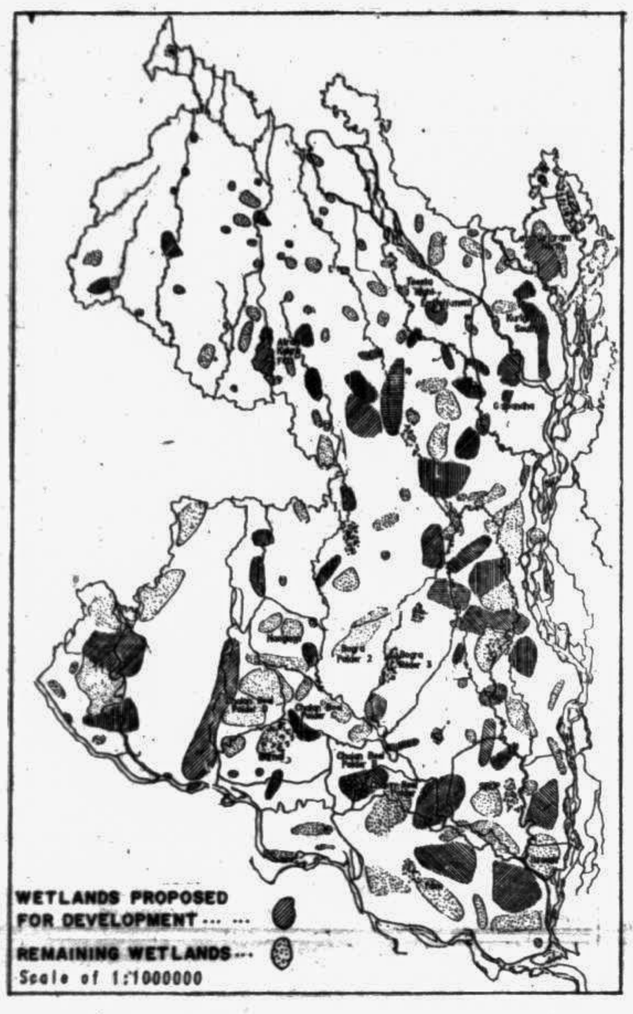
Role of Wetlands for Country's North-West Region

by Dr Shahadat Ali

MARSHES, water meadows, mud-flats, rivers, estuaries and other waterbodies on the earth's surface, are known as wetlands. Such lands retain static or flowing water temporarily or throughout the year. Their origin may be natural or artificial. But wetlands are invariably the most productive of the ecosystems known to man and support luxuriant growth of diversified forms of flora and fauna. They form the breeding grounds for many invertebrates, fish, amphibians, birds and reptiles. Many of the riverfine fish use wetlands as natural nurseries and these areas provide plenty of various kinds of excellent food items and safe shelters for their fries. They influence moisture content of soil in land masses and regulate surface and subsurface water regimes of an area. The wetlands are of prime importance because they support the growth of introduced and naturally growing plants. Thus a wetland plays a dynamic role as a life-giving system in an area.

It has been estimated that 2 per cent of earth's surface is covered with wetlands. They include a modest area of nearly 900 million hectares. In Bangladesh more than 40 per cent of its total surface area is covered by wetlands. They constitute nearly eight million hectares of surface area. Among these areas there are 610,000 ha of estuaries and mangrove swamps; 290,000 ha of beels, haors and baors; 90,000 ha of water storage reservoirs; and 5,770,000 ha of flood and which are inundated seasonally. Of these wetlands, beels, baors and haors are of special significance. There are more than one thousands beels in the country. The size of these waters vary from one hectare to a few thousand hectares. Because of high growth of human population, the national policy of the country is to convert the ecologically diverse beels and other wetlands into rice growing areas. So, many beels are rapidly becoming encroached upon for rice-based agriculture and thus habitats of the naturally diverse fauna and flora in the country's innumerable beels and other wetlands are being disturbed and reduced. An example of rapid reduction in beel area has been witnessed in Chalan Beel. The beel had a surface area of 107,500 ha but now it has an area of 26,000 ha and only 8400 ha of the beel remain under water all the year round. The situation now demands immediate attention of all concerned quarters in order to halt further reduction of the beel areas and wetlands through human interferences.



Flora and Vegetation of Wetlands

The wetlands are the habitats of many varieties of aquatic plants. The wetlands also support a rich population of algae. Once there were forests on the edge of wetlands. These forests used to supply fuel woods and also timber. The flood plains, seasonal beels and edges of permanent beels are now intensively cultivated with various crops. At present the wetlands are mostly cultivated with rice and jute. However, during the dry season pulses, wheat, potatoes and oil seeds along with HYV rice are grown. Apart from various plants, the wetlands support precious medicinal herbs and plants.

Fauna and Animal Life

The wetlands support a very rich animal life. Nearly three hundred species of fish are reported from the wetlands of Bangladesh. Among these genetically precious and diversified forms, 25-35 species have become rare. The beautiful cyprinied fish *Tor tor* and *labeo nandina* are classified as extinct species from wetlands.

The *sar punti, puntius sarana,* is now identified as a threatened species. There are 25 knwon turtle species. That live in the wetlands of Bangladesh.

Among these *Lissemys nuntatus, kachuga tectua,* Triony gangeticus are fairly common species. There are four species of monitor lizards that live in our wetlands. Among these, *Varanus salvator* is very common. Among the 150 species of waterfowls so far recorded from wetlands, the common water fowls species are *Techybaputs ruficollis, Phalacrocorax niger, Anhinga Rufa, Ardeola Gravii, Egretta Intermedia, Nettapus Coromandelianus,* Aythya *fuligula, Aythya feriona.* Seventy species are known to become rare and some of them are noted to be the endangered. The white-winged wood duck, *Cairina Scutulata* is an example of an endangered waterfowl. This exceedingly majestic looking avian species is restricted to a few numbers only in Kassalong Reserve Forest of the Chittagong Hill Tracts District. Among the mammals three species of otters, *Lutra lutra, L. parspicillata, Anoyx Cinerea* and two species of dolphin *Platanista Gangetica, Delphinus Delpina* are fairly common in Wetlands of Bangladesh.

Invertebrates such as molluscans and crustanceans are common in wetland habitats. There are 58 species of molluscs and 63 shrimp and prawn that live in the wetlands. The pearl bearing bivale *Lamellidens Marginalis,* freshwater snail, *Viviparus bengalensis* and *Pila Globosa* are the most common invertebrates in the wetlands. There are also nearly 500 other invertebrate species which are found in the wetlands. These animals play a vital role in the biological production and maintaining an equilibrium in the ecosystem through food webs and metabolic processes.

Economic Activities in the Wetlands

Agriculture and fisheries form the major economic activities in the wetlands. Once wetlands used to supply fibre and timber wood. However, the mangrove forests of the Sundarbans continue to supply large quantities of various kinds of forest products including timber, pulpwood, firewood, thatching and roofing materials, honey and bee wax and molluscan shells.

During the dry season, large numbers of domestic livestock graze in these wetlands. The marsh grasses and other aquatic vegetations are utilized as fodder. Some wetlands are also being used to raise ducks.

Wetlands in the North-West Region

The North West region of Bangladesh was once covered by vast areas of a mosaic of wetland habitats. There were a few hundred of beels only in the areas, extending from Chapai Nawabganj to Naogoan District and touching the edges of "Barind Tract". A significant area of these wetlands in the region, like those of other regions, was destroyed by the rapid rate of massive siltation in river systems and by intense human interferences through ill-planned flood control, drainage, and irrigation embankments. It has been calculated that during the last 150 years nearly 169 million cubic feet of silt was deposited annually only in Chalan Beels through the distributaries of the Padma. An estimated 2.1 million hectares of wetlands in the Ganges-Brahmaputra flood plains have been lost through flood control and drainage schemes. The Construction of 'Farakka Barrage' beyond the international border of the country, combined with excessive lifting of ground water has further aggravated the situation in the beels and other wetlands in the north-west region of Bangladesh. There are only 185 beels now covering 33,191 ha in that region of the country. The majority of these beels have now become seasonal water bodies. Among these, 85 of them, covering an area of 18,733 ha, still maintain some connection with river systems at least for a few months in the monsoon season.

These beels should be revitalized through re-excavation of 'khas' areas and also those of the channels connecting them with the rivers. The list of these beels with their surface areas and connecting rivers is show in the table.

The re-excavation of the beels listed above would help retain water in beels throughout the year. Thus most of these seasonally water bodies would turn to perennial ones.

Moreover the process would help recharge the sub-surface wayter storage and also would maintain moisture contents of the soil which are necessary for the growth of plant life. Thus the revitalization of beels would help to arrest the process of desertification that has been prevailing in the north-west region of Bangladesh.

Many of these re-excavated water bodies could also be made sanctuary for fish and thereby the depleting subsistence fisheries of the country could be saved through continuous flow of diverse genepools. It is evident that revitalization of these wetlands through re-excavation is most essential for the country's physical environment. The sooner we do it, the better for us.

Figure showing the existing wetlands and river systems in north-western region of Bangladesh (SPARRSO & MPO)

Names of Beels	Surface Area (in hectare)	Connecting rivers
Khirai Chandi	107	Kulik River
Chaura	23	"
Raipur Hargun	22	Tangon River
Chandipur-Debipur	53	Little Jamuna
Gangachara Kalia Bell	29	Buri Teesta and Ghaghot
Bangana Kanchan	700	Dharla
Ajamata &Madaikhal	263	Dud Kumar
Gatur Khuti	159	"
Paular Beel	50	Teesta
Kanchan Beel	101	Dharla
Jarulyapur-Debhur-Chaitrakol	232	Karatoya
Mypur, Rhempur-Azeempur	50	Kharkharia and Karatoya
Madhyapara	120	Karatoya
Shyampur-Klugari-Akiunagar	130	Karatoya
Bamandanga	29	Ghaghot
Kumari	8	"
Chakuliar	12	"
Lahirir	9	"
Satrail	48	Hatia canal
Sat Damudya	7	Ghaghot
Huradanga	47	Buri Canal and Manosh
Ruhear Beel	405	Katakali and Old Bengali
Madaripara -Sariakandi	257	Katakali and Old Bengali
Ayndarpara-Durgahata	238	"
Beel Nurai	532	"
Pachbibi	11	Little Jamuna
Bazarpur-Jagannathpur	25	"
Chhat Chandos	1118	SIB Jaokhali
Dargapara-Fulban	4678	"
Eklaspur-Hazhagi	1372	Purna Bhaba-Mohananda
Deholnagar	554	"
Maharaja Nagar Basudebput	506	"
Bangjohar Beel	481	Atrai
Naydakhola Beel-Masal Beel	346	Atrai, Nagor
Dharmapur-Saidpur	124	Our
Chak Manel-Hasanpur	1790	Atrai
Hograr Beel, Qutubpur	682	Sib
Masta Bari, Mirzapur	24	Barnai
Kisarpur-Noapara	29	"
Manda Kuja Nazirpur	121	Nandakuja
Jamtoli-Daulatpur	194	Old Bengali
Hatgram Ratanpur	103	"
Gubindapur-Saidpur	510	Gumani
Manair Chatmohak	477	"
Chatmohar-Lakhipur	913	Boral
Hatia-Paisarhati	434	Ichamati-Padma
Srirampur-Darikhari	376	Boral
Dadpur	323	Padma

Eco-logging May Save Island Rainforests

by Nicola Baird

WHILE Papua New Guinea (PNG) has tightened laws to restrict logging of its rainforests, environmentalists are concerned that companies will move on to its cash-strapped neighbour, the Solomon Islands.

PNG moves to toughen logging practices followed the 1989 Barnett Report, produced by a top judge, which sharply criticised loggers and politicians.

"Some of the companies," said the report, "are roaming the countryside with the self-assurance of robber barons, bribing politicians and leaders, creating social dishonesty and ignoring laws in order to gain access to rip out and export... valuable timber."

In 1991 the PNG government brought in penalties designed to hurt loggers not toeing the line. Fines of up to $100,000 or five years in jail were promised for anyone caught logging without a permit or intimidating landowners and inspectors.

The Solomon Islands, with a history of selling natural resources cheap, is clearly now a prime target for companies looking for more "friendly" countries to operate in.

The waring signs are already there. In 1990 log production doubled and, for the first time, timber knocked fish from the country's top-earning export spot, making around $60 million.

"This is very worrying indeed," said a manager of the country's two tuna fishing enterprises. "It is not so much that fish has lost its top place in the export earnings race, but that more of our trees are being cut."

It is feared that within ten years all the trees in the Solomons will be cut down. Work has stated on a forestry resources cataloguing project, funded by Australian aid, to help sort out a rational timetable for logging and develop a framework for reforestation investment.

The results are due next February. Julius Houria, who heads the survey, believes it will show that commercial logging trees will run out soon.

The good news is that tree replanting programmes are going ahead. In 1990 the government planted 685 hectares. A business part-funded by the Commonwealth Development Corporation, Kolombangara Forest Products Ltd, planted 755 hectares. That same year, however, 9,000-10,000 hectares were logged. Part of the problem is lack of a cohesive management plan.

Until 1982 logging was restricted to government land. The Solomons are unusual in that about 88 per cent of all land is owned by villagers.

Since the rule allowing logging solely on government land was overturned, logging on villagers' customary land has increased hugely. About 90 per cent of all logging now takes place on customary land.

The government has devolved its forest management and control resources still further, giving the eight provinces the power to issue licences.

According to the Central Bank, this is "a move that must surely weaken national forestry planning and make unified management and control of the industry...impossible."

In a bid to earn foreign exchange, the Solomon Islands has relaxed licensing agreements for logging companies. It is estimated that in ten years the islands' forest resources will have run out. Through training programmes, reports Gemini News Service, some NGOs are showing people how to log timber in a sustainable way and still sell at a profit.

Dorothy Hatigeva, editor of Bisnis Nius magazine, believes the Solomons should adopt PNG-style legislation to keep the loggers under control.

Other concerned groups are looking at alternative approaches. Rather than fine the loggers, they would rather educate people about the knock-on effects of large-scale commercial logging.

The driving force is a non-governmental organisation, the Solomon Islands Development Trust (SIDT). Its team members travel the country holding logging workshops. Villagers learn about water problems, spoilt food-gardening land and social difficulties once the loggers move in.

The lessons are backed up by skits from the SIDT's theatre group and Pijin language comics. Even so, villagers are often swayed by dreams of big dollars and the influence exerted by their leaders, known as "big men".

New logging concessions are being given at frightening speed. In Ysabel, Axiom Forest Products have persuaded Sir Dudley Tuti, an important chief and former Archbishop of Melanesia, to take a seat on the board.

With a "big man" of such influence on the loggers' side it is hard for village landowners — Sir Dudley's parishioners — to say No to requests for logging on their land.

Ysabel has several women landowning chiefs. One, Mrs Victoria Suka, also Anglican and a leader of the Mothers Union, told SIDT's Link magazine: "I really disagree with this sort of development. As a chief I am more concerned about our future generations."

Barely six months later the pressure of repeated late-night calls from people keen for logging to go ahead on Ysabel saw Mrs Suka signing a logging licence agreement.

In a study called Barking Up the Wrong Tree, economists Remi Paris and Ivan Ruzicka, of the World Development Bank, warn that forest resources are being offered to loggers on a short-term basis.

This allows them to benefit from forest exploitation without incurring the costs of managing and protecting the forest. Logging becomes extremely profitable, but unsustainable for anything other than sort-term use.

If villagers log their own land with a portable chainsaw and frame they can export timber at about $373 a cubic metre. An average-size tree should make villagers $2,900.

Logging companies typically pay a royalty of between $1.70 to $3.40 a cubic metre — about $ 27 a tree.

Compare these figures with the average timber door selling for about $350 in British shops. Taking into account the amount of wood wasted during felling, sawing and manufacturing, it is calculated that the wood for a door works out at about $5,100 a cubic metre.

Australia's Rainforest Information Centre (RIC) has come up with a management plan they believe could earn more than $20m per year for the Solomon Islands, cutting just 10 trees per hectare on a 30 to 35-year rotation that ensures future generations always have trees to harvest.

RIC trainers are teaching management of community forest resources. One trainee logger explains: "You don't just cut everything, you try and save trees, fell them in a special way to give enough light to the young trees and keep a continuous operation going."

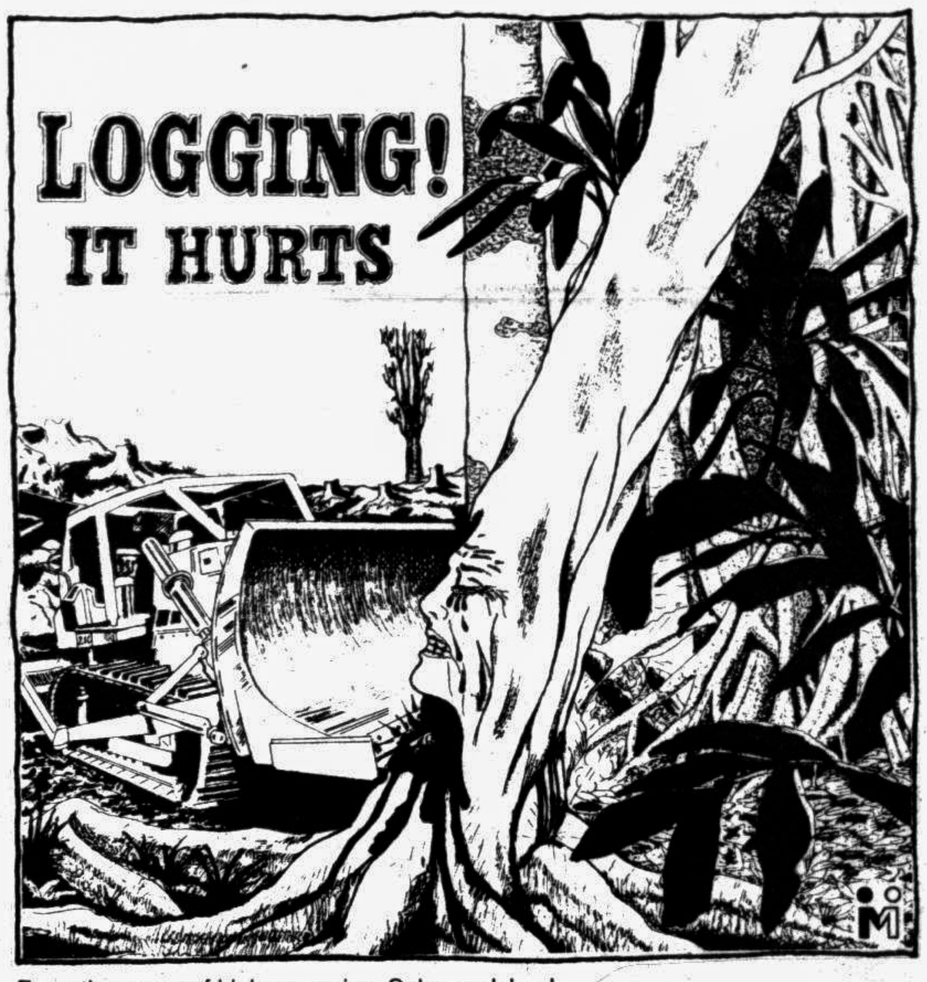
Family groups working at Komuniboli do not export their timber. They use it themselves or sell it locally for between $400-$500 per cubic metre.

Profits are ploughed back, giving the community a generator, a lawnmower and an excellent tool stock. A simple furniture making enterprise is also being set up. This helps keep young people working in the village instead of drifting to the towns.

If Solomon Islands' eco-timber exports grow at the predicted rate of several hundred tons a month, the system will present a commercial alternative to the environmentally destructive methods now in use.

— Gemini News

About the Author: NICOLA BAIRD is a British freelance writer. She has been working in Solomon Islands for Voluntary Service Overseas.



From the cover of Link magazine, Solomon Islands

Gulf Remains a Battlefront

THE soldiers who fought here have been home or over a year now but another war goes on in the Gulf — this time against environmental pollution.

"Conservationists and scientists from all over the world are now working in the Gulf to gauge the damage to the region's environment by a huge oil slick and the burning of Kuwait's oil wells by retreating Iraqi soldiers last year.

Said one conservationist : "Modern warfare is a war against the environment".

During the Gulf War, Iraqi leader Saddam Hussein spilled millions of barrels of oil into the Gulf. Last year, a task force charged with cleaning up the mess scooped up more than 100,000 barrels of oil out of the waterway.

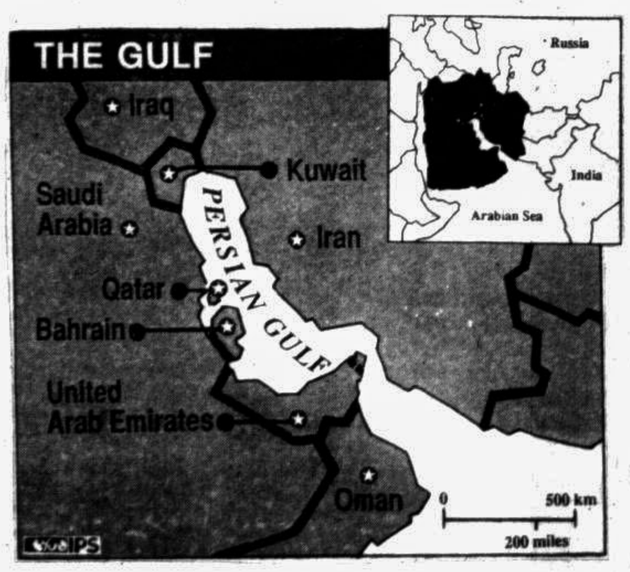
But much of the 'Saddam spill' still plasters most Gulf coastlines where it washed up in January, endangering fragile ecosystems. And experts believe it will be some time before the Gulf environment can be restored to what it was before the war.

"I strongly feel it is time the Gulf Cooperation Council (GCC) countries woke up to the threat of oil pollution," said environmentalist Nasser Othman Al Saleh, a Saudi Fisheries Co manager. "Pollution in the Gulf is no longer a passing phase but it has become a persistent and permanent feature of the region's life."

Greenpeace, an international environmental group, says the six to eight million barrels of oil that gushed into the Gulf killed marine life and clogged 740 kms of Saudi coastline. Up to 30,000 birds died from the spill and Greenpeace expects a million more to die after they touch down on the oil lakes covering 60 per cent of Kuwait.

The oil slick also threatens the breeding grounds of 300 species of fish living in the Gulf.

It will cost around US$1.2 billion to clean up Gulf shorelines and Kuwait's oil-drenched landscape, says the Gulf Regional Organisation for the Protection of Marine Environment (Ropme), an amount the Gulf countries may not be able to raise by themselves.



Commented Al Saleh: "It is countries with large wealth which should set an example in trying out new technologies in the area."

A United Nations agency has collected a mere US$8.5 million for a Gulf clean-up fund. Some environmental groups point out Exxon Corporation spent US$2 billion to clean up 258,000 barrels of oil spilled by one of its ships in Alaska in 1989.

Ropme, which groups all seven nations bordering the Gulf — Saudi Arabia, Kuwait, Qatar, Oman, Bahrain, the United Arab Emirates (UAE) and Iran — has mustered scientists and researchers in what is still largely an academic effort to gauge the health of the region's ecosystem.

In February, Ropme joined the United Nations and National Oceanic Atmospheric Administration (NOAA) teams aboard the research vessel Mount Mitchell to undertake the first oceanographic survey of the Gulf in 30 years.

The three-month project, which will study the Gulf's marine and plant biology and water quality, will present its first detailed report in September.

A Saudi Fisheries Co research paper has already determined that the Gulf's shallow depth, high salinity and northwesterly winds make it particularly sensitive to pollutants.

To safeguard depleted Gulf fish stocks, the UAE banned last March the use of huge driftnets. Neighbouring Oman, whose waters hold the most fish among the GCC states, has upheld controls on industrial fishing off its shores after local fisheries reported a lower availability of fish.

But while experts are familiar with the destruction brought about by oil spills, the effects of the toxic gases released by the Kuwaiti oil well fires on the population remain uncertain.

Experts were relieved when the 1,000-km long smoke plume drifting from burning wells did not reach the stratosphere and vanished after the last well fire was extinguished in November.

Kuwait has to wait until next year for the Kuwait Institute of Scientific Research (KISR) to finish its 14-month study on how to correct damage done by seven months of smoke and several hectares of oil lake on its environment.

— IPS