

Industries Pollute the Environment

by Feroze Ahmed

BAKING is one of the least industrialised countries, yet environmental pollution is already a problem here. The environment is being polluted because of unplanned growth of industries in some location — without proper effluent treatment facilities.

Surveys reveal the presence of pollutant chemicals in heavy concentrations in water and soil in several areas. The degree of environmental degradation due to industrial pollution, however, has not yet reached an alarming stage.

Experts suggest a planned and cautious move towards industrialization so that economic growth can be achieved without affecting the ecological balance.

The main polluting industries in Bangladesh are tanneries, pulp and paper mills, fertilizer factories, distilleries and sugar and chemical units. Ammonia, chromium and other harmful substances from fertilizer factories and tanneries, mercury from chloralkali units, phenols from pulp and paper mills refineries and plastic, pharmaceutical and paint industries are the major chemical pollutants in the country.

The urea factories discharge ammoniacal effluent which can be toxic even to the hardy species of fishes, if the concentration of ammonia or ammonium base is high. Concentration of ammonia in the total effluents from a urea factory would be as high as 100 to 400 ppm, experts say.

All the urea factories in the country are located on the river bank. A Bangladesh

University of Engineering and Technology (BUET) survey reveals that concentration of ammonia in river water close to the effluent discharge points is 30 ppm and it is higher during the dry season and during equipment breakdown. Only Chittagong Urea factory controls ammonia by steam stripping.

The use of chemical fertilizer itself can affect soil properties and organisms living in water. Dr. Syed Shafiqullah, Professor of Chemistry, Jahangirnagar University, says in his study that fertilizer worth taka 500 crore is wasted annually as it gets mixed with rain water in farmland and is drained into rivers, canals and lakes causing harm to the organisms which are an integral part of the eco-systems. Excessive quantities of chemical fertilizers can destroy the micronutrients which help retain the natural fertility of land, he observes.

The major industrial locations in Bangladesh are concentrated in three metropolitan areas — Dhaka, Chittagong and Khulna. In Dhaka, the industrial areas are scattered in Tejgaon, Hazaribagh, Demra and Joydevpur. The tanneries located in Hazaribagh area of Dhaka city pose a serious threat to public health. Chromium waste from the tanneries is discharged in the Buriganga. Hexavalent chromium is cancerous, the threshold limit is 0.1 ppm. The maximum concentrations of chromium, zinc and lead near the effluent discharge points in the Buriganga are about six micrograms per litre, according to as study.

Considering the adverse effects of wastes from the tanneries on the environment, the government planned to shift the 200 tanneries from the capital city. The Asian Development Bank (ADB) agreed to provide assistance to the project. But the project has been shelved.

Mr. Abu Taleb Khandker, Deputy Director, Department of Environment (DOE), admitted that the level of chromium concentration at Hazaribagh

The Department of Environment will have to be strengthened enough to enable it to monitor the environment and suggest and implement the remedial measures.

outfall was rising as it could pollute ground water through seepage and thus cause a dangerous health hazard. Water pollution by chromium was more evident during the dry season he said.

Mercury losses from chloralkali and phenols from the chemical industries can also be toxic. Colour and foam are causes of concern primarily because those are visible (Omar, Ikhtyar). The source of these two types of aesthetic pollutants is the pulp mills. Colour may be a greater problem when the diffusion factor of the receiving water is low and light penetration is re-

duced affecting plant growth. Mr. Abu Taleb Khandker said that the DOE did not have the equipment to monitor air pollution in the country. The DOE borrowed an equipment from India recently and find that the degree of air pollution in the country was not alarming. Toxic chemicals like mercaptans, chlorine and dust from lime kilns emitted by pulp and paper mills, large amounts of carbon dioxide released from urea plants when production stops area serious health hazard. The TSP fertilizer plants emit large quantities of dust and similar is the case with the jute mills. This can lead to respiratory problems and skin and eye diseases.

Air pollution caused by emissions of motor vehicles are also posing threats to health and environment in the main cities and towns including Dhaka city. Solid wastes generate from chemical industries may also pose threats. A case in point is Chittagong TSP complex which faces a serious problem in dumping the huge quantities of gypsum generated by it as a reaction product. Some small-scale enterprises like metal working, machine tools, tanning, dyeing, etc. are no less responsible environmental degradation. By dumping wastes in the neighbourhoods they cause local pollution of the environment.

The DOE identified 903 industrial units of 13 categories as pollutant industries in 1986. But effective measures to stop them from polluting the environment could not be taken yet. The DOE filed cases against some of those indus-

tries but with little effect so far.

Dr. Haroun Er Rashid, Senior Resident Adviser National Conservation Strategy (NCS) said strong legislative support is needed to implement measures for protection of the environment. He said the industrial projects passed through the planning commission need certificate from the DOE but those projects which are not placed before the commission are not needed to have any such certificate; as a result, such projects give little thought to the environmental issues.

The DOE drafted a law a few years ago to be passed by parliament. But the draft is still under review of the relevant ministries, and official said.

There is no alternative to industrialization if we want to achieve economic growth. Though environment and development seem to contradict each other, a compromise between the two is possible through proper studies and planning such compromise is the need of time.

The agricultural sector is still the major contributor to the GDP. But this sector cannot absorb the ever increasing labour force. New technology is a must for development. But the situation is growing complex day by day and one has to keep in mind the environmental factors while going for new technologies.

A sound environment policy supported by necessary legislation could ensure healthy growth of the economy. The DOE will have to be strengthened so that it can monitor the environment and suggest and implement remedial measures.

Women Help Plant Islands of Green

Egyptian women are training in a new farming technology which has given rise to thousands of greenhouses on newly reclaimed land.

CAIRO — Merwat Mohamed Sabry and Hahid Mohammed Said examine the progress of the sweet pepper plants they have nurtured.

Amal Amr Murad measures out just right amount of chemicals she will need to raise juicy tomatoes "hydroponically," or growing them without soil in a mixture of water and nutrients.

Hayam Gemin and Samar Ridah check on a new crop for Egypt — Chinese mushrooms. These are doing nicely on blocks of moist straw implanted with spores, much as nature generates mushrooms on damp tree trunks.

The women, who are agricultural engineers, are among the trainees and employees of the Ministry of Agriculture and Land Reclamation's Dokki Research and Training Centre, an island of green amidst Cairo's ever-expanding sea of concrete.

They are exploring the potentials of "protected cultivation," or intensified production of vegetables and fruits under plastic greenhouses using carefully controlled amounts of water and fertilizer.

Since 1988 the Dokki Centre has trained 800 specialists in protected cultivation, assisted by a US \$1.3 million grant from the United Nations Development Programme (UNDP) and technical support from the Food and Agriculture Organisation (FAO). The technology holds great

promise for getting more yields from crops grown in small plots of land, and helping the government realise its goal of a yearly 3.5 percent increase in agricultural production.

Egypt, with a population of over 53 million and annual population growth rate of 2.7 percent, has reclaimed some desert lands for agriculture. But this is a slow and costly process.

On economic grounds alone, protected cultivation is attractive. It can lead to seven fold increases in land productivity according to Ayman F. Abou-Haddid, national director of the UNDP-supported protected cultivation project at Dokki. This more than offsets expenses such as infrastructure (a typical plastic greenhouse covering 500 sq m costs US \$2,500), regular supplies of quality seeds, fertilizers and pesticides and training.

"A good (production) average in the open fields is three kilograms of tomatoes per square metre of land. We get as much as 20 kgs per sq m under plastic," says Mr Abou-Haddid.

Protected farming also requires two-thirds less water than open field farming — a crucial saving as farmers depend entirely on a limited water supply from the Nile. The use of plastic covers further makes it easier to control pests and diseases. The Dokki Centre's experi-

ence has shown that cut flowers and fruit crops do well under plastic, including pineapple which cannot be grown in Egypt's open fields due to cool nighttime temperatures. The technology also cuts in half the 10 years normally needed for a new olive tree to bear fruit, and is especially useful for the production of virus-free rootstocks for citrus and olive trees.

Began is Egypt in the mid-1980s, protected cultivation has given rise to thousands of greenhouses on newly reclaimed land, two-thirds of them privately owned.

Nucleus for research, training and information concerning all aspects of protected cultivation is the Dokki Centre, which offers courses free of charge. Many trainees, of whom at least one-third are women, are recent graduates of agricultural colleges who plan to apply for the five acres of land and one greenhouse that the government is offering to qualified applicants in newly reclaimed desert areas.

Others are already practising farmers such as Abdul Wahab, who grows fruits, vegetables and wheat as well as clover for fodder in Noubaria, a major desert reclamation area 150 kms west of Cairo.

"I came to this course to help me with my work," she says. "My watermelons grow well under protected cultivation. I also grow tomatoes, cucumbers and cantaloupes." — Depthnews Asia

The Reafforestation of Britain

by Roger Turf

IN few northern countries do broad leaved trees grow as well as in Britain; and few have exploited the advantage so ruthlessly. By the early 20th century Britain had all but lost its forests. Now they may be returning.

A combination of demand for home-grown timber, the need for an enhanced environment, and an education in the amount of land devoted to agriculture, could once again make Britain the country Julius Caesar is said to have called one great forest. It will not be quite like that, but plans are already well advanced for the planting of a vast new hardwood forest in the English midlands, traditionally a forested area, which will involve trees on some 50% of the land concerned.

The idea has come from the Countryside Commission, the Government-sponsored body responsible for coordinating national policies on rural conservation and improvement, through which many grants are channelled.

The commission is currently surveying five sites around Birmingham. Farmers and landowners would retain ownership of their land but would be encouraged to make it available for planting, either by private or public schemes, through a variety of financial inducements, some of which are already in place.

Vigorous Competition
This Midlands Forest would create jobs and supply some of the 90% of the British timber requirement that is at present imported. It would also offer a vast recreational area on the doorstep of one of the country's most heavily populated urban and industrial regions.

Apart from benefits to people there would be enhancement of the landscape and improvement of wildlife habitats. The idea has already created so much enthusiasm locally that councils in whose areas the five potential sites fall are competing vigorously to be chosen.

Even ten years ago, such a plan would never have passed the drawing board. The deforestation of Britain had been continuing for centuries. The use of timber for houses and ships, and wood for domestic and industrial purposes had, by the early part of this century, left the country with no more than 5% of its land area covered by trees.

The institution of the Forestry Commission, just after World War I, went some way to recovering this situation. However, another world war within 20 years quickly sapped the potential of the new woodlands the commission had developed. Moreover, for economic reasons, those woodlands consisted almost entirely of conifers, primarily the Sitka spruce, criticised by foresters and environmentalists alike as alien to the British countryside.

Budgetary Changes
Conifer planting was encouraged by lenient taxation of

landowners who planted trees. Wealthy individuals and certain celebrities invested heavily in such planting because of the tax advantages.

These were swept away by budgetary changes in 1988. Now, the emphasis is once again on the traditional oak, ash, chestnut, hornbeam, larch and birch, which were neglected because of their slow growth and relatively poor financial return.

The Midlands Forest project is not the only plan for improvement. In all, the Countryside Commission and the Forestry Commission are working on 12 "community forests" in England and Wales. One would be on the eastern fringes of London, and three more would lay a belt of woodland across central northern England, running from Liverpool, on the northwest coast, eastwards to Sheffield.

The foresters accept that their biggest problem will be raising money. Although the tax advantages have gone, Government support has been switched to grants that not only promote new planting,

particularly of hardwood trees, but help to underwrite the costly maintenance of new forests in their early years, when their potential for profit from timber sales is small.

Insatiable Demand
Such grants are already helping to give the new forest industry a start, but they will be insufficient by themselves to cover the cost of acquiring, managing and improving forest land. Much of that expense will have to be borne by the private sector.

The prospect for private owners to benefit is greater than might at first appear. Demand for timber products is insatiable; new technology, improved varieties of trees, in-forest methods of adding value by milling on site rather than using expensive haulage to timber mills, are all contributing to a more efficient timber industry.

Between 1983 and 1989 the area of new plantings grew steadily, only dipping from a peak of 29 500 hectares in 1989, to 19 700 in 1990, because of the tax changes re-

ferred to above.

Oddly enough, it has been the destruction of some forests that has galvanised owners into commercial activity. In the latter part of the decade a series of violent storms hit southern England, felling mature trees in their thousands.

Initially, the availability of such a vast quantity of timber, much of it in prime condition, may have led to lower prices; but as the timber trade clamoured for the production of this unexpected harvest, owners found they had a very valuable asset to exploit.

Main Influence
At the same time, British agriculture has found itself in growing difficulty. Surplus food production has led once again to action, both at European Community and British Government level, to cut the cost of farming to taxpayer. Schemes such as "set aside", where farmers are encouraged to stop cropping a part of their land, mean that some other use has to be found for it — trees are an obvious answer.

THE flightless bird which is New Zealand's national symbol is near extinction.

One species, the little spotted kiwi, is now probably extinct on the New Zealand mainland and found only on outlying islands.

The great spotted kiwi is found only on the west of South Island, one of the country's two main islands. The brown kiwi, still the most common, is declining in numbers and geographical spread.

All three species are considered to be threatened with extinction. Land clearance on North Island by both the native Maoris and Europeans eliminated the birds in most coastal and lowland areas.

"We are taking steps to save this unique bird, our national emblem, before its position becomes critical," says Prime Minister Jim Bolger.

New Zealanders are often colloquially called kiwis. The Chinese gooseberry has also been renamed the kiwifruit by New Zealanders who launched the fruit into an international export success.

"Although the kiwi is our national symbol, we know surprisingly little about it," says Kevin Smith, conservation director of the Forest and Bird Protection Society. "Unfortunately, what we do

The Amazing Kiwi Bird : Tough and Nearly Extinct

After what they've had to deal with, most birds would have been extinct long ago. But the fact that the kiwi has hung on is an indication of their spirit. by Derek Round.

know is that it is in decline," Mr Smith continues. "Kiwis are slowly disappearing from forests in many parts of New Zealand. We need to know why and what needs to be done to protect this amazing bird."

The kiwi is a nocturnal bird that sleeps during the day. It has some unique features and has been described as a one-off evolutionary design, more like a mammal.

Most birds rely on sight but the kiwi finds its food by scent. It is the only bird known to have external nostrils at the end of its bill.

Kiwis never flight with their beaks which are highly sensitive and can smell insects several centimetres below the ground.

Other features that are more those of a mammal are its loose feathers which are more like hair and fur, its long

whiskers, the fact that it cannot fly and that it digs burrows in the ground.

The kiwi bird is threatened by stoats, wild cats, dogs and pigs, possum traps and poison and the logging of their forest habitat. During six weeks in 1987, a wild dog killed about half the 1,000 kiwis living in Waitangi State Forest in the Bay of Islands.

Kiwis have also been victims of gin traps and cyanide poison laid for possum. And it is common in some areas to find kiwis missing talons.

An ancient bird, the kiwi has family ties to New Zealand's extinct moa, the Australian emu, African ostrich and South American rhea.

Dr John McIenna, head of the Kiwi Recovery Group, describes the kiwi as one tough customer. After what they've had to deal with, birds would

have been extinct long ago, but the fact that the kiwi has hung on is an indication of their spirit.

"They're tough tenacious and extremely protective of their territory," he says.

New Zealand has launched a five-year plan to save the kiwi. The first phase will concentrate on gathering information and will be aimed at safeguarding the little spotted kiwi. The second stage will involve rescue action for endangered kiwis and monitoring of all species. The third phase will study the mainland kiwi population and undertake long-term management.

The most successful kiwi population in captivity exists in the Northland region, at the top of the North Island, across a range of vegetation types including exotic forest and rough farmland.

Environmental Legacy Not Easily Forgotten

Logging is banned in Vietnam. But there are signs that even the officials who claim to have banned commercial logging are, themselves, engaging in it. by Philip Gorton

A LUOI, Vietnam — The debris of a forgotten war is still visible in the empty bomb canisters, combat helmets and strips of metal ripped off from landing pads.

"Since there is no one trying to kill us now, the government has told us to forget the past," says Vu Bua, an old tribesman living in the barren highlands here in Hue province.

Camouflaged guerrillas once traversed the network of muddy paths collectively known as the Ho Chi Minh Trail. Bomb craters the size of houses are overgrown with what villagers call "the American grass" — tall weeds that suffocate other vegetation.

Yet the environmental legacy of the Vietnam War — albeit more disguised than the metal scrap — is not easily forgotten.

The chemical Agent Orange sprayed to destroy forest cover has long since sunk into the ground and dissipated. But provincial medical researchers say that in a sample of 78,611 expectant mothers taken over the last decade, miscarriages were at a level well over 10 per cent of all births.

Stricken by war and poverty for most of its independence, Vietnam has little hope of regaining its lost environment anytime soon, experts say.

The highlands that rise up to a mile high drop rapidly to sea level along the long rugged coastline. Nearly 80 per cent of the countryside consists of hills or mountains. A loss of forest cover has brought sudden cloud bursts and floods that killed thousands.

"Our forests were devastated by the war and now overpopulation and fresh cutting have brought more pressure," says Nguyen Huu Le, director of Hue province's forestry department.

The environmental decline in Vietnam's highlands that began with US carpet bombing and deforestation two decades ago has only been aggravated by fresh tree cutting.

In 1943, Vietnam's forests totalled 13 million hectares covering 42 per cent of the country. By 1982, it was just 23 per cent. Today, it is probably under 20 per cent.

Annual forest losses today are estimated at 240,000 hectares a year. About half of that comes from slash-and-burn farming. Just 160,000 hectares get replanted with trees.

engaging in it. Huge logging trucks wind down dirt roads almost daily.

Elsewhere, mudslides and heavy rains have washed topsoil into rivers. Sedimentation is cutting into the river banks where homes sit precariously on edge. Shifting riverbeds and coastal sands weeps over once fertile rice fields.

Natural beauty — the treasure of a nation — is hard to come by. With the loss of moist tropical jungle has come a dry air that coats everything in dust and robs the colourful hues from the land.

During the war, tigers, elephants and wild buffalo fled into Laos. Most of these that have not died of starvation since are being bunted with reckless abandon.

Still, officials are desperate to put their richest resources, people, to work to save the environment. "About the only thing we are rich in is human resources," says Mr Le, the forestry official.

"We still consider our forests to be our most important natural asset," he says. "And we attach great importance to regreening them."

The best Vietnam can hope for is to maintain some of its fragile watersheds and keep them from deteriorating further. Finding any money to restore the environment has been a much tedious enterprise than putting together the cash and the men to destroy it.

Officials say international support for Vietnam's reforestation programme has been limited by the US government's economic embargo.

The United Nations Development Programme (UNDP) is providing money to the government as it attempts to formulate a master plan to preserve natural resources.

"They have done a lot of good work already, but they simply lack the equipment to monitor their environment," says Tantz Zaman, a UNDP environmental official based in Hanoi.

In addition, the United Nations World Food Programme (WFP) gives villagers up to 2.5 kilograms of rice for a day of replanting trees. Since 1984, WFP assistance has totalled 320 million tons in food aid.

Priority is given to family units as past experience has proven cooperatives, for example, to be lazy and unresponsive to the aid. Payments are made directly to families to supply incentive at the lowest levels.

Mountains are being once again covered in green, though the widely spaced pine and eucalyptus plantations are a far cry from the dense jungle that once characterised the steep slopes.

WFP, the UN specialised agency, uses food commodities and services as development aid. — Depthnews Asia



An old woman carrying home dry weeds for domestic consumption as fuel. ILO.