

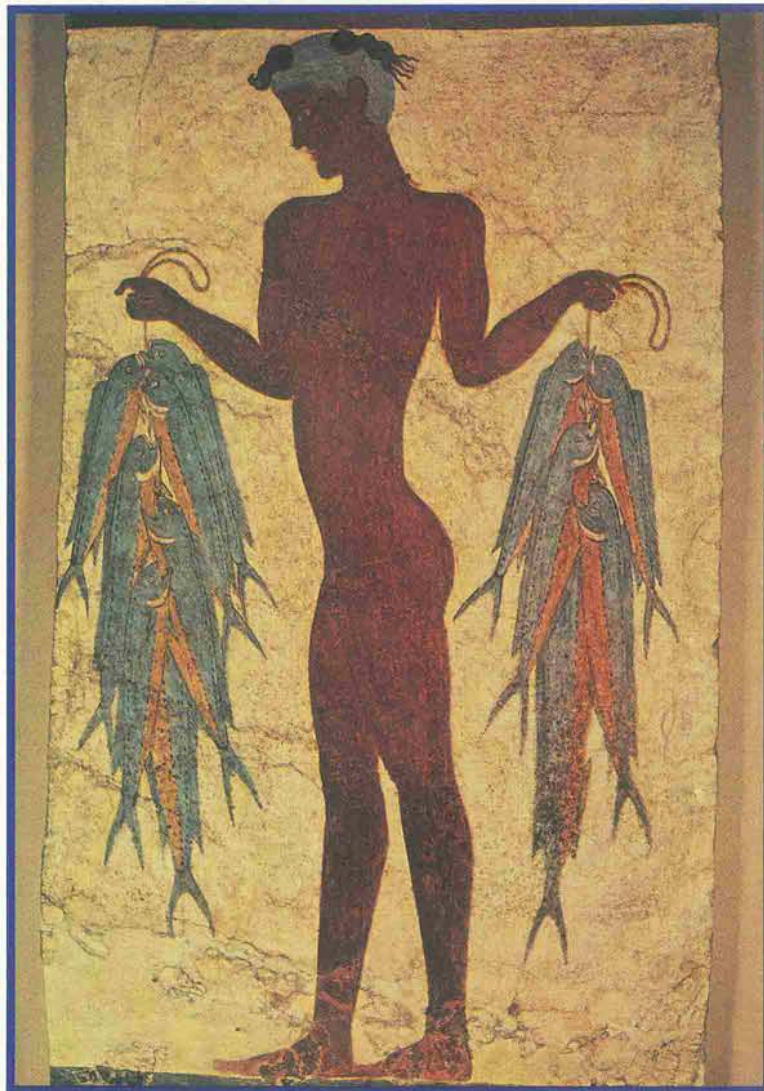
No 17

March 1997

SAMUDRA

REPORT

INTERNATIONAL COLLECTIVE IN SUPPORT OF FISHWORKERS



FOCUS ON AQUACULTURE

ERITREAN FISHERIES

COHERENCE IN EU FISHERIES POLICY

WOMEN FISH TRADERS IN INDIA

ILLEGAL MIGRANT FISHWORKERS FROM MYANMAR

BANGLADESH WOMEN TAKE ON SHRIMP INDUSTRY

CAMPAIGNING IN THE PHILIPPINES

NEWS ROUND-UP

Contents

SAMUDRA REPORT No. 17 MARCH 1997 TRIANNUAL REPORT OF ICSF

<input type="checkbox"/>	COMMENT	1
<hr/>		
<input type="checkbox"/>	ERITREA Heading for the big league	3
<hr/>		
<input type="checkbox"/>	MYNMAR Out of the frying pan into the fire	7
<hr/>		
<input type="checkbox"/>	EUROPE Aiming for coherence	9
<hr/>		
<input type="checkbox"/>	INDIA Tussle in Tranquebar	12
<hr/>		
<input type="checkbox"/>	BANGLADESH Innocent victims	19
<hr/>		
<input type="checkbox"/>	PHILIPPINES Eight years on	23
<hr/>		
<input type="checkbox"/>	FOCUS Searching for footprints	26
<hr/>		
<input type="checkbox"/>	ANALYSIS Muddy waters	29
<hr/>		
<input type="checkbox"/>	OPINION A welcome noose	36
<hr/>		
<input type="checkbox"/>	DOCUMENT Polluters must pay	41
<hr/>		
<input type="checkbox"/>	NEWS ROUND-UP Canada, Japan, Thailand, Indonesia, EU Italy, Greece, Russia, Columbia, Honduras	50
<hr/>		

Comment

Time to shift gear

Only three per cent of global aquaculture production comes from the *Penaeus* species—the backbone of the shrimp aquaculture industry. Yet, culturing these species has posed some of the greatest threats to the coastal communities in Asia and Latin America, so much so that it has been nicknamed the rape and run' industry. Fishing communities, in particular, have been very concerned with its negative impacts. These include the destruction of fish larvae and removal of gravid females, the obstruction of fishing operations by coastal installations, and the fishermen's loss of access to the fishing ground from the landward side.

For the coastal communities, there are additional problems like the depletion and contamination of ground water, loss of access to the village commons, and incursion of salinity into the paddy fields. Further, the loss of mangrove cover has several particularly negative implications. These problems were making life almost impossible for the coastal communities in countries like India, Bangladesh, Ecuador and Thailand, especially in the past five to 10 years. The severity of these problems has been compounded by the lack of proper legal and management regimes, and the existence of rampant corruption in administration.

In this context, the judgement delivered by the Supreme Court of India—the highest court of the country—striking down all brackish water operations within 500 m of the high tide line is quite a significant landmark, as pointed out by several articles in this issue of SAMUDRA. The judgement is, perhaps, the one with the greatest impact on the shrimp aquaculture industry anywhere in the world.

We hope the Indian Supreme Court judgement will mark the beginning of a fining shift from feed-intensive, carnivorous, monoculture systems of aquaculture that are clearly unsustainable, to the freshwater polyculture systems for herbivorous and omnivorous species, dependent on locally available nutrient inputs. The sustainability of these systems has been proved by the age-old practices in countries like China and India. In China, for example, such practices have existed for at least 3,000 years. More significantly, they have been contributing to greater local food security in several food-deficit countries in Africa and Asia.

As Albert Tacon, Fishery Resources Officer, Inland Water Resources and Aquaculture Service of the FAO points out, all intensive and semi-intensive farming systems for carnivorous fin fish species and penaeid shrimp are net fish protein reducers': the total input of fish and fishery resources as feed inputs far exceeds the output of new fish protein by a factor of two to five, depending upon the farming system and fishery resource used.... This is in sharp contrast to the net fish protein producing status of the majority of semi-intensive and intensive farming systems employed by farmers for the production of herbivorous/omnivorous ... species".

Tacon concludes that if aquaculture production is to ... continue to play an important role in the food security of developing countries as an 'affordable' source of high-quality animal protein, then herbivorous or omnivorous species (feeding low on the aquatic food chain) should be targeted for production rather than high-value carnivorous fish/shrimp species; the latter being energy efficient in terms of resource use and dependent upon the use of high-cost, protein-rich feed inputs."

It is also important to prevent the degradation of agricultural land and overfishing of fisheries resources, since such phenomena could sometimes lead to desperate measures, even from the small-scale farmers and fishers. Inadequate supply of water in the downstream areas of rivers (due to construction of dams, for example) could cause farmers to make distress sale of land to the aquaculture industry.

Clearly, in a context where only three per cent of the total aquaculture production in the world comes from shrimp, the culturing of which has been causing immense hardship to the coastal communities in several developing countries, it is high time to shift gear and move towards sustainable practices that have a proven track record. This is absolutely imperative, both from the point of view of food security and greater environmental responsibility, especially in low-income food-deficit economies.

Heading for the big league

Neglected for decades by war and strife, Eritrea's fisheries are now poised for a major development

With a coastline of over 1,200 km Eritrea's marine waters and continental shelf stretch over 50,000 sq km. studded with over 350 islands of which the Dahiak archipelago forms the main group. Over 1,200 km of the total coastline lie along the islands themselves. Thanks to the wide distribution of coral reefs along its continental shelf, Eritrea is a suitable habitat for fishes and other marine organisms.

The two seasons of Eritrea are defined by the seasonal pattern of the winds. During winter (November to April) wind velocities range from 16 to 65 km/hr blowing south to south-east. This prevents traditional fishing craft from venturing too far out to sea, particularly in the area close to the Bab-EI-Mendeb Straits in the south.

In summer (May to October), north-westerly winds hardly exceed 10 km/hr. Tidal ranges are narrow, around one metre, and the state of the sea depends more on atmospheric than oceanographic conditions.

There are rocky deserts, sand dunes and salt marshes along Eritrea's coastline. Extensive mangroves are found in Mersa Ibrahim and Mersa Mubarak in the north, and in Aseb Bay to the south, as well as in the central region near Massawa, in some parts of the Dankalin coast to the south as well as on several of the islands.

The main urban centres along the Eritrean coast are the port sites of Massawa in the central part (population: 30,000, down from about 80,000 before the war) and Assab (population: 60,000) in the south. Other important coastal fishing villages include Zula, Ingal, Gelaalo, Tio, Eddi, Barasole and Beilulbetween Massawa and

Assab, and Raheira to the south of Assab. The northern coast is all but deserted with almost no human development, mainly due to the lack of surface water.

With its widely developed continental shelf, the Eritrean Red Sea is considered to have rich potential not only for food production through fishing and other harvesting of marine organisms, but also for tourism. The Dahiak islands are particularly surrounded by significant mangrove areas, and large stretches of coral reefs and sea grass. The ecosystem in the archipelago has a relatively high level of endemism. Many marine creatures are unique to this area which is inhabited by approximately 1,000 species of fish and 220 species of coral.

In the 1950s and 1960s the Eritrean fisheries was a thriving industry, reporting annual catches of well over 25,000 tonnes. Over 80 per cent of this production consisted of pelagic species—sardines and anchovy—which were processed into fishmeal or sun-dried for export to European and Far Eastern markets.

However, with the closure of the Suez Canal in 1967 and the intensification of the armed struggle in the 1970s, production of fish dropped tremendously and fishing activities decreased until it totally collapsed during the second half of the 1970s.

Rehabilitation

With the end of the war, major efforts are currently on to rehabilitate this sector. The Eritrean marine sector is also endowed with enormous amounts of non-living resources like salt. There is also potential for oil and natural gas. Artisanal fishing is practised in various areas along the Eritrean coast, mostly around the Dahlak

A great challenge

OXFAM-Canada has long been a supporter of the Eritrean people and their struggle against Ethiopia to regain control of their country. When independence came, it seemed natural to support a fisheries community development programme by using the experience gained from previously working with fisheries in Nicaragua and in the Atlantic region of Canada.

One of the many challenges Eritrea faced in rebuilding the country was ensuring food security. Due to recurring drought, food production (from either agriculture or livestock) has grown increasingly difficult.

Since Eritrea has a 1,200 km coastline, it was quite logical to turn to the sea as a source of food and income. During the 30 years of war, there was no fishing activity. Fishing skills have, therefore, been considerably reduced and there is little infrastructure in the fishery sector. In any case, the sector was already underdeveloped.

A report of the Ministry of Marine Resources, reviewing four years of progress, states that, "Eritrea is a country where, traditionally, dependence on livestock and agricultural products has been the norm, while the evolution of the fisheries industry has been simply ignored."

Eritreans are not traditional fish-eaters and have to be encouraged to include fish in their diet. Another problem is that many villages are located around wells, five to six km from the shore. This means some villagers need to walk an hour to reach fishing sites. For all these reasons, Eritrean fisheries face a big challenge,

but also a fantastic opportunity to re-introduce artisanal fisheries. The country's fisheries also receive support from UNDP, FAO and a Dutch NGO, Urk Interchurch Foundation.

The Zula Fisheries Community Development Project, supported by OXFAM-Canada, is located in the Bay of Zula, south of the port city of Massawa. The Zula Project is a coastal community development project focusing on food security and integration of the fisheries sector into Eritrea's overall development goals.

The participation of women is a key component of the project. This is noteworthy because, traditionally, women do not participate in activities outside the home. But, as Halima Saleh, a woman leader from the village of Zula says, "The women are interested in the well-being of the coastal communities."

In November 1996, I was part of a monitoring team visiting the project to assess its implementation and discuss with partners the need for readjustment. Like others who have visited Eritrea, I was impressed by how passionate and devoted the Eritreans are about rebuilding their country and improving the well-being of their people.

The project has helped set up co-operatives in the coastal villages, and people have been introduced to methods of credit, saving and management. Members of the co-operatives are given boats and gear on credit (five fiberglass outboard motor boats belong to the project). They are supervised and receive support from extension workers of the Ministry of Marine Resources. A fish landing station has

Islands, the Dankalia coast to the south and in the area around Massawa. There are over 50 fishing villages in all, with around 1,500 full-time, registered fishermen. Around 600 of them live in the Dahiak Islands, over 520 in the coastal stretch between Massawa and Tio, and around 260 are active in the Dankalia coast south of Tio and up to the border with Djibouti.

In addition, there are several part-time fishermen, as well as women and children who fish by wading into the waters. To enhance their supporting role, the women are also being trained by the

Ministry of Marine Resources to make and repair nets. There has been a sharp decline in the population of fishermen—from a high of 23,000 in the 1950s to 7,000 in the 1960s and about 5,000 in 1970. Around 80 per cent of them operated on a part-time basis.

The fishers of Eritrea are actively organising themselves into co-operatives. There are 14 primary co-operative societies, comprising 417 members, in 23 fishing villages in the Dahlak Islands and along the coastline of the Massawa area. These primary co-operatives are federated into a secondary co-operative, the Semhar

been built on the shore. Women have received training in making and mending nets.

The introduction of fishing activity in the Bay of Zula is slow and the fishermen find it difficult to repay their loans. For various reasons, the economic incentive is not sufficient: low prices, insufficient markets (people in the villages still do not eat much fish or can not afford to buy fish), poor infrastructure and meager catches.

The low catches are probably due to a combination of reasons like insufficient fishing skills, dwindling fish stocks and the type of gear used. These factors call for more in-depth analysis. Idriss, a very successful fisherman from the village of Arafaile, explains his success by the fact that he fishes on a full-time basis and spend time to identify the fishing grounds. He also learned how to fish by working as a crew member on a fishing boat. His example is an encouragement for new fishers and shows them what is needed for success.

Those fishermen who wade out into the water to fish without boats on a regular basis are able to provide fish for food to the coastal villagers at a low cost. Their gear requires little investment and the volume of their daily catches do not need much for conservation and transportation. At this stage of the development of a sustenance fishery, these fishermen should be given special attention and support.

Women's involvement will be further facilitated when the fishing activity improves. Women can be involved in net-mending and fish processing. We were impressed by the training they are now receiving in fish handling and cooking. A team of nutritionists and home economics workers go to the villages regularly

to teach the women nutrition, and follow up on the introduction of fish to the diet of their families. These visits also give the women the opportunity to meet and discuss their needs, which are primary health care, water and income-generating projects.

Now that a base has been established, the project needs to emphasize ongoing training (fish harvesting, processing and marketing) and supervision for both men and women. This is being addressed by the creation of a training centre and the development of a training curriculum.

But above all, the development of the fishing activity has to be part of an overall integrated community development programme, where all the resources of the coastal area will be developed and managed in a holistic way, and where the people can be involved in community-based resource management and claim responsibility for this development.

Plans are afloat to decentralize the management of development programmes to the local administrations. This will facilitate the integration process. Only healthy and strong communities will be able to support a fisheries sector, economically and socially. In turn, a healthy fisheries sector will add to the health and strength of communities.

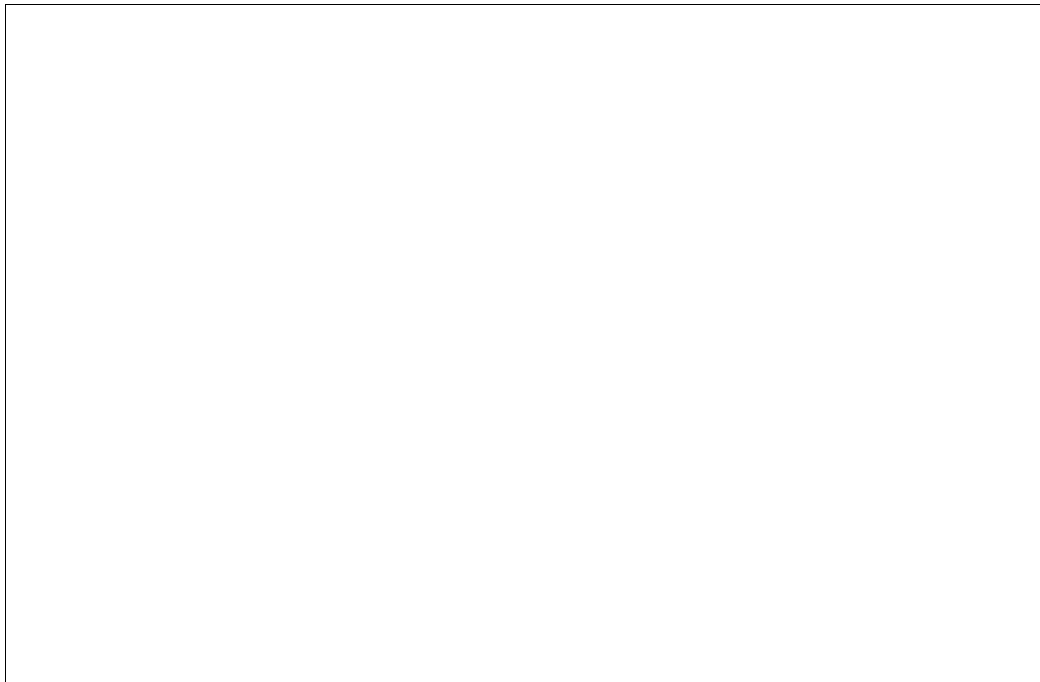
My visit to Eritrea helped me better understand how the country's artisanal fishery and coastal communities should develop and what a great challenge the task is. The Eritreans have the dedication and determination needed to succeed. No doubt they will.

—This report is by Chantal Abord-Hugon, co-ordinator, OXFAM-Canda/Project Acadie

Fishery Co-operative Society, which has been functioning since December 1993.

The artisanal fleet underwent significant changes in the 1960s, with a shift towards more motorized craft. With the introduction of fibreglass, the artisanal fishing fleet is again poised for a major shift. The Ministry of Marine Resources, as well as one private firm, are implementing pilot projects for the production of the fibreglass fishing boats. The basic fishing techniques, however, remain the same, with fishermen using hand-lines, beach seines, gill-nets and, to a lesser extent, longlines and troll-lines.

The traditional skills have not been lost and a variety of gear is used. The combination chosen depends on the season, the target species and market demand. Prime reef fishes (snappers, groups and breams) are caught using hand-lines. Gill-nets are used for shark and troll—lines are used while travelling to, and from, the fishing grounds. Beach seines are commonly used to catch anchovies and sardines. Eritrea's domestic market absorbed more than 600 tonnes of fish in 1994. With the building of new retail centres, the most important being Gejeret fish market in Asmara,



domestic consumption is expected to rise significantly.

Sales in Asmara, where three major retail centres operate, accounted for nearly 80 per cent of the domestic market during 1992-1994. The other major markets are Massawa and Assab.

Plans have now been finalised to build more retail shops and seafood restaurants in Asmara, Massawa, Chinda, Keren, Dekemhare and Mendefera.

The Ministry of Marine Resources is entrusted with the authority to oversee the development and sustainable exploitation of Eritrea's marine resources, protect and preserve the marine environment, and work towards an integrated coastal zone management.

The Ministry works towards its objectives in line with the macroeconomic policy of the Government.

This piece is based on a brochure prepared by the Ministry of Marine Resources, Eritrea

Out of the frying pan into the fire

Immigrant Myanmar workers on Thai fishing vessels face a double-edged threat

The Seafarers' Union of Burma (SUB), an independent democratic trade union, was formed in September 1991 in Bangkok, Thailand, to protect Myanmar seamen. Under the present military regime of SLORC (State Law and Order Restoration Council), Myanmar is devoid of freedom. The mandate of SUB, therefore, is not only to fight for the sake of the workers in particular, but also to restore democracy for the sake of the entire masses of the country.

In its struggles to implement its policies, SUB has been aided generously by fraternal international trade unions.

Ironically, the plight of fishermen in Myanmar is much worse than the plight of the many Myanmar seafarers working for Thai fishing companies. The SUB Executive Committee, therefore, decided to make fact-finding trips to collect data. A working committee was formed and its members visited Ranong and Samut Sakhon.

For a trade union like SUB, which functions in exile, it is near impossible to organize fishermen from within the country at this moment. SUB could organize only a handful of Myanmar fishermen who are working in Thailand as illegal migrant workers.

The supreme irony of the situation is that an illegal trade union in exile is organizing illegal migrant workers from being apprehended by their host country's legal authorities. Hence, SUB works in a fundamentally problematic situation which leads to several shortcomings.

Under the present socioeconomic and political conditions, Myanmar nationals have crossed the Thai-Myanmar border from various points and entered

Thailand to look for possible employment. Though the remuneration they get is generally much lower than the minimum amount needed for subsistence, under the circumstance, these Myanmar workers have no choice but to succumb to the pressure.

There are more than 500,000 illegal migrant workers in Thailand, of whom over 70,000 are Myanmar, making up 14 per cent of the total labour force in the Thai fishing industry alone. In 1989, a massive typhoon in the Chumphon area of Thailand killed many fishermen, causing several Thais to abandon the fishing industry. This created a vacuum in Thai fishing.

The victims are mostly people from Myanmar like the Burman, Mon and Karen. But they can also be viewed as being the lucky ones since, under SLORC policy, they would have been otherwise forced into jobs as porters, without any pay. Nevertheless, it is clear that they are merely jumping out of the frying pan into the fire.

Since these Myanmar fishermen are considered no more than illegal migrant workers, they do not enjoy any human rights. For the Thai companies and employers, the Myanmar fishermen are no more than a shoal of fish which can be easily stolen from Myanmar waters.

Foreign workers

Thailand is among the ten leading seafood producing countries of the world. Due to a substantial shortfall in Thai fish production, the Government of Thailand allows the industry to employ foreign workers. Though a migrant workers' law has been promulgated which requires companies to register their foreign employees and take care of their social

welfare benefits, nothing has actually been implemented for the Myanmar fishermen.

For a Myanmar fisherman to get work on a Thai trawler, he must make a 5,000 baht upfront payment to the broker for a job that pays 3,500 baht a month or US\$ 140, equivalent to 23,100 Burmese kyat, at SLORC's unofficially recognized rate. This represents a salary much higher than a SLORC general's.

However, there is no compensation for accident or disability nor any insurance for the fishermen, who have to meet their own medical expenses. Any medicine needed during a fishing trip must be bought by the crew member himself. The company provides none.

Thai fishing trawlers have no limit on their fishing time. Most of the trawlers have a Thai at the helm and six Myanmar as crew. A fisherman has to drop anchor and cast the net four times a day. To do this, a minimum of two hours of preparations are needed. If the haul is not satisfactory, the nets have to be cast more times. No time is allotted for rest and a fisherman is expected to work at least 18 hours a day. The fishermen have to rely on their own muscle power to draw the nets.

Back ashore, the crew members are allowed to roam around only in restricted areas demarcated by the companies. The main gate of the company is closed at 18:00 hrs and if someone is late, he is likely to be soon apprehended as an illegal migrant. The work registration cards are held by the company and the right to work is decided at the whim of the company owner and not by the fact of whether the fisherman is legally registered or not.

The Thai company owners know too well that due to Myanmar's poverty, no matter how low the pay offered, they can still easily get an abundant supply of Myanmar fishermen to work for them. No Thai can be paid as low and no Thai could be treated like a sub-human being.

Besides these problems, there is no employment contract for the workers and there are many cases where even those

employed for three to four years have received no payment at all or, at times, paid only 500 baht. If they demand their salaries, the fishermen are threatened with arrests by the police, or fired, or even end up stranded on the high seas.

Obviously, it is imperative to form an independent fishermen's union for the Myanmar fishermen who are working in Thailand in order to protect their rights and improve their standards of living and employment.

Only under the banner of such a union will the Myanmar fishermen get collective bargaining power. It will be prudent to organize only a few initially. It is important to remember that the company owners will not look on us with folded arms, but will surely think of some serious action.

An education programme, through the union, to explain the health, welfare and collective bargaining rights of workers, is greatly needed. The approach should be an indirect one to provide for immediate requirements, such as a clinic and/or canteen, where the fishermen could gather, which could then form a distribution point for educational leaflets.

Working committee

A working committee for the formation of such a union should be constituted and training on trade unions and their ramifications should be provided. This committee will be responsible for the formation of an independent Myanmar fishermen's union created by the Myanmar fishermen for themselves. 3

This presentation was made by Ko Ko Khaing of the Seafarers' Union of Burma at the IFF-LO/FTF Asia/Pacific Regional Seminar for fishermen at Manila in February

Aiming for coherence

EU's fisheries policy is not coherent with the stated objective of sustainable development

This year, fisheries agreements between the European Union (EU) and third countries will come under considerable scrutiny. Three groups of NGOs—the Coalition for Fair Fisheries Agreements (CFFA), Eurostep and the EU-NGO Liaison Committee (CLONG)—have launched a campaign to raise awareness on the issue and to promote a greater consistency between the policy objectives of EU development co-operation and the actual practice of fisheries agreements.

The Dutch Minister for Development Co-operation, J.P. Pronk, has also recommended that the EU Council, under the Dutch Presidency, place the issue of 'coherence' high on its agenda. Pronk has suggested that two aspects be looked at: the general issue of coherence as it applies to development policy, and the future of development co-operation after the expiry of the term of the Lome Convention.

Essentially, coherence relates to ensuring that the aims and objectives of EU development co-operation policy, such as reducing poverty and promoting sustainable development, are not undermined by the policies that the EU pursues in other areas, such as the Common Fisheries Policy, trade policy and the Common Agricultural Policy. Under the terms of the Maastricht Treaty, the EU is legally obliged to ensure such coherence.

On 26 November 1996, the Dutch Ministry of Foreign Affairs publicly questioned the benefits of EU fisheries agreements for developing countries. While contracts between governments of the developing countries and industrialized fishing nations allow the latter to fish in the waters of the former, and help channel foreign currency towards the developing

countries—a positive thing—this could also create problems for the local fishing communities, the Ministry noted. It also doubted whether the profits from these contracts were high enough for the country concerned to compensate local fishing communities, and whether the recipient government would ensure that compensation really took place.

The Ministry said that once the new contracts are closed or renewed, the Dutch government would focus attention on small-scale fisheries. It also pointed out that overexploitation of fish stocks is a global problem. For the moment, the bigger fishing nations are able to push part of the problem to other areas of the world, and to postpone a solution.

Both moves contradict the policies of sustainable development. Sustaining resources implies lower levels of exploitation. Moreover, in a context of a decreasing resource base, the purchase of access rights to resources in distant waters requires that a fair price be paid. Similarly, it is the responsibility of governments to compensate those who are thus affected. Sustainable development, therefore, involves environmental, developmental and equity considerations.

According to the European Fisheries Commission, fisheries agreements are mutually beneficial commercial arrangements. The EU gains access to the surplus fish stocks of a coastal State, and the coastal State receives compensation for the stocks that might otherwise have been available for its own use.

Inaccurate assertion

However, a closer look at fisheries agreements between the EU and the ACP (**African, Caribbean, Pacific**) States shows that this assertion is far from

accurate. In many cases, it is not at all certain that there is a surplus.

Also, rather than being a 'compensation', the payment actually becomes an economic incentive to the coastal State to allow fishing access to the EU. As such, the EU negotiators use compensation as an economic lever. In effect, it thus becomes a subsidy to its own distant-water fleets.

Advocates of fisheries agreements contend that under the provisions of the United Nations Convention on the Law of the Sea (UNCLOS), third countries have the right to exploit fish stocks in areas where the coastal State does not exploit them to the maximum sustainable limit.

This view is fundamentally flawed. Coastal States have the right to exploit their resources below the maximum sustainable limit if they so desire. This may happen if, for example, they wish to help stocks recover in a depleted fishery.

In some cases, they may wish to develop their own fisheries, and to introduce policies which preserve healthy stocks. Given the complexity and unreliability of fisheries statistics, they may simply want to adopt a precautionary approach to fisheries management. In other cases, they may yearn to protect their small-scale fisheries from the destructive impact of foreign industrial fleets. If the

EU is truly serious about compensating for the damage inflicted on distant-water fisheries, or making up for denying local communities their food and livelihood, then [the large cash payments it makes to governments are hardly appropriate. The governments certainly deserve some money to make up for lost tax revenue, but the lion's share of any compensation should go directly to those coastal communities whose livelihoods and food supplies are being threatened. In many countries of the South, fish is one of the few resources available to the poor. In many cases, marine fisheries constitute major food resources with significant economic potential. If properly managed and exploited, such resources (coupled with access to a few others) can meet both the food and livelihood requirements of local communities as well as help generate significant foreign exchange earnings.

Thus, in Senegal, which is currently re-negotiating its EU fisheries agreement, the artisanal sector provides 80 per cent of the fish for local consumption, while also supplying 60 per cent of the protein intake and employing over 250,000 people. In addition, the sector generates significant foreign exchange, accounting for around half the country's fish exports.

Lack of awareness

However, many Southern governments seem unaware of the potential of their

artisanal fisheries to contribute to local food security and economic development.

Strong international demand for fish and favourable price trends provide important opportunities to earn foreign exchange, but they also pose a potential threat to local food supplies.

In the face of such opportunities and potential contradictions, there is a need to reassess how fishery resources ought to be exploited. Also necessary are management strategies, and development and exploitation plans which maximize the sustainable contribution of fish both to local food security and economic development.

Not surprisingly, there is considerable concern over the negative impact of EU fisheries agreements with countries in the South. At best, the model of fisheries development fostered under EU fisheries agreements contributes only marginally to local development and food needs.

The 'coherence' Article of the Maastricht Treaty (Article 130 V of Title XVII) legally obliges the EU to ensure coherence between its policy objectives for development co-operation and those for other areas. Urgent action is, therefore, required to change the EU's approach to fisheries agreements with ACP countries, which contradict many of the EU's policy objectives for development co-operation (most notably the campaign against poverty and the promotion of sustainable development).

The basis for promoting greater coherence could be provided by a binding Code of Conduct for Responsible EU Fisheries Agreements. Such a code could build on the commitments of the EU Member States under the FAO's Code of Conduct for Responsible Fisheries, as well as other international instruments. Promoting coherence in the context of the deep crisis facing the EU's domestic fishery sector is a difficult and challenging task. How can one balance poverty alleviation and sustainable development in countries of the South with the raw material requirements of EU's processing industries and the employment needs of communities which depend greatly on fisheries?

The effort is bound to be particularly taxing. Yet, it is in the long-term interests of both the EU and its partners in the South.

The NGO fisheries campaign has proposed a number of practical steps to establish the basis for EU fisheries agreements which do not deplete fish stocks or undermine livelihoods and food security in coastal communities. These would include:

- the establishment of a Code of Conduct for Responsible EU Fisheries Agreements, based on the principles outlined in the FAO's Code of Conduct for Responsible Fisheries, and the application of the objectives of EU development co-operation policy towards countries in the South;
- an obligation on the Commission to report annually to the Council and European Parliament on the coherence achieved between the policy and practice of EU fisheries agreements and the fostering of EU development co-operation policy objectives;
- the convening of an annual hearing in the European Parliament on the progress made to achieve greater coherence between the policy and practice of EU fisheries agreements and the fostering of EU development co-operation policy objectives; and
- the establishment of a 'complaints' mechanism through which concrete cases of incoherence can be reported (by ACP governments, fishworker organizations or other concerned parties), and used as inputs both for the annual report by the Commission and the annual bearing of the European Parliament.

This article has been written by Béatrice Gorez of the Coalition for Fair Fisheries Agreements (CFFA)

Women fish traders

Tussle in Tranquebar

The problem of access to credit has divided the women fish traders of three villages in Tamil Nadu, India

Women in India's artisanal fishing communities do not usually catch fish, but they do just about everything else related to fishing—net-making, processing, gutting, drying, smoking and marketing. Many of them also work as petty fish traders.

A major problem such traders face is their inability to save. Savings would not only form a cheap source of credit but also allow these women to tide over lean periods. Now, during crises, they have to depend on informal sources of credit for loans at fairly high rates of interest, from middlemen and moneylenders, for example. While formal sources of credit, such as banks, would charge lower interest, their procedures are difficult to understand. In addition, the petty fish traders are largely regarded as bad risks.

This problem of access to credit has led to an interesting power struggle among the petty fish traders in three Tamil Nadu villages— Pudukottai, Kuttiyandiyur and Vellakovil, located close to Tranquebar town in Nagai Quad-E-Millet district.

To facilitate access to credit, the Rural Organisation for Social Action (ROSA), an NGO formed seven years ago near Nagapattinam, organized groups of petty fish traders and encouraged them to save part of their income. The money thus saved was then re-loaned at rates of interest below those charged by the local moneylender. The whole operation was managed by the petty fish traders through a management committee.

Petty fish traders are often seen as a homogenous group with similar characteristics and needs. This has meant that development programmes end up

actually helping only a small proportion of the population. In reality, there are considerable variations in the socioeconomic status of the petty fish traders, due to differential access to local resources.

Over the years, recognizing these differences, ROSA has classified the petty fish traders into three categories on the basis of the value of their transactions, the markets accessed, type of assets possessed and their status within the household and the community.

The first category comprises the vast majority. These women usually belong to nuclear households. They are the have-nots of the community, with few material possessions, a low social status and little decision-making power within the household.

They usually buy low-value fish, like sardines and mackerels, from catamarans which land fish between 7a.m. and 8a.m, and engage in door-to-door sale till 10a.m. Their turnover is typically between Rs 100 to Rs 750. They carry fish on their heads to households located in the surrounding agricultural villages within a 25 km radius. The physical work is heavy, competition is high and profit margins are low.

The fish is usually procured on credit, either from the auctioneer or from friends and relatives. The auctioneer is repaid at the end of the day—no interest is charged. Friends or relatives can be repaid over two or three days; but the interest is as high as 120 per cent.

Woman's earnings

The women have to care for their small children, with little help from the family. Most often, husbands work as crew

members on fishing vessels, with low earnings. The women's earnings are thus needed to keep the kitchen fires burning. Some husbands have no income and are alcoholics living off their wives.

Within their households, these traders do not enjoy any decision-making power. The inability to save reduces the capacity of the household to meet the periodic crises that are common to fishing activities. The formation of the thrift group has provided the petty fish traders from this category an opportunity to save a part of their income, most often without the knowledge of their husbands.

Nagavalli of Vellakovil, who entered into fish trade recently, says, "The credit group has enabled me to set apart some of the money which would otherwise have gone into alcohol or gambling. I now have a larger circle of friends whom I can turn to when I need money."

The second category of petty fish traders usually deals with high-value species, such as prawns and seer fish. They also procure sardines, mackerels and clupeids, when in season, but handle much larger quantities. Their turnover is usually between Rs 1,000 to Rs 10,000 per day.

These women get fish from both traditional craft and from trawlers which land their catch at the Nagapattinam

fisheries harbour. They procure their fish around 5a.m and leave for the market by 6 am. Most often, to ensure a regular supply of fish, they advance credit to the auctioneers located both in their fishing villages and at Nagapattinam.

The capital they use is either their own or borrowed. The latter is most likely to be from a friend or relative, who would typically charge an interest of around 60 per cent per annum. Traders belonging to this category are usually considered creditworthy. Hence, they are better placed to bargain for lower interest rates, unlike the women in the first category.

These better-off traders access distant markets, such as Mayiladuthurai and Sankaranpanthal located 60km from their fishing villages. Their clients are usually men, often of rich households, that have a family member working in Singapore or the Middle East countries. The prices they charge are fairly high as their customers demand a regular supply of good quality fish. As transactions are usually based on the weight of fish, it is easy for the traders to cheat on the quantity sold. Consequently, traders from this category have fairly large margins.

Greater powers

These women enjoy relatively greater decision-making powers within their households. They also save fairly well. Due to this high rate of savings, these

women are the major contributors to the business transacted by the savings and credit group to which they belong. They express keen interest in the working of the group and most often play a major role in the management of the group's resources.

The biggest problem faced by these traders is getting their fish to the markets on time. They can only use public transport buses to reach Mayiladuthurai and Sankaranpanthal, since fish baskets are not allowed inside private buses. It costs approximately Rs 35 to transport two baskets. Apart from the ticket fare of Rs 11, the cost includes a bribe for permitting fish on board.

A woman needs to sell at least two baskets to make a decent profit. The women use ice to preserve the fish. Water from the melting ice seeps from their baskets, much to the irritation of fellow commuters. During peak hours, these women are not allowed to board. As a result, some of the fish gets spoilt.

When there are more than five women going to the market, they get together and hire a van, paying around Rs 50 per head for a one-way trip. On their return from the market, they usually buy groceries or essentials for their households.

As the timing of their return varies, some of them take buses to come home. "I have a difficult time when I return from the market. The conductors object to my entering the bus on the ground that the basket stinks. They want me to pay the bribe I would otherwise have paid on my onward journey," says Idumbayi of Kuttiyandiyur.

Most of the traders in this category come from households that possess at least one traditional fishing craft. They usually have grown-up children who manage the household while they are away selling fish. Large sums of money have to be raised to acquire a craft for a grown-up son or to marry off a daughter, after paying a big dowry. Sometimes both these obligations have to be met.

The money needed for a fishing craft is usually around Rs 150,000. The amount given as dowry varies. A dowry usually

consists of a range of assets, such as craft and gear, cash and jewellery. The groom's family status in the village hierarchy often determines the amount of cash and jewellery.

A recent development has been the construction of brick and concrete houses or 'cement *veedus*'. A State government loan of Rs 25,000 for such construction is supplemented with loans from the local prawn trader. And instead of a two-room dwelling, a two-storied house is then built. Up to Rs 200,000 may be borrowed to construct the house. The rise in status, and the consequent access to government structures in the local area, drives such debt burdens.

Consequently, many traders in this category are either in the process of building houses or have completed construction. They are confident they will be able to repay the prawn traders. A big rental market for accommodation has opened up with the establishment of prawn farms in the local area. "I had to spend Rs 3,000 for bribing and entertaining the officials of the fisheries department," says Ariyamuthu of Kuttiyandiyur. She clearly did not intend to repay the amount.

The third category of fish traders deals in dried fish—usually ribbon fish and flying fish as well as mackerels, when there are glut landings—and sell them in the interior. Besides this, when there are very large landings of sardines, they are dried for use as poultry feed. Women from both the second and third categories of traders help produce such poultry feed, following [the expansion of the poultry industry around Namakkal in Salem district.

Fish used for drying is usually bought from traditional fishing craft, usually when there is a glut in landings. The traders also use the catches from their own family's catamarans. The value of fish procured is between Rs 10,000 and Rs 15,000. With unit prices being the lowest, the quantity of fish procured is large.

Distant markets

These traders usually access distant markets, such as Kumbakonam and Thanjavnr located about 120 km from their villages. In most cases, the markets

are weekly fairs where all manner of agricultural, marine and artisanal products are sold. The low procurement cost, and the relatively long shelf-life of dried fish products, make the profit margins relatively high.

The scale of the operation allows the individual trader to hire transport on her own. Market timings are such that the women reach the market on the previous night to set up shop early the next morning. "I have often had to sleep in the open in order to ensure that I get a suitable place next day," says Madathachi of Kuttiyandiyur. The women usually sell fish on a retail basis but sometimes they get involved in wholesale trade.

The traders in this category are usually heads of joint families are over 60 years old and have few social commitments. Unlike young women, they can venture out far from the village.

The young women in the families manage the household and supervise the processing of fish. The older women belong to some of the most powerful families in the region and they are the ones who control the activities of the savings and credit groups.

The traders take part in these groups so that they can influence the other petty fish traders and the auctions on the beach. Many catamaran operators and

beach-level auctioneers, who owe them money, give the dry fish traders preferential access in return.

The other petty fish traders borrow money from the dry-fish traders. They curry favour with the latter traders for another reason as well—to buy fish on more favourable terms from the catamaran operators.

The typical thrift and credit group in these villages consists of 15 to 20 members. Each member pays Rs 20 per month. Every month the total amount collected is loaned out in multiples of Rs 200. The size of the loan and the repayment schedule are decided by members of the credit group. Decision-making power in the group is usually in the hands of the second and third categories of petty fish traders, although in all they constitute just 20 per cent of the members of the group.

The members are encouraged to open individual bank accounts. This enables access to concessional credit provided by the National Bank for Agriculture and Rural Development (NABARD), under its self-help group programme. Although this is a major achievement, the beneficiaries are the well-to-do fish traders.

Bank loans

To qualify for a NABARD loan, the individual trader must maintain a savings

account for a minimum of six months. During this period, she is not allowed to withdraw any money and should maintain a balance of Rs 250 at the end of the probation period. This stipulation effectively prevents traders from the first category accessing NABARD funding.

Worse, traders from the second and third categories often re-loan the money they get from NABARD to needy traders from the first category. Similarly, the lack of access to public transport is a major issue for the credit groups, though it affects only the few relatively well-off fish traders. The vast majority walk to the markets. For them, access to buses is merely an academic question.

The credit group spends a lot of time and effort in agitating for special public transport services from the town of Tranquebar to the large markets of Mayiladuthurai and Sankaranpanthal, though this will benefit only a few members.

Through its animators, ROSA has taken several steps to break the stranglehold of the well-to-do traders in the credit group, and also ensure that the group stays together. Recognizing the need for greater control over the allocation of financial resources within the household by petty fish traders of the first category, ROSA devised a series of training exercises

to improve the self-confidence of these traders. After 15 months of these exercises, 25 traders from the first category, from three villages, reported that they had more than doubled their savings. "for the past three months, I have been able to save Ks 30 per month, as I do not give any money to my husband. Instead, I demand that he contribute to the running of the household," says Selvi of Kuttiyandiur.

Two additional income-generating activities were initiated: production of fish pickles and high-quality rack-dried mackerels, both of which enjoy a good local market. Both these activities were taken up exclusively by women of the first category of traders.

While ROSA supplied the initial working capital and did the marketing, the traders provided their labour and skills to get raw materials at the cheapest prices- Profits generated from the activities were reinvested. After three production cycles, the volumes were large enough to ensure that each individual had a bank balance of Rs 250 at the end of a six-month period. Although only five benefited from this activity, it did open NABARD's doors to the traders.

Strenuous work

Transporting fish from the landing centre to the market is the most strenuous part for petty fish traders belonging to the first category. I am so tired by the time I reach

the nearby villages, I have little energy left to market the fish," says Deviga of Kuttiyandiyur. To reduce the strain, an appropriate means of transportation—a motorized tricycle that could carry eight persons and their baskets—was introduced in the villages.

It turned out that the tricycle benefited others as well. The second category of traders used them to travel from fish landing centres to the bus-stand. Besides, fishermen started using the tricycles to visit cinema theatres or tea shops at Tranquebar.

Local merchants used them to transport commodities from large towns such as Mayiladuthurai and Karaikal. The income generated from such operations was reinvested in a capital fund meant to be used to buy a new tricycle when the present one becomes unusable.

Breaking the stranglehold of the second and third category of fish traders is not easy. They resist any overt attempt to organize and strengthen the first category of traders. Since these women lack the entrepreneurial skills needed to run small units, the second and third category of traders manage to control these units too—by taking on administrative tasks such as procuring raw materials and maintaining the accounts.

Lately, though, the first-category traders have managed to muster enough confidence to take over the maintenance of accounts in two credit groups. In a few other cases, the group had to restructure itself to allow the first-category traders to form a group of their own.

However, it remains to be seen whether such a group can maintain its cohesion. Earlier, credit groups formed in this way tended to break up within a few months, as their management committee often lacked the ability to enforce decisions. ¶

This article is written by George Mathew, Officer, Social & Economic Unit, ODA Post-harvest Fisheries Project, Madras, India. The views expressed in it are his own



Focus

Innocent victims

The women of Bangladesh are paying a heavy price for resisting the powerful interests in the shrimp farming industry

Paikgacha and Batiaghata are not the most famous of places in Bangladesh. Only local people have heard of these remote areas in Khulna, a district located 350 km south-west of Dhaka, the capital of Bangladesh. In the early 1990s, however, these names kept cropping up in the local newspapers as violence related to commercial shrimp cultivation erupted.

From 1995 onwards, these villages have achieved national prominence, following several reports of a number of violent incidents and indiscriminate abuses of human rights in commercial shrimp cultivation areas. In the minds of local people as well as other citizens of Bangladesh, these incidents have raised serious questions about human rights, sustainable human development and the obligation of the government.

The problems have been compounded by the fact that the local administrative officials and the police, who are supposed to maintain law and order, and implement their own stated policy of “protecting the innocent and punishing the criminals”, have allegedly done just the opposite: protecting criminals, while punishing the innocent.

Violence erupted in Horinkhola village within *polder* 22 (a *polder* is an embankment) of Paikgacha in the early morning of 7 November 1990. Wajed Ali, a rich shrimp farm owner and businessman, arrived with his armed hired hands, intending to forcibly breach the embankment and establish shrimp farms there.

Polder 22 had been maintained as a shrimp-free zone at the insistence of local people, who wanted to protect their environment and agriculture-based,

traditional livelihood. When Wajed Ali and his hired hands arrived at the *pokier* in speedboats, the villagers mobilized and rushed to the area to resist. They marched to the river-bank, women and children in the lead, believing that this would ensure a peaceful, bloodless confrontation.

Instead, Wajed Ali's men hurled bombs and opened fire with rifles and machine guns. Fifty women and men were injured. A 45-year old woman, Korunamoi Sardar, was killed in the firing.

Ali and his men had to subsequently flee in the face of the strong resistance by the villagers. The body of Korunamoi Sardar was taken away by Ali's men, while a tuft of her hair and a portion of her brain remained on the battlefield for two days.

Rahela Khatun, a landless woman from Paikgacha, describes what happened: “On 7 November 1990, on learning that Wajed Ali had arrived with goons to breach the embankment and flood land for shrimp cultivation, we rushed to the spot to resist the attempt.”

“As we were marching toward the embankment,” continues Rahela, “with the women and children in front, the hoodlums opened fire and hurled bombs at us. Korunamoi Sardar was killed on the spot and more than 50 men and women were severely injured.”

Police lethargy

“The body of Korunamoi Sardar was taken away by the attackers,” recalls Rahela, “while a tuft of her hair was hanging from the nearby *babla* tree and a portion of her brain remained on the ground for two days, until the Paikgacha police finally took these away for examination. Korunamoi's body was never found.

We have built a memorial on the spot she died. Every year we organize a large meeting on 7 November to remember her martyrdom. People from various areas come and pay respect. They are encouraged by our struggle and some managed to liberate their land from the illegal occupation by the *gher* owners."

Rupabhan Bibi, a 46-year old widow and one of the 50 injured on 7 November 1990, was also taken away by Wajed's men and later left on the river-bank, on the assumption that she was dead. When the *gher* owners came with their hired hands and firearms to forcibly gain control over land for shrimp cultivation, about 4,000 women and men of Korias village gathered on the river-bank. This joint protest forced the intruders to leave.

Later, in Korias village, police and armed guards came looking for villagers who were in hiding. They entered households where there were only women and children. They used obscene language and assaulted the women. This enraged the women, who started to fight back with brooms and sticks. The police were stunned by this unified resistance and fled.

Amina Khatun, a woman of Korias, was asked later about her courage in resisting police and armed men with her broom. She remained silent for a while, then replied with tears in her eyes, "My husband has been in hiding for the last few days and I have no food in my house. On top of everything else, the police came into my household, used obscene language and pushed me around. I have no place to hide. I have been pushed against the wall. I have no choice but to defend my children and myself with whatever I have, So, I picked up my broom and beat the policeman with it."

After the news was flashed in the national newspapers, the police finally arrived at the scene. Although the villagers filed suits against Wajed Ali and 34 others, Ali's membership in the ruling political party ensured his immunity from prosecution.

Wajed Ali filed suits against 50 villagers. Some of them were arrested in their

hospital beds, as they recovered from the wounds inflicted by Ali's attack, and placed into detention without bail.

At the time of the incident, Nijera Kori, an NGO, was working with landless women and men of Khulna. Nijera Kori's legal aid cell helped the arrested villagers obtain bail. Though the villagers' murder suit against Wajed Ali is still pending, they have won one battle of environmental justice through their activism and sacrifice of *life—polder 22* (surrounded by shrimp-cultivating areas) is still a shrimp-free zone.

On 17 September 1994, Jabber Sheikh of Batiaghata Thana was seriously injured by bombs, thrown at him by unknown assailants. He died in the hospital four days later.

Jabber Sheikh was a member of the Amirpur union council. He was against commercial shrimp cultivation in his area and had mobilized the local people to resist such aquaculture. As an elected official, he tried to get help from the local administration, and was a targeted enemy of the shrimp cultivators.

The murder of Jabber Sheikh enraged the villagers, who mobilized and repossessed the lands illegally occupied by the shrimp farmers. The shrimp farmers attacked the villages many times to reoccupy the shrimp ponds, but the villagers successfully resisted these incursions.

However, valuable land areas still remain barren, as villagers try to cultivate agricultural products, but are foiled by shrimp farmers, who forcibly breach embankments to flood land with salt water and ruin crops. The villagers allege that the local administration and the police do not protect them. Instead, they side with the shrimp farmers. Thus, the people's movement for basic rights and environmental justice goes on.

Indelible mark

The violence from shrimp farmers has left indelible marks on the bodies and minds of the people in the coastal area. In one incident in the Buzbunia village in Botiaghata, the shrimp farmers forcibly dug into Sadiq Ali's courtyard and family graveyard to take out soil for constructing

embankments around shrimp ponds. When Sadiq Au objected to this sacrilege, the armed guards beat him as well as his wife and adolescent son. Their bodies still bear the marks of the beatings. Violence left grievous wounds in the minds of Hameeda Begum, Manjira Akhtar and Anjira Akhtar of Buzbunia village, who were also assaulted by the armed guards.

Violence by armed guards and harassment by police forced the men of Korla village into hiding between February and April 1995. The men were afraid and could not participate in the prayer for Id-ul-Fitra - one of the biggest and most important religious festivals. When a child died in the violence; only children attended the funeral as a sign of solidarity. Even the activities for national immunization day on 16 March 1995 had to be cancelled because of the violence by shrimp farmers.

As a result of Bangladesh's current development priorities, the majority of the people tend to lose access to, and use of, the common property resources appropriated by wealthy corporate and individual interests.

Often, the State has supported influential business interests through legal, illegal and/or violent means. It is ironic that enhanced production of these food crops has contributed to decreased food security at national, local and household levels;

deteriorated human and environmental conditions; escalated social injustice and violence.

In recent years, commercial shrimp cultivation has increased tremendously in the coastal areas of Bangladesh. About 2.5 million hectares of coastal land have potential for shrimp farming. In 1995, a total of 124,000 ha of coastal land in Khulna, Satkhira, Bagerhat and Cox's Bazaar were under shrimp cultivation. This represented an increase of about ten per cent per annum since 1980.

Export earnings from shrimp have increased from 145 million taka in 1977-78 to 6,997 million taka, or close to \$175 million, in 1992-93. Thousands have found employment in the shrimp cultivation and processing industry. This has had some impact on the economy of Bangladesh.

Livelihoods destroyed

Unfortunately, profit-driven, unplanned, indiscriminate and illegal shrimp farming is destroying the livelihoods of small, marginal farmers, fisherman, dairy farmers and the landless poor. The law and order situation has deteriorated in these coastal areas and the long-term environmental consequences of unregulated shrimp cultivation include the irreversible degradation of land, water systems, biodiversity, forest and vegetation.

It is unfortunate that while, nationwide, leaders of the women's movement are mobilizing for gender equality and empowerment of women in every aspect of their lives, the women in the shrimp cultivation areas are deprived of even the basic human rights provided for by the Constitution of Bangladesh and different United Nations Conventions. These women regularly face physical and sexual violence and abuse from the *gher* (shrimp farm) owners and their hired hands.

Like in other rural areas in Bangladesh, the communities in Batiaghata and Paikgacha are fairly conservative. The women usually remain secluded within the household. However, due to the atrocities committed by the *gher* owners, especially the murders of Kornnamoi Sardar and Jabber Sheikh, women are forced to come out of seclusion to resist the *gher* owners.

This new attitude was typified by Maimon Bibi, a 60-year old woman who testified at a public hearing. She described how she had picked up the broom and run with the others to the riverbank to resist the goons. In a tearful voice, she asked again and again, "Is Batiaghata truly a part of Bangladesh? If yes, why are the government and police not protecting us from the *gher* owners?"

This article is by Nilufar Ahmad of Nijera Kori, an NGO working in Bangladesh

Eight years on

Years of struggle have empowered the fishworkers of the Philippines to effectively manage their resources

Eight years have passed since the Filipino fisherfolk began to lobby for the passage of the Fisheries Code. This bill is meant to replace the previous Presidential Decrees of the Marcos regime, still being enforced under the present government.

The essence of the Bill, which is non-negotiable, is the establishment of Resource Management Councils (RMCs) to be headed by fisherfolk. The main thrust is the management of the local fisheries resources by the stakeholders themselves. However, the three-tonne limit on fishing vessels in municipal waters (15 km from the shoreline) has been changed to a maximum of 50 gross registered tonnes.

The fisherfolk are thus opposing the approval of the Bill in its present form. This makes the struggle doubly difficult, as President Fidel Ramos has adopted an Administration Bill (known as the Fisheries Code of 1996).

At the recent General Assembly of BIGKIS-LAKAS, it was decided that all members make it their priority to convince their respective Congressmen to oppose the definition of small- and medium-scale fishing vessels specified under the 1996 Code. In the Senate, Senator Leticia Ramos-Shahani has been pushing for a Department Bill in Fisheries. This caused one fisherman to remark "If BFAR (Bureau of Fisheries and Aquatic Resources) has been 'very far' from the fisherfolk, a Fisheries Department will be farther still, almost unreachable."

However, the dauntless nature of the fisherfolk, whose environment has long been one of uncertainty, has made it possible for them to carry on the struggle. While their voices have apparently not been heard in the halls of power, they have

nevertheless become a force. They have participated in environmental campaigns, the most recent of which was against the marine sanctuary in Bolinao, Pangasinan, a project which the government had to reject after strong protests from all sectors.

Organizations of women in fisheries are increasing nationwide and are proving a good source of development workers- As a testimony to their achievements, former Senator Aquilino Piemental had succeeded in incorporating a provision in the Local Government Code, designating 15 km from the shoreline as municipal waters (Presidential Decree 704 provides 7km as municipal waters).

Likewise, President Ramos had appointed Arturo Olegario of KAMMPI as sectoral representative to Congress, and Sofronio Balagtas of BIGKIS-LAKAS as sectoral representative to the Social Reform Council (SRC) with a cabinet rank. This Council has the task of drafting 'Flagship Programs' in line with the Social Reform Agenda (SRA).

Implementation

Taking the lead in the campaign for the implementation of the FARMCS were the leaders themselves, who exhibited their skills as organizers, facilitators and speakers in these workshops / consultations:

- SRA Workshop/Consultation for the Fisherfolk of Mindanao, January 1996, Davao.
- SRA Regional Workshop for the Fisherfolk of the Visayas, 16-18 February 1996, ECOTECII, Lahug, Cebu City.
- Batan SRA Consultation Baptist Camp, 7-8 April 1996.

Power—now and for ever

During the dictatorship regime of the Marcos administration, the struggles of fisherfolk for governance (access and control) in the management of fisheries resource, started to take shape, propelled by the unprecedented depletion and degradation of marine and freshwater resources. The concerns covered a wide range of issues-ecological, social, economic and political.

Ecological issues included excessive fishing effort, overfishing, destructive/illegal fishing, coral reef degradation, destruction of mangroves, pollution and siltation.

These have had a dramatic bearing on the economic deprivation and marginalisation of fisherfolk, as reflected in the low returns from fishing, lack of support facilities and inefficient marketing systems, among other hurdles.

The social issues relate to the inequity between commercial and marginal fishers, small-scale gear fishers and other users, apathy and lack of discipline. Compounding these problems is the lack of political will among the government officials concerned regarding genuine reforms for the fisheries sector.

This reality has become the basis of the growing campaign in the sector for a change in basic fishery policies, such as the repeal of Presidential Decree 704 or the Fishery Decree of 1975.

Ironically, these decrees remain the basis of the nation's policy guidelines on fisheries. They regard the fishery industry as an investment sector, rather than an area of ecological and social concern. The Fisheries Code, a bill filed in Congress by fisherfolk, advocates the formation of Resource Management Councils

empowering fisherfolk to take the lead in managing local fishing resources.

The need for people's participation in decision making has been the overriding message of the marginalized sector to the various Presidents of Philippines, from the late Ferdinand E. Marcos (during the martial law era) to Cory Aquino (post-People Power Revolution) and on to the present head, President Fidel V. Ramos.

All these years, the fisherfolk, through a process of social transformation, have been empowered for genuine people's participation in governance. It is perhaps their visibility, in addressing the country's sociopolitical issues, that has earned them recognition from the government as the basic actors in the sector, whose participation is crucial.

To date, we have the following policy mandate for people's participation in decision making:

1. The passage of the Local Government Code or Republic Act 7160, in 1991. This act recognizes the role of People's Organizations (POS) and NGOs to participate in the development process, by recognizing their membership in the various development councils in local government units.

2. Social Reform Agenda (SRA) is a package of interventions which the government shall pursue to ensure the welfare, and early integration, of disadvantaged groups into the political and economic mainstream. As such, it makes operative the government's human development goals, embodied in the Medium Term Philippine Development Plan (MTPDP), through interventions meant to alleviate poverty and attain social justice, equity and lasting peace.

- SRA Workshop/Consultation for the Fisherfolk of Luzon, Regions 4 and 5, 27-29 May 1996, Carolina, Naga City.
- SEA Workshop/Consultation for the Fisherfolk of Luzon, Regions 1-3, CAR, NCRD, 15-17 July 1996, San Sebastian, Pangasinan.
- Series of Regional and National Workshops for the Philippine Council for Sustainable

Development and Philippine Agenda 21 Formulation.

Besides his active involvement in the campaign for Executive Order 240, the present president of BIGKIS-LAKAS, Charlie Capricho, is also a member of the Philippine Council for Sustainable Development.

This council pursues the effective implementation, in the Philippines, of the important provisions of UNCED's Agenda

Implementation of the SRA is being undertaken through nine Flagship Programs, namely, Agricultural Development; Fisheries and Aquatic Resources Conservation; Management and Development; Respect, Protection and Management of Ancestral Domain; Worker's Welfare and Protection; Socialized Housing; Comprehensive Integrated Delivery of Social Services; Institution Building and Effective Participation in Governance; and Credit and Livelihood.

3. Executive Order No. 240 creates Fisheries and Aquatic Resource Management Councils (FAMRCS) in barangays, cities and municipalities, with the following composition and functions:

Executive Order 240 Institutionalizes the major role of the local fisherfolk and other resource users, in community-based planning and implementation of policies and programs, for the management, conservation, development and protection of fisheries and aquatic resources of the municipal water, as defined by the Local Government Code.

The FAMRCS shall have the following among their primary functions:

- Preparing and recommending fisheries and aquatic resource management policies and plans for integration into the Local Development Plan. Such policies and plans should be based on sound assessment of the bio-economic characteristics of the resources.
- Recommending to the local government units and special agencies guidelines on the development and implementation of projects, issuing permits and licenses for the appropriate use of fisheries and aquatic resources, and ensuring that

resource use limits and controls are imposed. Such guidelines may include the evaluation of all projects and applications by FAMRCS, prior to the approval by appropriate offices.

With these policy directives, the fisherfolk have found broader parameters for participation in social reforms.

To date, the fisherfolk are in various structures of government at the barangay, municipal, provincial and Congressional levels, as well as in the National Social Reform Council, National Sustainable Development Council and other networks of NGOs and POS.

Building up alliances and coalitions has become a part of the sector's agenda to move towards a truly empowered civil society. Training and advocacy continue with great vigour towards strengthening the organization. We believe that an empowered citizenry is the best guarantee for sustainable development, equity and peace.

Notwithstanding the differences in principles and ideology among fisherfolk organizations, we keep our doors open towards foreign a national movement of fisherfolk, for our concern is not only for the present, but also for the generations to come.

— This article has been written by Charlie Capricho, President, BIGKIS-LAKAS Pilipinas.

21. All these developments, highlighted by the more active and visible national level, raised the spirit and enthusiasm of the fisherfolk to new heights. Their voices have grown even louder, further strengthening active local organizations, and inspiring them to continue with their struggle.

For the newly formed organizations, what has unfolded and continues to unfold are challenges that will carry them through to their goals. As Ka Onie would put it,

“We’ve come a long way, there is no involvement of fishworkers’ leaders at the turning back”

This piece is by Nenita Cura, Director, Family Centre, Asian Social Institute, Manila and Member, ICSF.

Aquaculture

Searching for footprints

The concept of an ecological 'footprint' is a worthwhile tool for analyzing different aquaculture production systems

The useful 'ecological footprint' approach is not new. In 1967, Bergstrom used the term 'ghost acreage' to reflect the area of agricultural land required for food consumption. Using the concept of energy density (the amount of energy consumed per unit of area per year), Odum in 1989 estimated that cities and industrial areas occupy 6 per cent of the continental US, but when their ecosystem shadow area is included, they appropriate about 35 per cent.

It was Rees and Wackernagel in 1994 who introduced the term 'ecological footprint' to reflect the land area necessary to sustain current levels of resource consumption and waste discharge by a given human population. They estimated that the population of Lower Fraser Valley, Vancouver, B. C., depends for *food*, forestry products, carbon dioxide assimilation and energy, on an area 19 times larger than that contained within its boundaries.

Based on this result, and a similar result for the Netherlands, they argued that it would not be possible to sustain the present human population, of close to six billion, at the same material standard as an average North American. That would require two additional planet Earth's.

In our work, we have used the footprint concept when trying to develop concepts and management tools that take into account the support ecosystems needed for different aquaculture production systems. By doing so, it is more easily realized that aquaculture relies on many resources and must, therefore, be viewed in a broader context and not as an isolated sector. Aquaculture needs nature, both for the supply of resources (water, feeds etc.), and ecosystem services (waste assimilation, etc.).

If aquaculture development is to be ecologically sustainable, efforts must be directed towards methods that make use of the natural environment without severely or irreversibly degrading it. These systems should require fewer resources, use them more efficiently and emit wastes which do not exceed the assimilative capacity of the environment.

We have analyzed the area of coastal and marine ecosystems (and freshwater) that is required to sustain the yields of fish, shrimp, shellfish and seaweed from various fisheries and aquaculture, and have compared the ecological footprints of intensive production systems with semi-intensive and extensive systems.

In 1988, C. Folke estimated the amount of primary production in the North Sea and Baltic Sea ecosystems that is required to harvest salmon by fisheries, and to produce the fish exploited by fisheries to feed salmon farmed in cages. The estimate was based on existing data on the relationships between the trophic levels of these seas.

He found that production of the fish content of dry pellets fed to cage-farmed salmon demands a "supporting marine production area about 40,000-50,000 times the surface area of the cultivation. He also found that the area of marine support—the marine footprint—is similar, or about 1-2 km per tonne of salmon produced, irrespective of whether the salmon is harvested by fisheries, ranches at the coast, or farmed in cages.

Life support systems

The results indicate that although new technologies change the pattern of exploitation, they do not seem to make economic activities less dependent on the work of life-support ecosystems.

By far the largest support system is the mangrove nursery for shrimp post-larvae, which may be as much as 160 times the size of the cultivation pond, if a large proportion (half) of the post-larvae used are caught wild and post-larval density in the mangrove nursery is low (0.3 individuals per sq in).

If, on the other hand, only 10 per cent of post-larvae are caught wild, and seed are more abundant (one per sq in), then the mangrove nursery need be no larger than 10 times the size of the pond area. The sea area required to support the fish catch for pellet manufacture was estimated to be 14.5 sq m per sq m of pond, while agricultural ecosystems vegetable component in occupy 0.5 sq m per sq m of farm area.

The amount of water pumped yearly into the ponds is equivalent to a lagoon 3m deep and 7.2 sq in area for every sq in of pond. The adjacent mangrove area needed to produce a sufficient litterfall to fulfil the hypothetical 30 percent shrimpdietary requirement for mangrove detritus was estimated at 4.2 sq in per sq m of pond.

On the other hand, the forest area necessary to sequester the carbon dioxide released directly and indirectly (by energy use in producing industrial inputs to the farms) by shrimp farming was estimated to range between under one sq m and 2.3 sq m per sq m pond. In all, external support ecosystems were estimated to be between 35 sq m and 190 sq m of shrimp pond area.

With the exception of the agricultural support area, the ecosystem support areas are all larger than the pond area, ranging from only a few times the size of the pond area to twice the magnitude, as is the case for the maximum estimated post-larval nursery area. The implication of the size of the supporting mangrove nursery area becomes clearer when shrimp farming is looked at a national and regional level. The total pond surface area of Colombia's

shrimp farms in 1990 was 29 sq km, which implies that the size of the mangrove support system supplying pest-larvae for Colombian shrimp farming was between 874 sq km and 2,300 sq km. This accounts for 20 to 50 per cent of the total mangrove area in the whole country, estimated at under 4,400 sq km, not all of which is suitable habitat for shrimp post-larvae.

The largest support ecosystem, mangrove nurseries for post-larvae, thus extends far beyond the physical locations of the shrimp farms and is a vulnerable link in the farming operation. Other support areas, although being minor in size, are of special importance since they must be located in close vicinity of the farms (except the agricultural support system and the carbon sequestering system). If the local area around the farm is depleted of clean water or if the environment is polluted, this may immediately hit back on the cultivation.

It is notable that the calculated mangrove support area for detritus production (4.2 sq m/sq m) closely matches the area of existing

mangroves draining into lagoons from which the Bay of Barbacoas shrimp farms draw their water (approximately 3.6 sq m/sq m). This suggests that further construction of ponds using the same water resource could cause a decline in productivity in the existing ones, and that new farms should be better located elsewhere.

Since transportation costs are a major expense, there is a great incentive to locate new farms as close as possible to roads or existing farms (since these already have the necessary facilities, such as boats and jetties). This could lead to crowding and degradation of the necessary lagoon and mangrove support system and would also transfer disease from one farm to another, with potentially very serious results.

As a basis for deciding how aquaculture could be developed to improve the chances for sustainable resource use and

.. 'ecological footprint' reflects the land area necessary to sustain current levels of resource consumption and waste discharge by a given human population...

long-term maximized fish production in Lake Kariba, Zimbabwe, we estimated the economic and ecological resource demand, expressed in industrial and solar energy units, respectively, for semi-intensive pond farming and intensive cage farming.

Also estimated were the ecosystem areas appropriated by the two farms for production of feed, oxygen and phosphorus assimilation. The results showed that intensive cage farming would require about 17,800 million joules (mj) of solar energy (gross primary production) to produce one kg of fish. The industrial energy input would be more than one and a half times higher (about 85 mj/kg) compared to semi-intensive pond farming (about 50 mj/kg).


Intensive cage farming must also be supported by ecosystem areas that are all substantially larger than the area of the farm itself. The aquatic ecosystem area for producing feed is the largest (21,000 sq in/sq m cage area), but the areas required for daily oxygen production (compensating for fish respiration and biological oxygen demand or BOD) (160 sq in lake area/sq m cage area) and nutrient assimilation (115 sq m area/ sq in cage area) are of special importance since these areas must be located close to the *farm*.

For semi-intensive pond farming, oxygen production and nutrient assimilation could probably be provided within the pond system, and no external life support from Lake Kariba would be needed, since waste from harvested fish could be used in the ponds. This waste does, of course, also originate from a support area, but it is not accounted for, as the waste would otherwise be thrown away.

From an ecological point of view at least, semi-intensive pond farming is more sustainable than intensive cage farming because it needs a smaller input of external resources to survive. However, from our study, it was also concluded that a moderate level of intensive cage farming could exist beside the pond farming systems, giving the pond farmers access to a functioning support and transportation network.

We are aware that ecosystems are complex, with non-linear thresholds and discontinuities, but the ecological footprint is a static measure. Although static, the footprint eliminates the 'bidden' requirement for ecosystem support, and puts the scale of aquaculture within an ecosystem framework.

There are some important aspects of ecological footprints that we are in the process of analyzing. One is to compare several activities using a mutual ecosystem and to establish the extent to which their footprints overlap and if so, whether they compete or supplement one another. Another critical issues concerns ecosystems as multifunctional systems. Several resources and services are produced by the same ecosystems. To address this properly requires a knowledge of the internal relationships of the ecosystems.

Further, besides relating the size of a footprint to the resource appropriated, the permanency of the footprint has to be taken into account as well. This means that we have to separate between activities appropriating only a minor part of the supporting system and those appropriating larger parts, and also between short-lived effects from the footprint on the ecosystem and more permanent effects. 

This piece is by Max Troell, who along with Carl Folke, Nils Kautsky, Hakan Berg and Jonas Larsson, represents the group working with 'footprints' in aquaculture at the Department of Systems Ecology Stockholm University

Muddy waters

The Indian Supreme Court's judgement on regulating aquaculture will have a varying impact in the State of Andhra Pradesh

Any attempt to study fisheries (marine and inland) in the south Indian State of Andhra Pradesh has to contend with the basic drawback that the available reports and secondary data are extremely superficial. The problem is worsened by the fact that none of the data—neither from the Central Marine Fisheries Research Institute (CMFRI) nor the State government—seems to have been seriously utilized to arrive at conclusions and policy decisions. Only under pressure do agencies bother to collate information into a particular format. Whatever data is available thus exists in an inert, unformatted and poorly presented fashion.

For instance, the State Government's handbook on fisheries quotes a figure of 177,000 as the total number of marine fishermen in the coastal districts. But coastal Andhra Pradesh comprises different regions like Telengana and Rayalaseema. And within these, there also exists a marked differentiation amongst the types of fishermen, based on whether they fish in the interior areas, in rivers or in the sea.

A broad categorization of Andhra Pradesh would start with the Krishna-Godavari delta area, with Nizampattnam as one boundary. South of Nizampattnam is the open, beach-based fishery, where *kattumarams* (catamarans) operate. North of Nizampattnam, up to Kakinada, is the delta region, entirely a fertile, paddy-growing area, rich in mangroves. Here, the fishing community lives largely by the river banks, fishing either in the river or in the sea (accessing the sea through the river mouth). In the delta region there is, by and large, no beach-based fishery. Only north of Kakinada can be found, once again, a beach-based fishery where *kattumarams*

operate. As far as data is concerned, aquaculture is an area which has been relatively better researched in Andhra Pradesh, since several NGOs have worked to gather information. Nonetheless, analyzing the available facts leads to the impression of some sort of confusion and lack of clarity.

Even though, at the ground level, many people are aware of what is actually happening in Andhra Pradesh, the information that has been projected to the outside world, particularly in the present controversy over the implementation of the Coastal Regulation Zone (CRZ.) notification, seems to relate more or less to the southern districts of Nellore and Prakasam, where the corporate invasion has triggered the movement against aquaculture.

However, the Krishna-Godavari delta region, which accounts for approximately 70 per cent of the total aquafarm area of Andhra Pradesh, presents a distinctly different picture. The southern beach zone contains about 20 per cent of the aquafarms, while another five per cent lie along the beaches of the north. Totally different sets of issues and problems are raised by beach-based aquaculture and aquaculture in the delta region.

The conversion of paddy fields into aquaculture farms, which is definitely a matter of major concern, occurs entirely in the delta region. But this region has other problems, which tend to be overlooked.

Corporate entry

The initial entry of the corporate sector and private investors took place in the beach-based aquaculture in the south of Andhra Pradesh—probably because, among other factors, the area is close to the city of Madras. Some of the farms are

situated right on the beach, pumping in sea water. Others are by the side of salt-water creeks.

For the fishermen operating from the beaches, the first problem faced is 'land grab'. In this part of Andhra Pradesh, land has traditionally been cheap, and large areas of apparent wasteland are easily available. But how much of these really constitute wasteland is a moot question. Some areas have been used to grow casuarina trees, some were used by fishermen for small-scale cultivation, while other areas have long remained as the village commons.

Such land has been acquired by the corporate sector and private investors in various ways. Some have been straightforward, outright purchases. In other cases, after a plot of land was bought, local bosses have used incentives, influence and even muscle power to grab the surrounding areas too.

The other problem typical of the area is more technical. Due to their greater porosity, sandy beaches are not very suitable for aquaculture. The salt water from the aquafarms seeps into the surrounding areas and affects the groundwater. In many of the villages, agriculture in the neighbouring areas was thus badly affected. Hence, technically, beach-based aquaculture does not appear very healthy—with some notable

exceptions. As it is based on substantial externalities, such aquaculture is unlikely to be technically and economically sound, especially if the externalities have to be avoided or paid for.

In some areas, hatcheries have constructed long pipelines to pump in water from the sea. This has led to, for instance, shore seines and gill-nets getting trapped in the pipelines. Pumping in large quantities of water creates some turbulence and so fish may avoid the area. Thus, fishermen would feel strong negative externalities on their fishing operations.

Furthermore, fishermen's access to the sea has been curtailed or hampered. What was previously common, open land through which the fishermen could freely walk has now been closed, with guards posted to check the passes issued to them. Often, [he fishermen see this as a terrible kind of indignity.

Buckingham Canal

A related problem centres on the Buckingham Canal, which flows through the whole beach area up to Madras. For the aquafarms in the south of Andhra Pradesh, the Buckingham Canal has become the favourite dumping ground for all the waste from aquaculture. This silts up the canal, which, in any case, has long been neglected environmentally. Fishermen of the area have often blamed

the polluted Buckingham Canal for their skin diseases, as well as for being a breeding ground for mosquitoes.

These complaints have motivated the NGOs of the area to take the lead in mobilizing public opinion against aquafarms. Some NGOs also impleaded themselves in the Supreme Court case.

For these very tangible reasons, the Nellore and Prakasam districts of Andhra Pradesh, where corporate private investment has taken place on a large scale, have become the focus of the anti-aquaculture movement.

In the delta region, however, the situation is quite different. This is not to imply that the aquaculture practised there is more justifiable or healthy. Not only do the problems differ, so do the actors. Most often, people who have been cultivating paddy, especially in the Krishna district, which accounts for more than half the total aquafarm area of Andhra Pradesh, have *en masse* shifted to prawn culture, attracted by the tremendous difference in profitability.

In paddy cultivation, an annual profit of Rs 10,000 per acre is considered good. Prawn culture, on the other hand, can fetch up to Rs 100,000. Even those who initially hesitated finally plunged into aquaculture. The profits made in the first year have been used to buy or lease more land for the second season.

Strictly speaking, the aquafarm boom began only in 1991, even though a slow diffusion had set in since the late 1980s, as medium-sized farmers and private investors started learning about aquaculture.

Between 1991 and 1992, the area in Andhra Pradesh under aquafarms doubled. A further doubling occurred over the next two years, as the majority of aquafarmers chose to reinvest their earnings. Many of these farms are five or 10 acres in size, the largest ones going up to 20 acres. The smaller ones are around two acres in area.

There are also quite a few two-hectare farms, most of which belong to investors

from the fishing community. Medium-sized farms of five to 10 acres (large in a normal agricultural context, but regarded small in aquaculture) are considerable in number, while truly large farms are rare. Many of the small farms do not have proper legal documents to establish ownership rights. Several are leased from neighbours.

Though both fishing and agricultural communities have sunk money into the new aquafarms, investors from the agriculture sector dominate since they had more land to start with, as well as better access to funds.

The truly big farms in Nellore and Prakasam districts present an awesome sight—beautifully laid out ponds of half or one ha size and 10 to 12 ft deep, fed with large pipelines. In contrast, in the delta region, the ponds are very shallow, with side trenches merely a couple of feet below the level of the existing paddy fields. This prevents any exchange of water, after the initial pumping-in period. The water in these ponds thus remains stagnant.

Capitalist agriculture, based on cash crops like tobacco, exists in Prakasam. However, Nellore's economy is still largely feudal. Most paddy fields there belong to landlords from the Reddy community. They are also the ones who control fishing villages through the head of the village. Usually, the relationship with the local landlord community facilitates the sale of land belonging to the fishing village—often for a song.

Other areas lack similar large tracts of land for sale. Even when available, small- and medium-sized farmers would not easily part with their land. In a sense, therefore, the failure of land reforms and the existence of a feudal economy helped the development of this particular kind of aquaculture in the Nellore district of Andhra Pradesh.

Initially, the aquaculture in this area was very extensive, fed with wild prawn seed and natural feeds like oilcake mixed with fishmeal.

New rush

Subsequently, once manufacturers of aquaculture industry the boom began,

inputs for the (like feed, chemicals and antibiotics) established roots in the area. In towns like Nellore and Machilipatnam, hoardings for shrimp feed prominently crowd out advertisements and billboards for other consumer goods.

As a result, hatcheries began getting into the business. In the initial stages, hatchery production was much below demand. So wild seeds were greatly sought after. Lured by the Rs 3 or Rs 4 paid for each seed, children and women used nylon drag-nets to catch prawn seed in the river mouths. This undoubtedly would have badly affected marine prawn production.

Once hatcheries began operating, however, the price of prawn seed dropped to less than half a rupee. But wild seed collection continues, since there exists some consumer demand for shrimps reared from natural wild seed.

Soon enough, in Andhra Pradesh's aquaculture industry, the corporate sector found itself in the doldrums, mainly due to the outbreak of disease in aquafarms in 1994 and the enormous seepage of water from the ponds, which raised the cost of maintaining the farms. For this sector, therefore, the Supreme Court judgement is the proverbial last nail in the coffin. In the delta region of Andhra Pradesh, where only extensive

aquaculture is practised, the investment in farms has been meagre—only Rs 10,000 to Rs 15,000 per acre for conversion from paddy land.

Interestingly enough, this raises the question of the intensity of aquaculture, an important focus of the ongoing debate in India on the worth of aquafarms. Intensity does not appear to be the crucial factor. Though it undoubtedly matters in attempts to control or regulate the industry, the more basic and significant question is whether the technology used is appropriate for the particular social and natural environment where the aquafarms operate. It is very clear that in Andhra Pradesh, the smaller aquafarmers using extensive techniques have destroyed their businesses and the environment in perhaps a more damaging fashion than the bigger farms.

Poor water management and the nature of land being not especially suited for aquaculture, coupled with the small farmers' inability to invest in water treatment technology, have been behind this disaster. Yet, the profits from aquaculture were far greater than those from paddy cultivation. This continued to motivate 'the pink gold rush'.

Approval unlikely

To be fair, the Government of India and the Marine Products Export Development Authority (MPEDA) may never have

approved these farms. All of them were in the informal sector, and *were* started without technical support by ordinary farmers in a merely pragmatic, unorthodox, unconventional and unscientific manner.

Many of them began their ventures by observing and copying the practices of neighbouring farms, some of which were closer to brackish water areas and benefited from technical support. Some farmers even visited aquafarms as far up as Kakinada. Others leased part of their land to outsiders from Vijayawada, for instance, and used the money earned to then build up their own farms.

At the height of the boom, the area under aquaculture in Krishna district went up to 32,000 ha. (The actual area of paddy converted is not clear. Some government officials say it amounts to between 2,000 ha to 5,000 ha. It is also unclear how much mangrove area has been lost. While one official figure is 500 ha, another fisheries official claims 80 per cent of all mangroves have been converted. This seems to be an extreme estimate.)

With disease affecting most aquafarms in 1994, the entire industry collapsed. Tragically, most of the farmers' investments had been made from huge borrowings. The smallest loan amounted to Rs 20,000, but most other, debts ranged from Rs 100,000 to Rs 500,000. Some of those who could not repay their debts committed suicide.

Since 1995, the area under aquaculture has shrunk to 20,000 ha. Many farmers who earlier harvested shrimps twice a year, during summer and winter, have now confined their farming to a single summer harvest, since it is in winter that water salinity is low and the chances of disease higher. These farmers are also risking reinvesting their earnings from that single crop so that they can repay their debts. Overall, however, the situation is far from even. Some farmers have got good returns, while others have only sunk further into debt.

The Supreme Court judgement has now created panic. In Andhra Pradesh, the limit of 500 m from the High Tide Line

(HTL) stipulated by the Coastal Regulation Zone (CRZ) notification is not the major problem. Perhaps only 10 per cent of the farms will be affected by this ruling. The average fishing village can be one to three km from the HTL. As protection against cyclones, the government has built a large shelter belt of casuarina trees between the villages and the HTL. In such a context, some people will be drastically hit by the 500-in limit, but certainly not everyone.

The truly crucial matter relates to the distance from the salt-water creeks and canals. The original 1991 CRZ notification puts it at 100 m from creeks and canals. Subsequently, in 1994, it was amended to 50 m. But it is unclear whether the amendment is still valid.

Each State was asked to draw up its own Coastal Zone Management Plan (CZMP). Andhra Pradesh's plan, which runs into almost 5,000 pages, is reportedly the most elaborate and, from an environmentalist point of view, perhaps the best. Andhra Pradesh's CZMP has been very generous in stipulating the distance from creeks and canals as 500 m.

Since the Ministry of Environment and Forests has accepted the plan, and its approval has been conveyed to the Supreme Court, there is currently a strong belief that implementation of the Supreme Court ruling means observance of the 500-in limit from creeks and canals. This is what the Collector of Krishna district and the Assistant Director in the Department of Fisheries have told the people. This interpretation implies that around half the total number of farms in the area will simply have to close down. For instance, in Kandeleru creek in Nellore district, an important area for the corporate sector, whether the limit from the creek is 50 m or 500 m will critically determine the future of farms there.

Ensuring compliance with the Supreme Court's orders is the responsibility of the district administration, specifically the District Collector and the Superintendent of Police. But confusion reigns.

Differing impressions

In other districts of Andhra Pradesh, like West Godavari and East Godavari, officials in the local administration seem

to be under the impression that implementation of the Supreme Court judgement means a limit of either 50 m or 100 in, not 500 m. So, most of the aquafarmers are not overly bothered. The original notification stipulates a limit "not less than" 100 in, the actual limit to be decided by each State government, according to its CZMP. In the case of Andhra Pradesh, the plan has made the limit 500 m.

The Supreme Court judgement, however, creates more problems for Andhra Pradesh than it solves. In Tamil Nadu, the ruling deals a deathblow to the aquaculture industry, especially in the Tanjore delta region, home to big corporate investors.

But in the Krishna-Godavari delta in Andhra Pradesh, most of the farmers are small-scale operators who have invested either their own savings or personal loans, and who simply do not have the option of declaring bankruptcy. These minor farmers and fishermen are bound to lose their land to the moneylenders. Thus, large-scale dispossession and loss of land will occur in the Krishna-Godavari delta.

On the other hand, consider the Vashista Godavari, a distributary which divides the east and west sides of the Godavari. On one side lie very well-developed farms which could not possibly pose any

major problem to the environment or the locals, but these farms are the ones which will be affected by the 500-in limit ban, while many undeserving companies will be allowed to remain. Ironically, in cases like these, those who pose the least threat are the ones closest to salt-water areas.

Naturally, responses to the Supreme Court judgement have been varied. In Machillipatnam, farmers quickly formed an association and, on 14 February, rallied in a demonstration against the proposal to destroy their prawn farms. Krishna district is likely to witness some resistance from the farmers, but this will be equally mixed. Some of the farmers will succumb to pressure, while others will defy and fight attempts to raze down their farms. A problem of law and order may arise, which may even provide a safe and convenient excuse for the government administration not to go ahead with the destruction of the aquafarms.

Evidently, unless there is a proper rehabilitation plan for farmers, including aid to convert aquafarms back to paddy fields, the tragedy slowly unfolding in the delta region will spell the end of the small-scale aquafarmers. But this tragedy is largely of their own creation.

Already disease-hit

Even prior to the Supreme Court ruling, a large number of these farms had already been devastated by disease and poor

water management, and several farmers were already in deep debt. Thus, a huge disaster was in the making in any case. But, in some of the areas of Andhra Pradesh, the Supreme Court judgement robs aquafarmers of any chance of recovery.

In analyzing the problems posed by aquaculture, it is important to examine the agriculture-aquaculture interface. There is a danger in viewing aquaculture as a problem area which exists in the fisheries sector. Had it been seen as an agricultural problem, within the jurisdiction of agricultural officers, a greater balance would have occurred in perceiving and understanding the way natural resources have been used.

A related problem is the economic return that agriculture entails, particularly in the Krishna district of Andhra Pradesh. Despite the existence of a wide distributary of the Krishna river, the area suffers from an acute problem of water salinity. Many of the canals and distributaries of the Krishna are saline up to 10km or 15 km inland from the sea. The farmers thus have to depend on irrigation canals coming from further up. Those who live at the tail-end of these canals do not get this water as easily, so they end up using saline water. Clearly, environmental issues differ from socioeconomic and equity issues. Given the nature of the political economy that currently exists in India, it seems very unlikely that aquaculture can ever be made environmentally and socially sound. How can a farmer be prevented from cultivating what he wants on his own land? On the other hand, ironically enough, it may be easier to check and regulate the corporate sector.

Interestingly, within this sector, a new trend of employing a team of technical experts to turn around sick aquafarms can be observed, especially within the 50-in limit. Often, the starting point is a corporate farm which has been devalued by disease and could be bought cheap by a new entrepreneur who then brings in turnaround specialists. Yet, even these new ventures will have to contend with the judgement. In its interim ruling, the Supreme Court had banned the pumping of sea water and groundwater, and

conversion of paddy fields into aquafarms. These conditions would have crippled the industry. But, in its final judgement, the Court has only taken recourse to the CRZ norms: No aquafarms other than 'improved traditional' ones will be permitted within the CRZ. Although paddy field conversion has been disallowed, nothing has been specifically said about the fields already converted.

Further, whether the new regulatory authority for aquaculture to be set up under the terms of the Supreme Court judgement will be able to tackle all these problems is not very clear. The essential focus of the judgement thus does not appear to be aquaculture problems in toto, with an unambiguous ruling on the entire gamut of issues. Rather, it has preferred to stick to the strict implementation of the CRZ norms, apart from mandating the formation of a regulatory authority.

Although it has propounded very useful principles like the 'polluter pays' norm and the 'precautionary approach', which can be followed up by this new authority, the Supreme Court judgement does not state where aquaculture can be legitimately carried out. Had the focus of the judgement been purely environmental, it would have considered the whole range of issues raised by the operations of the aquaculture industry in India. Instead, the Supreme Court has somewhat limited itself to the CRZ notification.

It also remains vague to what extent the new regulatory authority will be able to rectify the situation. Usually, duly constituted authorities prove efficient only in implementing measures like licensing and taxation, for instance, which ensure the future health of a sector. But today in India a drastic step like razing down farms can only be taken by the Supreme Court. ¶

This analysis by V.Vivekanandan, Co-ordinator of ICSF's Animation Team, is based on a recent tour of the aquaculture areas of Andhra Pradesh

Aquaculture

A welcome noose

The recent radical ruling of the Supreme Court of India on regulating shrimp farms should be welcomed

On the 11 December 1996, the Supreme Court of India handed out one of the most radical decisions in recent times—radical in terms of the principles it has articulated and its approach to the special interests which are constantly being raised in the post-liberalization era of economic reforms in India.

The shrimp industry is touted as a major foreign exchange earner and an economic liberator of the agrarian economy. Behind the razzmatazz, with active support from government and financial institutions, millions of rupees have been pumped into this industry. Heady and flush with funds, the industry has been riding roughshod over environmental concerns for more than a decade now.

The way aquafarms were established without any sanction from any regulatory authority, one would think that the industry thought itself to be above the law. Public sector financial institutions, notorious for their tightfistedness and attention to detail when dealing with villagers asking for loans to build houses or buy cows, bent over backwards to fuel the 'pink gold' rush.

The nouveau pisci-prospectors converted large tracts of land all over the coast into prawn industry sites, blockading the coast, stuffing prawns with steroids and antibiotics, blinding mother prawns caught in the wild to raise reproduction rates and densely stocking the ponds with shrimps.

In addition, they increased the salinity of coastal aquifers, destroyed mangroves and wetlands and degraded the environment—cocking a snook, in fact, at all and sundry, including the interim

orders of the Supreme Court. All this was done in the name of a half-baked theory that the foreign exchange earned would at one stroke cure every single default and crime committed along the way.

This dollar-centric argument has been challenged by the ultimate arbiters of the public good, the people themselves, who embarked on a campaign of protests. Several networks of NGOs, fishing communities and environmental activists were formed. Demonstrations, fasts and strikes were undertaken to focus the attention of the powers-that-be on the problems caused by the 'blue revolution', as the aquaculture industry was heralded, bringing back bitter memories of a chemical-intensive agricultural transformation strategy employed in India during the 1960s and 1970s. Such a boom had already been witnessed in Taiwan, China, Thailand, the Philippines, Indonesia and Malaysia, though the environment there was subsequently ravaged by this industry.

Needless to say, governments of the coastal States as well as the Centre, remained impervious to people's sensitivities and the fact that the farms were violating the law. A petition under Article 32 of the Constitution of India was filed before the Supreme Court by a Gandhian, S. Jaganatthan.

Enforcement sought

This sought the enforcement of the Coastal Regulation Zone (CRZ) Notification of 1991, passed under the Environment Protection Act, 1986, under which all activity within 500 metres of the High Tide Line (HTL) and near creeks, backwaters, estuaries and other water-bodies influenced by tidal action, was regulated. This notification has hardly been enforced in most states.

The petition also sought the stoppage of intensive and semi-intensive type of prawn farming and also a ban on converting wastelands and agricultural lands to prawn farms. The Tamil Nadu based Campaign against Shrimp Industry filed intervention applications in this petition.

In March 1995, the Supreme Court ordered that no further shrimp or aquaculture farms be permitted, that no ground water be drawn for aquaculture and that no part of agricultural lands and salt pans be converted to commercial aquaculture farms.

In spite of the Supreme Court directing the District Collectors to enforce this, prawn farms continued to be established with no let-up. Going by a recent report filed by the Tamil Nadu Pollution Control Board in the Madras High Court, at least 65 farms in Tamil Nadu have been established in violation of the March 1995 order of the Supreme Court and the Tamil Nadu Aquaculture Regulation Act, 1995.

By May 1995, Tamil Nadu had enacted the Tamil Nadu Aquaculture Regulation Act, 1995. Under this, no prawn farm could be set up without a licence from the government. Existing farms also had to obtain a licence by 10 July 1995. According to data provided by the Tamil Nadu Pollution Control Board to the Madras High Court in December 1996, out of the

910 prawn farms in Tamil Nadu, 744 farms had not even applied for a license. No information was available on this aspect for 49 farms of Pudukottai district. None of the 78 farms in Thanjavur had applied for a licence. Out of 402 farms in Nagai Quaid-E-Milleth district, only five farms had applied for a licence. The majority of the farms which had applied for licence had done so only after the Madras High Court ordered the closure of all farms by Order dated 7 November 1996.

None of the 910 farms or 54 hatcheries in Tamil Nadu has a valid order of consent from the Tamil Nadu Pollution Control Board under the Water (Prevention of Pollution) Act, 1974. Of the farms, 702 had not applied for permission from the Pollution Control Board to discharge effluent. Only 208 units had applied for such permission.

Court order

Many of these applications had been made after the order of the Madras High Court. Of the 54 hatcheries, 30 had not bothered to apply for permission to operate from the Pollution Control Board. The Tamil Nadu Pollution Control Board has categorically gone on record that there is a likelihood of groundwater, surface water, creeks, sea and land being polluted, and that untreated effluent generated from the aquaculture farms or hatcheries are being disposed into the sea, creeks, land and inland surface water.

A 13-member scientific team from the National Environmental Engineering Research Institute (NEERI), on the directions of the Supreme Court, visited prawn farms in Tamil Nadu between 10 and 19 April 1995, and submitted a report. This report quantified the total permanent damage on account of aquaculture at Rs 17,791.2 million, the annualized damage at Rs 4,230 million and the annual earnings from the aquaculture activity at Rs 2,800 million.

Needless to say, this report was criticised by the aquaculture industry. They questioned its methodology and its findings, without pausing to think that they had not undertaken any environmental impact assessments before setting up their farms.

The Campaign Against Shrimp Industry also set up an Expert Committee to undertake a fact-finding mission on the environmental impact of prawn farms in Tamil Nadu and Karaikal in Pondicherry. This Committee comprised of Justice H. Suresh, a retired judge of the Bombay High Court, A. Sreenivasan, retired Joint Director of the Fisheries Department, A. G. K. Menon, ichthyologist, V. Karuppan, a retired civil servant, and Dakshinamurthy, a medical surgeon. This Committee also submitted a report clearly indicting the prawn farmers for their unfriendly practices on the environment and the livelihood of the

fishing communities dependent on the coast. The report was extensively quoted by the Supreme Court in its 110-page order, passed in December 1996, after hearing all points of view over several months.

The order directed the demolition of all prawn farms set up within 500 m of the HTL and alongside creeks, backwaters, estuaries, rivers, etc. and within 1000 m of the Chilka lake in Orissa and the Pulicat lake in Tamil Nadu and Pondichery, by 31 March 1997. The Court further directed the setting up of a Special Authority to protect the coast. This Authority alone would licence all aquaculture industry outside this area. It would also be empowered to assess the loss caused to the ecology and to the villagers and collect damages from the prawn farms.

Apart from the CRZ areas (500 m from the HTL and within 100 m of lakes, rivers, creeks and backwaters, as set out in the Coastal Zone Management Plan of the State of Tamil Nadu), the Court also banned the conversion to shrimp farms of agricultural land, salt pans, mangroves, wetlands, forest lands, land for village commons and land meant for public purposes.

Environmentalists hailed the judgment as historic. The response from the industry was muted. The industry claimed that the majority of the farms in Tamil Nadu were

traditional and, therefore, outside the scope of the Court order.

They also claimed that they had Pollution Control Board clearance and that the majority of farms were outside the CRZ areas. All this in the face of clear reports that out of 910 prawn farms in Tamil Nadu, 119 were situated within 0-200 m of the HTL, 64 within 200-500 m of the HTL and 722 next to creeks.

Out of the 54 hatcheries in Tamil Nadu, 37 were within 0-200 m of the HTL, 10 within 200-500 m of the HTL and six were next to creeks. Therefore, contrary to claims that only a small percentage would be affected by the order of the Supreme Court, merely five farms and one hatchery possibly lie outside the CRZ area.

Even these may still fall foul of the Tamil Nadu Aquaculture Regulation Act, 1995, and the Supreme Court directive on non-conversion of agricultural and other lands to aquaculture.

The claim of the Tamil Nadu aquaculture industry that it was traditional was clearly belied by the finding of the Supreme Court that the only States in India where traditional aquaculture was practised were West Bengal, Kerala and Goa.

When the full impact of the Supreme Court order was understood by the industry, it started laying claims that the majority of the farms were held by small farmers. Actually, only a few farms involve investment of under Rs 200,000.

The industry further claimed that Rs 2,000 million had been advanced by public sector financial institutions and that many fishing communities depended on the industry. However, the industry is hardly labour-intensive. On the other hand, it tends to displace and marginalize labour.

All or most of the farms, claimed industry spokesmen, had pollution control technology installed. In truth, over half the farms do not even have the space to install effluent treatment plants.

The falsity and untenability of these claims was exposed when a petition referred by some of the industrialists

before the Supreme Court, seeking review of the December 1996 order, was dismissed on 4 January 1997.

Whatever be the arguments of the industry, it can have no valid claim to any sympathy. In several parts of Tamil Nadu, the industry has attempted to intimidate environmental activists, employed child labour and committed innumerable acts of human rights deprivation, with the active connivance of the State government machinery.

In the context of the conduct of the industry, the order of the Supreme Court is but a richly deserved hangman's noose. In the process of bringing the errant aquaculture industry to book, the litigation against the industry has enriched environmental jurisprudence.

From a purely legal point of view, the court has reiterated the principles of 'precaution' and 'the polluter should pay'. Ever since the Union Carbide Bhopal gas tragedy, the courts have been sympathetic to environmental concerns and have imported well established principles of law into Indian tort law.

Simply put, the precautionary principle means that environmental regulation should anticipate and prevent environmental degradation, and not merely attempt to provide relief after the damage has occurred.

This principle postulates that the onus of proof is on industry to show that its operation is benign and that even if there is a threat of serious and irreversible damage to the environment, immediate steps should be taken to prevent it, without quibbling over scientific certainty. In the case of the 'polluter pays' principle, the industry would be absolutely liable to compensate victims of pollution, and also reverse environmental degradation.

Jurisprudence

These principles are nothing new to the world of environmental jurisprudence. But their reiteration could not have come at a more opportune moment than now. From the viewpoint of an environmental lawyer, the judgment is trend setting for its acceptance of the validity of the citizens

reports on environmental litigation. It thus takes to its logical conclusion the long-accepted view that all public interest litigation is non-adversarial in search of the truth.

The judgment is also a clear indictment of the Pollution Control Boards. With no public representation, these regulatory bodies have held themselves out to be the final arbiters of environmental standards and have for years been acting as an active limb of the industry, neglecting the interests of the people.

Concepts such as 'sustainable development', 'the polluter pays', the precautionary principle' and 'inter-generational equity' have thus been indelibly stamped on to Indian environmental jurisprudence. This will enrich other ongoing struggles against national and multinational industries (like Enron's Dabhol power project and DuPont's nylon-6,6 project, to name a couple) which have set up shop in India violating these norms. It has shown the way for the courts of the future to employ tools of environmental economics to give short shrift to the half-baked 'dollar' argument.

However, in my opinion, the most progressive part of the judgement lies in its articulation of inter-generational equity, the central tenet of which is the right of each generation of human beings to benefit from the cultural and natural inheritance from past generations as well as the obligation to preserve such heritage for future generations.

The recognition of this principle by the Supreme Court of India points to the long road that human rights jurisprudence has traversed in India. It should also serve as a timely reminder to policymakers who indiscriminately allocate resources that are already threatened.

The judgement by the Supreme Court of India is radical, progressive and empowers people, hitherto marginalized to fight longer and harder battles. ♣

This piece has been written by T. Mohan, a lawyer based in Madras, who is associated with the Coastal Action Network

Polluters must pay

The recent order of the Supreme Court of India banning shrimp farms in coastal areas is a landmark judgement. Excerpts:

...This petition under Article 32 of the Constitution of India—in public interest—has been filed by S. Jagannathan, Chairman, Gram Swaraj Movement, a voluntary organization working for the upliftment of the weaker sections of society. The petitioner has sought the enforcement of Coastal Zone Regulation Notification dated February 19, 1991 issued by the Government of India, stoppage of intensive and semi-intensive type of prawn farming in the ecologically fragile coastal areas, prohibition from using the wastelands/wetlands for prawn farming, and the constitution of a National Coastal Management Authority to safeguard the marine life and coastal areas.

Keeping with the international commitments and in the greater national interest, the Government of India and the Governments of the coastal States are under a legal obligation to control marine pollution and protect the coastal environments.

While the production increases and export earnings of the industry are well publicised, the socioeconomic losses and environmental degradation affecting the well-being of the coastal population are hardly noticed.

In fact, shrimp farms are developing at the expense of other agriculture, aquaculture, forest uses and fisheries that are better suited, in many places, for meeting local food and employment requirements. Intensive and semi-intensive types of shrimp production hardly seem to meet these requirements.

...We may refer to constitutional and statutory provisions which mandate the State to protect and improve the environment. Article 48-A of the

Constitution of India states that “the State shall endeavour to protect and improve the environment and to safeguard the forests and wild life of the country”. Article 51-A of the Constitution imposes as one of the fundamental duties on every citizen, the duty to protect and improve the natural environment including forests, lakes, rivers and wildlife and to have compassion for living creatures. The Environment (Protection) Act 1986 (the Act) was enacted as a result of the decisions taken at the United Nations Conference on the Human Environment, held at Stockholm in June 1992, in which India participated.

...This Court in Vellore, Citizens Welfare Forum vs. Union of India and others has dealt with the concept of ‘sustainable development’ and has specifically accepted ‘the precautionary principle’ and ‘the polluter pays’ principle is part of the environmental laws of the land.

...We, therefore, order and direct as under:

- 1 .The Central Government shall constitute an authority under Section 3 (3) of the Environment (Protection) Act, 1986 and shall confer on the said authority all the powers necessary to protect the ecologically fragile coastal areas, seashore, water front and other coastal areas, and specially to deal with the situation created by the shrimp culture industry in the coastal States and Union Territories. The authority shall be headed by a retired judge of a High Court. Other members, preferably with expertise in aquaculture, pollution control and environmental protection, shall be appointed by the Central Government. The Central Govern-

ment shall confer on the said authority the powers to issue directions under the Act and for taking measures with respect to the matters referred to in clauses (v), (vi), (vii), (viii), (ix), (x) and (xi) of subsection (2) of Section 3. The Central Government shall constitute the authority before January 15, 1997.

2. The authority so constituted by the Central Government shall implement the 'Precautionary Principle' and the 'Polluter Pays' principles.
3. The shrimp culture industry / shrimp ponds are covered by the prohibition contained in para 2 (1) of the CRZ Notification. No shrimp culture pond can be constructed or set up within the coastal regulation zone as defined in the CRZ notification. This shall be applicable to all seas, bays, estuaries, creeks, rivers and backwaters. This direction shall not apply to traditional and improved traditional types of technologies, as defined in Alagarsamy's report, which are practised in the coastal low-lying areas.
4. All aquaculture industries/shrimp culture industries/shrimp culture ponds operating/ set up in the coastal regulation zone, as defined under the CRZ Notification, shall be

demolished and removed from the said area before March 31, 1997.

We direct the Superintendent of Police/Deputy Commissioner of Police and the District Magistrate/Collector of the area to enforce this direction and close/demolish all aquaculture industries/shrimp culture industries, shrimp culture ponds on or before March 31, 1997. A compliance report in this respect shall be filed in this court by these authorities before April 15, 1997.

5. The farmers who are operating traditional and improved traditional systems of aquaculture may adopt improved technology for increased production, productivity and return, with prior approval of the 'authority' constituted by this order.
6. The agricultural lands, salt pan lands, mangroves, wetlands, forest lands, land for village common purpose and the land meant for public purposes shall not be used / converted for construction of shrimp culture ponds.
7. Noaquaculture industries/shrimp culture industries/shrimp culture ponds shall be constructed/set-up within 1000 m of Chilka lake and

- Pulicat lake, including bird sanctuaries namely Yadurapattu and Nelapattu.
8. Aquaculture industry/shrimp culture industry /shrimp culture ponds already operating and functioning in the said area of 1000 m shall be closed and demolished before March 31, 1997. We direct the Superintendent of Police/Deputy Commissioner of Police and the District Magistrate/Collector of the area to enforce this direction and close/demolish all aquaculture industries/shrimp culture industries, shrimp culture ponds on or before March 31, 1997. A compliance report in this respect shall be filed in this court by these authorities before April 15, 1997.
 9. Aquaculture industry/shrimp culture industry/shrimp culture ponds other than traditional and improved traditional may be set up/constructed outside the coastal regulation zone as defined by the CRZ notification and outside 1000 m of Chilka and Pulicat lakes, with the prior approval of the 'authority' as constituted by this Court. Such industries which are already operating in the said areas shall obtain authorization from the 'authority' before April 30, 1997, failing which the industry concerned shall stop functioning with effect from the said date. We further direct that any aquaculture activity, including intensive and semi-intensive, which has the effect of causing salinity of soil, or the drinking water or wells and/or by the use of chemical feeds increases shrimp or prawn production with consequent increase in sedimentation which on putrefaction is a potential health hazard, apart from causing siltation, turbidity of water courses and estuaries with detrimental implication on local fauna and flora, shall not be allowed by the aforesaid Authority.
 10. Aquaculture industry/shrimp culture industry/shrimp culture ponds which have been functioning/operating within the coastal regulation zone as defined by the CRZ Notification and within 1000 m from Chilka and Pulicat lakes shall be liable to compensate the affected persons on the basis of the 'polluter pays' principle.
 11. The authority shall, with the help of expert opinion and after giving opportunity to the concerned polluters, assess the loss to the ecology/ environment of the affected areas and shall be liable to compensate individuals/families who have suffered because of the pollution and shall assess the compensation to be paid to the said individual/families. The authority shall further determine the compensation to be recovered from the polluters as cost of reversing the damaged environment. The authority shall lay down just and fair procedure for completing the exercise.
 12. The authority shall compute the compensation under two heads, namely for reversing the ecology and for payment to the individuals. A statement showing the total amount to be recovered, the names of the polluters from whom the amount is to be recovered, the amount to be recovered from each polluter, the persons to whom the compensation is to be paid and the amount payable to each of them shall be forwarded to the Collector/District Magistrate of the area concerned. The Collector/District Magistrate shall recover the amount from the polluters, if necessary, as arrears of land revenue. He shall disburse the compensation awarded by the authority to the affected persons / families.
 13. We further direct that any violation or non-compliance of the directions of this Court shall attract the provisions of the Contempt of Courts Act in addition.
 14. The compensation amount recovered from the polluters shall be deposited under a separate head called "Environment Protection

Document

Fund” and shall be utilized for compensating the affected persons as identified by the authority and also for restoring the damaged environment.

15. The authority, in consultation with expert bodies like NEERI, Central Pollution Control Board, respective State Pollution Control Boards, shall frame a scheme/schemes for reversing the damage caused to the ecology and environment by pollution in the coastal States/Union Territories. The scheme/schemes so framed shall be executed by the respective Governments/ Union Territory Governments under the supervision of the Central Government. The expenditure shall be met from the “Environment Protection Fund” and from other sources provided by the respective State Governments/Union Territory Governments and the Central Government.
16. The workmen employed in the shrimp culture industries which are to be closed in terms of this order shall be deemed to have been retrenched with effect from April 30, 1997, provided they have been in continuous service as defined in Section 258 of the Industrial Disputes Act, 1947, for not less than one year in the industry concerned before the said date. They shall be paid compensation in terms of Section 258 of the Industrial Disputes Act, 1947. These workmen shall be paid, in addition, six years wages as additional compensation. The compensation shall be, paid to the workmen before May 31, 1997. The gratuity amount payable to the workmen shall be paid in addition.

The writ petition is allowed with costs. We quantify the cost at Rs 1,40,000 (Rupees one lakh and forty thousand) to be paid by the States of Gujarat, Maharashtra, Orissa, Kerala, Tamil Nadu, Andhra Pradesh and West Bengal, in equal shares of Rs 20,000 each. The amount of Rs 1,40,000 realized from the seven coastal states shall be paid to Mr. M. C. Mehta, Advocate who has appeared in this case throughout. We

place on record our appreciation for the assistance rendered by Mr. Mehta. §

Document

This judgement was delivered by Justice Kuldip Singh and S. Sagir Ahmad of the Supreme Court of India at New Delhi on 11 December 1996

News Round-up

Foul goal

Imagine a massive 120-yard long American football field-not on your TV screens but swallowed up inside a trawl net. LFS Trawl, fishing gear manufacturer in the US, has introduced a midwater trawl called the Reuben's Glove.

The net features a mouth opening which measures 60 by 30 fathoms. The lighter yet stronger material used to make the net allows vessels with less horsepower to tow it. The nets come in a wide range of sizes, from around 800 hp to 3,500 hp and are sold mainly in the markets of the US and Canada.

Oyster booster

And now, a new market for oysters. The Donlar Company has

developed the world's first fertilizer-enhancer from polyaspartic acid, a polymer found in oyster shells. This product is said to help plant roots absorb nutrients from soil and boost crop yields. It is also claimed to bind phosphorus and

nitrogen, lowering non-point source run-off of these nutrients.

Pearl jam

Not all oysters are in great demand, though. Japan's Fisheries Agency has called for a voluntary limit on imports of pearl oysters from China, until the source and cause of widespread deaths among cultivated pearl oysters in five prefectures is better understood.

Coral film

This is the International Year of the Reef. And to commemorate it, the Smithsonian Institution of the US premiered an environmental documentary film, *The Fragile Ring of Life*. The film is part of an effort to raise public awareness about environmental concerns relating to coral reefs.

Shrimp talks

Thailand and the European Union (EU) have been holding talks on the potential for Thailand remaining eligible for low EU tariffs under the Generalized System of Preferences, if Thailand promotes environmentally friendly shrimp farming.

Present tariff concessions for Thai shrimp exported to the EU are scheduled to be halved in July 1997, and

full benefits will be withdrawn in two years.

Safer vessels

Eight East Asian nations have agreed to require that all 24- to 45-m long fishing vessels be equipped with emergency signal and radio communication equipment, pumps, life vests, and life rafts.

The move was in preparation for eventually becoming

parties to the 1977 and 1993 international conventions on maritime safety. China, Japan, Thailand, Hong kong, **Indonesia**, **Malaysia**, the Philippines and **South Korea** adopted these moderate guidelines to reduce loss of life from fishing vessel accidents.

Oil spill

Lost at sea early this year were an estimated 26,000 barrels (3,700 tonnes) of heavy oil, when the Russian oil tanker *Nakhodka* ruptured and split apart in storms in the Sea of **Japan**, about 90 miles off the north coast of Japan. The spill was estimated to be 962,000 gallons. More than 100,000 barrels of oil

remain in unruptured tanks.

The potential impact on fisheries and aquaculture is not definitely determined. The oil first came ashore along 60 miles of coast from Kyoto Prefecture to Fukui Prefecture and then extended along 450 km of the coast, ultimately affecting 900 km of the coast. Abalone, turbine shell, shrimp, crab and seaweed fisheries were reported to be most affected by the spill.

The vessel's US\$500 million insurance coverage is expected to compensate for damages. Six prefecture governments jointly called on the central government to designate the oil spill as a disaster rather than a maritime accident. Representatives from the National Federation of Fisheries Co-operative Associations and eight regional fisheries

associations called for thorough measures to compensate fishermen for damages from the spilled oil.

Yamaquaculture

Also in **Japan**, the Yamaha Motor Co. has announced that it will begin selling feed, imported from the Dutch producer NUTRECO International B.V., to Japanese

aquaculture operators from April 1997. Also around the same time, Yamaha will establish a company with NUTRECO to conduct research and development of marine fishery products.

Shuffling fleet

Next month will be crucial for the EU as the EU's Fisheries Council decides on the new fleet restructuring phase. Late last December, the Fisheries Council had agreed to measures easing 1997 catch quota reductions.

The quota for North Sea sole was not halved to 12,000 tonnes, but reduced to 18,000 tonnes. **Italy** and **Greece** succeeded in defeating moves for quotas on tuna in the Mediterranean.

Give and take

Negotiators in Japan and **Russia** successfully concluded an agreement for a quota this year of 100,000 tonnes from each other's EEZ, the same as the 1996 quotas. Furthermore, Japan will pay 400 million yen for an additional 9,000-tonne harvest, and fishing vessels are granted specified port privileges for resupply.

Net effects from Java

It is being hailed as a technological breakthrough—the production of good quality, residue-free healthy shrimps from sandy grounds. A company in Indonesia, PT Triasta Ciatre of Jakarta, has developed a system called 'biocrete',

a mix of cement, sand and palm fibres which is poured on to a bamboo framework used to reinforce the walls or dykes inside 2,700-sq m excavated ponds, the bases of which are covered with a protective plastic sheeting.

Unlike conventional ponds built with clay-based soils, whose high salt content and build-up of pathogens

force their abandonment in about four years, biocrete shrimp ponds are claimed to be usable year after year. The bottom plastic sheet also prevents sea water from polluting the underlying soils.

The company claims that using sandy soils ensures that the shrimp live in a clean environment throughout the production cycle. It may well signify the end of the usual 'hit and run' method of shrimp farming.

The system is also being touted as environmentally sound, as no longer will Indonesia's rapidly disappearing mangrove swamps have to be cleared to make way for aquafarms.

No-go groves

Mangrove protection got a shot in the arm

from a meet held in Leticia, Columbia last December. Participants met at the inter-sessional International Panel on Forests Meeting of Indigenous and other Forest-dependent Peoples on the Management, Conservation and Sustainable Development of all Types of Forests. 43 NGOs from all over the world were represented at the meeting.

They Adopted a resolution which noted that the gravest threat to mangrove forests is the expansion of industrial shrimp farming operations. It urged governments to take immediate action to halt the expansion of such shrimp farms.

MSC: Let me see

No such common ground was observed at a workshop in Vancouver, **Canada** held in January to discuss the plan of the Marine Stewardship Council (MSC) to introduce ecolabelling of seafood products. Fishing industry representatives expressed great reservation and mistrust of the MSC's process for evolving ecolabels.

However, the fact that the industry participants at the workshop sat through it and asked pointed questions meant that the industry is taking the MSC initiative seriously.

SOS: depth plight

Miskito Indian lobster divers off the coast of

Honduras and **Nicaragua** are in danger of paralytic decompression disease, which affects almost 30 per cent of the young men and boys in the costal villages.

These divers burn 10 or 12 tanks of oxygen each day, weeks on end, at depths exceeding 100 ft in search of the dwindling supply of lobster. Experts are baffled by how these divers survive this type of diving. As many as a third of them end up permanently crippled or dead.

SOS (Sub Ocean Safety), a small group working to help these divers, has set up recompression chambers in remote locations in both Honduras and Nicaragua.

"The worldwide plague of decompression disease is a sore boil on fragile fourth world societies," says Bob Izdepski, president of

SOS. "No environmental programme will mean a thing to these coastal peoples until some of the pressure is relieved at the root".

SOS desperately needs aid in terms of donations (money or J-valves for their scuba gear). They can be contacted at Sub Ocean Safety, po Box 834, Lacombe, LA 70445.

Undoubtedly, the first mariners were drawn from coastal fishing communities. But fisherfolk, like their peasant counterparts, are the lost people of history: its silent actors. Although they provided a vital pool of labour and maritime skills, fisherfolk were dominated, politically and economically, by more articulate groups such as merchants and ruling elites.

— from **The Indian Ocean** by Kenneth McPherson



ICSF is an international NGO working on issues that concern fishworkers the world over. It is affiliated to the Economic and Social Council of the UN and is on ILO's Special List of Non-Governmental International Organizations. It has also been granted Liaison Status by FAO. Registered in Geneva, ICSF has offices in Madras and Brussels. As a global network of community organizers, teachers, technicians, researchers and scientists, ICSF's activities encompass monitoring and research, exchange and training, campaigns and action programmes, and also communications. SAMUDRA REPORT invites contributions and responses. All correspondence should be addressed to ICSF's Madras office.

The opinions and positions expressed in the articles are those of the authors concerned and do not necessarily represent the official views of ICSF.

SAMUDRA REPORT can now be accessed on ICSF's home page on the World Wide Web at <http://www.gmt2000.co.uk/icsf>

Published by
Sebastian Mathew for
International Collective in Support of Fishworkers
27 College Road, Madras 600 006, India
Telephone (91) 44-827 5303 Facsimile (91) 44-825 4457
E-mail: madras.fishnet@access.net.in
Internet: mrsaab06@giasmd01.vsnl.net.in

ICSF Brussels Office:
65 Rue Grétry, B-1000 Brussels, Belgium
Telephone (32) 2-218 1538 Facsimile (32) 2-217 8305
E-mail: gilletp@mail.interpac.be

Edited by
SAMUDRA Editorial

Designed by
Satish Babu

Illustrated by
James S. Jairaj

Cover
Fresco of the Fisherman c. 1500 B.C.
TAP Service - Athens

Photographs courtesy of
UN Photo, UNICEF, Sebastian Mathew
Chantal Abord-Hugon, Ossie Fernandes

Additional news courtesy of
Gene Buck, Congressional Research Service

Printed at
Nagaraj and Company, Madras

SAMUDRA REPORT No. 17 March 1997
FOR LIMITED CIRCULATION ONLY

