti-biotics to develop shrimp farms on their own (Chea Chhaeng Peng, 1993). Since finding out about the illegal shrimp farms, the Fisheries Department has ordered the Governor of Koh Kong to make sure no more shrimp farms are allowed to be built in the area. The Fisheries Department is also considering measures to close down the existing farms (Chea Chhaeng Peng, 1993).

While Cambodia is attempting to resist the temptation to allow valuable tracts of mangrove forests to be converted for shrimp farming, the Thai business community is continuing to press for the industry's expansion into foreign countries like Cambodia. Most recently, in July 1993, the Thai Aquaculture and exporting Association of Thailand petitioned the Prime Minister of Thailand, Chuan Leekpai, to open talks with Cambodia to support Thai investors who want to invest in shrimp farming in Cambodia. Typical of the ideas of many

greedy Thai investors, Yongyudh Kongsupabsiri, the leader of the Association, said in a letter to the Thai PM that "Cambodia's Fertile coastal mangrove forests are suitable for conducting aquaculture business which will benefit both Thailand and Cambodia in the long run " Bangkok Post, July 23, 1993). Considering the unsustainable history of intensive shrimp farm development in Thailand and Taiwan, it seems unlikely that coastal peoples would actually benefit from the Thai initiatives, either in short-term or long-term. Instead, the projects would probably only benefit Thai business-people, leaving a number of serious environmental and social problems for the Cambodians to deal with once the shrimp farming ventures had proven themselves to be no longer profitable. In almost every case, Thai investors have insisted that intensive shrimp farming is the best way to culture shrimps.

Burma

Shrimp farming is still not widespread in Burma, but Thai investors have begun investing heavily in intensive shrimp farming along Burma's coasts. One of the largest of the Thai-Myanmar (Burma) joint-ventures was recently announced between the government of Myanmar and the TBE Co. of Thailand. This joint-venture will establish a large number of intensive shrimp ponds along the Burmese coast near Thailand's Ranong province (INFOFISH, 1993). As in Thailand, shrimp aquaculture has already resulted in a large amount of mangrove forest destruction, and it seems likely that much more of Burma's mangroves will be sacrificed for the industry in years to come. The proponents of this unsustainable development process, including the Thai private and public sectors, have not adequately considered the coastal environmental and social costs of the mangrove forest destruction related to the expansion of shrimp aquaculture. It is expected that shrimp farming in mangrove forests in Burma will cause the depletion of coastal fisheries in many parts of the country, as it has in Thailand and other Asian countries.

Sri Lanka

Shrimp aquaculture is not yet widespread in Sri Lanka, In 1989, Sri Lanka accounted for only 0.3 % of Asia's cultured shrimp production (Csavas, 1990). In 1988, it was estimated that Sri Lanka's maximum production could not exceed 5,000 metric tons (Csavas, 1988). Still, shrimp farming activities are increasing in Sri Lanka and in some cases encroaching on mangrove forests. There have been reports of land-use disputes between villagers and shrimp aquaculture investors in areas where the industry is being developed. Communities of small-scale fishers from Udappuwa and other parts of Sri Lanka have already lost most of their mangroves to shrimp farming, and are complaining about the slat water that has contaminated their well as a result of the shrimp farming (Cultural Survival,1992).

Pakistan

Pakistan does very little shrimp aquaculture. They apparently tried intensive shrimp culture, but the initiative failed due to financial and technical problems (IUCN Pakistan, pers. comm.).

Recently, however, the Asian Development Bank (ADB) started developing a project on artisanal and semi-intensive shrimp farming. The ponds for this project are apparently all being constructed outside of mangrove forests

(IUCN Pakistan, pers. comm.). It is not known whether the project will succeed in being sustainable or "people friendly" where others have failed.

Singapore

Singapore, due to limited land resources, is not engaging in much shrimp culture (0.1 of Asia's production) Csavas, 1990). However, what little shrimp farming is being done is intensive (Csavas, 1988). It has not yet been shown that this shrimp farming is any more sustainable than the intensive aquaculture that has been developed in other environmental problems.

While Singapore's role as a shrimp culture is small, it should be noted that huge quantities of black-tiger shrimp from Thailand, Malaysia and Indonesia regularly pass through Singapore on their way to foreign markets in Japan, America, and Europe.

Brunei

Brueni is a very small country with only a few hundred small-scale fishers, and no interests in commercial fishing ventures. They also don't have enough land to accommodate conventional pond shrimp culture.

The Department of Fisheries has done some research on black tiger shrimp cage culture, but it has not yet been introduced commercially in Brunei (Pudadeta, B. Jr. 1992). Since pond shrimp aquaculture has been responsible for the deforestation of large tracts of mangrove forests in many Asian countries, cage-culture may be a less destruction option to digging out valuable coastal X to support the shrimp culture industry. However, more work is needed in this area to ensure that his method can be sustainably managed without adversely affecting coastal fisheries and local people's livelihoods.

Conclusions

The shrimp aquaculture industry is now a multi-billion dollar industry in Asia, and it is widely believed that the industry will continue to grow throughout the 1990s. But, despite the amazing increase in production and exports of cultured shrimp from Asia, the environmental and social costs of expanding the industry have been heavy, and largely disregarded by governments and multinational corporations involved with intensive shrimp culture.

Apart from being the biggest cause of mangrove forest destruction in Asia, shrimp farming has also contributed to coastal pollution, ground water contamination, subsidence, farmland contamination, and other environmental problems. In the end, millions of small-scale fishers and farmers have been marginalized and displaced by the shrimp farming industry. With farmland ruined and coastal fisheries in decline, governments and investors need to re-evaluate the industry and consider how much the intensive culturing of shrimp and consider how much the intensive culturing of shrimp is costing society and the environment. Many Asians are already finding that supplying expensive shrimp to industrialized nations is not such a good deal after all, but for now, the ones in charge are continuing to promote the industry and the disasters that come with it. For the poor, the struggle continues.

REFERENCES

Abdullah, Ashraf et. al (1993). "ill-effects wrought by eel farm." New Straits Times, May 2 1993, Kuala Lumpur.

ACFOD (1992). The Fisherfolk of Asia: Justice Denied, Report and statement of the Fifth Asian Fisherfolk Consultation, 26-31 January 1992, Songkhla, Thailand. pp. 1-62.

Albela, Geraldine (1191). "Too much of mangrove lost, says Don."New Strits Times, August 29 1991, Kuala Lumpur, p.12.

All India Newspaper (1193). " Caution against Chilika prawn project". All India Newspaper, April 10, 1993, Calcutta.

Bangkok Post (1991). "Funds sought to save mangrove forests". Bangkok Post, June 5 1991, Bangkok.

Bangkok Post (1991). "Thai shrimn exports to US increase 78% Bangkok Post, December 4 1991, Bangkok.

Bangkok Post (1991), "CP Group sees shrimps industry slowdown" Bangkok Post, December 31 1991 Bangkok.

Bangkok Post (1992). "Shrimp farmers given ultimatum. " Bangkok Fost, January 24 1992, Bangkok.

Bangkok Post (1992). "KL differs over shrimp farming in mangroves". Bangkok Post, January 27 1992, Bangkok.

Bangkok Post (1992). "STC expects shrimp earnings of B1,1000m." Bangkok Post, February 19, 1992, Bangkok.

Bangkok Post (1992). "CP plans overseas business expansion." Bangkok Post, February 25 1992, Bangkok.

Bangkok Post (1992(. "Shrimp products report counters Greenies claims. "Bangkok Post, June 15, 1992 Bangkok.

Bangkok Post (1992). "Prawn raising industry hard hit by smugglers. " Bangkok Post, July 17 1992, Bangkok.

Bangkok Post (1992). "Foreign firms queue up to seek joint shrimp ventures. "Bangkok Post, August 19, 1992, Bangkok.

Bangkok Post (1992). "CP Group eyes khmer coast shrimp ventures". Bangkok post, September 19, 1992, Bangkok.

Bangkok Post ('992). "Thailand is biggest exporter of prawns". Bangkok Post, October 2, 1992, Bangkok.

Bangkok Post (1992). "Mangrove forests now under govt environmental protection plan. "Bangkok Post, December 24, 1992, Bangkok.

Bangkok Post (1993). "Shrimp farmers urged to conserve mangrove forests." Bangkok Post, February 3, 1993, Bangkok.

Bangkok Post (1993). "4 held in death plot."Bangkok Post. April 18 1993. Bangkok. pp. 1-2.

Bangkok Post (1993). "Chuan urged to open khmer fishing links." Bangkok Post. July 23 1993. Bangkok.

Boards of Trade (1991). "Japanese hygiene standards water down shrimp exports." The Nation, December 27 1991, Bangkok.

Bunthida Katesombun (1992). Aquaculture Promotion: Endangering the Mangrove Forests. The Future of people and forests in Thailand After the Logging Ban. Project for Ecological Recovery, 1992, Bangkok, pp. 103-122.

Chansoh, Pisit (1993). "Villagers should manage coastal resources." Bangkok Post 18 1992, Bangkok, p. 23.

Chea Chhaeng Peng (1992). "The environmental and social impacts of shrimp farming" Cambodian Times, January 14, 1993 Phnom Penh.

CP Group (1992). "Shrimp Farm Estate Settlement: People Republic of Cambodia". An unpublished project proposal submitted to the World Bank, 1992, pp.1-3.

Csavas1. 1988. Shrimp farming development in Asia. In: Shrimp'88 Conference Proceedings. January 26-28, 1988, Bangkok, Thailand. INFOFISH International, Kaula Lumbur, Malaysia: pp. 63-92.

Csavas I. (1990). Shrimp aquaculture development in Asia. In M.B. New. H. de Saram and T. Sing (Eds.): Technical and economic aspect of shrimp farming. Proceedings of the Aquatech 90 Conference, Kuala Lumpur, Malaysia, June 11-14, 1990, p.207-222

Csavas 1. (1992). Impact of shrimp aquaculture on the shrimp industry. In: Shrimp '92 Conference Proceedings, September 14-16, 1992, Hong Kong, pp. 6-18.

Cultural Survival (1992). "Upsetting the Balance. "Cultural Survival, Winter, 1992 Cambridge, MA, p.14.

Dhanasettakorn, Apisak (1992a). " CP group poised for inroad into VN. "The Nation, April 7 1992, Bangkok, p. B1.

Dhanasettakorn, Apisak (1992b). "Jakarta, KL challenging thailand in shrimp mart. " The Nation, May 18 1992, Bangkok, pp.B1, B8.

Durante, Lisa (1992). "Malaysia's Sleeping Giant' could wake up on the wrong side. "Bay of Bengal news, December 1992, pp. 19-21.

Fishing Community Integrated Development Project (1992) Information/Situation of Small Fishermen in Songkhla Province. Paper presented at the 5th Asian Fisherfolk Consultation, 27-31 January 1992, Prince of Songkhla University, pp.1-22.

Indian Express (1993). "Panel to study Chilika lease". Indian Express. April 8, 1993. New Delhi.

Infofish International (1993). "Myanmar - Thai venture". Infofish International, may/June 1993, Kuala Lumpure .P. 10.

Kano, Ichiro (1992). "Vietnam-investment potential in fisheries sector.

Infofish Internation, September/October 1992, Kuala Lumbur, pp. 22-26.

Kanwerayotin, Surapohn (1992). "Treasured mangroves. "Bangkok Post, December 9, 1992, Bangkok.

Koaykul, Monrudee (1992), "Arrested prawn farmers await nod to use land. : Bangkok Post, September 17, 1992, Bangkok.

Kokilakanit,Kunsiri (1991). "Don Sak prawn farmers in registration dilemma. "The Nation, December 12, 1991, Bangkok.

Kokilakanit, Kunsiri (1992(. "Group set to eat into shrimp feed market. " The nation, February 27, 1992, Bangkok, p. b3.

Lertkittisuk, Pipat (1992). "Mangrove forests well preserved in Chantaburi. "Bangkok post, April 16, 1992, Bangkok.

Luengotai, Patcharee (1992). "Review of mangrove ban afoot. "the Nation, April 25 1993, Bangkok.

Macintosh, D.J. (1992(. "Mangrove Reforestation; Vietnam Update" Aquaculture News, December 1992.

Macintosh, D. J., and Phillips, M. J. (1992) Environmental considerations in shrimp farming. Infofish International November /December, 1992, Kuala Lumbur, pp. 38-42.

Malasiddh, pikul (1992). "Indonesia cashing in on shrimp export". The nation, October 23,1992, Bangkok.

Mekong Secretariat (1992). Fisheries in the Lowe. Mekong Basin (Review of the Fishery Sector in the Lower Mekong Basin). 1992, Bangkok p.45.

The Nation (1992), "Malaysia, Indonesia marts force CP rethink". The Nation, May 20, 1992, Bangkok.

The New Light of Myanmar (1993). "Shrimp farming brings wealth, but also ecological disaster." The New Light of Myanmar, May 12, 1993, Rangoon.

New Straits Times (1993). "Vitak swamplands hit by aquaculture projects. "New Straits Times, May 2, 1993, Kuala Lumbur, p.7.

Petchae, Spoon (1993). New Scheme means tiger prawn farmer must register land. " The Nation, July 6 1993, Bangkok.

PHPA/AWB (1988). The Indonesian Wetland Inventory, PHPA/AWB, 1988, Kuala Lumpur, pp 1-47

Primavera, J .H., (1992a). Mangrove Conversion and Brackishwater pond Culture in the Philippines. In: Protection and Sustainable Use of Wetland Resources in the Philippines. Proceedings of a Workshop. September 30 to October 2, 1992, Los Banos Laguna, pp 77-90

Primavera, J. H. (1992b). A Critical Review of Shrimp Pond Culture in the Philippines.

SEAFDEC, 1992, Tivbauan, Iloilo, Philippines, pp. 1-27.

Primavera. J. H. (1992c). Prawn /Shrimp culture industry in the Philippines. Marine Science Publishers, 1992, Chapter. 34 pp. 701-727.

Pudadera, B. Jr. (1992). Cage Culture of Tiger Shrimp. In: Third Asian Fisheries Forum Conference Proceedings,. October 26-28, 1992, Singapore, pp. 162

Quarto, Alfredo (1992). "Fishers Among the Mangroves. "Cultural Survival, Winter 1992, Cambridge, MA, pp. 13-15.

Rao, N. N. (1993). "Green Loonies's slow India project "Fish Farmer International, april 1993.

Rosenberry, B. (Ed.). (1991). world Shrimp Farming 1991. Aquacultural Digest, 1991, San Diego, USa 45 p.

Sanjeeva Raj. P.J.(1992). Sustainable development of our coastal ecosystems. In: Conference proceedings of the Fifth Asian Fisherfolk Consultation, Prince of Songkhla University January 26-31 1992, Songkhla.

Sirikulpipat, Sophon (1991). "Shrimp farmers asked to take care of mangroves. "Bangkok Post, December 19, 1991, Bangkok.

Suwanrangst, Sirilak (1992). The Seafood Industry in Thailand. Infofish International, May/June 1992, Kaula Lumpur, pp. 31-38.

Times of India (1993). "US forum's plea to protect Chilika lake". Times of India, April 10, 1993, New Delhi.

Trisawasdichai, Malle (1991). "Profit and loss: prawns vs the environment. "The Nation, December 3, 1991, Bangkok.

Uday Shankar (1992). "Chilika: A lake of conflict". Down to Earth, August 1992, London.

Utusan Konsumer (1991). "Bangladesh" Shrimp industry Make Rich Richer Poor Poorer". Consumers' Association of Pegang. December 1991, Pengang. p.3.

Utsan Konsumber (1191), "Aquaculture destroys fisheries." Consumer's Association of Penang, December 1991, Pegang, PP. 1-4.

Wang Dong-shi (1992). Discussions on the current development of prawn culture in China. Unpublished paper presented at the third Asian Fisheries Forum. 26-28 October 1992. 3 p.

THE VIOLENCE OF BLUE REVOLUTION

Vandana Shiva

Over the past decade, international agencies have promoted intensive aquaculture development in many Asian countries. Shrimp farming has been an important part of these development projects. The justification has normally been the removal of protein deficiency among rural communities by increasing productivity beyond those obtained in marine ecosystems. However, the ecological and economic impacts of the Blue Revolution indicate that such aquaculture projects have actually aggravated the poverty of fishing and farming families. In addition, the aquaculture industry exists at the expense of marine fisheries and does not enhance overall fish production when diverse species, diverse producers and diverse consumers are fully taken into account.

Intensive shrimp farms with stocking rates of a 100,000 to 300,000 prawns or shrimps per hectare have to be maintained through artificial feeds, intensive energy for pumping water and intensive water use. Maintenance of optimum water quality, salinity, temperature, and dissolved oxygen is critical because of intensive stocking and pollution caused by excessive feeds, faeces, and other organic wastes. Regular pumping of sea water of 30 to 35 ppt salinity range has to be mixed with pumped ground water to keep the 15-20 ppt range required for intensive ponds. Estimates show that roughly 6600 m^3 of fresh water are needed to dilute full sea water in a one hectare pond at one meter water depth over a cropping period of four months.

Since the shrimp farms are set up near the coast to pump sea water into the ponds, they have major ecological impact on the coastal zone ecosystem as well as on coastal communities involved in fishing and in paddy cultivation. The farms are often set up in delta regions. Which are usually very fertile. The Thanjavur delta is the granary of South India with phenomenal paddy yields. The "kuruwai" crop brings in 6.5 tonnes per ha and the 'samba' crop 4.5 tonnes per ha. However, due to the environmental impact of shrimp farming, the granary is becoming a graveyard according to local people. In India, the most rapid expansion of shrimp farming is in the districts of Nellore (named after "nellu" or rice) and Tanjore, the rice bowl in the Cauvery delta.

ENVIRONMENTAL IMPACTS OF THE BLUE REVOLUTION

Destruction of land and Forests

The first impact of shrimp farming is on the destruction of land and forests in the coastal region when the land is bulldozed and excavated for making the gigantic fish farms., I have seen the shelter belts of casurina, prosopis and palmyra cut to make pumping stations, aqueducts and fish ponds. In Philippines, in Thailand, in Indonesia, mangrove destruction is a major impact of prawn farming.

The destruction of mangroves has further environmental impacts. Since mangroves play crucial ecological role in coastal ecosystems. They export organic matter, providing nutrients to adjacent estuarine and marine

ecosystems. Mangroves also contribute to offshore fishers by acting as nurseries and shelter. Prawn and shrimp catch at sea has been found to be directly proportional to mangrove area.

Increase of Cyclone and flood vulnerability with destruction of shelter belts

The destruction of coastal vegetation destroys the buffer zone against destructive wind and water action, increasing cyclone and flood vulnerability. This vulnerability will be further aggravated in light of climate change which will increase the occupance of cyclones and floods. A decreased coastal zone buffer capacity caused by shrimp farming in the light of increased vulnerability caused by atmosphere pollution creates the potential of new scales of environmental disaster.

Salinisation of Ground Water

The large scale pumping of sea ground water into the fish farms is the most serious environmental impact of shrimp farming. The massive extraction of fresh water from underground aquifers for salinity control in the ponds poses a serious threat to the salinity control of the coastal ecosystems. Emptied aquifers are subject to salt water intrusion. Seepage from the tanks also increase salinisation ground water. In the village of kurru in Nellore district, there was no drinking water available to the 600 fisherfolk due to salinisation of the drinking water. After protests from the local women, drinking water is now supplied in tankers. Ironically the aquaculture company responsible for the drinking water destruction of that region is called "Carewell".

The richest ground water source in the entire country, the coastal region, has therefore been struck by water famine. Each shrimp exported from the country thus amounts to an export of large scale aquifers the costs of ground water destruction are internalised in shrimp production.

Destruction of Agriculture

As ground water salinity increases, paddy fields are destroyed. A survey conducted by the Chittagong University Economics Department showed that the Sathira region in Bangladesh where intensive cultivation has been introduced, could produce 36 tons of rice in 1986, compared to 40,000 metric tons of rice in 1976. In Baan Darsa Sangnam in Songkla in Thailand, a farmer in Cheocah could only harvest 150 sacks instead of the usual 300 sacks within a year of impact of shrimp farming in the region.

Pollution of sea and coastal agriculture

Shrimp farms flush their effluent and wastes directly into the sea and neighbouring mangrove and agricultural lands. The waste water from the ponds carries pollution in the form of excess lime, organic wastes, pesticides, chemicals and disease micro organisms. The release of such by-products effects estuarine and marine organisms.

The waste stifles the growth of aquatic organisms and causes water quality to deteriorate. Intensive coastal fish farming has also been linked to 'red tides', an explosive growth of toxic algae that can kill fish and fatally poison people who eat contaminated sea food.

Depleting the marine fish stock through breeding technologies

Another reason for depletion of marine shrimp is the capture of juvenile shrimp from the mangrove for hatcheries.

Prawns occupy about ten different habitats in their life. They breed at sea, but grow and shelter in mangrove areas during juvenile stage. When mature, they moved from the salinity zones to the estuary and reefs to spawn.

Prawn and shrimps do not breed in captivity. The stocking of the shrimp farm is therefore done by capturing larvae and juveniles caught on the coast and in the mangroves, and by capturing egg-bearing female at sea each of which can stock 1 to 2 ponds and therefore fetch high prices. Both these sources increase shrimp availability for intensive fish farms by depleting wild stocks at sea. Captive spawning of shrimp is done in hatcheries by callously cutting the eyes of females, to increase sexual activity. (Nora Ibrahim, 1991).

The capture of juveniles in the mangroves and back waters prevents the renewal of the wild shrimp at sea. The aquaculture industry thus exists at the expense of existing marine fisheries which have supported traditional fishing communities over centuries.

Self Pollution

Intensive Shrimp farming is based on dense stocking rate and overcrowding, which induces stress problems and increase susceptibility to diseases. Overcrowding leads to poor water quality due to decreased oxygen level, high accumulated metabolic products and excreta. rapid growth and transmission of noxious parasites, micro organisms and pathogens.

Fish farmers normally expect losses from disease of 25 to 30 per cent.

In 1987 Taiwan became the largest prawn producer in the world. A year later disease struck and production dropped by 70 per cent. Shrimp exports declined from 50,000 million tons in 1988. In addition the excessive ground water pumping lead to land subsidence which caused two storeyed houses to become one storeyed houses. The Taiwanese government had to ban setting up of the new shrimp farms for this reason. (Primavea 1991). Agencies and corporations which cite Taiwan as a miracle to be followed in the area of shrimp exports should also learn from the ecological collapse of shrimp fisheries exports (Rangaswamy, 1994). Similar nonsustainability due to infectious diseases and deterioration of the environment caused by self pollution from aquaculture is affecting the Philippine and Thailand prawn industry.

Intensive shrimp farming is thus a non-sustainable form of shifting cultivation, with companies moving from one country to another in a matter of a few years as production becomes non-sustainable in each location. As a result of their shifting cultivation they create Blue Revolution refugees in each country where intensive aquaculture takes away land, water and fisheries resources from local communities.

THE SOCIAL IMPACTS OF THE BLUE REVOLUTION

Since coastal ecosystems where shrimp farming is being introduced are regions which

support the lives livelihoods to millions of fisherfolk and farmers, the environmental destruction caused by shrimp farming immediately transforms into social impact.

Displacement of Fishing Communities

The enclosure of the beaches for pumps and powerhouses has pushed fishing communities off their ancestral homes. Fishing communities call themselves "Pattapu raja", the kings of the coastline. Today they are refugees of aquaculture development, with no place to spread and mend their nets or park their catamarans (the traditional fishing vessel used by small scale fishermen) and no access to the sea from their village.

The depletion of marine fish due to environmental impact of fish farming has destroyed their resource base. Kantamma of Ramachandrapuram where Rank Aqua and Siraga shrimp farms have just started to operate says that the shrimp catch of the fisherman which used to be Rs. 50,000 per catamaran per month is now down to Rs. 5,000 within one year of impact.

Not only are fisherman displaced, local communities no longer can consume fish. Since intensive farms are export oriented, they do not supply local markets. The cost of fish locally has risen worldwide as a result of commercial fisheries. For example, in Kerala, India's number one fishing state, prices for shrimp jumped from US$50 a ton to $1,300 a ton between 1961 and 1981. Because of the price rise, per person consumption of shrimp fell from 19 Kg. per person to 9 Kg. (Peter Weber).

While aid programmes put money into aquaculture development to boost world food production to help feed the hungry, the shrimp farming experience in India shows that they away from the poor the little they have.

Drinking Water Crisis and increased work burden for women

The destruction of clean ground water immediately translate into increased work burden for women. At a public meeting in Village Kurru, organised on the impact of aquaculture, water scarcity in the water abundant coastal belt was identified as the main problem. After protests the companies owning shrimp farms were forced to spend Rs. 5 lakhs a month to transport potable water to the village. the water is supplied by tankers, with each household getting only 2 pots to drink, wash, clean with. "Our men need 10 buckets of water to bathe after their fishing trips. What can we do with 2 pots". Women say they are working 4-6 hours extra to collect fuel and water as a result of the environmental destruction caused by shrimp farms.

Destruction of agriculture and declining food availability

As the shrimp farms render the fertile coastal region a salinated waste land, there is destruction of agriculture livelihoods and food production. Very soon there will be famine in the rice bowls of Andhra Pradesh and Tamil Nadu.

The fishing communities of Ramachandra–puram used to grow enough "ragi" for themselves. The "doruvu", the small ponds for irrigating ragi are all saline and there is no ragi production any more. There is no food from the sea, nor from land. There are no

livelihoods on sea, nor on land. Rice cultivation on 40 hectares of land need 50 labours but shrimp raising in the same area needs only five workers. Each job in aquaculture needs an investment of Rs. 2 lakhs. As Cavindamma of Kurru said, "We were displaced from the sea, we went to agriculture for jobs. Now they are building prawn farms on agricultural lands. Salt farms are also being converted into aqua. There too we will loose labour, where will be earn our living?".

Social Conflict and Violence

As people's resources and livelihoods are destroyed aquaculture development becomes a new source of social conflict. In Andhra Pradesh, the villagers of Kurru attacked the aquaculture farms uprooting pumps used for drawing sea water. They also breached the bunds of the ponds. In Tamil Nadu, the Gram Swaraj Movement has taken up the issue of shrimp farms. "Don't bring saline water into our lands" and "Don't take away our livelihood" are the slogans of the landless peasants in the movement. Women have been blocking the work of the bulldozers brought in to make the shrimp farms.

When the these social and ecological costs are internalised, intensive prawn farming emerges as a highly wasteful and equitable utilisation of land, water and fish resources.

Intrinsic to the revolution are value judgements that devalue nature's productivity in the sea and the productivity of fishing communities dependent of the gift of the sea. They tacitly set up an hierarchial ordering that puts the luxury consumption of shrimp by rich northern consumers and the profits of corporations, above the need for drinking water, food and livelihoods of local fishing and farming communities. Shrimps farms embody an assumption of the dispensability of coastal ecosystem and the fishermen and farmers they support.

References

1. Nora Ibrahim, "Negative impacts of Aquaculture", Uttusan Konsumer, December 1991.

2. J. Honculada Primavera, "Intensive Prawn Farming in the Philippines: Ecological, social and Economic Implications, 1991.

3. G. Rangaswami, "Teething troubles in Shrimp Farming", The Hindu, 4th August 1994.

4. Peter Weber, "Net Loss : Fish, Jobs and the Marine Environment", World Watch Institute, 1994.

RAMPANT SHRIMP FARMING DETRIMENTAL TO GROWTH

Indian Express, 30.8.94

Contrary to claims and hope that aquaculture is an ideal programme for boosting food production in India; it is creating an environmental crisis in the coastal regions and spawning "Blue Revolution refugees", a prominent ecologist has cautioned.

Vandana Shiva said in a study report that if the "ecological and social costs are internalised, intensive prawn farming emerges as a highly wasteful and inefficient technology" for ecological and equitable utilisation of land, water and fish resources.

In her report, Violence of Blue Revolution, based on a study of the industry which is rapidly growing in the coastal regions of Andhra Pradesh and Tamil Nadu, Vandana, the recipient of last years Right Livelihood Award, said intensive shrimp farming is non-sustainable as it takes away land, water and fisheries resources from the local communities.

She said multinational companies, moving from one country to another in a matter of few years as production becomes non-sustainable, create "Blue Revolution refugees " in each country. She said intensive aquaculture in the Philippines and Taiwan had caused ecological collapse and the governments of these countries were banning new shrimp farms.

Shiva, who is India's first serious critic of the Green Revalution, said her study revealed that shrimp farming does not enhance overall fish production and actually aggravates the poverty of fishermen families as against its objective of removing protein deficiency among rural communities.

The report said that since shrimp farming is done in coastal regions which support the lives and livelihoods of millions of fishermen and farmers, environmental destruction has an immediate social impact.

The report said that since shrimp farming is done in coastal regions which support the lives and livelihoods of millions of fishermen and farmers, environmental destruction has an immediate social impact.

The Thanjavur delta, the Granary of South India, with phenomenal yields and Nellore (named after Nellore rice) are "becoming a graveyard due to excessive shrimp farming".

One of the major factors associated with shrimp farming is that large scale pumping of sea and ground water into the fish farms by massive extraction from the underground aquifers is undertaken for salinity control in the ponds. This causes salt instruction into empty aquifers leading to scarcity of drinking water. This, according to Shiva, renders the fertile coastal region a salinated wasteland leading to destruction of agricultural livelihoods and food production.

She warns that if proper steps are not taken to contain the mushrooming of shrimp farms in the coastal regions, there "will be a famine in the rice bowls of Andhra Pradesh and Tamil Nadu".

Shiva said that when people's livelihood and resources are destroyed aquaculture development becomes a new source of social conflict.

A fact-finding team of the Peoples Union for Civil Liberties (PUCL) in a recent report after visiting the coastal belts of Pondicherry and Tamil Nadu said even though only a few of the aquaculture units have started functioning, the salinity of the ground water in the areas adjoining them has already been altered. Stiff local opposition forced some companies to stop work and reports of violence have already started tricking in.

The left parties have galvanised farmers into action and 64 fishing villages have decided to resist the entry of prawn farming companies.

Vandana Shiva said the coastal region, the richest groundwater source in the country, has been struck by water famine and additional burden is put on the women folk. After protests in Krru village in Nellore the company owning shrimp farms in the area, has been forced to pay for transporting potable water.

But the women are not satisfied with the quantity of water made available to each family (two pots per family). "Our men need 10 buckets of water to bathe after their fishing trips. What can we do with two pots". they say.

She says that rampant shrimp farming by the profit-making corporations and companies have not only destroyed the livelihoods of fishermen but also struck agriculture. Fishermen in Ramachandrapuram in Andhra Pradesh used to grow enough ragi for themselves in the small ponds but are not able to do any more due to increased salinity.

While rice cultivation on 40 hectares need 50 labours, shrimp farming in the same area required only five workers.

Says Govindamma of Kurra village: "We were displaced from the sea, we went agriculture for jobs. Now they are building prawn on agricultural land. Where will we earn our living".

She says while the aid programmes put money into aquaculture development to boost world food production to help feed the hungry, the shrimp farming experience in India shows that they take away from the poor the little they have. In kerala, India's number one fishing State, the prices of shrimp jumped from 50 dollars a tonne to 1,300 dollars from 1961 to 1981, resulting in this seafood disappearing from the dietary habits of the local people. The per person consumption of shrimp fell from 19 kg per to nine kg.

Shiva said paddy fields were being destroyed by intensive shrimp farming and point out that survey conducted in Chittagong in Bangladesh, where intensive shrimp cultivation has been introduced had revealed a drastic fall in the production of rice in 1986 compared in 1976.

She said capture of juvenile shrimp from the mangroves for hatcheries prevent the renewal of the wild shrimp at sea and contends that the aquaculture industry exists at the expense of marine fisheries which supported traditional fishing, communities over centuries.

Studies have recorded that self pollution by the farms induces stress problems and increases susceptibility of diseases. Researches say that before taking Taiwan as

an example to be followed in the area of shrimp exports, it should also take into consideration the ecological collapse credited to this industry in the country.

The farms have tacitly set up an hierarchical ordering that puts up the luxury consumption of shrimp by rich Northern consumers and the profits of corporations above the need for drinking water, food the need for drinking water, food and livelihoods of local finishing and farming communities, shiva said.

She said if the Blue Revolution continued to devalue nature's productivity in the sea and the productivity of fishing communities dependant on the gift of the sea, social trauma and turbulence cannot be avoided in the coastal regions.

MINISTER
ENVIRONMENT AND FORESTS
INDIA

9 Sep 1994

Dear Shri. Kocherry,

I acknowledge with thanks the receipt of your letter dated August 23, 1994 making a representation of behalf of the National Fisheryworkers' Forum on aspects of Coastal Aquaculture shrimp farming in India.

I fully share your concern on the felt and possible consequences of indiscriminate exploitation of soil and ground water resources in the coastal regions.

Looking to its economic aspects and the physical factors in coastal India, aquaculture will doubtless be a significant activity: this would however, call for a careful assessment of shrimp farming ventures prior to that being undertaken. For this purpose, we are taking steps to include 'aquaculture' under the purview of the Environmental Impact Assessment (EIA) notification which we have issued under the Environment Protection Act. We are also in the process of preparing a policy of aquaculture in consultation with the Ministry of Agriculture. You can rest assured that all environmental aspects will be considered before the policy is finalised.

With regards,

Yours Sincerely,

(KAMAL NATH)

Shri. Thomas Kocherry,
Chairperson,
National Fisheworkers' Forum,
F-10/12, Malviya Nagar,
New Delhi - 110 017

IN THE SUPREME COURT OF INDIA
CIVIL APPELLATE JURISDICTION
CIVIL APEAL NO. 4222 OF 1993
WITH
CIVIL APPEAL NOS. 4223-26 OF 1993

Kerala Swathanthra Malaya Thozhilali Federation and others Appellants

Versus

Kerala Trawlnet Boat Operators' Association and others Respondents

JUDGMENT

B.P. Jeevan Reddy. J.

These appeals manifest the on-going conflicts of interest between traditional fishermen and mechanised fishing boat operators in the territorial waters of Kerala and the attempts of the government to balance their contending demands. Fishing in the territorial waters and beyond has always been the major source of livelihood for fishermen all along the coast of Kerala. Till the early seventies, fishing was confined to traditional type of vessels, viz., catamarans, country craft and canoes. Thereafter, mechanised vessels using several types of fishing gear including bottom-trawling were introduced, which gave rise to a conflict between the traditional fishermen and the new class of mechanised boat operators. "While these inputs (have) contributed to enhance the marine production, they (have) also brought forth a number of resource-related and socio-economic problems necessitating serious management considerations. One such problem area is the fishing during monsoon being practised by the mechanised vessels in some of the States along the west coast, particularly in Kerala. This activity which was started in the seventies with advancements in the operational capabilities of mechanised vessels in the internal and external markets, soon belied its advantages. *It is perceived as competing with the artisanal fisheries in the in-shore waters and fostering resource degradation as bottom-trawling during monsoon period is apprehended to adversely affect the spawning populations and subsequent recruitment* (from the preface to the CMFRI Bulletin 45, "Monsoon Fisheries of the West Coast of India - Prospectus, problems and Management" published by Central Marine fisheries Research Institute, a wing of the Indian Council of Agricultural Research). The present dispute is confined to the permissibility of bottom-trawling during the monsoon months-a period of about six to eight weeks. The subject-matter of challenge in the writ petitions filed by the operators of bottom-trawling mechanised boats are two orders made by the Government of Kerala under Section 4 of the Kerala Marine Fishing Regulation Act, 1980. By virtue of these orders, not only the bottom-trawling was prohibited altogether within territorial waters (specified areas) for a period of forty four days - monsoon period - in the year 1992, the boats of the writ petitioners were practically confined to the sea-shore during the said

period; they were not to stir out to sea for the said period.

It is stated that most of the mechanised boats engaged in bottom-trawling are of Norwegian origin with a length of about 32 feet and fitted with an engine of 48 to 60 HP. Bottom trawling may broadly be described as scraping the bottom of the sea for fish. It is obvious that deeper the sea, larger should be the fishing gear, which in turn calls for a bigger boat. According to the State of Kerala, the boats of the writ petitioners (respondents in these appeals) can engage in bottom trawling only upto a depth of 30-35 metres in as much as the length of wire rope required is five times the depth (with a little extra for meeting emergency situations). The writ petitioners (owners/operators of mechanised boats engaged in the bottom-trawling) who are the contesting respondents in these appeals dispute this assertion. They say that they are capable of bottom trawling in for deeper waters. Yet another point of dispute is: according to the State of Kerala, the depth of sea beyond territorial limits (22kms.) is 45 to 50 metres or more, while according to the writ petitioners, the depth is less than 50 metres at many places beyond the territorial waters' limit. In short, the case of the State is that the boats of the writ petitioners (of 32 feet length fitted with an engine of 48 to 60HP and the fishing gear they carry) are capable of bottom trawling only within the territorial waters whereas the writ petitioners say that they can bottom-trawl not only within but also beyond the territorial waters. basing on its assertions aforesaid, the government of Kerala has issued the impugned orders. Yet another ground given by the Government for supporting the said orders — which ground is strongly supported by traditional fisherman — is that bottom-trawling during monsoon months has extremely adverse effects on the growth and availability of fish, in particular, on the spawning of the fish. According to them, the gradual decrease in the fish haul is mainly the result of bottom-trawling during monsoon period. They say that bottom-trawling during the monsoon months is seriously affecting the livelihood of the traditional fishermen. They point out that for this very reason, this court has upheld a complete ban on use of purpose seines, ring seines etc. by mechanised boat-operators within territorial waters in the State of Kerala V.S. Joseph Antony (1994 (1) S.C.R. 301).

Relevant provisions of law and the Notification:

Entry 57 of list - I of the Seventh Schedule to the constitution specifies "fishing and fisheries beyond territorial waters" as a Union subject, whereas Entry 21 of List-II speaks of "Fisheries" as a State subject. Though Entry 57 of List - I speaks both of 'fishing' and 'fisheries' they do not appear to carry different meanings in the context relevant herein. The word 'fishery" is given the following meanings in the Compact Edition of the Oxford English Dictionary: "(1) the business, occupation or industry of catching fish, or of taking other products of the sea of rivers from the water. (2) a place or district where the fish is caught; fishing ground. (3) a fishing establishment; 'coll. those who are engaged in fishing in a particular place. (4) the right of fishing in certain works. (5) fish of different kinds." Whichever meaning one adopts, it does not seem to convey any different connotation than the expression "fishing". Therefore, nothing turns on the difference in language employed in Entry 57 of List -I and Entry 21 of List-II. Reading both the entries together, it follows that control and regulation of fishing and fisheries

within territorial waters is the exclusive province of the State, whereas beyond the territorial waters, it is the exclusive domain of the Union.

With a view to provide for the regulation of fishing by fishing vessels in the sea along the coastline of the State, the Legislature of Kerala enacted, in the year 1980, the Kerala Marine Fishing Regulation Act (Act 10 of 1981) - hereinafter referred to as the Kerala Act. The Preamble to the Act recites that 'whereas it is necessary to provide for the regulation of fishing vessels in the sea along the coast line of the State", it was enacted. Section 2 defines certain expressions occurring in the Act. Class (h) of section 2 defines the expression "specified area". It means "such area in the sea along the entire coast line of the State, but not beyond territorial waters, as may be specified by the Government, by notification in the Gazette." Section 4 empowers the Government to regulate restrict or prohibit fishing in the territorial waters, while Section 5 prohibits the use of fishing vessels in contravention of the orders made under section 4. Having regard to their crucial relevance, it is appropriate to set out sections 4 and 5 of the Act in their entirety:

4. Power to regulate, restrict or prohibit certain matters within specified area.—

(1) The Government may, having regard to the matters referred to in subsection

(2) by order notified in the Gazette, regulate, restrict or prohibit.

(a) The fishing in any specified area by such class or classes of fishing vessels as may be prescribed; or

(b) The number of fishing vessels which may be used for fishing in any specified area: or

(c) The catching in any specified area of such species of fish and for such period as may be specified in the notification; or

(d) The use of such fishing gear in any specified area as may be prescribed.

(2) In making an order under sub-section (1), the Government shall have regard to the following matters, namely:—

(a) the need to protect the interest of different section of persons engaged in fishing using traditional fishing craft such as catamaran, country craft of canoe;

(b) the need to conserve fish and to regulate fishing on a scientific basis;

(c) the need to maintain law and order in the sea;

(d) any other matter that may be prescribed.

5. Prohibition of use of fishing vessel in contribution of any order made under section 4:— No owner or master of a fishing vessel shall use, or cause or allow to be used, such fishing in any manner

which contravenes an order made under section 4:

Provided that nothing in such order shall be constructed as preventing the passage of any fishing vessel from, or to, the shore, through any specified area to, or from, any area other than a specified area the purpose of fishing in such other area or for any other purpose:

Provided further that the passing of fishing vessel through any specified area shall not in any manner cause any damage to any fishing nets or tackless belonging to any person who engages in fishing in the specified area by using any traditional fishing craft such as catamaran, country craft or canoe.

Sub-section (1) of section 4 specifies the ambit of the power while sub-section (2) specifies the objectives to achieve which the power under sub-section (1) is to be exercised. The objectives set out in the sub-section (2) Inter alia are: (a) the need to protect the interests of the different sections of persons engaged in fishing using traditional fishing craft such as craftsman, country crafts canoe, (b) the need to conserve fish and to regulate on a scientific basis; and (c) the need to maintain law and order in the sea. The restrictions, regulations and prohibitions that can be imposed by the State under sub-section (1) include specification of areas, specifications of class and length of fishing vessels and the number of vessels which can be used for fishing in the specified area, specification of the species and of fishing periods in a specified area. Section 5 says that no owner or master of the fishing vessel shall use of allow the vessel to be used in any manner contrary to the orders made under section 4. The first proviso to section 5 clarifies that noting in any order made under section 4 shall be construed as preventing the mere passage of any fishing vessel form or to the shore through any specified area for fishing beyond territorial waters. This clarification is accompanies by a rider (second provision) to the effect that such passage shall not in any manner cause any image to any fishing nets or tackles being used by traditional fishermen within the territorial waters. The support of the two provisions, in short, is to provide of what may be described as "innocent passage" — if we can borrow the expression from a different context — through the territorial waters. These provisions have to understood in view of the constitutional limitation upon the power of the State legislature explained herein before. So far as the Parliament is concerned, it is admitted that is has made no law regulating or prohibiting fishing beyond the territorial waters nor has the Union Government issued such orders in exercise of its executive power.

With a view to collect the relevant data, information and particulars to enable them to make orders under Section 4 of the said Act, the Government of Kerala appointed, in the year 1981, an expert committee headed by Shri. D. Babu Paul to enquire into the need for conservation of marine fishery resources and other allied matters. The committee submitted its report allied matters. The Committee submitted its report to the Government on July 21. 1982 but it appears that its recommendations were not unanimous. Later, another expert committee was appointed headed by Sri. V. C. Kalawar. Based on the reports of these committees.

the government of Kerala had been issuing various orders from time to time under section 4 (1) prohibiting bottom trawling during the monsoon period. The judgment of the High Court (dated 31st July, 1992) sets out the various orders issued form the year 1988 onwards. (The judgment has sets out the particulars of various writ petitions field by mechanised boat operators questioning those orders and the orders passed thereon.) We do not think it necessary to refer to those orders inasmuch as we are concerned herein with the orders relevant to the year 1992 alone. We need notice only two orders, viz., G.O. (P) No., 31/90/F&PD dated 25th June, 1990 (First Order) and G.O. (P) No.26/92/F&PD dated 20th June, 1992 (Second Order) which were issued on the basis of yet another expert committee report and certain order technical advice. While the First Order of permanent nature, the Second Order is applicable only for the monsoon period (44 days) during the year, 1992. Each of these Orders a accompaniable an explanatory note from part of the statutory notification but is intended to indicate the general purport of the G.O.

The first Order along with its Explanatory Note reads as follows:

"S.R.O. No. 874/90.- - whereas, there is need to preserve law and order in the sea:

And Whereas there is need to avoid accident and ensure safely of life and property of fishermen;

Now, therefore, in exercise of powers conferred by Section 4 of the Kerala Marine Fishing Regulation Act, 1980 (10 of 1981) read with rule 3 of the Kerala Marine Fishing Regulation Rules, 1980, the Government of Kerala hereby restrict the use of the specified area notified under G.O. (P) 136/84/PW, F&PD dated the 30th November, 1984 in Kerala Gazette Extraordinary No. 1055 dated the 3rd December, 1984, by imposing the following pre-requisites for vessels going for bottom trawl fishing beyond territorial waters:

(i) The engine fitted in the boat shall have a minimum power of 160HP and the hull shall have a length of not less than 40 feet.

(ii) The boat shall have a minimum length of 500m. Wire rope in the winch drum.

(iii) The boat shall carry on board sufficient number of life saving appliances and fire appliances as stipulated under Section 435k of the Merchant Shipping Act, 1958 (Central Act XLV of 1958 (Central Act XLIV of 1958).

(iv) The syrang and the Driver shall possess the competency certificate issued by the mercantile Marine Department/Post department.

(v) The boat shall carry on board articles of first aid and navigational aids such as marine Compass.

By order of the Governor,

M. S. Joseph
Secretary to Government.

Explanatory Note

(This note does not form part of this Notification but is intended to indicate its general purports).

Section - (1) of the Kerala Marine Fishing regulation Act 1980 empowers Government to regulate, restrict and prohibit the use of any specified area for purpose of fishing. There have been a number of complaints from among the traditional fishermen that the vessels prohibited from conducting fishing in the territorial waters are actually fishing mechanised boats of less than 43 feet length are not capable of conducting trawling beyond the territorial waters without and angering human life. therefore, the Government have decided to prescribe certain pre-requisites for trawl boats going to fishing beyond territorial waters to ensure that bottom trawl fishing is not conducted in the prohibited area.

This notification is intended to achieve the above purpose."

The Second Order (G.O. dated 20th June, 1992) along with its Explanatory Note reads thus

"S.R.C. No 73-/92: whereas the Government are convinced of the need to protect the interest of different sections of persons engaged in fishing, particularly those engaged in fishing using traditional fishing crafts such as catamarans, country crafts and canoes:

AND WHEREAS it is imperative to maintain law and order in the sea:

AND WHEREAS the Government consider that there is need to conserve fish wealth:

Now, therefore, in exercise of the powers conferred by clause (d) sub section (1) or section 4 of the Kerala Marine Fishing Regulation Act, 1980 (Act 10 of 1981) read with rule 4 of the Kerala Marine Fishing Regulation Rules, 1980, the Government of Kerala hereby prohibit bottom trawl in the sea along the entire coasts line of the State, not beyond the territorial waters specified under notification G. O. (p) 136/84/PW&F&PD dated the 30th November, 1984 published as S.R. No 1496/84 in the Kerala Gazette Extraordinary No. 1055, dated the 3rd December, 1984 for the period from 21st june,1992 to the 3rd August, 1992.

By order of the Governor,

G. Chandran
Special Secretary to Govt.

Explanatory Note

(This does not form part of the notification but is intended to indicate its General purport).

Clause 94) of sub-section (1) of Section 4 of the Kerala Marine Fishing Regulation Act, 1980 empowers Government to regulate, restrict or prohibit the use of fishing gear in any specified area as any be prescribed. Sub-section (2) of section 4 of the Act prescribes the founds for invoking the powers under section 4.

There have been persistence demands from the traditional fishermen for ban on trawling during June, July, August on the ground that trawling has been adversely affecting the conservation of fish wealth and their share of earnings from fishing. Consequently, there have also been clashes between the fishermen belonging to tractional sector and mechanised sector leading serious law and order problems.

Therefore, the Government after considering the recommendations of expert committees in the matter decided to ban bottom trawl specified in the rule 4 of the Kerala Marine Fishing Regulation Rules 1980 in the entire coastal line of the State, not beyond the territorial waters of the State during the monsoon period from the 21st June, 1992 to the 3rd August, 1992 in the interest of conservation of fish wealth and to avoid the possible law and order problems in the coastal area and in the area.

The notification is intended to achieve the above purpose."

It would be appropriate at this stage to notice the purport and affect of the above two orders. The first order recites that it was issued in view of the "need to preserve law and order" and the "need to avoid accidents and ensure safely of life and property of fishermen". The explanatory Note which throws light upon the objectives sought to be achieved by the G.O refers to a large number of complaints from the traditional fishermen that the vessels prohibited from conducting fishing in territorial waters* were actually fishing in the prohibited area. It then recites the Government's opinion that the mechanised boats of less than 43 feet length are not capable of conducting bottom-trawling beyond the territorial waters, rejecting the contention to the contrary. The Explanatory Note further recites that the Government has decided to prescribe certain pre-requisites for trawling boats for fishing beyond territorial waters *to ensure that bottom trawl fishing is not conducted in the prohibited area*. The Notification accordingly imposes certain restriction upon the length of the boat, horse-power of the engine and the particulars of the fishing gear to the carried in boats going for bottom-trawling beyond territorial waters. The requirements prescribed inter alia are:

(1) The engine fitted in the boat shall have a minimum power of 160 HP and the hull shall have a length of not less than 43 feet.

(2) The boat shall have a minimum length of 500 metres-rope in the winch drum.

Now, coming to the Second Order - which is valid and applicable only for a period of forty four days commencing from June 21, 1992 to august 3, 1992 - it prohibits bottom-trawling altogether by any and all boats during the said period in the territorial waters. The Explanatory Note says that the said ban was imposed "in the interest of conservation of fish wealth and to avoid the possible law and other problems in the coastal area and the sea". It refers not only to the complaints of traditional fishermen that bottom-trawling during monsoon months is adversely

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* *The reference obviously is to orders issued in the proceedings years prohibiting bottom-trawling during monsoon within territorial waters.*

affecting conservation of fish wealth and is affecting their livelihood but also the recommendations in the reports of the expert committees. The said recommendations are stated to be the basis of the order.

A reading of the two Notification yields the following position:

1 Bottom trawling is prohibited altogether for the aforesaid period of 44 days in the year 1992 by one and all. During the remaining period of the year, bottom trawling is permitted by one and all within the territorial waters.

2 Only the boats having a minimum power of 160Hp and a hull length of 50 metres wire rope in the winch drum) shall alone be deemed to be capable of conducting bottom trawling beyond territorial waters. In short, the orders have created a conclusive presumption of law that boats having lesser length, horse power and fishing gear than prescribed shall be deemed to be meant for bottom trawling within the territorial waters alone and are incapable of bottom trawling beyond the territorial waters. The necessary presumption of law provided by the Order is that boats not answering the requirements prescribed in the First Order shall not be permitted to leave the coast during the aforesaid period of 44 days. They are confined to and tied down to the sea -shore.

CONTENTIONS OF THE PARTIES BEFORE THE HIGH COURT AND THE DECISION OF THE HIGH COURT

Aggrieved by the above restrictions, the owners and operaters of the mechanised boats engaged in bottom trawling (whose boats did not answer the specifications prescribed in the First Order) approached the Kerala High Court challenging the validity of the said Orders. Their contention was that even though their boats are of lesser length than 43 feet and are having an engine with less than 160HP. they are yet capable of engaging in bottom-trawling beyond territorial waters and that, therefore, they should be allowed to go beyond the territorial waters for the said purpose. Reliance was placed in this behalf on the report of the advocate commissioner in C. M.P No. 10964 of 1990 in O.P No. 6092 of 1990 in the Kerala High Court. The said report, according to the writ petitioners, established that their boats are capable to bottom-trawling even beyond the territorial waters. They disputed the underlying assumption that the depth of the sea beyond territorial waters is more than 50 meters. In several places, they said, the depth of sea beyond the territorial waters (22 kms, from the sea coast) is between 35 to 50 metres, wherein their boats are fully and perfectly capable of bottom-trawling. They submitted that the requirements specified in the First Order are arbitrary, unsupported by any relevant data and have been prescribed under the pressure of and with a view to mollify the traditional fishermen whose number is very large compared to the numbers of the owners/operators of the mechanised boats. They submitted that their right to go beyond the territorial waters (right of 'innocent passage') cannot be taken away altogether even for the limited period of 44 days in the year. According to them, they were interested mainly in 'karikkadi' (prawns) and this particular type of prawns is available only during the monsoon period beyond territorial waters.

If they are not allowed to fish during the monsoon period, these prawns float away and will not be available thereafter. Their main reliance was upon the two provisions to Section 5 of the Kerala Act. They pointed out that neither the Parliament nor the Central Government- who alone are competent to regulate the fishing beyond territorial waters - have imposed any sort of restriction on bottom trawling. They submitted that their right to fish (bottom-trawl) beyond the territorial waters cannot be defeated by the State Legislature and/or its delegate under the guise of prescribing the aforesaid particulars. Article 19(1)(2), they submitted, guaranteed to them the right to move freely through the territory of India which includes the territorial waters). The writ petition was opposed by the Government of Kerala by the Association of traditional fishermen. They submitted that the restrictions prescribed are conceived in the interest of maintenance of law and order within the territorial waters as also to protect and preserve the fish in the larger interest of all the fishermen and the consuming public. The requirements prescribed in the First Order, they submitted, are designed to prevent bottom-trawling by mechanised boats within territorial waters. It in only a measure to prevent abuse of the restriction placed by the Second Order (during 1992 monsoon period) - and similar orders that may be passed for the future years - they submitted.

The Kerala High Court upheld the contention of the writ petitioners (mechanised boat-owners) and held that the Government of Kerala was not competent to prohibit the boats of the writ petitioners from proceeding to sea beyond the territorial waters. The High Court declared that the "Notification dated June 25, 1990 is void in so far as it specifies conditions in regard to 'any fishing vessel' which is going beyond the territorial waters for the purpose of fishing in such areas". The correctness of the said order is questioned in these appeals both by Government of Kerala as well as by the Association of traditional fishermen, "Kerala Swathanthra Malsya Thozhilali Federation".

QUESTIONS ARISING FOR CONSIDERATION

Having regard to the contentions urged before the High Court and before us, the following questions arise for consideration in these appeals:

(1) Whether the Government of Kerala was competent, acting under Section 4 of the Kerala Act, to create a conclusive presumption of law to the effect that a boat not satisfying the requirements prescribed in the order dated June 25m 1990 (First Order) is not capable of bottom-trawling beyond the territorial waters of Kerala?

(2) Whether the First Order is arbitrary and discriminatory ? In other words, whether there is no relevant material to support the requirements prescribed in the First Order and whether the said Order brings abort an impermissible discrimination between the bottom-trawlers and other fishing vessels?

(3) In case, Question No.1 is answered in favour of the Stats, whether such a conclusive presumption can be made the basis for conflicting the bottom-trawlers

to the Sea-shore for a period of forty four days specified in the Second Order (Order dated 20th June, 1992) - or by similar orders that may be issued for the ensuring years? Whether such confinement constitute an unreasonable restriction upon the right guaranteed to the owners/operators of the bottom-trawlers by Article 19(1)(d) of the Constitution of India?

(4) Whether the First order is inconsistent with the first provision to Section 5 of the Kerala Act? Whether the said order trenches upon the field reserved to the Union by Entry 57 of List-1?

Before we deal with the questions aforesaid, it is necessary to refer briefly to the facts and reasoning in *Joseph Antony*, a decision rendered by a Bench of this court comprising P. B. Sawant and R.M. Shaji, JJ. in a dispute of a like nature. That was also a dispute between traditional fishermen and mechanised boat operators with this difference that the mechanised boats concerned therein were not engaged in bottom-trawling but were using sophisticated nets like purse seines, ring seines, pelagic trawl and mid-water trawl gears. An average purse seine is said to be 400 metres in circumference, covering an area of more than one hectare. It is used mainly for gathering the pelagic (surface) fish. It could and did haul in 600 to 800 tonnes of fish per annum, compared to five tonnes by a country craft. On account of the said mechanised boats, the haul by traditional fishermen came down drastically, seriously affecting their livelihood. The judgment of this court sets out the particulars of the failing the annual catch by traditional fishermen and the consequent misery caused to them and their families. Naturally, therefore, it gave rise to acute discontent among them. Basing on the expert committee reports, the Government of Kerala issued two Notifications on 30th November, 1994 under the provisions of the Kerala Act. Under one Notifications, the Government specified the area along the entire coast line of the State, but not beyond the territorial waters (d) of sub-section (1) of Section 4 of the Kerala Act. Under the other Notification, the State Government declared that since they were convinced of the need to protect the interests of the persons engaged in fishing using traditional fishing crafts such as catamarans, country crafts and canoes in the territorial waters of the State and further because there was need to preserve law and order in the territorial waters, the use of purse seine, ring seine, pelagic and mid-water trawl gear for fishing in the territorial waters along the entire coast line of the State shall stand prohibited. The validity of the said notification was questioned by mechanised operators in the Kerala High Court which upheld their complaint partly. The High Court declared that the Notification in so far as it prohibited the use of purse seine nets beyond nets beyond 10 kms. of the territorial waters is not valid and effective; against which judgment, the Kerala Government and the Association of traditional fishermen appealed to this Court. This Court allowed the appeals on the following reasoning:

(i) The expert committee reports viz., Babu Paul Committee Report, Kalawar Committee Report and the two reports of the special Officers appointed by the State Government read along with the Central Marine Fisheries Research Institute (CMFRI) Sauletin Nos.12 and 14 (referred to in the Babu Paul Committee Report) establish that mechanised nets like the purse seine do an irreparable damage to the existing

stock of fish by killing the juvenile fish and fish eggs and by preventing fish breeding". This is apart form the fact that according to the landing figures of 1980-82, while each purse seiner caught 600-800 tonnes fish per annum, the traditional crafts could catch only five tonnes.

(ii) Over the years while the population of the traditional fishermen has increased by more than 20.8% the average production of each fishermen declined by more than half , which resulted in 98.5% of the fishermen population desending below the poverty line. While the traditional fishermen who constitute 89% of the total fishermen-household caught a negligible production of the fish, the mechanised fish gear operators who are very small in number have been taking away the bulk of the catch, viz., more than 92%. This is having a fatal effect upon the lives and economy of the traditional fishermen giving rise to several incidents of breach of law and order.

(iii) The use of mechanised gear in fishing does not lead to any increase in production. On the other hand, they present a real threat of depletion of the stocks. Even in advanced countries like, U.S.A. Norway, Great Britain and Japan were the number of fishermen engaged in fishing as very small, steps have been taken to restrict fishing by sophisticated gears like the purse seine to avoid destruction and depletion of the pelagic (surface) fish wealth, It is, therefore, necessary to prohibit such mechanised fishing gears for protecting the source of livelihood of the already impoverished mass of fishermen in the State and also to save the pelagic fish wealth within the territorial waters from depletion and the eventual total destruction.

(iv) In all the above circumstances, the Notifications issued by the Government of Kerala prohibiting the use of the said mechanised fishing gears within the territorial waters is perfectly valid and justified and it represents a reasonable restriction within the meaning of Article 19(6) read with and in the light of Article 46 of the Constitution of India.

We may now turn to the question arising in these appeals.

That the Legislature can create a conclusive presumption of law in appropriate situations does not admit of doubt. So long as the Legislature acts within the sphere allotted to it and does not infringes the provisions in Part-III of the Constitution or the constitutional limitations, if any, the law made by it including the conclusive presumption created by it cannot be questioned. But the conclusive presumption concerned herein is created not the Legislature but by the Government purporting to act under Section 4 of the Kerala Act. The question is whether Section 4 empowers the Government to do so. Now, what does the conclusive presumption provided by the First Order say? It says that unless the mechanised boat is of specified length and fitted with engine of specified power and specified fishing gear, it shall be presumed that it is not capable of bottom-trawling beyond territorial waters. In other words, it shall be presumed conclusively that such a boat is meant for and can operate only within territorial waters. The government also says that if such boats are allowed to go for bottom-trawling beyond territorial waters, it would endanger the lives of the fishermen manning such boats, with a

view to ensure safely of life and property of fishermen and to avoid accidents, the governments says, it has imposed the valid restriction. Moreover — and this is important to note — this is not an independent restriction. It has to be read along with and as supplemental to the other Orders which were issued every year restricting/prohibiting bottom-trawling within territorial waters (specified area) during the monsoon period. Putting it differently, so far as the year 1992 is concerned, the First Order and the Second Order have to be read together and not independently. So read, it is clear that they are perfectly warranted by Section 4 of the Kerala Act. At the same time, we agree that since the said conclusive presumption of law and the restriction created by the First and Second Orders respectively is crated by the Government in exercise of the statutory power conferred upon it, it has to answer the test of reasonableness, for the added reason that it affects the fundamental right of the writ petitioner guaranteed by Article 19(1) (g) of the Constitution.

It is from the above stand point that we shall proceed to examine the First Order as well as the Second Order. There is no doubt that both the Orders impose restrictions upon the fundamental rights guaranteed to the owners/operators of bottom-trawlers by Article 19(1)(g) of the Constitution. Indeed, according to them, it also violates their right under Articles 19(1)(d) as well. We shall proceed on the assumption that they are right in so complaining. It means that the restrictions imposed have to answer the test of reasonableness in clause (6) as well as clause (5) of Article 19. Both the said clause permit reasonable restrictions to be placed upon the respective guaranteed rights "in the interests of general public". That the restrictions contemplated by these clauses can take in a prohibition in appropriate cases was recognised by this court as far back as 1960. (See Narendra Kumar .V. Union of India (A.I.R. 1960). It was held by the Constitutional Bench:

> "It is reasonable to think that the makers of the Constitution considered the world "restriction" to be sufficiently wide to save laws "inconsistent" with Art. 19(1), or "taking away the rights" conferred by the Article, provided this inconsistency or taking away was reasonable in the interests of the different matters mentioned in the clause. There can be no doubt therefore that they intended the word "restriction" to include cases of "prohibition" also. The contention that a law prohibiting the exercise of a fundamental right is in no case saved, cannot therefore be accepted. It is undoubtedly correct, however, that when, as in the present case, the restriction reaches the stage of prohibition special care has to be taken by the Court to see that the test of reasonableness is satisfied, The greater the restriction the more the need for strict scrutiny by the Court.
>
> In applying the test of reasonableness, the Court has to consider the question in the background of the facts and circumstances under which the order was made, taking into account the nature of the evil that was sought to be remedied by such law, the ration of the harm caused to individual citizens by the proposed remedy,to the beneficial effect reasonably expected to result to the general public. It will also the necessary to consider in that connection whether the restraint caused by the law is more than was necessary in the interest of the general public".

While judging the reasonableness of a provision, we may remind ourselves, the court should bear in mind the classical statement in V.G.R W V. State of Madras (A.I.R. 1952 S.C.196). Ir reads:

> "It is important in this context to bear in mind that the test of reasonableness, wherever prescribed, should be applied to each individual statute impugned, and no abstract standard, or general pattern of reasonableness can be laid down as applicable to all cases. The nature of the right alleged to have been infringed, the underlying purpose of the restrictions imposed, the extent and urgency of the evil sought to be remedied thereby, the disproportion of the imposition, the prevailing conditions at the time, should all enter into the judicial verdict. In evaluating such elusive factors and farming their own conception of what is reasonable, in all the circumstances of a given case, it is inevitable that the social philosophy and the scale of values of the judges participating in the decision should play an important part, and the limit to their interference with legislative judgment in such cases can only be dictated by their sense of responsibility and self restraint and the sobering reflection that the Constitutions is mean: not only for people of their way of thinking but for all, and that the majority of the elected representatives of the people have in authorising the imposition of the restrictions, considered them to be reasonable.

It is vehemently contended by Sri. R. Ramaswamy, learned counsel for the respondents-writ petitioners that there was no material upon which the Government of Kerala could have created the presumption that the boats with less than the prescribed particulars are not capable of bottom-trawling beyond the territorial waters. We also challenged the underlying presumption that the depth of the sea beyond territorial waters is uniformly beyond 45-50 feet and that therefore the writ petitioners's boats are not capable of bottom-trawling. We do not think that the said contentions are wellfounded.

In the counter-affidavit failed in the High Court (in O.P. No.8461 of 1992), the following facts have been stated by the Government: the proliferation and indiscriminate operation of the mechanised trawl-net boats along the coastal waters has resulted in large scale decrease of catch for the traditional fishermen who were already below the poverty line; it has also affected adversely the availability of many species of fish which were being traditionally caught by country craft. After referring to the particulars related to number of mechanised craft, motorised country craft, non-motorised country craft and the clashes between them from the year 1976 onwards which necessitated the enactment of Kerala Act in 1980, the Counter-affidavit proceeded to state that the Government felt the need to regulate the fishing activities of mechanised boats and for that purpose it appointed various expert committees to suggest ways and measures to be taken in order to conserve marine resources and also for safeguarding the interests of the traditional fishermen: the Babu Paul Committee appointed in 1981 made certain recommendations but the members of the committee were not unanimous in their recommendations: the continual unrest in the traditional sector and the law and order problems compelled the Government to appoint another committee headed by Sri. A.C. Kalawar, an eminent Scientist and Fisheries Advisor, State of Maharashtra in 1984; this committee

recommended that the number of trawl-net boats used in Kerala should be reduced from 3500 to 1145; this recommendations was, however, found not feasible and practicable in the circumstances; therefore, the Government appointed yet another committee headed by Prof.N. Balakrishnan Nair; one of the terms of reference of this committee was "to review the steps taken by the Government so far based on the recommendation of the Babu Paul Committee and Kalwar Committee and to assess the adequacy or inadequency of these steps with a view to recommend further future course of action, if any, with special reference to- -

(a) identity the series and areas which are over exploited and to recommend whether there is any need:"

(i) to impose total or seasonal ban in respect of exploitation of such species in the areas;

(ii) to impose selective ban on operation of certain types of crafts and gears in respect of such species and areas;

(iii) to restrict the number the size of certain types of craft and gear in respect of such species and areas.

(b) Identity species in respect of which and areas where there os scope for more exploitation and recommend suitable types of craft and gear for such purpose."

In the "Statement by the counsel filed on behalf of the State of Kerala " pursuant to our Order dated April 5, 1994, it is stated further that the Balakrishnan Nair Committee consisted of ten members and that it submitted its report on June 26, 1989. Recommendation No. 5 of the Committee was in the following terms:

"In the interest of conservation of resources, it is suggested that a total ban be enforced on trawling by all types of vessels in the territorial waters of Kerala during the months of June, July and August. The impact of these measures on the conservation optimum utilisation of the resources should be examined in detail and be subjected to close scrutiny and review in the next three years . ....."

It is stated that Table No.8 in Chapter - ii of the Report set out the characteristics and capacities of the most popular mechanised boats. (The table has been extracted in the Statement.) According to the said table, a boat with 32 feet length and having an engine of 40-45 HP is capable of bottom trawling at a depth of about 37 metres (20 fathoms). After the receipt of the said report, it is stated, the State Government consulted the Director, Integrated Fishing Project, Government of India on the requirements and capacity of fishing vessels for operations beyond territorial waters and that the Director submitted to the Government a "Note on the Mechanised Boats of Kerala and their capacity for fishing". It would be appropriate to extract the relevant paragraphs from this Note, they read:

"(1)Most of the mechanised boats operating along the Kerala Coast are 32' or 30'. They are fitted with engine ranging from 48HP to 60HP. These boats are capable of trawling in shallow water only upto 30m. depth, the winch capacity also is limited to that depth. Normally the length of the wire-rope should be about 5 times

depth of the water (+10) to 20% wire-rope in excess for meeting the emergency situation.

(2) To operate beyond the territorial water at a depth of 50m. and above, these boats are not suitable, because they must have 150m. of wire-rope and excess wire-rope in the drum diameter and the wire-rope has to be 10 to 12m. diameter and winch also should have more capacity. The present boats do not have this capacity.

(5) Therefore to operate beyond the territorial waters with the larger otterboards and the larger net, thicker wire rope, the engine power should be more than 150BHP.

(6) The power take-off clutch should have more capacity and the winch drum should have more capacity. All these things mean that the length of the boat itself should be 43' and above with proper fish hold, higher fuel tank capacity and also higher fresh water capacity.

It is on the basis of the above material - it is stated in the Statement by the Government - that it has issued the Notification dated June 25, 1990 (First Order) prescribing specifications of vessels going for bottom-trawling beyond territorial waters. The Statement also refers to the Government's counter-affidavit filed in the High Court in another writ petition (O.P. No. 6245 of 1989) where in addition to the above facts it was stated that the depth of the sea beyond territorial waters is more than 45-50 metres. This was said to be clear from the chart of depth zones indicated in the central Marine Fisheries research Institute's Publication regarding the Marine Fisheries of Kerala.

In addition to the above material, our attention has been invited to certain passages in Chapters 4.12 and 6 of the CMFRI Bulletin 45 referred to herein before. We do not, however, wish to refer to the said material at any length except para 4 of the "suggestions and recommendations" contained in Chapter 6 antilles " Impact of fishing along the west coast of India during southwest monsoon period on the fish and shell fish resources and the associated management considerations", contributed by Shri T.S.B.R. James, CMFRI, Cochin. The suggestion/recommendation No.4 reads thus:

> "In constitution of the urgent necessity of conservation of the resources and since there is no effective regulatory measure under operation to safeguard the resources in the sea and in the context of improvement of the habitant, it is recommended that bottom trawling during monsoon is allowed strictly only beyond territorial waters all along the west coast. As comprehensive and stringent possible due to a number of socio-economic and political reasons, total ban of all fishing during monsoon may not be advocated."

Even in Chapter 4.12 entitled "Present status of exploitation of fish and shell fish resources - Prawns". The following statement occurs in the Abstract:

> "As "Karikkadi" is mainly concentrating in the off-shore waters and the trawl catch does not contain an alarming proportion of breeding population, shrimp fishing in the deeper waters beyond the 30m. depth line would be advantageous to the fishery during this season."

The abstract also states that "In Kerala, monsoon trawling is mainly targeted for "Karikkadi" which occupies relatively deeper waters during July-August."

The above factual narrative makes it abundantly clear that the specifications prescribed in the First Order are neither arbitrary nor can it be said that they are based on no material. There was enough technical data in support of the said specifications in the shape of reports of the expert committees and the opinions of technically qualified experts in the fields. May be, there is some other material which tends to support the case of bottom-trawlers but that makes no difference to the situation. It is for the expert committees and the technical personnel to evaluate all the factors and arrive at a particular conclusion. The government is entitled to go by their conclusions/recommendations. It would be justified in doing so. It cannot be expected to go on enquiring endlessly even after the receipt or the expert committees recommendations. In this case there are three expert committee reports, including the Balakrishnan Nair committee report. The Government, evidently to re-assure itself, sought the opinion of Director, Integrated "Fishing Project, Government of India, even after the receipt of the Director, I.F.P., concurred with the recommendations of the Balakrishnan Nair Committee Report, the Government accepted the same and issued the First Order. We do not think that the Government can reasonably be called upon to make still further enquirers and investigations before issuing orders of the nature contained in the First Order. The Government was, therefore, justified in prescribing, on the basis of the recommendations aforesaid, that only a boat of 43 length and having an engine of about 160 HP alone shall be deemed to be capable of bottom-trawling beyond territorial waters. In other words, the boats of the writ petitioners (with 32 feet length and with an engine of 40 to 60HP) are not capable of bottom-trawling beyond of 40 to 60HP) are not capable of bottom-trawling beyond territorial waters. It must also be said that the opinion of the government that the depth of the see beyond territorial waters is more than 40-50 metres and that the trawl boats of writ petitioners are not capable of bottom-trawling at that depth is equally based upon relevant material and data. So far as the report of the advocate-commissioners relied upon by the writ petitioners is concerned, it only establishes that the petitioners boats can catch fish beyond territorial waters but does not establish that they can bottom trawl there. This aspect was commented upon by the learned judge of the kerala High Court who appointed the said commissioner and also the judgement under appeal.

Both the parties have produced before us certain maps indicating the depth of the sea within territorial waters along the kerala coast. It is found that the depth of the sea all along the Kerala coast is not uniform. Indeed, it cannot be. At some places, the depth of the sea within territorial waters is only 30-35 metres and in some other places, it is 50 metres or more. In some places, even the depth beyond territorial waters does not exceeded 34-40 metres but on and overall

basis it can safely be said that the depth of the sea beyond territorial waters is between 40-50 metres. Now, it may remembered that the writ petitioners boats are trawl-net boats. They are meant only for bottom trawling. Even according to the written submissions filed by them in this court, the said boats are not fit for any other purpose and that adapting them to other types of fishing involves huge expenditure. Once that is so and once we accept that the specification in the First Order and the conclusive presumption created thereby is well-founded, it follows that the writ petitioners boats are not capable of bottom-trawling at a depth of more than 36-40 metres - which means that they are meant for bottom-trawling only within territorial waters and not beyond. The Government of Kerala is of the opinion that in the interest of preservation and availability of the fifth and to safeguard the economic interests of the weaker sections of the society, viz., traditional fishermen, it is necessary to ban bottom-trawling within territorial waters during the period of about 44 days in a year. Can it be said it is acting unreasonably? Can it be said that the said temporary ban is not in the interest of general public? We think not. As pointed out by this court in Joseph Antony, Article 46 of the Constitution places an obligation upon the State to promote the economic interest of the weaker sections of the society with special care. The traditional fishermen belong undoubtedly to weaker sections of the society. Already they have been driven below the poverty line, mainly on account of the introduct on of the mechanised fishing boats. It is equally relevant to notice that this court has in Joseph Antony, upheld a total ban on use of purse seines, ring seines etc. within territorial waters, whereas in this case, we are concerned with a limited ban, i.e., a period of forty four days in a year. There can be no doubt its validity. In the specific conditions obtaining in the Kerala State and having regard to the particulars relating to the number of fishermen and the availability of the fish noticed in Joseph Antony the restrictions imposed by impound orders appears to be pertly justified. The said restrictions serve twin purposes viz., assuring the livelihood of the traditional fishermen whose number runs into several lakhs and also to ensure that indiscriminate fishing is not indulged in by these trawl-boats within territorial waters,

Sri. G. Ramaswamy sought to rely upon certain material suggesting that bottom trawling during monsoon does not have any adverse effect upon the availability of the fish. Firstly, this material is inconsistent with the recommendations of the expert committees and the opinion on the Director, Integrated Fisheries Project, Government of India. Secondly, availability of the fish is only half the story. It does not take into account the State's interest - may its obligation- in ensuring livelihood to lakhs and lakhs of fishermen engaged in fishing by traditional methods.

Sri. G. Ramaswami submitted that the present dispute is between the mechanised boats on one hand and the country-draft on the other and that the fight is not really between trawl-boats and the fishermen using canoes and catamarans. We do not know. As at present advised, we are sceptical of the said assertion. But even if that is so, it in no way affects the validity of the impugned orders inasmuch as the material placed before us.including the material considered by this court in Joseph Antony, cleared shows that there is no comparison between the capacity of mechanised boats of the writ petitioners and the capacity of the country craft. The country craft belongs to the traditional sector

and it is so recognised by the Kerala Act and the impugned Orders issued thereunder.

We are also of the opinion that the Government of Kerala is perfectly justified in adopting the attitude that the public interest cannot be determined only by looking at the quantum of fish caught in a year. In looking at the quantum of fish caught in a year. In other words, production alone cannot be the basis for determining public interest. The government is perfectly justified in saying that it is under an obligation to protect the economic interest of the traditional fishermen and to ensure that they are not deprived of their slender means of livelihood. Whether one calls it distributive justice or development with a human face, the ultimate truth is that object of all development is the human being. There can be no development for the sales of development. Priorities ought not to be inverted nor the true perspective low in the quest for more production. It should also be noticed that bottom-trawling is not being prohibited altogether. It is being prohibited only during the monsoon period, i.e., about a period of forty four days in a year, If there are boats which are capable of bottom-trawling beyond territorial waters, they are free to go beyond territorial waters and first there the writ petitioners boats which are not capable of bottom trawling beyond territorial waters cannot be allowed to indulge in bottom trawling within territorial waters under the excuse, or guise, of going beyond territorial waters or in the name of innocent passage, relying upon the provisos to section 5 of the Kerala Act. The State Government acting under section 4 of the Kerala Act is not only competent to impose the aforesaid limited restriction/ban but also to prescribe measures to ensure due implementation of the said restriction and to ensure against its violation. The requirements prescribed in the First Order are designed presently to ensure the said object cannot be faulted on any ground. It would be wrong to look at it as prohibiting 'innocent passage' assured by the first proviso to section 5 ar as interfering with the freedom of movement. The question is innocent passage of where movement for what purpose? Once it is held that the writ petitioners boats are not capable of bottom trawling beyond territorial waters. Why do they want to go there? They are not pleasure boats. Their only purpose is to bottom-trawl, and if they are not capable of bottom trawling at a depth of more than 40 metes why are they going beyond territorial waters where the depth of the sea is more than 40 metres ? One can easily see through the game. The plea of innocent passage appears to be hereby a ruse. They evidently want to bottom-trawl within territorial waters. It is for these reason that they are asked to remain shore -bound during now the said ban period. The first provision the section 5 does not avail such boats but those bigger boats which are capable of bottom-trawling beyond territorial water as prescribed in the First order. The argument that if they indulge in any violations, they can always be checked, caught and prosecuted is no answer, having regard to the vast area involved. It is not practicable, the cost of the effective supervision would be prohibitive. It would not be in the interest of general public. Since the reasonableness of the restriction has to be lodged on the touch-stone of general public interest, whether under clause (5) or clause (6) of Articles 19 of the Constitution, the above constitutions (cost and practicability) are not irrelevant. In the circumstances, the temporary ban cannot be said to be either excessive, disappropriate or over-board. We are also unable to see in what manner can the

impugned orders be said to travel beyond the purview or purposes of the Act. Except urging the said submission, no attempt was made to substantiate it.

We are, therefore, satisfied that in the facts and circumstances of the case, the two impugned orders issued under section 4 of the Kerala Act cannot be said to be illegal or invalid for any of the reasons suggested.

Appeals are accordingly allowed. The doors of the Kerala High Court under appeal are set aside.

No order as to costs

(S.C.Agrawal)

(B.P. Jeevan Reddy)

New Delhi
June 23, 1993

IN THE SUPREME COURT OF INDIA
CIVIL APPELLATE JURISDICTION
CIVIL APPEAL NOS. 3531 OF 1986

State of Kerala —Appellant

Versus

Joseph Antony—Respondent

with

Civil Appeal Nos. 3532 of 1986

Joyachan Antony—Appellant

Versus

State of Kerala and Others Respondents

JUDGMENT

Sawant, J.

The dispute in the present case is essentially between the fishermen in the State of Kerala who use traditional fishing crafts such as per catamarans, country crafts an canoes which use manually operated traditional nets and those who use mechanised crafts which mechanically operate sophisticated nests like purse seine, ring seine, pelagic trawl and mid-water of the State. In order to understood the nature and parameters of the dispute, it is necessary to know certain facts relating to the social life in the State and the marine life in the territorial waters of the State as well as the scope and subject of the regulations made by the State to regulate fishing in its territorial waters.

2. The fishermen-population actively engaged in fishing by traditional fishing vessels in the territorial waters of the State which was earlier 5,37,017 increased by 20.8% to 6,32,967 in the year 1981. However, the average landing of the fish in the traditional sector of fishing declined by 50.3 % from 3, 34992 tonnes in 1969-71 to 1,68,512 tonnes in 1980-82. During this period, the number of traditional crafts such as catamarans, country crafts and canoes increased by 14% from 29,560 to 33,805. This shows that in terms of production, the average of 3.55 tonnes per annum per fisherman declined to 1.55 tonnes per annum during this period, the annual income of the traditional fisherman-household which constitutes 89% of the total

fisherman-household decreased, and the households falling below the poverty line (Rs. 3,500/- per annum) were as high as 98.5% in the year 1979. These figures speak for themselves and leave no doubt that the traditional fishermen constitute one of the weaker sections of the society needing protection at the hands of the State as ordained particularly by Article 46 of the constitution.

3. These fishermen till the year 1979 were exploiting exclusively the pelagic (surface) fish resources of the sea within the territorial waters by using the country crafts and the traditional nets. However, in that year for the first time, few rich enterprisers introduced the use of purse seine gears for exploiting the pelagic resources of the sea by operating costly mechanical fishing vessels. The purse seine is a sophisticated gear and covers a wide area. A purse seine net which is on an average 400 metres in circumference, covers an area of 12,826 square metres, i.e., more than 1 hectare and catches on an average 600 to 800 tonnes of fish per annum. As against this, the traditional fishing crafts in the period 1969-71 could catch only 11.3 tones per annum which was reduced to 5 tonnes per annum in 1980-82. These figures are not only sufficient to show the comparative advantage and disadvantage of fishing by purse seine gear as against by the traditional fishing crafts and nets but also the adverse effect which the use of the sophisticated gears had on the catch of fish by the traditional fishing crafts.

4. It is also necessary to note in this connection the facts about the standing stock of fish within and without the territorial waters of the State. The pelagic fish which is available in the territorial waters consists mainly of oil sardine and mackerel. The limit of the territorial waters of the State as defined by Section 3 (2) of the Maritime Zones Act, 1976 (Act 80 of 1976) is the line every point of which is at a distance of 12 nautical miles from the nearest point of the appropriate base line. One nautical mile is equivalent to 1852 metres and when converted into kilometres 12 nautical miles come to 22.22 kms. The purse seine is used only for pelagic fishing.

Therefore, the only species of fish substantially available for catch by purse seine boats in the territorial waters of the State are mackerel and sardine. The mackerel and sardine are thinly distributed beyond 22 kms. Which is almost the limit of the territorial waters, According to Babu Paul Committee report of July 1982 (page 54, para 6.12), there were at that time 37 units of 43-1/2 feed length purse seiners regularly operating from Cochin. These boats are designed for in-shore fishing and they can fish between 5 kms. and 25 to 30 kms only. Since these boats do not have equipment such as echo-sound, radar, storage system, wireless, cold storage facility etc. they are not fit to operate offshore and in deep sea and have to keep the shore in sight while operating in the sea.

Paragraphs 6.13 to 6.16 of the said Report point out that in the opinion of the UNDP/FAO Pelagic Fishery Project, it is the traditional fishing method which is more harmful to the stock of sardine and mackerel because the young ones of these species move closer to the coast during the first year of their life and move out to offshore waters as and when they grow in size. Since the traditional fishing is done nearer the shore it

is described in the Report as a wasteful utilisation of the resources while the purse seining is lauded as a more rational method of harvesting the fish resources.

It appears that this Committee has not given any importance to the fact that the traditional fishermen use nets with wide meshes which enable the small fish to escape through them Further, about 80 per cent of the traditional fishing boats have been motorised which enables them to cruise at least upto a distance of 20 to 22 kms. from the shore. The traditional fishing, therefore, is no longer confined to areas nearer the shore.

As against this, the Kalawar Committee report of 19th May, 1985 states as follows:

> "..... The decline in both Goa and Maharashtra seems to stem mainly from overfishing that has set in after the advent of commercial purse seining in Karnataka (Fig. 74; Table 60) and Goa particularly and Kerala to some extent. The sharp decline in Kerala owes mainly to a combination of factors including mainly : (1) competition for space from the mechanised trawlers until 1980 (Figs. 66 & 67); (2) competition for resource from purse seiners since 1979 (Table 48) ; and (3) overfishing by purse seiners in Karnataka (Table 60; Fig. 74), Goa and also Kerala (See section 2 above) Since the traditional sector in Kerala is certainly capable of putting in optimal levels of effort (Table 70; Fig. 67), and particularly in the context of a newly emerging fleet of motorised fishing canoes (there are already over 2,000 units) with much greater fishing efficiency (Table 48), this Committee is of the opinion that there is little case for a purse seine fishery for the smaller pelagic of oil sardine, mackerel and whitebait in Kerala, and therefore, the action of the Government of Kerala prohibiting purse seining within the territorial waters, is commendable. Since the management of the fisheries for the common pelagic stocks in the south-west coast involves interstate questions, there is need to optimise the number of purse seiners in the neighbouring Karnataka at about 230 (fig. 74) as already pointed out. Annual catches of oil sardine and mackerel during 1925-83 (Fig. 79) clearly reveal that the productions of these fisheries has not increased any significantly at all after the advent of the purse seine fishery in 1977. Even in Karnataka, ironically enough, the average annual production for the 5 year period, 1969-73 before the introduction of purse seining was much in 1974-83 (18,060 tons) (Table 55)

Moreover, the age at first capture in the traditional fisheries during 1934-73 has almost invariably been 6 months (the length at first capture being 175 mm). and rarely less than that (3 months in 1956, 1960 and 1969; Tables 72, 73 & 75) so that the half year group which includes 6 to 11 months old fish almost always constituted the fully recruited group (Table 75) ..... (Page 284-285)"

"..... On the contrary, purse seine, particularly of mesh size used in the whitebait fishery, have been reported to be landing significant quantities of young and juvenile Mackerel both at Mangalore and Cochin, thereby reducing considerably the size at first capture and accelerating the process of recruitment and growth overfishing. There are also enough number of lessons from all over the world, of major pelagic stocks of herrings, sardines, pilchards, mackerels and anchovies having been driven to commercial extinction by unregulated purse seine fisheries." (Page 291)

"..... The very steep slope of the ascending limb of the recruitment curve together with the short distance between the origin and the optimum (230.856 million; as against the gentle slope of the descending limb together with the significant distance between the optimum and the replacement level (P=R=954.7399 million) suggests that extreme overfishing of the spawner stock can be catastrophic to the stock. The purse seine fishery certainly has the potential to bring about this catastrophe..." (Page 293)

"Before the advent of the purse seine fishery any fall in the catch used to be compensated by higher prices, In 1980, however, the extremely low catches of oil sardine did not bring about a price increase at the landing centres on account of the regular supply of purse seine catches, as seen from the average prices of 50 paise in 1979, 50 paise in 1980 and 60 paise in 1981. This in turn, discouraged fishing by indigenous craft in 1981. This is turn, discouraged fishing by indigenous craft in usual numbers, resulting in low aggregate revenue from oil sardine catch by the traditional sector (rupees 54 million in 1979, 26 million in 1980, and 78 million in 1981) as well as revenue per traditional boat per day from oil sardine (rupees 57 in 1979, 35 in 1980 and 90 in 1981) in

1980. As a result, income per fishermen family reduced by about 50% in 1980 from the income in 1979. About 10% of the active traditional fishermen abandoned fishing in 1980 and took up alternative employment including road repairing, rubble work, metalling and head load work besides about 250 traditional fishermen employed in purse seiners at Cochin fisheries harbour. At certain centres like Kannamali and Manasseri, number of fishermen shifted from marine fishing to backwater fishing at least temporary while those who remained in marine fishing were underemployed, with the revival of the oil sardine fishery in 1981, there was a substantial increase in the effect by the traditional fishery which was a substantial increase in the effect by the traditional fishery which was able to provide regular supplies and attract wholesale and retail traders in large numbers to the traditional landing centres. The introduction of motorised canoes in the second half of 1981 from Quilon to Muambam also helped increase the sardine catches (Jacob et all").(Page 308-91)

The fist of the two reports given by the exports appointed by the State Government States, in this connection, as follows:

"1. The need to ban the purse seine, ring seine, mid-water trawl and pelagic trawl up to 22 km from the shore is motivated by the following crucial factors viz., (1) conservation of marine resources of territorial waters, (ii) protecting the interest of the traditional fishermen and (iii) to keep law and order problems in the territorial sea. The bulk of catch of purse seiners consists of sardine and mackerel while the traditional fishermen have the fishing technology to catch the above mackerel fishes contributes a major part of the income to the poor traditional fishermen who live below the poverty lime.

2. According to the well established thinking in Fisheries biology, 40 to 60 per cent of standing fish stock can be only fished annually. As per estimate, the potential stock within the territorial waters and beyond territorial waters os 94,600 tonnes in oil sardine and 47,999 tonnes in mackerel (Ref. P. C. George & others-Publication). But as per the fish landing statistics the total fish landing exceeds

the above limit-maximum sustainable yield. Thus, there is danger of over exploitation of pelagic fishery resources, leading to rapid depletion if purse-seine is allowed in 22 km territorial waters.

3. Due to the introduction of purse seine boats which has sophisticated net shooting, and hauling arrangements, huge quantity of sardine and mackerel are caught with their larger net within a few minutes. the efficiency of purse seine lies in its speed of boat and quicker operation of nets with the help of mechanical force. Thus motorised country crafts, even though reach the deeper sea, they cannot compete with the purse-seiners to catch sardines and mackerels with their age old fishing methods. The traditional fishermen have only smaller nets and only manual operation of net.

4 According to Prof. P. C. George and others, sardine and mackerel are contracted in the 0 to 50 metre depth range. Most part of 50 metre depth ranges of sea of Kerala coast also extends beyond 22 km territorial waters, except in few places. The purse-seiners can easily conduct fishing from the sea beyond conduct fishing from the sea beyond 22 km. Besides the owners of purse-seiners can easily diversify the fishing methods, such as trawling, trolling line, gill netting, pot fishing etc, which are not prohibited in the entire 22 km territorial waters.

5. There are only about 100 purse-seine boats now operating in the Kerala Coast. Each purse-seine catches 600 to 900 tonnes of fish per annum. This directly decreased the income of traditional fishermen by lesser fish catch in their nets. this is the main cause of conflict between the traditional fishermen and purse-seiners. This economic factor has been the cause leading to law and order problem.

6. By introduction of purse seiners the process of monopolisation of pelagic wealth by an elite few to the detriment of the large mass of poor fishermen would take place. This is not only against the policy of Government and against the aim of Indian planning.

7. The banning of purse -seiners is also justified because purse-seiners have been responsible for large scale destruction of eggs and small fishes on account of indiscriminate fishing and the use of closed mesh size of the net.

A depletion in pelagic fishery has been noted in the Karnataka State by the introduction of purse-seiner.

8. The prohibition of purse-seiners is also necessary for the socio-economic uplift of traditional fishermen."

The second report states as follows:

4. Appendix 1B shows the total production figures. It may be seen that we have already approached the maximum sustainable yield in respect of mackerel and that we have in several years exceeded the maximum sustainable yield of oil sardine. The average annual production of oil sardine and mackerel during 1979 to 1983 worked out to 126,445 and 15,350 respectively. This clearly suggests that our oil sardine and mackerel resources are limited and that we cannot allow uncontrolled exploitation of these resources. There is the potential danger of over-exploitation of pelagic fishery resources leading to rapid depletion if purse-seining fishing is allowed within the 22 km belt. In their paper entitled "Fishery Resources of the Indian Economic Zone.: P.C. George, B. T, Antony Raja, and K. C. George (4) have observed that mackerel and sardine resources are "Fairly intensively exploited" of Kerala.

7. The purse seine is a highly sophisticated gear, covering a wide area, adversely affecting fishing operations of the traditional fishermen, who use passive gear. A purse seine net of 400 metres circumference will cover an area of 12,826 sq. metres, i.e., more than one hectare. The original petitioner in O.P. 2243/83 claims to use a purse seine net of 450 metres length, which when used, will cover an area of 16.278 sq. metres in a single fishing operation. In the process, each purse seiner catches 600-800 tones of fish per annum, compared to about 5 tonnes (1980-82) per traditional craft (as against 11.3) tones per traditional craft 1969-71) for data on traditional craft See Appendix .V. Thus a process of monopolisation of pelagic fishery wealth by an elite few to the detriment of the large mass of poor fishermen would take place as a consequence of purse seining....

8. The banning of purse seine is also justified on various other grounds. Purse seiners have been responsible for large scale destruction of eggs and juveniles on account of indiscriminate fishing and

use of close mesh seines. The Marine Fisheries Information Service Bulletin in No. 44 (November, 1982) of the Central Marine Fisheries Research Institute has has highlighted the massive destruction of eggs of cat fish by purse seiners. A copy of the concerned article is given as Appendix IIA & IIB.

9 The CMFRI (1980) has observed in the Marine Fisheries Information Service Bulletin No. 24 as follows, "one of the disquicting aspects of purse seining noted along the Karnataka coast in 1979 was the usually large catch of oil sardine in ripe running condition during the first week of June." (5) The CMFRI gave a timely warning about the heavy incidence of spawners in the operation of purse seiners in view of the fact that the spawning of oil sardine and mackerel mainly occurs from May to August.

10. In this context, the CMFRI have further highlighted the intensive and indiscriminate purse sine fishing of the pelagic fish stock in other parts of the world which was resulted in the partial or complete depletion of some of the major pelagic fish resources "Good examples are Californian sardine fishery, the herring fishery of Norwegian sea and the mackerel fishery of the North Sea and British waters. It is suspected that intensive fishing pressure combined with an environmental aberration in the form of El. Nino current has been responsible for the catastrophic destruction of the Peruvian Anchovetta stocks in the early seventies. At present, strict voluntary closed seasons and restrictions in purse seine fishing for tuna such as the young ones of yellow fin, albacore and skipjack tuna in the pacific have helped the rational exploitation of stocks. Regulation of purse seine fishing for the Barrent sea capelin has been prohibited during the summer months and during the subsequent months a minimum legal size has been imposed on the purse seining by the Norwegian Government. Another example of the depletion of the stocks by the intensive purse seining is that of Japanese sardine fishery, the catch of which failed because of the recruitment failure under pressure of fishing" (6)

12. From the socio-economic point of view, protecting the interests of traditional fishermen has become a vital necessity. The average annual landings of the tradi-

tional sector declined heavily form 3,34,992 tonnes in 1969/71 to 1,68,512 tonnes in 1980-82, the fall being 50.3 percent over the years. (See Appendix III). At the same time, production in the mechanised sector went up from 42,600 tonnes to 1,26,622 tonnes recording an increase of 196.8 per cent. (See Appendix IV). The number of traditional craft operating during the period increased form 29560 (average of 1969-71) to 33,805, and increase of 14 per cent. (See Appendix V). The Traditional fishermen population increased from 460,905 in 1971 to 544,462 in 1981 an increase of 20.80 per cent (Appendix VI). In terms of production per active traditional fishermen, the average was 3.55 tonnes per annum 1969-71. which declined to 1.55 ton per annum during 1980-82. (Appendix VII). the distribution of annual income of fishermen households is given in Appendix X. It may be seen that as many as 105,811 fishermen households (constituting 89 per cent of the total number of fishermen households) in 1979 have an income of Rs. 2000 or less per annum. The per cent of fishermen households falling below the poverty line (Rs. 3500 per annum) is as high as 98.5 per cent. Government would thus be failing in its duty if they did not do all that they could to ensure that a fair share of the total catch goes to the traditional fishermen.

13. Considering the present level of exploitation of resources, and the abysmal poverty in which our traditional fishermen live, the introduction of a highly destructive fishing device such as purse seining would result in massive transfer of income from the hands of more than five lakhs of traditional fishermen to a very few rich men operating costly boats on the seas.

14. Allowing the operation of purse seine boats in areas within the 22 km belt would not result in increased production, given the standing stock and the present level of exploitation. There is, on the other hand, a very real threat of depletion of stocks as we have indicated before."

5 It is against the background of the above facts of social and marine life that we have to appreciate the issues involved in this case. The Kerala Government enacted the Kerala Marine Fishing Regulation Act, 1980 (hereafter referred to as the "Act") to regulate fishing by fishing vessels in the sea along the coast line of the State. Section 2 (d) of the Act defines "fishing vessel" to mean "a ship or boat, whether or not fitted with

mechanical means of propulsion, which is engaged in sea-fishing for profit and includes - (i) catamaran (ii) country craft and (iii) canoe engaged in sea-fishing. Section 4 of the Act gives power to the State Government to regulate, restrict or prohibit certain matters within the specified area. The section reads as follows:

"4. Power to regulate, restrict or prohibit certain matters within specified area. - (1) The Government may, having regard to the matters referred to in sub-section (2), by order notified in the Gazette, regulate, restrict or prohibit -

(a) the fishing in any specified area by such class or classes of fishing vessels as may be prescribed; or

(b) The number of fishing vessels which may be used for fishing in any specified area; or

(c) the catching in any specified area of such species of fish and for such species of fish and for such period as may specified in the notification; or

(d) the use of such fishing gear in any specified area as may be prescribed.

(2) In making an order under sub-section (1), the Government shall have regard to the following matters, namely:-

(a) the need to protect the interests of different section of persons engaged in fishing, particularly those engaged in fishing using traditional fishing craft such as catamaram, country craft or canoe;

(b) the need to conserve fish and to regulate fishing on a scientific basis;

(c) the need to maintain law and order in the sea;

(d) any other matter that may be prescribed".

6 In the present case, we are mainly concerned with the provisions of sub-sections (2) (a), (b) and (c) of the said section. In exercise of the powers conferred by section 4. the Government issued two notifications on 29-11-1980. By one of the notifications, the specified area was defined as the territorial waters of the state while by the other notification (i) fishing by mechanised vessels was prohibited in the territorial waters except for small specified zones (ii) use of gears like purse seine, ring seine, pelagic trawl and mid-water trawls was prohibited along the coast line and (iii) motorised country crafts were permitted fishing, by way of exemption, in parts of the prohibited area. These notifications were challenged by the operators of the mechanised vessels using purse seine by writ petitions, in the High court and they were struck down by the High Court in Babu Joseph v. State of Kerala (ILR 1985 (1) Kerala 402) on the ground that they represented an arbitrary exercise of

power under the Act and imposed restrictions on the fundamental rights of the writ petitioners. The court, however, upheld the validity of the Act which was also challenged in the petitions. While striking down the notifications, the Court stated as follows:

> "..... This will not, we hasten to clarify, prevent the government from re-examining the whole question and exercising their powers in accordance with law. And in view of the circumstances that some demarcation of an exclusive zone for the traditional crafts was in force for quite some time, either under executive orders or under interim orders of this court, we further direct that till a fresh decision is taken by Government, mechanised fishing vessels shall be allowed to operate only beyond 10 kms. from the shore."

This decision was not challenged. On the other hand, the State Government after re-examining the whole question as suggested by the High Court, issued on 30-11.1984 two fresh notifications. By one notification the State Government again specified the area along the entire coast line of the State but not beyond the territorial waters as the specified area for the purpose of clause (d) of sub-section (1) of section 4 of the Act. By the other notification, the State Government declared that since they were convinced of the need to protect the interests of the persons engaged in fishing using "traditional fishing crafts" such as catamarans, country crafts and canoes in the territorial waters of the State and since further there was need to preserve law and order in territorial waters, the use of purse seine, ring seine, pelagic and mid-water trawl for fishing in the territorial waters along the entire coast line of the State shall prohibited.

7 These notifications again came to be challenged before the High Court by the users of purse seine boats and nets, and the High Court by the decision under appeal held that the material on record did not justify the impugned notifications, in so far as they totally prohibited the use of purse seine nets beyond 10 kms. from the base line from which the breadth of the territorial sea is measured. The High Court, therefore, declared unenforceable the said notifications so far as they imposed a ban on the use of purse seine net beyond the said 10m kms. as being reasonable restriction on the fundamental right guaranteed under Article 19 (1) (g) of the Constitution. The High Court also held that they could be enforced only within the limit of the said 10 kms. Accordingly, the High Court allowed the writ petition to the extent that the notifications operated beyond 10 kms. in the territorial waters of the State.

8. It is against this order that the present two appeals are filed - one, i.e., C.A. No. 3531 of 1986, by State of Kerala and the other, i.e., C.A. No. 3532 of 1986 by the Original 3rd respondent who is the President of the Kerala Swathanthra Matsya Thozhilali Federation representing the fishermen using the traditional fishing crafts. The grievances of the appellants in both the appeals are the same. It is contended that the High

Court erred in law in holding that the restriction placed on the users of purse seine boats and nets by the said notifications was unreasonable and, therefore, volitive of their fundamental right guaranteed by Article 19 (1) (g). It is contended that the High Court has also erred in holding that the material which was before the High Court when it decided the earlier writ petition, viz., Babu Joseph .V. State of Kerala (Supra) could not be taken into consideration by the State Government while issuing the present notifications. The High Court, it is contended, has further erred in its view that no new material was before the State government while it issued the said notification and since the new notifications are based on the same material on which the earlier notifications were based which were struck down by it in Babu Joseph's case (supra), the present notifications were also liable to be struck down on the very said ground.

9. In view of what has been stated above, the only question that falls for our consideration in these appeals is whether the use of purse seine nets beyond 10 kms. of the territorial waters can be validity prohibited by the State Government in exercise of the powers vested in it under section 4 of the Act. The question as to what material the Government could take into consideration while issuing the said notifications, according to us, is not of much significance so long as the State Government had taken into consideration all relevant material and had not omitted to consider any relevant material, before it issued the impugned notifications. In matters of this nature, which involve consideration of all the relevant material having bearing on socio-economic life and scientific examination of the parameters involved, it is irrational to limit the objective material to be considered by yardsticks of time. In fact that was clearly recognised by the Division Bench of the High Court which decided the earlier case, i.e., Babu Joseph's case (supra). In terms, the division Bench had suggested that the government should "re-examine the whole question"? and exercise their powers in accordance with law. That is as it ought to be, for in examining the questions of this nature, the material though relevant and having bearing on taking decisions in the matter cannot be ignored by applying the rule of staleness which is relevant for the orders based on subjective satisfaction of the authorities. We are, therefore, of the view that the High Court was not right in taking the view that the Government could not look into the material which was before it when it passed the earlier notification which were the subject matter of the decision in Babu Joseph's case (supra) along with the new material which it had before it while passing the impugned notifications which are the subject matter of the present writ petition.

10. We are also afraid that the High Court was not right in the second reason given for striking down the impugned notification partially, when it observed that there was no new material before the State Government when it issued the present notifications. The State Government has pointed out that in fact when it issued the present two notification, an Expert Committee appointed on 31-3-1984 and headed by Shri A. G. Kalawar, Fishery Advisor to the Government of Maharastra was also

arrived at certain conclusions. However, the publication of their Report was delayed till 19-5-1985 and in the meanwhile, the law and order situation was under threat of a large scale agitation from the traditional fishermen as evidenced by the report made by the Inspector General of Police (Intelligence) to the Government on 24-10-1954 which was Annexure R-1(a) to the reply of the State government filed before the High Court. Further the Report of the Babu Paul committee which was not before the State Government when it had issued the earlier two notification on 29-11-1980 was certainly of the pieces of new material before the State government when it issued the present two notifications on 30-11-1984. Two reports of the Special Officer appointed by the State Government specifically to study the problem were also before the dates of the issuance of the earlier notifications and the present notifications which were detailed in the report of the Inspector General of Police and which did furnish new material to the State Government. It is, therefore, not possible for us to accept the view of the Hight Court that there was no new material before the State Government while it issued the notifications in question.

11. Hence, as pointed out earlier, the only question which falls for consideration before us lies in a narrow compass, viz., whether the purse seine, ring seine, pelagic trawl and mid-water users can be prohibited from fishing beyond 10 kms. of the territorial waters since the High Court itself has restricted the operation of the said prohibition upto 10 kms. of the territorial waters.

12. The High Court has observed that no relevant material had been placed before it to come to the conclusion that the traditional fishermen will be denied what they otherwise would be in a position to catch if total prohibition operated against the purse seiners and that the scientific information brought to its notice indicated that pelagic fishing in respect of mackerel and sardine cannot be profitably conducted beyond the limit of territorial sea. Hence it is necessary first to scrutinize the material on record in that connection.

13. The reports on record, viz., Babu Paul Committee Report, Kalawar Committee Report and the two Reports of the Special Officer appointed by the State Government show that sardine and mackerel constitute the main variety of pelagic fish available mostly on the Kerala coast and they are available mostly within the territorial waters. They breed in waters beyond 10-12 fathoms deep and move closer to the shore after the south-west monsoon. However, a part of the stock remains on the off-shore shelf throughout the year and this is known to consist mainly of adult fish (Babu Paul Committee Report - page 34 which reproduces extracts from CMFRI bulletins published in 1979, 1980 and 1981). The young ones travel closer to the coast for food and for dissolved oxygen. While sardine is a phytoplankton (plant) eater, mackerel feeds both on photo and zoo plankton, the productivity of phytoplankton is closer to the shore because of various oceanographic factors and hence both these species have a tendency to migrate towards the shore in search of better pastures. The papers

published by P.C. George, B. T. Antony Raja and K. C. George, experts state that the annual potential of pelagic fish in the south-west continental shelf is 8,77,000 tonnes of which 4,70,000 tonnes is available in the in-shore region and the balance 4,07,000 tonnes is available in the off-shore region. Of this total annual stock of pelagic fish in the south-west continental shelf, Kerala shelf accounts for 56.07 per cent i.e., 2,63,529 tonnes. For the period 1956-83 as a whole, the average annual in-shore pelagic catch for the entire south-west coast was 3,34,149 tonnes. Kerala's contribution to the total landing of pelagic fish was 2,36,012 tonnes (72.81 per cent) which comes mto 89.56 per cent if the total in-shore potential of the State which is 2,36,529 tonnes. This shows that there is little scope for further increase in the production from the in-shore area. The traditional fishing crafts whether motorised or non-motorised use the traditional passive nets like Thangu Vala operated manually whereas the mechanised crafts use purse seine and ring seine nets, and pelagic and mid-water trawls which are operated mechanically. Both have mackerel and sardine as their main targets being the major variety of the pelagic fish. It is an admitted fact that purse seine, ring seine, pelagic and mid-water trawls hereinafter referred to as "mechanised nets' at a time fish many times more than the traditional nets. The landing figures of 1980-82 show that each purse seiner caught between 600-800 tonnes fish per annum compared to about 5 tonnes by traditional crafts. there is, further, no dispute that whereas the traditional nets have wider meshes and catch only larger variety of fish, smaller fish having enough space to escape through the meshes, the mechanised nets like purse seine have close meshes which catch even the smallest fish and their eggs.

The central Marine Fisheries Research Institute (CMFRI) bulletins 12 and 24 as extracted at page 33 of Babu Paul Committee Report) further state that the purse seine nets encircle incoming shoals and prevent them from moving towards the shore. If purse seine nets are allowed to catch fish in the in-shore area, there will be little or movement of the shoals towards the coast. thus, mechanised nets like the purse seine, do an irreparable damage to the existing stock of fish by killing the juvenile fish and eggs and by preventing fish breeding.

14. Admittedly the mechanised fishing with purse seine nets was for the first introduced on the Kerala coast in 1979. In result was that the catch of the traditional crafts which was 11.3 tonnes per annum in 1969-71 declined to 5 tones per annum in 1969-71 decline to 5 tonnes in 1980-83. These figures are sufficiently telling to show the adverse effect of the mechanised nets the purse seine on the traditional fishing crafts using traditional nets. If we also take into consideration the fact that, as has been stated earlier, the fisherman-population of State has increasingly buy about 20.8 per cent in the 1981 and that the average production being in 98.45 percent of the fishermen -population being pushed below the poverty line. the situation for the traditional fisherman is grim enough. As against the fishermen using traditional crafts and nets who constitute 89 percent of the total fisherman household, those using mechanised crafts and nets constitute a negligible percentage of fisherman-population. It is undisputed that they are strictly speaking, not part of

the fisherman-population but rich private entrepreneurs who have invested in fishing as a business. Fishing is not their source of livelihood unlike that of the traditional fisherman-population. In 1984 there were not more than 100 purse seine boats and they were monopolising the pelagic fish wealth to the detriment of the large mass of poor fishermen who, as stated earlier, constituted 89 percent of the fisherman-population which stood at 6,32,967 in the year 1981. Comparing the fisherman-population and the places occupied by the in-shore area the national average came to 37 hectares per fisherman. The majority of the fishermen are from kerala and the fishermen in Kerala get only 10 hectares in the in-shore area. If the in-shore area is further limited to 10 kms., the area available to each will be reduced to 4 hectares.

Secondly, the total potential yield of oil sardine in the south-west is estimated as 1,90,000 tones and the total potential yield of mackerel is indicated as 80,000 tonnes per annum, The whole of the catches made by purse seine nets of these two varieties of fish constitutes 92.5 per cent of the total purse seine catches. The maximum sustainable yield of oil sardine in Kerala according to one estimate is 1,04,100 tonnes and of mackerel is 16,400 tonnes while according to another estimate, it is 94,600 tonnes and 47,300 tonnes respectively. During 1979 to 1983 the average annual production of oil sardine and mackerel worked out to 1,26,445 and 15,350 tonnes respectively. This shows that the oil sardine and mackerel resources available in the Kerala coast are limited and uncontrolled exploitation of the said resources can no longer be permitted. If fact, there is a potential danger of over-exploitation of pelagic fish resources leading to rapid depletion if mechanised nets like purse seine are allowed to fish within the 22 kms. belt of the territorial waters (Re: Fishery Resources of the Indian Economic Zone by P.C. George, B.T. Antony Raja and K.C. George). Mackerel and oil sardine stocks are concentrated in the 0 to 50 mtr. depth range. The distance to be travelled to reach the 50 mtr. depth contour fall generally beyond 22 km. limit laid down under the Act and the Rules.

Purse seine is a sophisticated technology borrowed from the West where there is labour shortage and where capital intensive techniques are needed. That technology is ill-suited to Kerala where there is huge fisherman-population in the artisanal sector as shown above and where the productivity and income per capita is low with 98.5 per cent of the fishermen living below the poverty line.

What is more, as stated above, the operation of fishing by mechanised nets like the purse seine is responsible for destroying the fish stock by killing juvenile fish and fish eggs and thus preventing their breeding. The mechanised nets are not only impoverishing the mass of poor fishermen by reducing their catch progressively but also by destroying the standing fish stock itself. There is also a danger of over-exploitation leading to complete extinction of the pelagic fish within the territorial waters.

It is not also correct to say that the large scale fishing by the mechanised nets has led to an increase in total production, thus

benefitting the consumers either by abundant supply of fish or by reduction in their price. As the reports show, given the standing stock and the present level of exploitation, the mechanised net fishing would not lead to any increase in production. On the other hand, as stated earlier, there is a real threat of depletion of the stocks. What is further, the reports also point out that in other countries such as USA, Norway, Great Britain and Japan, steps have been taken to restrict fishing by sophisticated gears like the purse seine to avoid destruction and depletion of pelagic fish wealth.

The aforesaid data on record clearly show that the ban on fishing by mechanised nets like purse seine, ring seines, pelagic and mid-water trawls is necessary firstly for protecting the source of livelihood of the already impoverished mass of fishermen in the State and also to save the pelagic fish wealth within the territorial waters from depletion and eventual total destruction.

In addition to the above to factors, we have on record of the IGP which shows several violence incidents had occurred on account of clashes between the users of mechanised crafts and those of the traditional crafts within the State territorial waters. The State Government was, therefore, fully justified in acting on the said report and banning the fishing by the mechanised nets within the territorial waters on that ground as well.

15. The contention on behalf of the respondent operators of mechanised gears firstly that the purse seines which they are operating at present are not fit for off-shore and hence they should be permitted to fish within the territorial waters, in the circumstances, has to be rejected. The operators of purse seines are few and rich with enough resources at their command. They do not ordinarily form part of the fishermen-population proper. Fishing is not their traditional sources of livelihood. They have entered the fishing "industry" only as late as in 1979 and as entrepreneurs to make profits. They obviously look upon fishing as a business and not as a means of livelihood. Assuming, therefore, that the boats which they are at present operating are not the fit for off-shore and deep-sea fishing, they can always replace or convert them for such use. Even with present boats or convert them for such use. Even with the present boats they can easily diversify their fishing methods to bottom trawling, trolling line, gill meeting, pot fishing etc. which are not prohibited in the territorial waters. they can also engage in the book and line fishing and dory fishing for fish resources like shark, cat fish, perches and anchoviella. With their financial resources they can also change over to sophisticated fishing crafts for of-shore fishing for exploiting fish resources beyond the territorial waters.

16. By monopolising the pelagic fish stock within and by indiscriminate fishing in the territorial waters they are today denying the vast masses of the poor fishermen their right to live in two different ways. The catch that should come to their share is cordoned off by the giant and closely meshed gears leaving negligible quantity for them. Secondly, the closely meshed nets kill indiscriminately juvenile with the adult fish and their eggs as well. That is preventing breeding of the fish which is bound in course of time to led to deple-

tion and extinction of the fish stock. There is thus an imminent threat to the source of livelihood of the vast section of the society. The State is enjoined under Article 46 of the Constitution in particular to protect the poor fisherman-population. As against this, respondent-operators are not prohibited from fishing within the territorial waters. They are only prohibited from using certain types of nets, viz., purse seine, ring seines, pelagic and mid water trawls. There is, therefore, no restriction on their fundamental right under Article 19 (1) (g) to carry on their occupation, trade or business. They cannot insist on carrying on their occupation in a manner which is demonstrably harmful to others and in this case, threatens others with deprivation of their source of livelihood. Since, in the circumstances, the protection of the interest of the weaker sections of the society is warranted as enjoined upon by Article 46 of the Constitution and the protection is also in the interest of the general public, the restriction imposed by the impugned notifications on the use of the gears in question is a reasonable restriction within the meaning of Article 19 (6) of the Constitution.

17. As regards the contention that the instances of violence referred to in the report of the Inspector General of Police show that there is not even one instance involving purse seiners and that all but one instance, are of the conflict between those using motorised and non-motorised crafts, we are afraid that the contention is contrary to the report in question. The incidents 21-5-1984, 23-5-1984, 24-5-1984, 25-5-1984, 15-12-1984, 18-12-1984 clearly indicate that the boats which were attacked were the mechanised boats and the attackers were the owners of country crafts. further, the incident at serial No.6 of the report, whose date is not specified,also relates to an attack on a purse seine boat. The report concludes by stating that clashes involving total of eight mechanised boats and two country crafts took place on 18-12-1984 and the total loss was to the tune of Rs. 2,11,000/-. The High Court has unfortunately not dealt with this aspect of the matter at all. It will thus be seen that even on the ground that it is necessary to prevent the fragment clashes between the owners of country crafts and those of the mechanised crafts and thus to maintain law and order within the territorial waters, the notifications in question being in public interest are justified. Thus the notifications constitute a reasonable restriction within the meaning of Article 19 (6) of the Constitution

18. We are thus more than satisfied that the High Court was not justified in confining the operation of the said notifications only to 10 kms. from the base of coastal line. In the circumstances, we set aside the impugned decision of the High Court and hold that the two impugned notifications dated 30th November, 1984 are valid and operative throughout the territorial waters of the State. The appeals are allowed accordingly with cost.

(P. B. Sawant)

(R. M. Sahai)

New Delhi,
November 2, 1993