

Feature Environment

ENSURING A SOUND ENVIRONMENT

Teaching the Scouts How to Do it

by Iftikhar A Chowdhury

THE scouts in this year's National Jamboree at Mouchak, Gazipur, apart from learning scouting skills, this time returned home with a nouvelle experience. The scouts present at the jamboree were enlightened on the subject of environment. They were given

One of the distinguishing features of this year's 5th National Scout Jamboree was the Environmental Exhibition by the leading non-government development agencies of the country. The thought that was

Development Library and Service Civil Int'l, Bangladesh. The range of activities and displays that came under the fold of this unique environmental exhibition were, low-cost rural housing, houses made with-

not been for such attractive methods of presentation. A few NGOs screened video documentaries which proved to be a successful method in teaching youngsters and another NGO, Service Civil Int'l staged open-air drama on related issues to increase awareness among the

In a country where the rate of literacy is awfully low, concern over issues like environment attract a little attention. That is why it is the duty of the privileged educated few to enlighten others on matters of such importance. Probably keeping this and much more in mind the NGOs organised this very timely programme.

environmental lessons by no less than 15 NGOs, which may obviously come in handy in their own life and others can also be greatly benefitted from this, as this knowledge given to them is expected to be passed on to others.

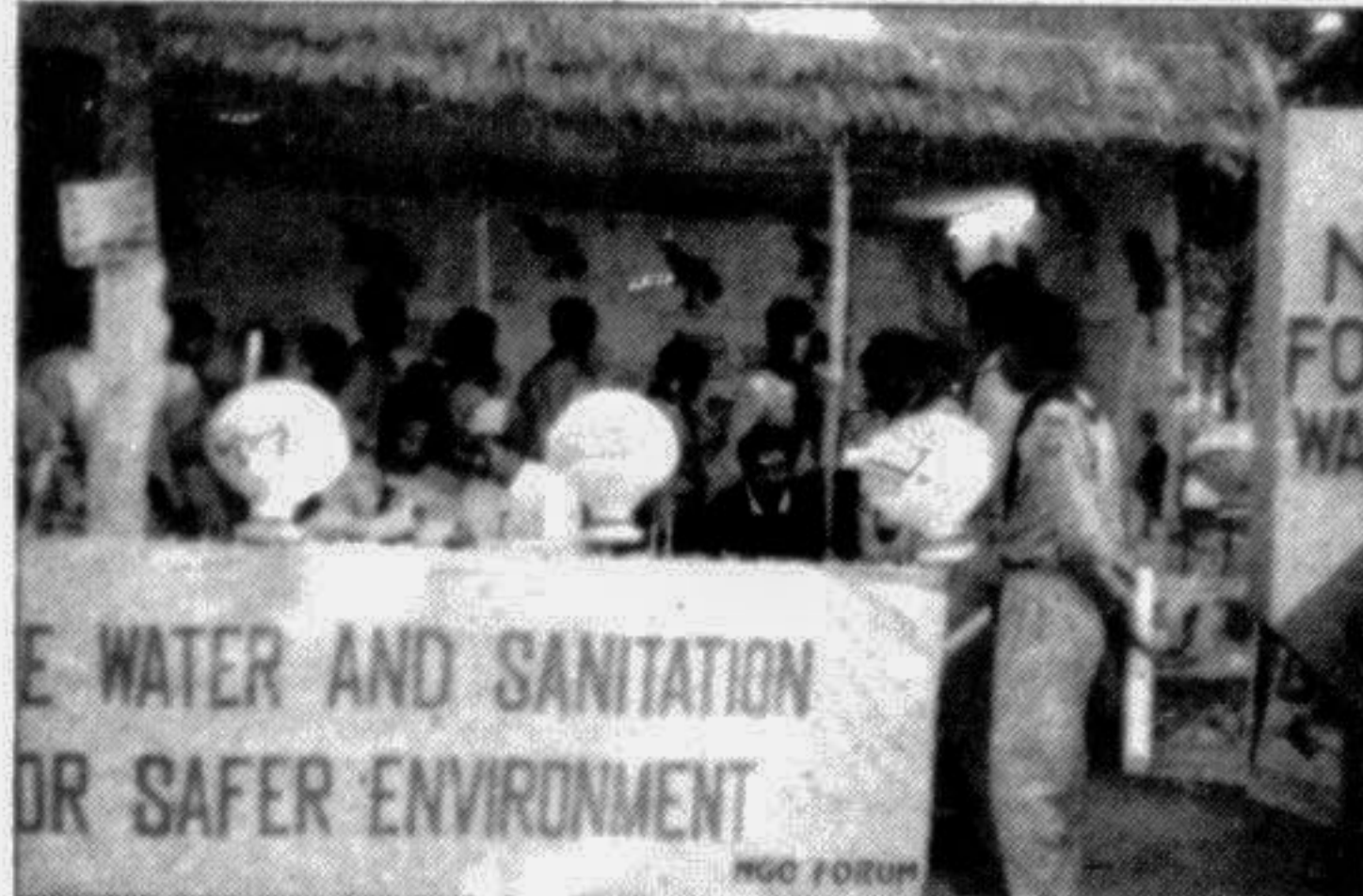
Actually, when it comes to addressing priority matters, such as environmental protection, ignorance can by no means by-pass the impending

As a result, the NGO Bureau and Bangladesh Scouts organisation invited the Association of Development Agencies in



threat of an ecological disaster. As many would like to point out poverty as one of the dominating causes for the 'environmental mess' that we, and many developing countries like ours are presently in — it also cannot be denied that much of this 'mess' is the outcome of our ignorance and indifference towards matters of such vital importance.

Bangladesh (ADAB) to materialise this programme. ADAB and its member NGOs made all-out efforts to make this programme effective. In all, 15 NGOs participated in the meet. They are Proshika Manobik Unnayan Kendra, Bangladesh Centre for Advanced Studies, Rangpur—Dinajpur Rural Service, Menonite Central Committee, NGO Forum, Palli Unnayan Sangstha, Social Progress Service, Centre for Science and Mass Education, Mirpur Agricultural Workshop and Training School, Shanirvar Bangladesh, Bangladesh Rural Reconstruction Association, Unnayan Shohojog Team, Village Education Resource Centre, Voluntary Health Services Society, Community



participants. During the Jamboree approximately 1,000 scouts visited the NGO stalls each day. Some NGOs initiated group discussions with the participating scouts to boost their knowledge on environment related issues, which too, was greeted with great enthusiasm.

As the programmes went, it was all for a good cause. The birth of an environmentally-aware younger generation, who is turn will help pass on the required environmental education to his less-informed fellow beings was a cause absolutely worth trying out. Let such actions be repeated again and again.

Rice Fields also Contribute to Global Warming

by Henrylito D Tacio

RICE cultivation annually releases about 60 million tons of methane into the atmosphere, according to a report released by the International Rice Research Institute (IRRI) here.

Methane may cause 15 per cent as much global warming as carbon dioxide, said the IRRI report. Atmospheric concentration of carbon dioxide, the most common greenhouse gas, is 350 parts per million (ppm). Methane concentration is only 1.7 ppm, but a single methane molecule traps heat about 30 times more effectively than a carbon dioxide molecule, says Dr Heinz-Ulrich Neue, IRRI coordinator of methane research.

"But farmers can't quit growing rice to reduce methane emissions," Dr Neue points out. "Rice is the world's most important food crop. It provides more than half the daily food for one of every three persons on earth." Aware of this problem, IRRI became the first international agricultural research centre to initiate a comprehensive programme on the interaction between agriculture and climate change.

Intensifying rice production appears to increase methane levels which could contribute significantly to global warming. On the other hand, increasing concentrations of carbon dioxide as well as global warming affect rice growth and yield.

IRRI is studying rice me-

thane emission together with the Fraunhofer Institute for Environmental Atmospheric Research in Germany, the Wageningen Agricultural University in the Netherlands, and the Wetland Biogeochemistry Institute, the United States.

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"Within the next 10-20 years, we estimate that methane emissions from ricefields can be cut 10-30 per cent without dramatically changing cultural practices of rice production or decreasing rice yield," says Dr Neue. "Our objective is to reduce methane emissions. But first, we must learn more about the process."

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Bacterial decomposition of organic matter in flooded rice fields produces methane. The gas enters the atmosphere in three ways. Up to 80 per cent of the emitted methane passes from the roots up through the plant, which acts as a "chimney". Smaller amounts of methane bubble up to the water surface or diffuse slowly from the soil through the water. Most diffused methane, however, is broken down in the soil and floodwater and never reaches the atmosphere. "We're interested in the

how and why" of methane emissions from flooded rice fields," says Hugo Denier van der Gon, collaborative research fellow from the Wageningen Agricultural University.

"Changing from irrigated lowland rice cultivation to dry upland farming won't solve the problem," Dr Neue says. "Even without rice cultivation, much of the wetland areas would be naturally flooded. And methane

emission is a natural process in flooded soils. Any fertile, submerged soil will produce methane.

"Our aim is not to decrease methane production, but to decrease methane emissions," he explains, adding that increased methane oxidation in rice soils means less escape of the gas.

Part of the oxygen that rice plants pull from the air and carry to their roots for plant growth in waterlogged soils breaks down methane molecules. Some rice varieties bring in more oxygen than others and are thus better methane oxidisers.

"We need a plant with both high oxidation power and high

yield potential," Dr Neue says. "A plant that will help the environment without endangering farmers' income."

Meanwhile, IRRI is also leading an inter-regional programme funded by the United Nations Development Programme (UNDP) to enhance methane research in China, India, Indonesia, Thailand and the Philippines.

Over the next five years, UNDP will be contributing US \$5 million from the Global Environment Facility (GEF) for a research programme to reduce the earth's methane emissions from rice fields. The project is designed to collect reliable data on the extent and means of control of these emissions.

Various technologies have been proposed for mitigating methane emission, but more field research is essential for determining the most technically and socio-economically feasible methods.

Based on the global distribution of harvested rice lands, sites in China, India, Indonesia, the Philippines and Thailand have been identified as the key research areas for the project. IRRI will focus on developing and standardising equipment and methods for studying methane emissions, and will also train a group of experts in collaborating national agricultural research centres. Methane fluxes in major rice ecosystems will be quantified, and options for mitigating the emissions will be assessed. — Depthnews Asia

After War, Battle for the Trees has Begun

Peyton Johnson writes from Thailand

IN a quarter century the Khao Khor watershed in Thailand's central highlands has undergone more ecological changes than any other area of this once heavily forested nation.

"We've seen everything here from bliss to despair," said an old-timer of the watershed. "Now, finally, we think we're seeing hope."

Until 1968 the 133,000 hectares of the watershed had escaped the destruction raging Thailand's forests. There were no roads into the Khao Khor's hills and deep evergreen woods. Timber barons and forest poachers hardly knew of the watershed's existence.

One thousand families — a handful of highlanders and two of the country's seven major hill tribes, Hmong and Lisu — lived in the watershed.

The peace was broken in 1968 with insurgency in these remote parts. This was followed by 14 years of bloody war between the government and the communist insurgents. The rebels picked Khao Khor as a stronghold for its roadless remoteness and near impenetrable terrain.

Khao Khor lies at the southern end of a mountain chain that snakes down from south-east, China through the Lao hills and into Thailand. "He who holds Khao Khor," an army officer said, "mans a natural fortress astride a strategic crossroads linking three of our four great regions — the North, Northeast and the Central Rice Plain, now as always the bread-basket of our nation."

The insurgents flocked in by the hundreds and were joined by many hill tribesmen. They said they were fighting against political corruption and social injustice.

Both sides aimed to win Khao Khor, in the longest continuous battle ever fought on Thai soil. It was also one of the bloodiest. The army lost more than 1,200 men. Insurgent losses were never established, but most estimates put them at three to five times government losses. The environmental damage was enormous.

"Before the fighting Khao Khor was 90 per cent virgin forests," a Thai forester said. "Today it is 90 per cent bare of trees and suffers from acute erosion."

Not all the ecological destruction was caused by combat. Once hostilities ended, taking advantage of the roads

bulldozed through the hills and woods under fire, loggers, legal and illegal, took over where artillery, napalm, bombs, and small arms fire had left off.

"At least the insurgents and the soldiers were fighting for their lives," the old timer said. "Not so with the loggers and poachers. With them it was pure greed. To hell with the future."

However, many want to ensure a safe future for the region. In 1990, a joint project between the army, the forestry department, the United

Khao Khor watershed in Thailand's central highlands has suffered huge ecological damage. Its remoteness and near impenetrable terrain made it a base for communist rebels. The environment was one casualty of the bloody 14-year war between the insurgents and the government forces. Now, with help from the UN, trees are being planted in the region again.

Nations Development Programme and the UN Food and Agriculture Organisation got underway.

Thousands of trees were planted, but the rural poor cut down the new greenery as soon as the project people were out of sight. Fuelwood is usually the only source of energy the rural poor have for heating and cooking.

Tamas Marghescu, FAO project manager at Khao Khor, said: "This is the rock on which most reforestation ef-

forts flounder. To officialdom replanting, protection of the environment, is top priority. But to the local poor it is to eat, to stay alive. If the poor want to survive, they really have no choice but to chop down greenery for fuelwood."

The project introduced farmers to new cash crops like coffee and vegetables, intercropped between rows of newly planted trees. The project uses at Khao Khor — mango, papaya, custard, apple, lychee, longkong and langsaat — mature even faster than traditional forest trees, in three to five years instead of six or seven.

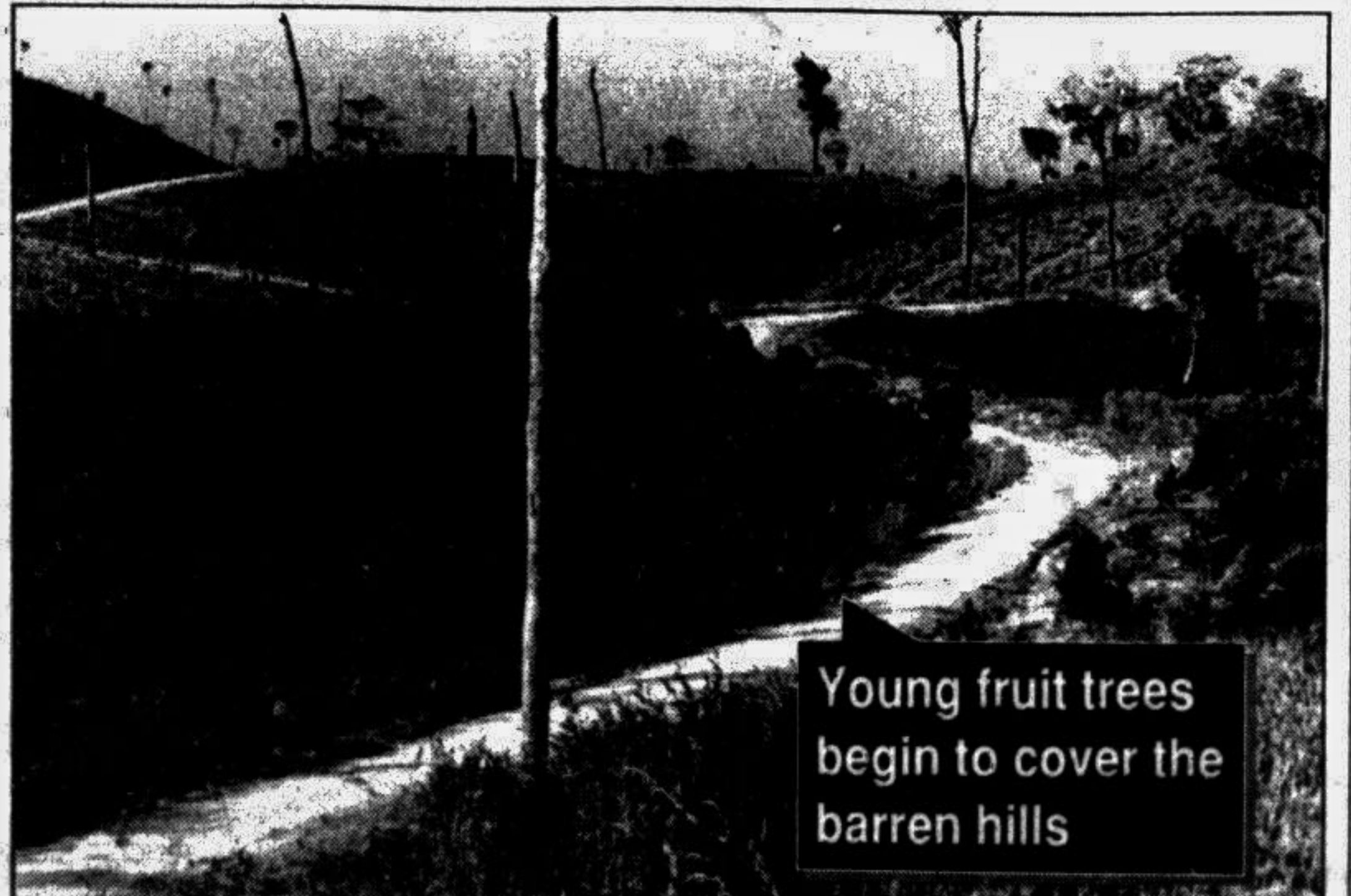
"Planting fruit trees is now the heart of this project," Marghescu said. "We've planted about 30,000 so far and we hope to plant 50,000 more this year."

Despite progress, Khao Khor's problems are far from solved. Destructive slash-and-burn agriculture still persists. Deliberate forest fires break out regularly. The land title controversy continues.

Yet there is hope now where a few years ago there was none. Perhaps the single most significant message of this second battle of Khao Khor is that it must be won if for no other reason than to ensure there is no third.

"We paid for this watershed in Thai blood," the old timer said. "Now we must put it right. We owe that much to those who fell here."

"It works," Marghescu said.



Young fruit trees begin to cover the barren hills

Kenyans Seek Killer in Dying Park

by McOwiti O Thomas

The transformation of the game-rich Amboseli crater into a near-empty wasteland is distressing for Kenya and a blow to the local tourist industry. Everyone wants to put things right, but this is difficult as there is no consensus about what has gone wrong.

DURING the 1960s and '70s, Amboseli National Park in southern Kenya was a lush acacia forest teeming with wildlife. Rated one of the most exciting places in the world to visit, the park, which overlooks Mt Kilimanjaro, was beloved by tourists and filmmakers alike. Not any more.

In less than a decade, Amboseli has changed so drastically that few are optimistic about its chances of survival. The monotony of its landscape is now broken only by dead tree stumps and patches of swampy ground.

The Nairobi-based African Fund for Endangered Wildlife recently organised a tour of the park for 50 students chosen through a nationwide competition. But it warned them to "be psychologically prepared to see a devastated park with lots of barren, almost desert-like conditions and dust storms... and lots of dead trees."

During their visit, none of the students was able to claim a special prize offered to the first person to spot any of the big cats (lions, cheetahs or leopards) that used to roam the 390-square-kilometre park.

"We neither saw nor heard any of them, not even the roar of a lion," says Njambi Mwangi, who accompanied the students.

Some conservationists warn that unless urgent action is taken, the park could turn into an ecological wasteland. Others are less alarmed and say the root cause of the problem is essentially natural, and that the conditions are going through cycles of change because the ecosystem is still evolving. In the current phase, trees are dying because of increased salinity of the soil due to a rise in the water table.

Amboseli lies in a basin that was once a lake. High rates of

evaporation and lack of an outlet caused the lake to become saline. In time, the lake silted up completely to form a flat basin supporting a rich variety of plant and animal life.

Whenever it rains heavily, however, the water table rises and the lake returns. Soil salinity increases and only coarse, salt-tolerant plants flourish. Many of the park's animals then migrate in search of more palatable vegetation.

But during times of drought, the water table drops and the situation is reversed. The basin becomes parched and vegetation dies. Some parts of the park, however, remain wet and green, fed by underground springs flowing from Mt Kilimanjaro. These areas become the watering holes where animals congregate.

Before the Kenya Wildlife Service (KWS) gave them an alternative site two years ago, the pastoralist Maasai — on whose land the park is situated — would also drive their animals to the watering holes. The consequent overgrazing was leaving fragile soils bare and at the mercy of the elements.

When concern about Amboseli first arose 20 years ago after many tree deaths, people blamed the elephants. Hundreds of the hungry animals had sought refuge from poachers in the well-protected park, making it their permanent home.

But a Nairobi-based environmental group, Wildlife Conservation International (WCI), studied the situation and concluded that increased salinity, not elephantine appetites, was killing off the trees.

More recently, various explanations have been advanced for the decline in the park's population of carnivores. One theory blames the Maasai, who

are alleged to have poisoned most of the lions after attacks on their livestock.

But it makes little sense for the Maasai to kill the lions, which attract tourists and thus earn more for the pastoralists than they get from selling their own animals. A KWS Community Conservation project encourages people living near parks to take care of them in exchange for a share of the revenue earned from the tourism they generate. Under the scheme, Amboseli earned the local Maasai US \$75,000 in 1991. The community also benefited from a water project that meant they no longer needed to go into the park to water their livestock.

Mwangi suggests that a more likely explanation for the disappearance of the big animals from Amboseli is the lack of vegetation, which has made it difficult for the predators who seek camouflage when stalking their prey. They may have migrated to other parks with better cover, she says.

Many tour companies now avoid Amboseli in favour of better-endowed parks where the "big five" — lions, elephants, giraffes, rhinos and buffalo — are still to be found. The declining tourist traffic has hit local industries that depend on tourism. Hotels and lodges reported a 30 per cent fall in room occupancy during the last peak season.

While environmental scientists mull over possible solutions to the park's problem, Shadrack Karibilo, manager of the Amboseli Serena Lodge, intends to plant 100,000 trees as part of his "Green the Amboseli" campaign. So far, he has planted 38,000 seedlings — mostly thorny acacias — other indigenous species — around the lodge.

But many are skeptical about his chances of success. Though the project appears to

be doing well, it is very expensive. An electric fence has had to be put up to keep animals away from the seedlings, which have to be watered daily with non-salty water. People warn that even if the trees could grow in the salty soil, regreening the entire Amboseli would be impossible because the animals would devour the seedlings.

But Dr Chris Gakahu of WCI says too much attention is being paid to the small park, while the Amboseli ecosystem is much bigger and more complex. It is still in its formative stages and, therefore, unstable, he says. No human intervention can change it, and it will continue to alternate between being wet and being arid for thousands of years.

Gakahu is among those who do not believe Amboseli is on its last legs. He says it all boils down to proper management, and that the damage that has occurred can be reversed.

Planning should take into consideration the whole Amboseli ecosystem — the park, its surroundings and drainage basin, which have all been subject to pressures from tourists and from a large number of herbivores, especially elephants. The only solution is to return the area as near to its natural state as possible, he says.

He believes communities bordering the park should have more of a say in running it. Tourist traffic to Amboseli, averaging about 215,000 visitors a year, should be regulated. And to help reduce the pressure on Kenya's overcrowded parks, tourists "need to be educated so that they suffer less from the 'big five syndrome'." Gakahu says. — PANOS

The writer is a science reporter with the Weekly Review in Nairobi