

Waste Management and the Environment

by Zakeria Shirazi

WITH its fast growing population, Dhaka City is already a municipal nightmare. A its waste disposal arrangements remain wholly inadequate and outdated, Dhaka is also becoming the environmentalists' nightmare.

Garbage cans uncleaned and overflowing, littering lying everywhere in the roadside and rotting in rain water, the busiest sections of the city's 162-km-long sidewalks lined with human waste — all these add up to a grim public health and environmental scenario.

While the country's population is growing fast, urban population is growing faster still. In 1961 urban population made up 5.19 per cent of the total population; in 1981 the percentage went up to 15.54 and the per cent percentage of town-dwellers is estimated to be 20.

Rajshahi. The population of Dhaka has swelled phenomenally — from 3.4 million in 1981 to 6 million (approx.) in 1991. The projected population in the year 2015 will be 20 to 25 million, this huge population is crowded within an area of 226 square kilometers (88 square miles).

The existing civic amenities of Dhaka are totally inadequate to cope with the growing needs. While the city is ill-managed in many ways, its waste disposal system is particularly under strains, posing a danger to public health and environment.

According to a spokesman of WASA, its 437.16 km sewerage line and 38,062 sewerage correction fulfill no more than 35 per cent of the requirement. The total number of holdings, according to DCC, is

1,35,000 which means that nearly one lac holdings and 65 per cent of the population are left to their own devices to dispose of human waste and excreta.

The well-to-do residents have privately constructed septic tanks but the less fortunate among them, more than 50 per cent, have to make do with impromptu arrangements — which means practically no arrangement at all.

WASA's 15 sewerage life stations carry wastes to a treatment plant at Pagla, a few kilometres from the city, which has a capacity to treat 20 mgd (million gallons per day). The treatment method is not based on hightech. After natural oxidation, that is, exposure to sunlight, 20 million gallons of waste water is discharged into the river daily and the solid waste is used for earth filling.

As for any arrangement to recycle the solid waste, it is not even at the planning level. According to a WASA spokesman, no study has yet been made to examine its use as manure. Local people are found to collect the sediment, evidently for use as manure but that is not free of risk, since the sediment may have microorganism left.

DCC's management or mismanagement of wastes is more visible and therefore it draws more criticism from the public. Informed circles think that with 427 garbage trucks and 4,200 scavenging staff, DMC should not be thought of as lacking in resources.

DCC's 15 public toilet complexes and scores of urinals may be seen as inadequate but the fact is that these facilities, observers find, are underutilized and the residents choose the nearest solitary corner to ease themselves.

The DCC, too, is using the garbage for earthfilling, now at Sayedabad and Pallabi and

some very small recycling is done by private efforts. Mr. MAJ Pramank of the department of environment said they are taking up to question of recycling in interministerial meetings. He said all garbage clearance should be done at night. He further said that for environmentally safe disposal of wastes, public awareness has to be raised.

It is also felt that a greater coordination among the government agencies and the utility services is necessary for sustainability of development and environmental safety. The question of public awareness is a valid one but the responsibility of creating public awareness lies with these very agencies.

The need for a compulsive policy on Urban Development that would ensure hygienic disposal of wastes in the Urban Centers of the country has been emphasized in the 1st draft of National Conservation Strategy (NCS) of Bangladesh. The NCS draft prepared by the NCS project of the Government and the International Union for Conservation of Nature and Natural Resources (IUCN) is now being finalized.

Unreal Scenes of Volcanic Ruin

IT is a grim and unreal landscape around the volcanic mountain — an off-white sheet over patches of pale green. Bridges are twisted or torn in half, with volcanic mud piled up under their arches. Houses are buried in a white mud that has hardened enough to form new shapes. Several bamboos and electricity poles poke out of the mud. Even the coconut trees look strange; the palm leaves, weighed down by ash-falls, have stayed that way, like folded umbrellas.

On one recent day, afternoon showers brought mudflows to four villages in Pampanga province, sending 1,000 residents fleeing after a brief spell of sunshine. Mudflows four to five feet deep moved towards communities where flooding marooned hundreds of residents and destroyed crops.

In just four days of non-stop rains in late August, 44 people died from diseases and mudflow-related incidents, bringing the death toll from Mount Pinatubo's eruptions to more

than 550 people. The toll included a couple who died from third-degree burns caused by hot mudflows which rolled through their villages.

Three major rivers have become impassable while 10 others have had their channels clogged by mud, boulders and fallen trees. All major river systems in the worst affected provinces — Pampanga, Zambales and Tarlac — are heavily silted.

The eruption forced the evacuation of the largest American airbase outside North America, Clark Air Base in Pampanga province.

There are now over 400,000 evacuees. There are 380,000 school children who are not in class because ash-falls and mudflows have damaged about 3,800 schools. For the children, school may be weeks away. For most of the

evacuees, the mudflow threat may last for years.

Volcanologists say that three-fourths of the volcanic debris from the eruption — or about five cubic kilometres of lava and mud — still rest on the slopes of the mountain. The mudflow threat, they say, could last three to five years, or for as long as the rains continue to wash the mud down.

Aside from the seasonal monsoon rains, an average of 20 tropical storms hit the country each year. Weathermen expect ten more tropical storms before the year is over. More mudflows are sure to follow.

Government rehabilitation work started in early August. The Department of Public Works and Highways announced it will spend 2.9 billion pesos (US\$107 million) for the rebuilding of damaged bridges, roads, flood controls and school buildings.

The eruption has destroyed at least 3.4 billion pesos (US\$126 million) worth of infrastructure and about 30,000 hectares of ricelands have been buried by ashfalls and mudflows.

NOW OR NEVER FOR PARK IN AMAZONIA

DAVI Yanomami has little to celebrate concerning the fate of his people. A tireless defender of Brazil's remote Yanomami Indians, he is deeply worried by delays in the creation of Yanomami Park, a tract of Amazonian rainforest vital to the survival of his endangered people.

Landowners, the military, politicians and mining companies have mounted massive opposition to the park. Davi now fears that if the park is not in place before the United Nations Conference on the Environment and Development in Rio de Janeiro next June, it may never be created.

An estimated 10,000 Yanomami live in the northern Brazilian states of Roraima and Amazonas, and in southern Venezuela. They are one of the most recent and largest Indian groups to come into contact with the outside world.

The plight of the Yanomami has attracted widespread international concern as small-scale miners — or garimpeiros — from southern Brazil have invaded their lands in search of gold. At the height of the Yanomami gold rush in 1989, more than 8,000 miners invaded Yanomami territory, building 100 airstrips to ferry in fuel, food and mining equipment.

They brought with them disease, alcohol and prostitution, polluted the forest and rivers with their destructive mining operations and all but destroyed the Yanomami culture and will to live.

A motion to create Yanomami Park was first decreed in 1985 but it has never been enacted. Brazilian President Fernando Collor de Mello, who was elected 19 months ago, has stated his support for the park and taken some steps toward its creation.

Sydney Possuelo, the media-conscious official he appointed to head Brazil's Indian agency, FUNAI, has a reputation as a defender of Indian rights. Possuelo adopted a policy of blocking off all main airports to the garimpeiros. Only 500 are said to remain on Yanomami land.

But opposition has been gathering force. Otomar de Souza Pinto, Governor of Roraima state — which would lose 45 per cent of its territory to the park — has personally paid bail for jailed garimpeiros. Amazonian Governor Gilberto Mestrinho opposes a park which, he says, would "create an enclave... where Amazon's prime gold deposits are."

The most aggressive stance has come from the military. Military sources such as Antenor de Santa Cruz, commander of the Amazon, have pledged to fight any defence of the "environment and minorities" and "occupy the (Yanomami) area rather than give it up."

Those opposing the park have resurrected an old but powerful paranoia — that foreign powers are trying to internationalise the Amazon. A Parliamentary Commission of Inquiry into Internationalisation of the

Indians fight for their rights



Amazon has been set up to investigate any moves to protect Indians or the environment.

The commission argues that such moves are little more than ploys to disguise foreign interest in the Amazon's vast natural resources. The Yanomami Park, the commission says, is just the first step in creating a separate Indian nation.

Huge vested interests in Brazil support this stance. Parapanema, a mining company which accounts for 60 per cent of Brazil's mineral exports, is trying to gain control over all garimpeiro mines in Yanomami territory. Dozens of other companies are seeking mining concessions.

Federal Justice Minister Jarbas Passarinho, an outspoken opponent of the park, must approve a budget for the next stage of the Brazilian government's Operation Free Jungle, a programme aimed at moving garimpeiros from Indian territory. But Passarinho has called for a new study of the territory to be set aside for the Yanomami, and argues the area reserved for the Indians can be reduced since so many have already been killed by disease.

Even a much-reduced territory may offer no security to the Yanomami. In late September in a meeting with Collor, Passarinho insisted that mining should be allowed within the Yanomami Park. Moreover, the Brazilian Congress is considering a bill to authorise construction of a 6,929-kilometre road encircling the entire Amazon rainforest region of Brazil, just inside the country's north and western borders. Called the "Transfrontier," the road would pierce the heart of the proposed park and pass through 21 other national parks, reserves and indigenous areas.

On a recent trip to Britain to celebrate the 59th anniversary of Oxfam, Davi Yanomami warned that the road would bring "colonists and death to my people." And he spoke of the ill-fated Perimeter Norte road which penetrated the Yanomami area in the early Seventies, bringing flu and measles which decimated villages in the vicinity of the road. The project eventually ran out of money. Today only small abandoned sections of the road remain.

"Why," asked Davi Yanomami, "are they now

Brazil's remote Yanomami Indians, devastated by killings and disease, are losing faith in a promise by the government of President Fernando Collor that a park will be created to protect their way of life. Already 18 months have passed since Collor made the promise, and the idea faces growing resistance from Brazil's powerful military, landowners and miners. As Gemini News Service reports, indigenous leader Davi Yanomami now believes that if no park is created before next year's United Nations environment summit in Rio de Janeiro, the idea will be doomed. by Damien Lewis

proposing another ill-conceived project, when there is no money and when it will only bring death and destruction to my people? The proposed road would serve primarily strategic purposes and appears to be a military ploy to "defend" the Amazon against those who wish to preserve it.

A confidential report leaked from the Ministry of Justice to Brazil's most prestigious daily newspaper, the Folha de Sao Paulo, states that the real motive underlying the Brazilian government's declared intention to demarcate Yanomami land is overseas propaganda aimed at countering negative publicity during the build-up to the UN conference in Rio next year.

A poll by the Folha suggests 86 per cent of Sao Paulo's urban residents want "indigenous land to be preserved, even if it is important to national development."

If the Yanomami Park is not created in the run-up to the conference, while the public and politicians are paying unprecedented attention to environmental issues, Davi Yanomami believes he stands little chance of ever succeeding against the forces that oppose him in Brazil. — GEMINI NEWS



The Roof of Africa Begins to Dry up

By Lucas Lukumbo

THE "Last Water Point" on Mount Kilimanjaro was dry when Major-General Mrisho Sarakikya led a group of diplomats to conquer "the roof of Africa" earlier this year.

Sarakikya, Tanzanian Ambassador to Nigeria, has climbed Africa's highest peak — 5,895 meters (19,340 ft) — 30 times. But he has never before found the stream dry.

"There is serious, prolonged drought on the mountain, something which was not there when I started climbing the mountain in the early 1960s," said Ambassador Sarakikya.

Two hydrologists in the Ministry of Water, Energy and Minerals, Said Faraji and Julius Sermet, believe that the cause of the reduced water flows on the mountain is not climate but rapid run-off as a result of the loss of trees and plants.

They have urged the government to reinforce laws against farming and tree-cutting in areas around water sources.

Population growth has led to a drive to bring more land into cultivation. In Rombo district, Commissioner Filemon Shelute says the population growth rate is 3.3 per cent a year, which would lead to a doubling of population in less than 20 years.

Luka Prospero Shao says his 10-member family have only 1.6 hectares (four acres) of land, and have to travel several kilometres to find pasture for their two cows and six goats.

He says it will be difficult for his children to find land in the Kilimanjaro area and that youngsters are migrating to the towns "because they can't find a place to cultivate here. There they are chased and forced to return home, sometimes with police escort. It's pitiful."

The Kilimanjaro Regional Agriculture and Livestock Development Officer, Dr Abraham Mejoili, says the middle zone of the volcanic mountain, 800-1,500 meters (2,625-4,921 ft) above sea level, is "the center of the whole problem." It is the most heavily populated area, where people grow coffee, bananas and beans and rear livestock.

Kilimanjaro Regional Forest Officer Isara Daniel says that Rombo is in danger of becoming too dry because its 46 water sources are threatened by the rapid pace of deforestation.

And as water sources in the lower zones dry up, in turn diminishing tree and pasture growth, people move up the mountain in search of water

supplies — as well as trees, honey, pasture and animals.

A key flashpoint is a half-mile strip of forest reserve which was introduced in the late 1970s as a buffer zone to prevent such encroachment on the mountain's upper slopes.

When sections of the strip are harvested by the government, local people are allowed to cultivate there, in order to cut the cost of land clearance and to alleviate land scarcity. After three or four years, the government takes the plots back and plants new trees.

But the farmers find it difficult to return the land. Said one: "Handing over the farm is just like handing over your heart to Satan."

Isara Daniel admits that there are not enough loaned sites to accommodate the growing population: "A month never passes without a conflict between our forest guards and the local people over the restricted strip."

District Administration land and water conservation specialists say that deforestation and cultivation without measures to prevent run-off are causing landslides. They note that last season the staple maize crop was destroyed in parts of Rombo by rainwater rushing down the bare mountainside.

They say that in the areas of Mengwe, Mkuu and Mashati, groundwater yields were halved and sesame output fell 30 per cent because of damage from rushing water, which uprooted 20 per cent of coffee trees and 10 per cent of banana trees.

Regional Administration Officer Francis Mwangi says a long-term answer would be resettlement to less densely populated areas: "With population growth of 3.3 per cent a year, improving agricultural methods should go hand-in-hand with a resettlement programme."

The idea is not new. Under a programme launched in 1988, residents from the Kilimanjaro region were to be moved to Morogoro region some 700 kilometres (310 miles) south.

But Mwangi says the operation was not properly planned: "Almost all resettled people returned to their homeland after a short time."

Factors included siting the settlers too far from the local population, increasing their vulnerability to damage by animals and pests.

In addition, says returnee Adam Msuya, local people were jealous of the success of some of the new arrivals, and stole their belongings and crops.

On official said that there had been political conflict between the two regional authorities, and that the Morogoro administration was pressured by local people not to give land to "foreigners" who might take up all the land which rightfully belonged to the children of the original inhabitants.

As a result, mass migration was stopped, though individual initiatives were allowed. The official said that newcomers have to ask for membership of their adopted village and are then "screened." This can take a year or two, "so rather than wasting time, they go back to their already environmentally fragile homelands." PANOS

CARING FOR THE EARTH

Nine Principles for Sustainable Living

- **Respect and care for the community of life**
This principle reflects the duty of care for other people and other forms of life, now and in the future. It is an ethical principle. It means that development should not be at the expense of other groups or later generations. We should aim to share fairly the benefits and costs of resource use and environmental conservation among different communities and interest groups, among people who are poor and those who are affluent, and between our generation and those who will come after us.
All life on earth is part of one great interdependent system, which influences and depends on the non-living components of the planet — rocks, soils, water and air. Disturbing one part of this biosphere can affect the whole. Just as human societies are interdependent and future generations are affected by our present actions, so the world of nature is increasingly dominated by our behaviour. It is a matter of ethics as well as practicality to manage development so that it does not threaten the survival of other species, or eliminate their habitats. While our survival depends on the use of other species, we need not an should not use them cruelly or wastefully.
- **Improve the quality of human life**
The real aim of development is to improve the quality of human life. It is a process that enables human beings to realize their potential, build self-confidence and lead lives of dignity and fulfillment. Economic growth is an important component of development, but it cannot be a goal in itself, nor can it go on indefinitely. Although people differ in the goals that they would set for development, some are virtually universal. These include a long and healthy life, education, access to the resources needed for a decent standard
- **Conserving the Earth's vitality and diversity**
Conservation-based development needs to include deliberate action to protect the structure, functions and diversity of the world's natural systems, on which our species utterly depends. This requires us to:
Conserve life-support systems: These are the ecological processes that keep the planet fit for life. They shape climate, cleanse air and water, regulate water flow, recycle essential elements, create and regenerate soil, and enable ecosystems to renew themselves.
Conserve biodiversity: This includes not only all species of plants, animals and other organisms, but also the range of genetic stocks within each species, and the variety of ecosystems.
Ensure that uses of renewable resources are sustainable: Renewable resources include soil, wild and domesticated organisms, forests, rangelands, cultivated land and the marine and freshwater ecosystems that support fisheries. A use is sustainable if it is within the resource's capacity for renewal.
- **Minimize the depletion of non-renewable resources**
Minerals, oil, gas and coal are effectively non-renewable.
- **Keep within the Earth's carrying capacity**
Precise definition is difficult, but there are finite limits to the "carrying capacity" of the Earth's ecosystems — to the impacts that they and the biosphere as a whole can withstand without dangerous deterioration. The limits vary from region to region, and the impacts depend on how many people there are and how much food, water, energy and raw materials each uses and wastes. A few people consuming a lot can cause as much damage as a lot of people consuming a little. Policies that bring human numbers and lifestyles into balance with nature's capacity must be developed alongside technologies that enhance that capacity by careful management.
- **Change personal attitudes and practices**
To adopt the ethic for living sustainably, people must re-examine their values and alter their behaviour. Society must
- **Enable communities to care for their own environments**
Most of the creative and productive activities of individuals or groups take place in communities. Communities and citizens' groups provide the most readily accessible means for people to take socially valuable action as well as to express their concerns. Properly mandated, empowered and informed communities can contribute to decisions that affect them and play an indispensable part in creating a securely-based sustainable society.
- **Provide a national framework for integrating development and conservation**
All societies need a foundation of information and knowledge, a framework of law and institutions, and consistent economic and social policies if they are to advance in a rational way. A national programme for achieving sustainability should involve all interests, and seek to identify and
- **Create a global alliance**
No nation today is self-sufficient. If we are to achieve global sustainability a firm alliance must be established among all countries. The levels of development in the world are unequal, and the lower-income countries must be helped to develop sustainably and protect their environment. Global and shared resources, especially the atmosphere, oceans and shared ecosystems, can be managed only on the basis of common purpose and resolve. The ethic of care applies at the international as well as the national and individual levels. All nations stand to gain from worldwide sustainability — and are threatened if we fail to attain it.
- **Prevent problems before they arise**: It must be adaptive, continually redirecting its course in response to experience and to new needs. National measures should:
 - treat each region as an integrated system, taking account of the interactions among land, air, water, organisms and human activities;
 - recognize that each system influences and is influenced by larger and smaller systems — whether ecological, economic, social or political;
 - consider people as the central element in the system, evaluating the social, economic, technical and political factors that affect how they use natural resources;
 - relate economic policy to environmental carrying capacity;
 - increase the benefits obtained from each stock of resources;
 - promote technologies that use resources more efficiently;
 - ensure that resource users pay the full social costs of the benefits they enjoy.