

# Environmental Pollution: Its Effects on National Health

**O**UR environment consists of land, water and air. Any abnormal change in the physical, chemical and biological characteristics of the environment that may be potentially harmful for human beings, plants, animals is termed as pollution. In recent years, there have been a lot of talks on pollution. Almost every day one can find a piece of writing on pollution in our daily newspapers and other periodicals. These writings include scientific essays, political speeches, news of seminars as well as letters of individuals expressing concern for the environment. But the general public in this country are not very conscious about the consequences of pollution. Lack of knowledge about pollution is responsible for this situation.

The three components of our environment, that is, air, water and land are polluted in different ways.

### Air pollution

The smokes emitted by different industries and automobiles are the main reason for air pollution. Depending on the type of industry the smoke contains different toxic gases like oxides of carbon (CO<sub>2</sub>, CO), sulphur (SO<sub>2</sub>) and nitrogen (NO, NO<sub>2</sub>), hydrogen sulphide, halogens and hydrocarbons. For obvious reasons, air pollution is more serious in the developed countries. But polluted air can easily move across the borders to great distances.

Chloro-fluoro-carbon (CFC), a chemical used in refrigeration and in aerosols has been found to be a major agent in air pollution.

Scientists say that the use of fossil fuels is invariably accompanied with the release of harmful gases. Unscientific disposal of city garbage, indiscriminate felling of trees also enhance the toxic gases of atmosphere.

A different kind of air pollution results from nuclear explosions which produce radioactive products in the atmosphere. Radio-activity lasts for long periods. The threat to the world's environment from nu-

clear activities of any kind looms large. The memory of Chernobyl accident in the USSR is still fresh in our mind.

### Land and water pollution

Land and water pollution results mainly from the use of toxic chemicals in agriculture. Other causes include disposal of industrial wastes, detergents and inadequate sanitary arrangements. Defecation under open sky is a common practice in most developing countries and it is a serious problem in Bangladesh.

### Pollution in Bangladesh and its consequences

The processes of pollution

earth causing more snow to melt. This in turn will raise water level of the oceans. It has been cautioned that two-third of the land area of Bangladesh may go under water within the next 50 years or so. This possibility is surely a matter of great concern for the country. It is a question of survival.

In Bangladesh deforestation accumulates more carbon-dioxide in the air and also reduces rainfall leading to desertification which is also of serious concern of ours.

When agro-chemicals are applied to crops, part of it ultimately finds its way to water bodies causing damage to fishes and declining its pro-

- Toxic industrial wastes, if any, should be disposed as harmlessly as possible.
- Use of highly toxic and persistent agro-chemicals must be banned or restricted.
- People should be persuaded to develop sanitary facilities in rural areas as far as possible.
- All developed countries should be asked to control their pollution which is posing danger for the whole world.
- Countries that carry out nuclear explosions off and on should be requested to stop the same forthwith.
- To implement the above suggestions, people should be educated and made conscious of the damaging consequence of pollution. Where feasible legal measures must be taken to enforce the proposed measures.

### Conclusion

In the editorial of a local daily recently it has been mentioned that one thousand leading scientists of the world will meet soon in Sweden to discuss different issues related to the protection of the environment. We have heard news of similar meetings of scientists and intellectuals in the past. It is heartening to note that people all over the world are concerned about the environment. In some developed countries measures to reduce pollution have been taken. There has been a growing resentment against nuclear explosions.

In Bangladesh high level of illiteracy and poverty are two major handicaps in developing social consciousness about the consequences of pollution. In spite of this, our mass media are playing a very praiseworthy role in this regard.

Ismat Haseen, a student of Class XII of Adamjee Cantonment College, Dhaka, won first prize for its write-up in the essay contest sponsored by Rotary Club of Dhaka North-West recently.

by Ismat Haseen

**A**T 76, Murlidhar Devdas Amte, affectionately known as Baba Amte, shows no sign of forsaking his crusade against the world's biggest dam project.

The Narmada dam project, in north-west India, involves the construction of dams along the 1,312-kilometre Narmada River and its tributaries passing through Madhya Pradesh (M.P.), Maharashtra and Gujarat states.

The scale of the project is mind-boggling. Sardar Sarovar dam in Gujarat and the Narmada Sagar dam in M.P. are the biggest of 3,000 or more dams of various sizes which together form the largest such undertaking in the world.

Although China is building the world's biggest individual dam — the Three Gorges with a hydro-electric capacity of 18,000 megawatts — nowhere else is there such a 'cascade development' taking place at several points along a river as is in the case of the Narmada project.

Backers of the project say it will generate around 3,000 megawatts of power and help irrigate at least 1.8 million hectares of land, thereby raising agricultural output.

But those opposed say the environmental impact of the project could be disastrous and that its non-financial costs are too high: 250 villages, the homes and fields of around 70,000 tribal people and at least 11,000 hectares of forest will be submerged.

Though the Sardar Sarovar dam is being built in Gujarat, the artificial reservoir created would affect large populations in the neighboring states of M.P. and Maharashtra.

The tangle of political and economic interests involved in the project has made the debate over it complex and, at times, bewildering.

The World Bank, for instance, has already agreed credit of \$450 million for the Sardar Sarovar dam, but is reviewing its involvement in the Narmada Sagar dam. Furthermore, some of this money is earmarked for resettlement programmes for those displaced by the flooding of land due to the Sardar Sarovar project.

The Bank has also made a careful environmental audit which suggests that, overall, the economic benefits of the dam may outweigh the environmental impact.

The anti-dam movement,

**The project**  
Planned: 31 major dams, 450 medium dams, 3,000+ minor dams  
Cost: \$8 billion Time-scale: 40 years  
Benefits: Hydro-electric power, pisciculture, tourism, irrigation, urban water supply, flood control

**Narmada Sagar dam**  
Power: 1,000 MW  
Irrigation: 123,000 hectares

**Sardar Sarovar dam**  
Power: 1,450 MW  
Irrigation: 1.9m hectares

**The environmental cost**  
Submerged: 250 villages  
Displaced: 70,000+ tribals  
Ecological damage: unknown

Baba Amte: 'a symbol of destructive development'

SAVE NARMADA

## Bed-Ridden Baba Crusades Against Narmada Mega-Project

**Despite 18 spinal operations, Baba Amte, the grand old man of Indian environmentalism, is still active in the campaign against the huge Narmada dam project in north-west India. Unable to sit up, he joins protests lying down in his bed to defend the land rights of 70,000 tribals who will be flooded out if the project goes ahead. The forces arrayed against him are formidable, but, as Gemini News Service reports, Baba is prepared to meet 'a watery grave' to make his point. — By Atiya Singh.**

Sardar Sarovar dam. But this does not dishearten Baba Amte, "the grand old man of the environment," as the Los Angeles Times calls him. He says he is willing to face "jal samadhi" (a watery grave) if the construction of the Sardar Sarovar dam is not stopped.

To Amte, the uprooting of tribal people is unacceptable. "I'm for development with a human face," he says.

Scion of a rich family of Warora in Maharashtra state, as a young man he enjoyed food, drink and stylish clothes; he went to the same tailor as the British governor. He drove a sports car upholstered with tiger skin. Fond of hunting and motor racing, he was a successful lawyer, a wrestler and a poet.

That life would have continued but for an encounter with a leper who was writhing in a gutter, his open wounds infested with maggots.

Amte fled in horror but soon returned, determined to conquer his fear. He picked up the leper, gave him food and looked after him until he died.

Amte was transformed by this first experience of altruism. He tore up his legal licence, renounced his share of his father's estate and resolved to devote the rest of life to bringing hope to the leprosy patients and social outcasts.

Amte's mission started with a mere 14 rupees, 25 acres of scrubland offered by the M. P. government and six leprosy patients. He was helped by his wife, Sadhana Tai, and two sons, Vikas and Ashok.

Today, the project has grown into Anandwan (forest of bliss) — a hospital and a home for 2,000 leprosy patients.

Amte has become an international celebrity, winning a string of awards, the most notable being the Damien Dutton award in 1973, the Magsaysay Award in 1985 and the Templeton award in 1990. In 1986, India honored him with the Padam Vibhushan award, the country's second highest civilian honour.

But Baba has been troubled by spinal problems and, after 18 spinal operations, is unable to sit up. Instead, he travels around stretched out in bed with an ambulance in tow. "I'm a spineless man," he says, making light of his crippling ability.

Amte left Anandwan for good last year, handing over the running of the project to his son, Dr Prakash Amte. He went to live with the people of Harsud village in M.P., right at the centre of the area that will be submerged if the Sardar Sarovar project goes ahead.

Despite suffering a minor stroke in January, he continues to join protests in his mobile bed and is convinced his efforts are not in vain. "Our struggle has already passed a death warrant against all such projects in future," says Amte. "The people who are going to be displaced by the Sardar Sarovar are determined to fight till the end." —GEMINI NEWS

Exchange rate: \$1 = 18.4 rupees

Atiya Singh is an Indian freelance writer specialising in human interest features and political and economic affairs.

The report also says there is a strong possibility these could be killed by siltation preceding the construction work, and the impact it has on tidal currents and wave action. —Gemini News

Mallika Wanigasundara previously worked for the Times of Ceylon and is currently a correspondent for the Paris Institute.

## Dupont Has a CFC Substitute

by Domingo C. Abadilla

The good news on the environmental front in a long time is that Dupont is now selling a new line of refrigerants that will replace chlorofluorocarbons or CFCs, the cooling gas that depletes the ozone layer and contributes to global warming.

It is just as well that Dupont beat its competitors who are also spending millions of dollars while trying to find substitutes for the harmful CFCs. After all, Dupont probably has sold the most CFCs in the world since their introduction in the 1980s.

The new products will be sold under the trade name Suva which is a family of refrigerants with very little potential to deplete ozone, according to Elwood P. Blanchard, Dupont vice-chairman. The company is also developing new products, called Suva blends, to replace refrigerants in existing and new systems in home refrigerators, automobiles and refrigerated transports.

The new line of refrigerants are designed for new commercial and industrial refrigeration systems, new automobile air conditioners, and new home refrigerators. The Suva refrigerants will eventually replace CFCs, a chemical found in the Freon coolant now used in refrigerators and air conditioners.

There are other chemicals displacing CFCs in inflating foam and cleaning fluids. But the biggest users of CFCs were aerosols contained in hairspray which were banned by Prince Charles of England in 1988 in his residence.

Fortunately, as early as 1978, Canada, Norway, Sweden and the United States banned CFCs in all but essential uses, such as medical. There are already safe and less expensive substitutes on the market.

The second biggest users of CFCs are foam producers. However industrial countries are now studying the possibility of imposing emission limits on foam producers. Hence, all the users of CFCs are now moving toward the replacement of the harmful products.

These products containing CFCs have been linked to the punching of a hole in the Earth's layer of protective

ozone which screens cancer-causing ultraviolet radiation from the sun. The delicate veil lies some 23 kilometres above the Earth's surface.

This is an important part of the planet. Life on Earth depends as much on the presence of this ozone as it does on the presence of oxygen and water. Without it lethal levels of ultraviolet radiation would reach the Earth's surface, extinguishing life on the green planet just as surely as if the atmosphere were removed altogether.

There is nothing we can do now about the chemicals already in the atmosphere. But there is something we can do to limit or stop their proliferation in the future.

In other words, here is an environmental problem whose deterioration can be arrested before its effects can be felt.

This is the reason 24 nations signed the Montreal Protocol on Substances that Deplete the Ozone Layer in September 1987 which cuts consumption 50 per cent by 1999. Unfortunately, studies have shown that more depletion of the ozone layer had already taken place than the negotiators assumed would happen in the next 100 years.

The news from New York about Dupont's new substitutes for CFCs in refrigerants becomes significant. While more countries have signed the Montreal protocol, developing countries will most likely increase their consumption of CFCs in the years to come while trying to catch up with the industrial nations.

Besides, gases now rising to the stratosphere and those contained in millions of appliances will continue to deplete the ozone layer for years to come.

Regarding the greenhouse effect of CFCs, Dupont said its Suva refrigerants will cause

only about one-tenth of the global warming problem that the CFC products do. This reinforces the argument for industrial countries to substitute CFCs with ozone-friendly products to insure the integrity of this delicate layer. —Depthnews Science

**F**OR 11 years the people of Ishigaki Island in the Okinawa prefecture have been fighting a relentless battle to save one of Japan's largest and finest coral reefs—the Shiraho reef.

The national government and the Okinawa prefecture have decided to landfill part of the Shiraho lagoon, which is also part of the reef, to extend the airport serving the island. Ishigaki Island lies on the southernmost tip of Ryukyu archipelago, south-west of mainland Japan.

At one hearing into the reef's future, Setuko Yamazato, a local woman opposed to the plan, stood before an audience of environmentalists and sang the island's traditional songs in a strong, but poignant voice. She then performed the dances of the island.

The performance was not for entertainment. The moving songs are sung by the fisherfolk, weavers and ordinary people. They tell of the life in Ishigaki islands, the longings, and the toil of that island community.

They re-enact religious experience and offer the cultural mosaic of music, song and dance that envelop a community of simple folk living by the sea and the reef which succours them.

The message of Yamazato's demonstration was that if the reef goes, the very heart of the traditional life of the islanders will be destroyed. For the Ishigaki islanders the Shiraho reef means a plentiful supply of sea food, a means of livelihood, a symbol of religious worship, and a source of aesthetic enjoyment and inspiration.

Environmentalists say the coral reef, some parts of which are already dying, would face a slow death from the roar of jets and the other disturbances to its fragile ecosystem that the airport would bring.

The reef is believed to be about 700 years old and is the home of one of the largest colonies of blue coral in the world. In the jungle beneath the sea huge colonies of the branching, fingerlike Acropora coral form tangles amid the Montipora foliosa, a cross between marine flowers and mushrooms.

Here fish feed, breed, train their young to survive and hide. The colours run from brilliant greens and blues, greys to purple, yellow, mustard, brown and enchanting shades of pink.

All the year round the villagers find a bountiful catch of seafood—fish, giant clams, lobsters and cuttlefish. The seaweeds are plentiful, all of them rich in proteins and minerals. The local weavers of linens

## Islanders Sing and Dance to Save Their Coral Reef

**Coral Reefs Are Like Underwater Rainforests. Help Save This One From Destruction.**

Advert for the campaign to save the Shiraho coral reef

200 miles 340 km

China, USSR, North Korea, South Korea, Sapporo, Sendai, Tokyo, Nagoya, Osaka, Yokohama, Ishigaki Is.

30 miles 50 km

**One of the finest coral reefs in Japan is in danger of ruin if an airport extension goes ahead as planned. For a decade the people of the island of Ishigaki campaigned against landfill plans. Then the authorities shifted the site. Environmentalists say this will make no real difference. In song and dance and other ways the islanders go on protesting. Gemini News Service reports on the people's relentless battle to save the Shiraho reef. by Mallika Wanigasundara**

and silks use fresh coral skeletons as a key ingredient to turn the special Ryukyu indigo dyes brilliant blue. They bleach their fabrics in the sea or soak them in bowls of sea water.

On the beaches the villagers make offerings to the sea spirits and pray for help and comfort. Ishigaki means stone walls, of which the houses are made. They line either side of the narrow tranquil lanes and alleys.

The villagers fear that their peace of mind will be shattered by the nerve-racking roar of jets and that, as the reef dies, the shoreline will become more vulnerable to erosion.

Several environmental and other organisations have joined the protest. Among them are the Ishigaki Shimin No Kai (Citizens' Group), Shiraho Protection Groups of Okinawa, Tokyo and Osaka, University scholars group, World Wildlife Fund (Japan), Friends of the Earth (Japan), Nature Conservation Society (Japan) and numerous others.

The Association to protect the Shiraho reef asserts that "the governance of Environmental Impact Assessments by weak guidelines" rather than by national law illustrates the unchallenged predominance of unchecked development in Japanese policy.

The National Environmental Agency of Japan surveyed the reef in 1988 and said that it had been kept in "unequaled good health." In 1989 it was decided to shift the landfill site four kilometres away from the present site.

But environmentalists say that the new site is only 1.5 kilometres away and poses a serious threat to the reef. Independent surveys show that the new proposed landfill site is an integral part of the reef ecosystem and contains large colonies of porite, staghorn and other corals which offer a healthy breeding ground for fish.

Despite this, the prefecture hopes to start work on the airport in March. The groups op-

posed to the airport have called on coral and reef biologists and ecologists to offer scientific expertise and back-up for the opposition campaign. They have also called on the Japanese public to write to Prime Minister Toshiki Kaifu expressing opposition.

A World Wildlife Fund survey says that the reef is healthy and of rich in species. It contains 43 genera of corals and 120 species of marine life and 63 species of plants. According to the survey Japan's largest porite cylindrical and Acropora coral colonies and found near the construction site.

The report also says there is a strong possibility these could be killed by siltation preceding the construction work, and the impact it has on tidal currents and wave action. —Gemini News