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Going for broke in the Mekong delta
How the next Southeast Asian war may be fought over water.

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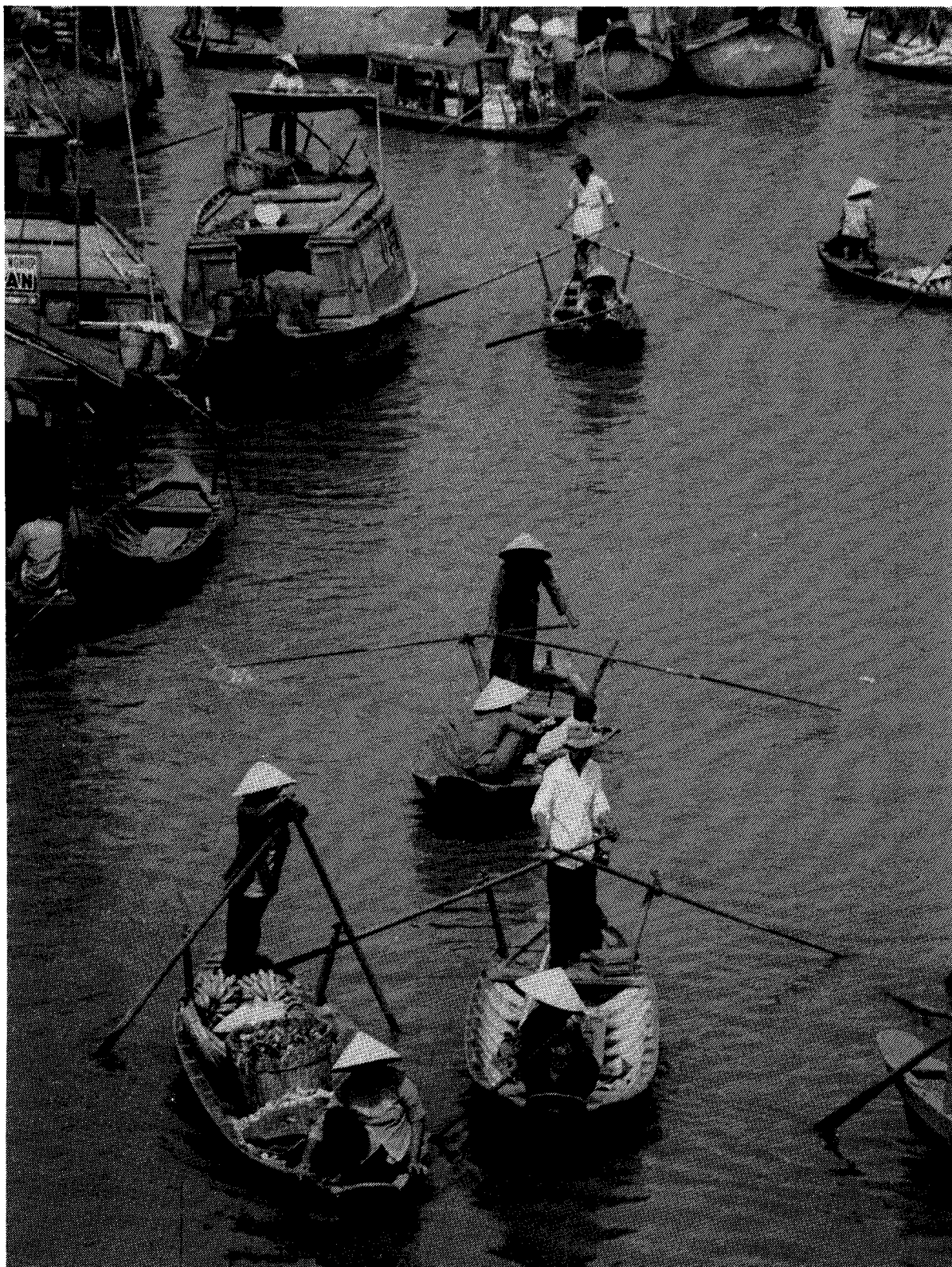
Dear Peter,

French agronomists say this is where the next Southeast Asian war will begin. Not in the mediatized Spratley Islands, off the coast of Vietnam but here, in the sun-drenched sprawling flood plains of Vietnam's Mekong Delta, where children learn to swim before they can walk, where long narrow boats ferry goods and passengers along a maze of canals. "The next war will be with Thailand, and it will be over water," predicts French engineer Oliver Husson.

Husson talks about the soil of the delta the way others talk about an unpredictable lover. He has worked here for three years now, sent by France's *Centre national d'études agronomiques des régions chaudes* to attempt something experts had deemed impossible: increase food production in the Plain of Reeds, 8000 square km of marshlands and acidic soil where little grows, save one floating rice crop during the flood season. Today, after much soil improvement, some of that land produces two crops of rice. Ecologists warn that the ecosystem is suffering. "The water table is threatened," admits Husson. "We have said so but the authorities are determined to increase rice production, whatever the cost."

The cost is high. From the Plain of Reeds near the Cambodia border, to the point of Ca Mau, greed, hunger, population explosion and the powerful forces of development are changing the delta, Vietnam's rice-growing heartland. Here, on 12% of the country's land, 51% of the nation's rice was grown last year. Northern policy-makers want to discipline the waters of the Mekong to produce more food. Southern scientists fear a deterioration of the ecosystem. They lobby for a more taoist approach: working with the river instead of fighting it. Hanoi scientists are increasingly supporting them. But the clock is ticking fast. Other threats loom over the delta's 15 to 24 million people [The last census, in 1988, puts the figure at 15 million but estimates are higher]. China and Thailand are building dams and diverting rivers upstream, reducing the flow of water. As a result, more salt water intrudes on the delta. Farmers turn their rice field into shrimp ponds. Ecologists are worried.

Carole Beaulieu is an ICWA fellow writing about the countries of former Indochina, with a focus on Vietnam.



Boat traffic on the Mekong near Can Tho.

Officials admit they cannot agree on an agricultural policy so numerous the problems are. And water is at the root of them all.

"If there is one good reason for Vietnam to become more open politically, it is the environment," argues Grainne Ryder, a 33-year-old Canadian engineer working for a Bangkok-based environmental organization called Terra. "They need public debate, a more independent civil society, better information on the environmental consequences of their leader's decisions. And they need it soon. Otherwise Asia's last unpolluted river will go the way of all the others."

I met up with Irish-born Ryder in Phnom Penh. She is on a short-term mission to gather information on the state of Cambodian fisheries and brief some Cambodian officials. I have just completed a week of travelling in the Mekong delta, my mind cluttered with conflicting information I cannot verify, despairing of getting close to the truth about the delta's situation. "Engineers love to build dams, dikes, sluices and canals," says Ryder. "They will show you their success stories, not their failures."

And she is right. In Go Cong, in the eastern coastal area of the delta, the water engineer I travelled with proudly showed me the sea-dikes and the irrigation canals that have allowed peasants to grow three crops of rice a year instead of one. He forgot to tell me how some of Go Cong's coastal land have dried up and become acid; or how farmer finally broke parts of the dike in 1990.

According to Terra, the Mekong Committee - the international body set up in 1957 to coordinate management of the Mekong waters - is dominated by Western-trained engineers who tend to treat the Mekong the way they would treat a mountain-fed crystalline river. "They say the dams in China and Thailand will regulate the flow, storing water in the rainy season and releasing it in the dry season to fulfill the needs of the countries downstream. On paper it looks great," says Ryder. "In practice, it does not work."

The Mekong is no clear mountain river. It is a muddy tropical river influenced by a south-western monsoon that brings rainfall to most areas four to six months of the year, from May to October. According to Terra, upstream reservoirs will be vulnerable to drought, some will quickly become silted. There will be large waste of water through evaporation. The reservoir will not contain enough water for electricity, much less enough to release for irrigation or to maintain fisheries. "The Japanese are very involved in the planning of dams in both Laos and Thailand," says Ryder. "They are not interested in improving the farmers lot, they are interested in selling turbines. Everywhere in the world, electricity for cities and industries has come first. Why would it be different here?"

Work has already begun in China. The Chinese are not members of the Mekong Committee and therefore are not bound by the rule of unanimity which has until now protected downstream poorer countries - such as Vietnam and Cambodia - from their upstream neighbors. A first dam has been built, the Manwan dam in Yunnan province. No journalist has seen it yet, according to Ryder. Fifteen more dams are planned. With millions of jobless land laborers, China needs electricity to industrialize the area.

The threat also comes from Thailand. Bangkok wants to divert two rivers - the Chi and the Moon, two tributaries of the Mekong - to bring more water to its less-developed Northeast provinces. "Politicians say the water is for the poor farmers," says Ryder. "The argument was used elsewhere. The dam was built but the farmers never got their second crop. The industries got their electricity."

The geopolitics of water seem quite unreal when seen from a boat cruising one of the Mekong Delta's canals. There is plenty of water here. Speeding motor boats splash it all around us as we squeeze our way through the intense morning traffic, navigating between heavily loaded barges and graceful canoes steered by a rower standing at the stern and working a tall set of oars.

We hired a boat early in the morning and took off from Ca Mau, the capital of Minh Hai, Vietnam's southernmost province. Along the bank, every house is a shop, or a store, or a warehouse. Mechanics raise their oily hands from darkened motors to wave to us, boat builders and furniture makers brandish hammers and saws, fruit vendors hawk scores of exotic fruits I still only know the Vietnamese name for. The amount of activity is tremendous. Traders haul sacks of rice on tiny wharfs, long narrow boats ferry passengers, children hop in to go to school in their white shirts and red scarf, gas stations dot the canal.



Selling construction material along the canal.

As we move out of town, new sights appear on the banks: a roving theater group has set up a tent to present a rendition of *cai luong*, a brand of operetta. Women wash clothes, children urinate in the river while not far away others bathe in it, old men smoke from a water pipe and play cards on a jetty-turned-coffee-shop, a young couple cuddles under a bamboo bridge sharing a piece of fruit. The air smells of fish and garlic and diesel and rotten fruit. "Life here is very different," says Tran, my engineer friend. Born in Hanoi, Tran has worked in the south for the past 15 years and cannot imagine going back north. "The weather is great here, and the people are independent and resourceful. They also drink a lot."

There are few brick houses to be seen from the river. Most houses are palm-roofed makeshift structures. Many sport a television

antennae. "Temporary housing is traditional," says Tran. "Because of the floods people were used to moving their houses. There is no typhoon here, no cold weather, so why build a brick house anyway?"



Palm-roofed houses along a canal near Ca Mau.

There is no sewage system either. The canals are both the source of domestic water and the sewers, but there are television sets, and videos and brand new boats. "Before, there was nothing to buy, people had no incentive to work to make more money," says Tran.

Northerners often complain that the people of the delta party too much and squander their money. While attending an economic regional conference in the delta, this February, Prime Minister Vo Van Kiet warned the farmers "not to waste the country's resources in parties, weddings and funerals." He also chided them for not paying their taxes. "The government invests a lot here to dig canals," says Tran.

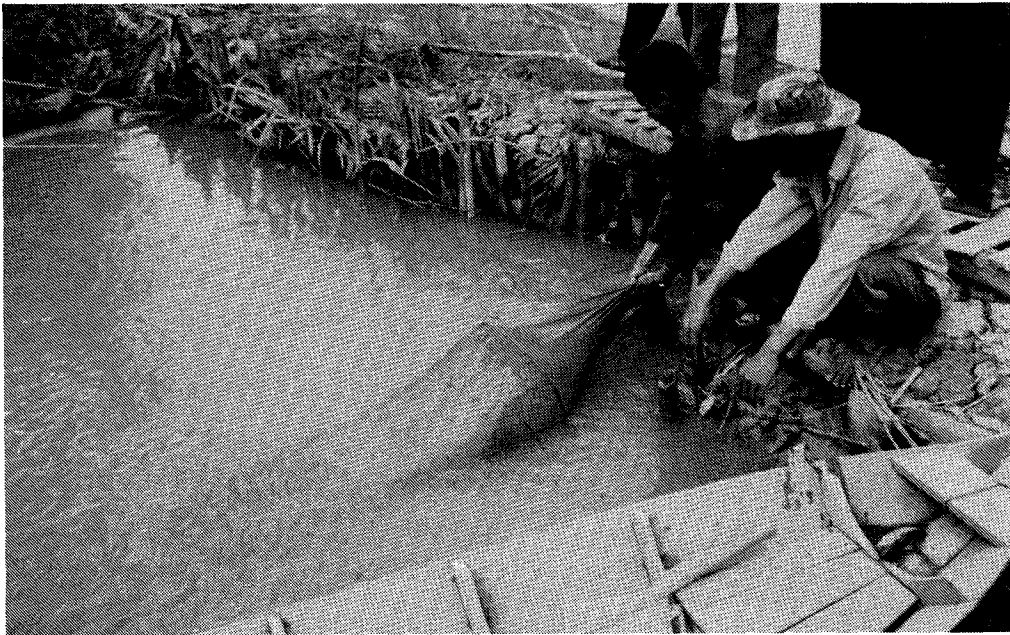


Luu Minh Ai.

The Mekong Delta farmers are certainly easier to approach than the ones leaving in the Red River delta. Take Luu Minh Ai for example. She has not been warned of our visit when our motor boat enters the tree-shaded canal leading to her farm. She does not know Tran, nor does she know if the authorities have agreed to our visit. In the North of Vietnam that would be a problem. Here it is not. We are welcomed into the coolness of the house where we sit around a heavy wooden table. There is a painting of the family's elder on the ancestor altar. Freshly cut coconuts are brought to the table while 52-year-old Ai bullies her sons to go cook us some shrimps. She is happy to talk and does so feverishly, laughing and making theatrical gestures to emphasize her points. "We will never grow rice again," she says. "Raising shrimp is easier and ten times more profitable."

Ai's only regret is that it is too early for beer. "You must come back," she insists. "We will have a party."

Ai's family farm covers three hectares. The dry season is good for shrimp, the rainy season is not. When there is not enough salt in the water to raise shrimp, the men in the family work as laborers in the area. "It may seem like a good decision to let the salt in and raise shrimp," says French agronomist Husson. "But over the long term they are really destroying a lot of land."



Harvesting shrimp on Ai's farm.

But then, what choice does Ai family really have? Shrimp sell for 10,000 dong a kilo while a kilo of rice only fetches 600 dong. "It would cost the state US\$2000 an hectare to irrigate that land and turn it into rice fields," says Tran.

During the dry season, the canal water is good for shrimp but not for human consumption. Ai's family must buy water: 100 dong for a small pale. With 10 people in the house, the cost quickly mounts. Drilling a well would cost two to three million dong, an investment the family cannot afford.

And all is not well with the shrimp. Recently, the water on Ai's farm has been more acidic and the shrimp harvest has gone down. Fry are also harder to come by. The shrimp used to breed in the mangrove but much of it has been cut for firewood. "People did not know the mangroves were part of the cycle that made the water a good breeding ground for shrimp," says my Vietnamese friend.

Some families we visit have taken to planting mangroves. Others, like Ha, simply buy their fry from Nha Trang, about 700 km up the coast. Vietnamese fry produced in Nha Trang sell at half the world price. Ha grows them only a few centimeters long and then sells them to another farmer. "That is the most profitable part of the business," he says.

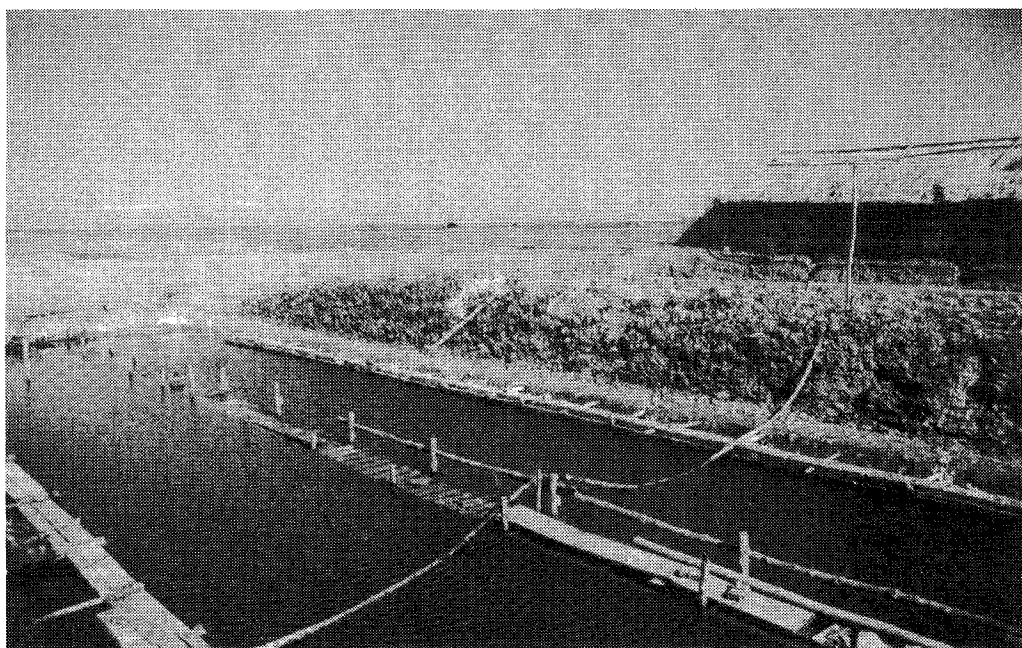
THE FAR-WEST OF THE FAR-SOUTH

*Shrimp farmer Ha.*

Three years ago, 53-year-old Ha was repairing electronic equipment in Bac Lieu, a small town near the east coast of Minh Hai. With his three sons who studied at the Nha Trang Oceanographic Institute, Ha bought the right to exploit five hectares of land on the deserted coastal line east of Bac Lieu. The family invested 150 million dong (US\$15,000) in savings to develop the land into a shrimp farm. Today they earn 5 to 10 million dong (US\$500 to \$1000) a month.

Ha does not own the land, he owns the right to use it. The land was allotted to his family by the Department of Fisheries. Every month, they pay 300,000 dong (US\$30) in rent. The government wants to encourage development, so Ha was given five tax-free years. It should have been only three, but Ha "found a way".

It's early afternoon and Ha looks tired in his wrinkled pajamas and his plastic sandals. It took us an hour to reach his place on a road that bares little resemblance to one. The place is desolate: dirt-cracked land, make-shift houses. This is frontier country. In the 1960's, very few people lived in this part of the delta, south of the Bassac River. Today, the phone and electricity lines cutting across the moon-like landscape betrays the isolation. "Three years ago there were no electricity here," recalls Ha.

*One of Ha's shrimp ponds.*

A neighboring farm is surrounded by barbed wire and miradors. "Some Taiwanese," says Ha. "They had problems and they left." Ha would not say more. It turns out some locals had been sabotaging the Taiwanese fields. Another European-owned operation, did not have the same problems because they treated their workers better.

THE SURGE OF SHRIMP MONEY

The province of Minh Hai has more than 10 frozen shrimps factories, and documents from the Province's Planning Committee indicate the province wants to extend shrimp farming. We visited factory number 12, the most modern of all: a joint-venture with the Japanese company Nissho Iwai. Here, 18-year old girls work 16 hour-shifts standing up during the 10-day period when the catch is taken to the factory. "When they sit down, productivity decreases," explains 37-year-old Lieu, the woman manager, as we tour the place. In the back room huge freezers store the catch of the day waiting to be exported to Japan.



Young women workers at shrimp factory # 12.

Both Japanese and Thai companies are experimenting with shrimp farming in Minh Hai and ecologists like Ryder worry that their activities are increasing the pressures on the already depleted mangrove forest. The Vietnamese Ministry of Marine Products wants to capitalize on an increase world demand for seafood products. Plans have been drawn for 23 economic zones for export-oriented shrimp farming. The export of frozen seafood was among the five foreign-currency earners in the country last year and the Ministry wants to increase that export value. The price of Vietnamese shrimps is now only half of those raised in Indonesia, Thailand or the Philippines because of low-quality processing equipment.

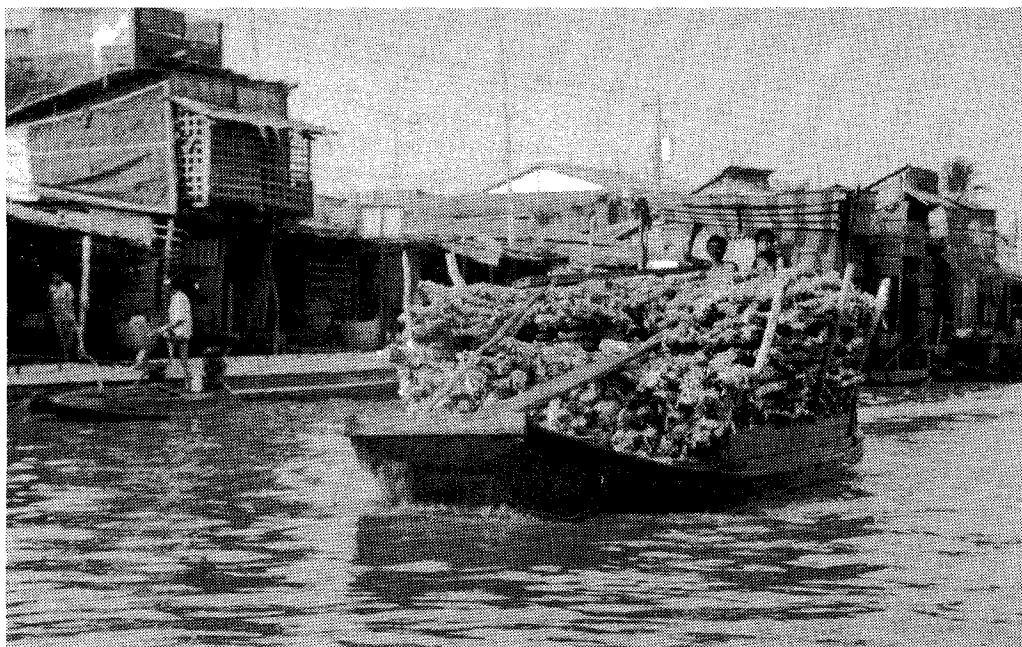
Amidst this pink gold rush, the Ministry of Forestry is trying to protect the delta's forest. But it is meeting a lot of resistance among the local population.

Farmers in Minh Hai and other salt-water areas have always been much poorer than those in fresh water zones. Aquaculture to them has been a god send. A survey conducted in 1992 by the Forestry Department showed that individual farmers are not the main culprits in the deforestation. According to the Thanh Nien (Youth) newspaper, of the 21,000 hectares of mangroves recently flattened in Minh Hai, most of the loss can be attributed to the military division in the area, the provincial Party Committee and the People's Committee.

Since 1979, 55,600 hectares of the original 140,000 of submerged forests have been destroyed in Minh Hai, according to officials. War, defoliant and dependence on wood for the construction, heating and cooking needs, have taken a heavy toll on the delta's forests.

As we move around the canals near Ca Mau, we see numerous gas stations selling piles of *than duoc*, the long-burning, high-quality mangrove coal, but we see few real mangrove trees.

We also see load after load of *Melaleuca* trunks. The *Melaleuca* is a tree that grows well in salty acidic water. In six years, the tree is good for fire wood. In ten years, it is good for construction. "The *Melaleuca* is used by rich peasants to capitalize on the land," says Husson. "The poor cannot afford it."



Boat transporting trunks of Melaleuca.

Respected Hanoi conservationist Vo Quy, director of the Center for Natural Resources Management and Environmental Studies of Hanoi University, better-known as CRES, is campaigning to preserve the forests, arguing that biodiversity must be protected. Professor Le Din Duc, a wetland ecologist from the same center, has been advocating involving farmers in forest protection, granting use of the forest to harvest products such as honey or cajeput oil.

The Ministry plans to plant 8000 hectares of mangroves during the next four years and the government has agreed to protect 600 hectares of mangrove forest near Nam Can. In some districts, for each 10 hectares of protected forests, households are allotted two hectares of land to raise shrimp.

But the battle often seems a lost one. Last year, more hectares of forest burned down than the Ministry planted. The delta's mangroves and inland forests have now dwindled to a mere 0.2 million hectare. Vo Quy is especially worried about the wetland. Spawning grounds for fish, wintering areas for migrating birds and habitat for a large fauna and flora, the wetland are often regarded by an impoverished population as territory to be drained and put under cultivation. Local authorities, whose promotion often rests on their capacity to increase food production, have little incentive to protect the forest.

Last year, despite a government decision to protect a marshland turned-bird sanctuary with the help of an American wildlife association, farmers encroached on the reserve with tractors. The birds, a rare species of cranes called the Eastern Sarus, fled further north. "I do not think the reserve will last," says Tran.

MASTER PLAN ADVOCATES MODERATE PACE OF DEVELOPMENT

Many are banking their hopes on the application of the recently adopted Mekong Delta Master Plan, funded by the United Nations Development Program with the help of the World Bank. Completed at the end of 1993, the plan advocates a "moderate" pace of development. It focuses on land and water resources and is essentially concerned with agriculture, fisheries and forestry. The plan proposes to spend close to US\$37.8 million between now and the year 2000 in costal afforestation and protection of mangrove and melaleuca forests.

Authors admit the biggest difficulty the plan may face is Vietnam's lack of experience with projects involving more than one province and several ministries. To help the process, a Mekong Delta Planning Office is to be set up under the State Planning Committee. Located in the delta, its regional office would be responsible for securing funding for the plan (domestic and foreign) and for stimulating the flow of information between the provinces and Hanoi. The Office is in its planning phase.

The Master plan involves 43 water projects and 12 water-supply related ones. While most agree on the need to secure fresh water, some worry about the impact of continued dike building.

In the delta, salinity intrusion affects more than 2.1 million hectares of land and close to 40% of the population. Saltwater intrudes further during the dry season from December to May. On Tran's map, four lines of different colors chart the course of the salt. The first one, a few kilometers from the coast, snakes its way in green, indicating how far the salt goes inland during the month of March. In April, the salt has moved a few kilometers more inland, its progression marked by an unsteady parallel yellow line. Purple and red lines reach far into the delta, with the salt entering as far as My Tho during the months of May and June.

Driving from Minh Hai to HCMCity, one can identify the villages affected by salt intrusion. Housing there is even more basic, schools are more dilapidated, people's clothes are worn thinner. Large brown earthen jar used to collect rain water sit beside every house. "In the past," recalls Tran, "one could tell rich families by the number of jars they owned."



Jars for collecting and saving rain water.

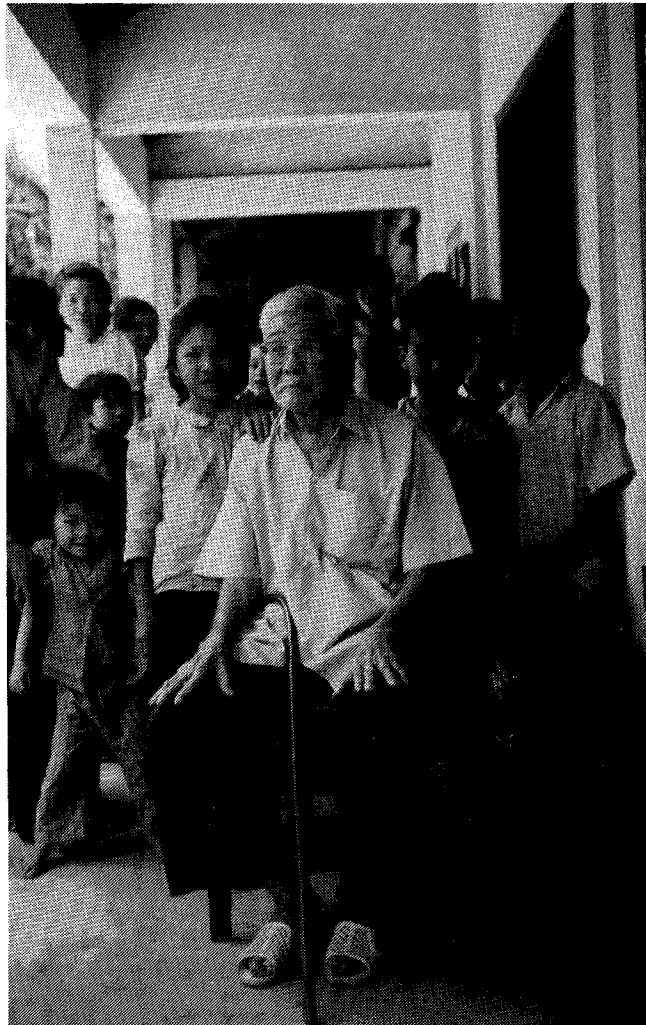
The Ministry of Water Resources has been working for years on the problem of salt intrusion. More than 100 hydrological stations collect data and monitor change. At the HCMCity Sub-Institute for Water Resources Planning and Management, sophisticated software allows researchers to forecast salinity intrusion. "We can enter any data, let's say a new Chinese dam on the Mekong, and see how the flow is affected," explains one of the Institute's engineers.

In some regions, salt intrusion has been controlled by sea dikes. But even this level of intervention is controversial. "We harvest three crops now instead of one," says 80-year-old Vung Van Trinh who lives in Go Cong where sea dikes block the salt and irrigation canals have been built at great expense. "But the new rice does not taste as good as the old one and its price is very low." Trinh, who raised 12 children on that farm, complains the new varieties require a lot of fertilizers and pesticides. "The pesticides go in the water and kills the fish. We have less fish than before."

Trinh's family is doing fine. They do not have a television yet, but they have a motorbike and many bicycles. The children go to school and they are not hungry. The house is well taken care of. "But the taxes are too high," complains Trinh who was vice-chief of the village under the French.

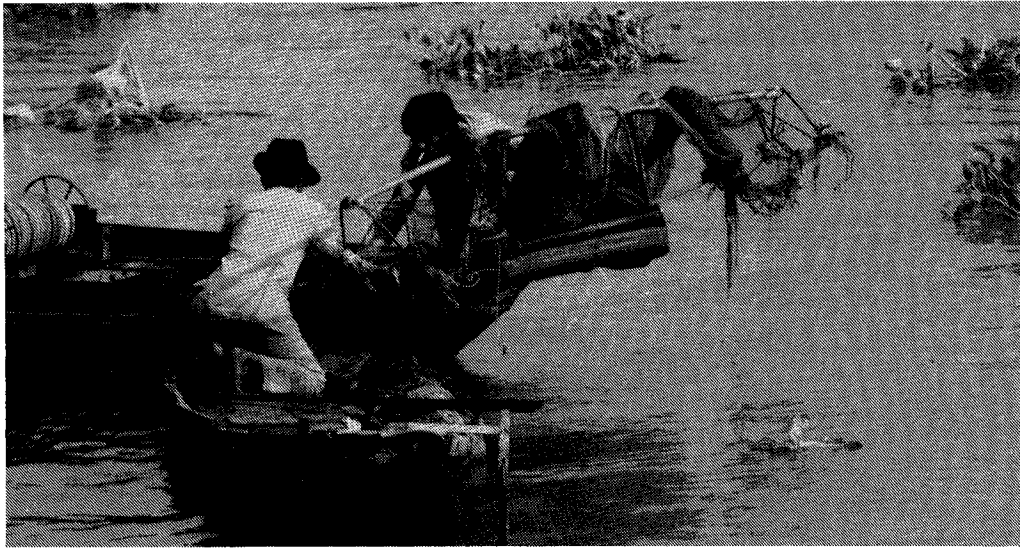
Go Cong is what the Vietnamese called "old land". It was settled a long time ago and is now very densely populated: 700 persons per square km compared to 50 in the Plain of Reeds. In 1975, over 80 billion dong (US\$8 million) were invested to dig 4000 km of canals, build sea-dikes and drainage canals. Twenty thousand new hectares of land were put under rice cultivation. In 15 years rice tonnage quadrupled. But here too, people are planting mangroves and trying their luck at aquaculture. (Which is why, some say, they destroyed part of the sea-dike.)

Scientists at the Can Tho University Agriculture Research Center, oppose any kind of dogmatic view over the type of agriculture that should be promoted in the delta and advocate diversity. "Two crops a year of high-yield rice may be the best choice for one place," says director Vo Tong Xuan. "Elsewhere a traditional rice variety with shrimp or fish may be better." Vo Tong Xuan opposes ambitious plans to dike most of the delta saying too little is known about the effects. Instead he wants more research conducted into integrated forestry-agriculture-fisheries projects and closer attention paid to farmers' knowledge. "Some farmers have learned to use the saltwater to wash away the acid from the soil," he says. "They know how to take advantage of the local conditions."



Go Cong. Trinh with some of his grandchildren.

Interventions like the one done in Go Cong are expensive. Although officials say the same should be done in other areas affected by salt-intrusion in order to alleviate poverty, the financial cost has been a strong deterrent. Recently, the Vietnamese government has been more interested in developing the Plain of Reeds. "For US\$200 per hectare you can begin to grow rice on the Plain," says engineer Tran. "We have been very successful there."



Fishermen complain of declining fish catch due to pesticides.

Not everyone agrees. "There is a lot of good but also a lot of terrible things happening on the Plain," says Husson. "It is a very fragile ecosystem. Many farmers take a beating."

Experts have introduced new varieties of rice, tolerant to aluminum, resistant to pests. Farmers play hide and seek with the rising waters. They plant in the flood waters, gambling that the water will recede as the rice grows. A few days too early, and the rice may spend too much time under water and the crop will be lost. A few days too late, the crop will dry on its feet. "The PH level of the water is so high in May it is like diluted sulfuric acid," says Husson, shrugging his shoulders. "It eats up concrete and steel." Despite the risks, many farmers try their luck on the Plain.

The more successful ones are those who know the area well and have another income to support themselves during the two or three years it takes to develop the land. They often have a good farm a few kilometers away and only work part time on the new one.

The farmers from the second group also come from the area, but do not live close enough to go home at night. They often spend the whole season on their new land, while other family members take care of the farm back home. "They can afford a bad crop the first year," explains Husson.

The third group is the worst off. They are often poor farmers who have come from the north or the center of Vietnam and do not know the local conditions. They have nowhere to go back to and no savings to live on. They gamble everything on their first crop. If it fails, they enter the downward spiral of debt and lose the land.

Life is harsh on the poorest. With no savings, they have to sell their crop right after harvest, when prices are the lowest. They must buy fertilizers at the worst time, when the price is the highest. Ironically, in this socialist country of Vietnam, the government is not there to help. "Some People's Committees only want to get the land back for themselves," accuses Husson.

Facing such a harsh environment, farmers welcome any help they can get. A few weeks ago, when Husson and his group showed up in a village for a briefing session on soil improvement, 936 peasants were waiting, too many for any kind of useful teaching. "It is a very difficult soil," insists Husson. "One small mistake and you lose a ton of rice; a difference of 5 cm in the ground level may mean one more ton per hectare. There is no way to design a model. In the Plain of Reeds every single farm is different."

Some farmers have made a specialty of developing the Plain. The closer they get to the Cambodian border, the cheaper the land is. The land is allotted to them, they develop it, sell their right of use and advance further. "It is like the far-west," says Husson.

Development has a price. In their desperate determination to get a good crop, farmers are using every pesticides they can. If one does not work, they simply apply another. Many of the pesticides used in Vietnam are banned in Europe. "There is an unpublished study showing that dioxin [the defoliant used by the American army during the war] is now found in greater quantities in areas where the Americans did not spray," says Husson.

Levels of lead in the canal water - the water people drink - are also twenty times higher than the levels accepted by the World Health Organization (WHO). Many Vietnamese researchers are aware of that situation but can do little to help. "The political pressures are very high," says one. "Development is the priority."

Taking more fresh water upstream to irrigate the Plain of Reeds has also drawn complaints from other provinces. Their own access to fresh water being reduced, some of the land in their province is turning more acidic. Scientists complaint that some provincial leaders, eager to advance in the eyes of Hanoi, are willing to endanger the agriculture of neighboring provinces to grow more rice in their own. "We need a referee," says Xuan.



Threshing the rice harvest.

Many, in Can Tho and even in Hanoi, say the delta urgently needs a regional Environmental Protection Center. While Vietnam has no environmental groups as the West knows them, there is a great deal of concern within the academic community. In Vietnam, many research institutes work to influence policy and increase awareness of the environment in the population at large.

In spite of this, neither Ryder or Husson are optimistic about the future of the Mekong river's environment. "In Thailand, people can demonstrate. In places like Vietnam they cannot," says Ryder. "An ecological movement in this country?" says Husson, his smile turning into a grimace. "We are a long way from it."



Bulldozer opening new land in Minh Hai.

Not everyone shares that pessimism. One man at least say critics should look more carefully at the changes that took place in the past few years. "The Vietnamese have changed so much in ten years," says American anthropologist Neil Jamieson who first came to Vietnam in 1963 and speaks Vietnamese fluently. "They are much more aware of the environment now. Many have come to understand that they cannot macro-manage nature."

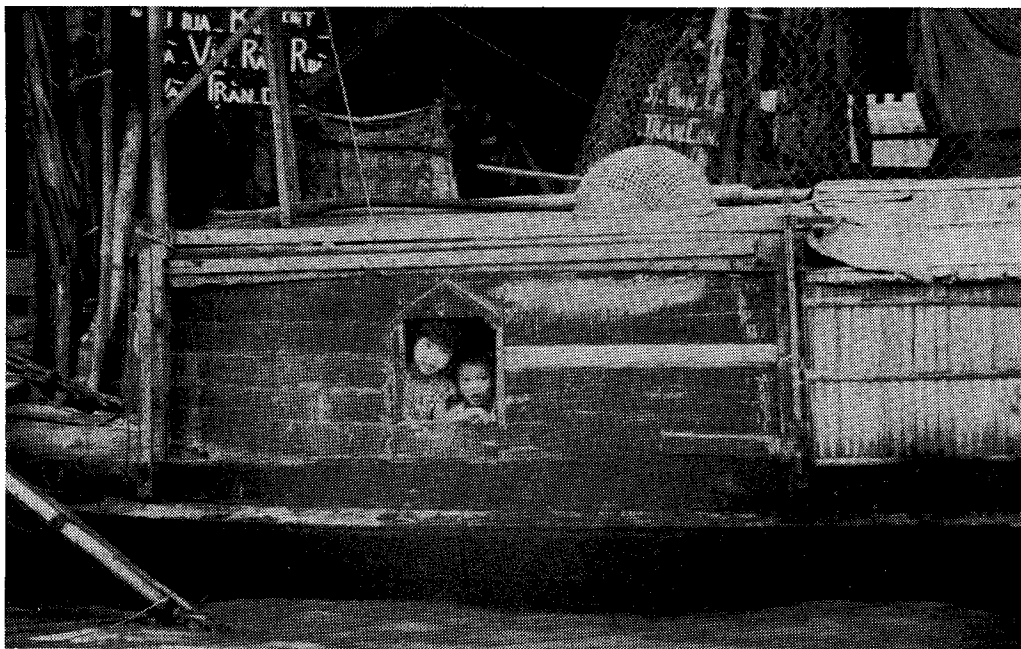
Jamieson is not totally optimistic about Vietnam's development. According to him, it could still go both ways. "You must give the Vietnamese credit for what they have done," he insists. "They have voted all the right laws. The problem is they do not have the capacity to generate the programs they need to turn these laws into reality. The laws are there but they are not implemented."

For the past year, Jamieson has been based in Hanoi with Windrock International, an American non-profit organization. He works closely with CRES, helping out with research on the environment of the upland areas of the country. According to Jamieson, the most important task ahead has little to do with political opening and a lot with education and economic development.

Jamieson believes critics should look twice before saying there isn't any political opening. "For many years, CRES was the closest Vietnam had to an environmental lobby," he says. "Now, it is only one part of the lobby." Others organizations have emerged, in all shapes and guises, from a forestry association to new environmental committees attached to city administrations. The relations between those new organizations and their sponsors - always a government body, a ministry, a union etc - are not clear. Neither is their level of dependance. Most of those organizations get no money at all from their sponsor. They raise some of their funds abroad, some locally. Their work has brought many new voices in the environmental debate. The development of those new organizations is spontaneous and anarchic. But that is another story, something about the emergence of a new civil society. More soon.

Carole Beaulieu

Carole Beaulieu
Hanoi - May 15th, 1994



Growing up on a boat in the Mekong delta.