

Coastal Aquaculture Should Not

Harm Environment

by Dr Nuruzzaman

THE magnitude and importance of coastal aquaculture production in Bangladesh is seldom envisioned correctly, due to the usually not-too-broad a view of aquafarmers. Recently, however, the rapid growth of shrimp culture focused the attention on the coastal areas and a new perception appeared, which retards coastal aquaculture as a new, socially contradictory and environmentally incompatible phenomenon. While semi-intensive pond fish culture blends well with the rice-based rural economy of Bangladesh, negative environmental impacts of our coastal aquaculture systems are beyond doubt. Especially harmful are those pond systems which are constructed in mangrove areas, altering irreversibly the original rich ecosystem.

It is important to realize that the aspiration of coastal aquaculture is not to produce more food for local consumption. Coastal communities always have a reasonable supply of cheap captured/collected seafood with which no cultured product can compete in price. Therefore, in coastal areas the dominant function of aquaculture is income generation, the production of cash-crops usually sold at the foreign markets. This is as legitimate an ambition as cheap food production in inland waters. The real problem is that coastal communities/farmers are seldom direct beneficiaries of shrimp cultivation. Benefits of shrimp culture, for instance, trickle down to coastal fishing communities only by generating some additional employment and by enhancing the overall rural development of hitherto neglected, impoverished coastal areas. However, in a country like Bangladesh with high population densities coastal aquaculture opens up a new frontier without putting more pressure on the limited land resources. This is the reason why China and Taiwan turned towards this type of

aquaculture and gave high priority to its development over the past decade. It is also important in Bangladesh context, to realize now, that out of the broad range of coastal aquaculture systems, pond culture of marine fish and shrimp or shrimp with paddy, is incompatible environmentally but controversial socially.

Coastal aquaculture can be considered as a potential area for development because of its financial attractiveness to private investors. It would however have to be socio-economically sound from society's point of view. Private investors usually use profitability as a measure of financial feasibility

survey of existing aquafarms and its potential areas for upcoming projects, are necessary. Such a survey always aims at solving problems because it directs research and initiates public action through a variety of disciplines. Government programmes in research, training extension, legal and regulation, credit, etc. are all important factors affecting coastal aquaculture development. While emphasis is being placed on coastal aquaculture development in Bangladesh, the current level of people's support and their spontaneous participation observed during last decades are very insignificant.

the high society.

Since the fish farmers/fishermen in the coastal areas are extremely poor, and are small-scale operators, their needs should be streamlined for institutional lending. There are also institutional weaknesses that usually facilitates the conversion of mangrove areas in to pond aquaculture under private use-rights. Mangroves are the unique resources for breeding and nursery grounds for many aquatic species and therefore should not be destroyed by issuing lease from the government departments.

The strategies for coastal aquaculture development

In a country like Bangladesh with high population densities, coastal aquaculture opens up a new frontier without putting more pressure on the limited land resources.

while public agencies should use social benefit-cost analysis along with some qualitative judgements. Economic study however plays an important role in the development of coastal aquaculture because it provides a basis not only for decision makers among existing and potential farmers but also formulating public aquaculture policy. A well conducted economic analysis and a comparison of different culture systems practised in Bangladesh and in neighbouring countries, will provide substantive direction for our coastal aquaculture development. Farm operators and policy-makers can avail themselves of different options in coastal aquaculture as result of such studies.

In order to identify the problems of the needs for development, or acceptability of a new project, a socio-economic

cant. Therefore, more farmers' participation in training, extension and research is needed to realize the potential for development. Immediate research in the field of reproduction, feed formulation, disease control and economic analysis and market potential are prerequisite for the success of a shrimp project.

As for credit, more than 90 per cent of our farmers and 100 per cent of fishermen still rally on non-institutional sources. Institutional credit from the Krishi Bank, the Grameen Bank and other banks is needed for aquafarms development, especially for small-scale farmers and fishermen. It is very unfortunate that most of the existing institutional and commercial credit programmes have been carried out in the names of the poor, in reality the benefits only go to some fashionable elites of

should conform to the objectives of natural development plan to increase income and employment opportunities for small-scale farmers' subsistence — level operations to meet immediate local needs by involving them in food production activities. To realize its potential, however, various steps have to be taken such as resource assessment, laws and regulation to ensure property or use-rights, regulations to prohibit pollution, training and extension services to improve production practices, preserving and processing facilities to improve quality and add value, market potential analysis to guide production and improvement of technology. All of these measures have to be pursued in an integrated fashion for efficient development and a collaborative exercise should control all concerned government organs for a manageable

Feeling the Heat in Honduras

by Olga Sheean-Stone

THERE is a saying in Honduras that if the devil were to visit Choluteca, hell would not seem like such a bad place.

In the southern states of Choluteca and Valle, formerly forested areas have been reduced to hot, arid wastelands, by deforestation, over-grazing and the over-use of chemical fertilizers and herbicides. This

The government is not going to protect the forest, the fauna or the rivers," says Juan Roman Martinez, Director of the National Agrarian Reform Institute (INRA). "It is the people who will ultimately have to protect nature."

With this concept in mind, members of MOPAWI, one of the WWF-supported organizations, have secured pro-

forests on Cocobila's doorstep. MOPAWI has been working with villagers to develop alternative means of livelihood and prevent any further forest destruction.

MOPAWI is offering courses in mechanics, nutrition and agroforestry to the 800-strong community. The villagers are taught how to make the best use of their basic products —



Slash-and-burn agriculture south of the Rio Platano Biosphere Reserve in Honduras eats into the tropical forest. Formerly forested areas in other parts of the country are now wastelands caused by deforestation, over-grazing and over-use of chemical fertilizers and herbicides.

hell on earth' has had serious repercussions for the rest of Honduras.

Farmers looking for a better life have been driven northwards in droves by the exhausted soils. Many of them practise shifting agriculture wherever they can find uncultivated lands, or work for lumber corporations.

A focal point for these mass migrations is the Rio Platano Biosphere Reserve in the Mosquitia region of north-eastern Honduras. The reserve is the country's largest protected area, covering 526,100ha.

The biosphere reserve was created in 1981, and designated a World Heritage Site by UNESCO. The reserve is managed by the Government of Honduras, with supporting ecodevelopment programmes in the reserve run by two local environmental organizations: MOPAWI (Mosquitia Pawaas, or Development of the Mosquitia) and World Neighbours.

The reserve's management, supported by WWF, and the Canadian International Development Agency (CIDA), aims to further protect the rich flora and fauna of the reserve, and to ensure the cultural survival of its indigenous groups.

Pesch and Tawahka-Sumu Indians have traditionally lived within the Rio Platano Biosphere Reserve. The forests have provided them with renewable construction materials, medicines, clothing and food. With large numbers of migrants now invading their homelands, the culture and livelihoods of these groups are increasingly threatened.

With little help from the government, these groups are beginning to realize that their fate is in their own hands.

visional government approval for the establishment of a Tawahka-Sumu Indian Ecological Reserve. An area of 200,000ha has already been granted for the new reserve.

This protected area will an extension of the Rio Platano Biosphere Reserve, and will abut on the Nicaraguan border, and link up to a major tropical forest reserve there, Bosawas. It will theoretically close off a major migration route, and create a corridor of protected areas stretching through the Honduran Mosquitia and a significant portion of Nicaragua. The 800 Tawahka-Sumu Indians living within this area would be responsible for its protection and maintenance.

Although only the southern part of the Rio Platano reserve has so far been seriously degraded by migrants, the problems may soon spread northwards. The fishing village of Cocobila on the northern coast, for example, is already facing serious socioeconomic difficulties.

Cocobila, an indigenous Garifuna and Miskito Indian community, is traditionally dependent on the sea for its livelihood. For the past 20 years, the Garifuna and Miskitos have been intensively harvesting lobster for export to the US. However, lobster stocks have now become so depleted, the government has imposed a moratorium on lobster fishing, leaving much of the community in dire financial straits. The moratorium began in February 1991, and many of the young people of Cocobila have since been forced to leave the village in search of work or agricultural land.

This loss of revenue could put extra pressure on the rich resources of the Rio Platano's

rice, beans, maize and mangoes. New crops, such as coconuts, are also being introduced.

Cocoa can be grown below the forest canopy without cutting down the trees. Unlike rice and beans, cocoa can withstand periodic flooding, and so provide farmers with a more stable form of income. As part of the training programme, farmers will visit agroforestry projects in Costa Rica to learn different techniques from other communities.

To raise local awareness of environmental issues, MOPAWI also organizes exploratory expeditions for Indian community leaders and teachers. The expeditions take place on rafts along major rivers within the reserve. The Indians see firsthand the effects of humankind's activities on the forest. No explanation or training is needed.

With heightened awareness of the problems, and increased motivation to protect the environment, the Indians then spread the word to the rest of the community.

An education and training programme organized by another WWF-supported organization works with community leaders in 15 villages in the southern zone of the reserve. The programme is trying to encourage these communities to share new experiences with each other.

Techniques developed and promoted by World Neighbours to increase soil fertility are being rapidly adopted by local farmers. Cover crops, in particular, are becoming widely accepted and sought after. These are legumes grown to protect and fertilize the soil.

(WWF Feature)

Colombia's Black Community Joins Hands with the Forest Indians

by Ruth Mayne

FOR once, in one of the wettest regions of the world, it is not raining. But that is the only relief for Nohemi, who spends the five-hour dug-out canoe journey squatting on a wooden plank, bailing out and explaining, above the noise of the outboard motor, the unprecedented but fragile alliance between Colombian Indians and the country's people of African descent.

She herself personifies the tentative ending of centuries of separatism, because she is a black woman working for an Indian organisation, the Regional Indigenous Organisation Embra-Waunana (OREWA), in Choco State on Colombia's Pacific coast.

She worked for years to gain acceptance, and then almost lost everything because of the "scandal" of her marriage to an Indian leader.

There is pain in her eyes when she recalls those days, but in the end, she says, "love conquered everything."

Similar determination is

needed now, because the 110,000 Indians and the even larger number of descendants of escaped slaves brought from Africa to work the Spanish gold mines five centuries ago are fighting for the life of their communities in one of the world's most biologically rich rainforests. A decade of "development" has brought the usual catalogue of problems: deforestation, soil loss, fights over land, and, as in the Amazon, mercury pollution of the rivers from gold mining which means less fish.

"Look at the height of the current generation of Indians," says Nohemi. "They are shorter than their parents because of the worsening diet."

Both communities suffered a slow deterioration of their conditions, but saw each other as enemies not allies. "The blacks felt threatened by the creation of Indian 'reserves',

and the Indians have had to fight blacks off the land to stop them selling wood to the timber companies," explains Nohemi.

What has brought them together is the fear that the next round of development, in the shape of the government's ambitious Pacific Plan, will prove even deadlier to their environment.

The Plan involves building ports on the Caribbean and Pacific coasts connected by road, rail and oil pipelines.

The 230 kilometre (143 mile) "land bridge" will be a competitor for the Panama Canal. It will prove a gateway to the booming markets of the "Pacific rim," seen by many pundits as the focus of world economic growth in the next century.

The whole design is based on the rapid extraction and export of natural resources,

partly to pay off the country's US\$16 billion foreign debt.

Says the Bishop of Quibdo, capital of Choco State: "Government plans for the Pacific coast provide no guarantees for the basic human rights of the local communities or for the conservation of natural resources."

"The plans are inhumane, unjust and will mean the cultural and social death of our communities."

That is why Nohemi has made the arduous journey down the San Juan River to the still-wooded village of Noamama, where tall, broad-backed black campesinos (peasants) are discussing common problems of land, culture and community with the smaller bearded and painted Indians.

"The government is strong and has firm plans," a black leader tells the meeting, "but we are dispersed and unorganized. If we don't unite, we'll be wiped out."

An Indian leader agrees: "So far we have been completely excluded from the planning process and our organisations

disregarded. Our communities are invisible in government plans."

The 11 different Indian peoples in the region have considerable experience of organising themselves against outsiders, and are helping the blacks — only one per cent of whom have legally recognised land titles — to do so.

Says Miguel, a founder of OREWA: "At first we considered the blacks a threat and called you colonisers, but now we realise that if the indigenous have rights to land, so should the original black population who have been here almost 500 years."

Cooperation is not always easy. Despite centuries of coexistence, there is no common culture and little mixing. Leaders of both are careful to stress that unification does not have to mean living together. Conflicts still break out over land, though they can often be dealt with at the previously unheard-of community meetings like the one at Noamama.

But the incentive is strong. Says Miguel: "Five hundred years ago the Spanish invaders killed three-and-a-half million Indians in 30 years, destroyed our political and social organisation and stole our wealth. We won't survive if history repeats itself."

— PANOS

Colombia's Pacific rainforest



Rising Seas Alarm Island States

THE Third World's island nations are waking up to the dangers posed by rising sea-levels due to global warming, and urgent action before they literally vanish beneath the waves.

Tiny island nations of the South Pacific like the Marshall Islands, Kiribati and Tuvalu and the Maldives in the Indian Ocean are the most concerned. It is sea levels rise by one metre, many of them would be wiped off the map.

Scientists have found that the world's average temperature has been rising at an accelerating rate in recent decades, apparently caused by the rising concentrations of 'greenhouse gases' like carbon dioxide and methane which are largely generated by the burning of fossil fuels and deforestation.

International climate experts attending the Asia-Pacific climate change conference here in late November, urged a global strategy to deal with the root causes of global warming before it is too late.

Global warming and what to do about it was also at the top of the agenda of a meeting of the 15-nation South Pacific Forum in August.

Leaders of these island states met with officials from the United States, Canada, Europe and Japan to press for

the prospect of the sea level rising rapidly over the next few decades.

The head of Manila's national mapping agency, Jose Solis, told a Senate hearing last week that many parts of the country, including fertile farm lands and low-lying sections of the capital city, would be disappear under water if the sea level keeps rising.

"We're at the top of the list," said Melencio Magno of the Philippines' National Academy of Science, referring to countries at risk due to environmental changes tied up

with global warming.

Scenarios for the Philippines are not as cataclysmic. But the possible impact of rising sea levels are still severe.

According to Solis, the sea level around the Philippines has risen by nearly 30 cms over the past 40 years. The change is occurring at an accelerating rate, so the sea level may rise at an even faster rate in the decades to come," he said.

Asia-Pacific island nations are pressing for international action to check global warming and the resulting sea-level rise which threaten to wipe them off the map.

several computer models to predict changes in global weather have been developed, there is as yet very little research into how regional weather patterns will be affected by global warming.

Initial research in Australia suggest that tropical monsoons will become stronger and bring more rainfall as global warming proceeds, said Australian scientist Dr Brian Frank Ryan.

But he added there was not enough data to say much beyond that.

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face some added risks. The land mass of such countries is divided among many islands, giving them long coastlines and thus exposing an even larger percentage of their land to danger.

Moreover, the Philippines directly lies in the path of the Western Pacific's typhoons, which are expected to become more numerous and violent as global temperatures rise.

International experts at the conference stressed that while

Nor was there sufficient information to predict how tropical cyclones will behave in the future.

Research into the regional and country-by-country impact of global warming is vital, said Narashiman Sundaraman, secretary of the Inter-governmental Panel on Climate Change (IPCC).

Small South Pacific island states are getting help from the United Nations Development Programme (UNDP) and the United Nations Environment Programme (UNEP) to cope with future sea-level rise.

Sundaraman said there is growing international recognition that industrialised nations generate the bulk of the greenhouse gases causing global warming and the developing countries have neither the knowhow nor the financial resources to acquire the eco-friendly technologies needed to avert further rises in the global temperature.

Appeals for equity and fairness will not be enough, says Sundaraman: "What we need are hard data, hard facts."

—(IPS)