

Changing Trend in Country's Temperature

BANGLADESH is warming, and the country's temperature is likely to grow hotter in the next 50 years.

A recent study on the temperature of the last 40 years has revealed that it is expected to rise significantly all over Bangladesh, while some parts will experience a significant change in the pattern of weather.

Temperature in some of the districts, known for chilly winter, will shoot up while many others with searing summer will cool down, it said.

The study titled as Surface Temperature Variability in Bangladesh, was carried out by Malitha Mayeed, a final year student of Geography Department Dhaka University.

The study was supervised by Prof M Aminul Islam of the same department.

The major findings of the study indicate that Bangladesh's surface temperature has been heading towards an overall warming, particularly from the late 1980s.

The mean annual temperature of the country has increased from 25.6 degree Celsius (78.08 degree F) in 1948 to 25.8 degree Celsius (78.44 degree F) in 1987.

The annual temperature of the country is likely to reach 25.68°C in the year 2050 a rise by an average of 0.48 degree Celsius the study forecasts.

The average maximum temperature of the country will be 35.07 degree while the minimum 16.14 degree Celsius during the period, it says.

Talking to The Daily Star, Malitha Mayeed said that the rising trend of temperature of the country was very significant in terms of the land, its people and the ecology of the country.

Because, increase in even a fraction of one degree temperature will immensely affect the nature of the people, the land, she pointed out.

Rise in the temperature might increase the water level of the country's rivers... the existing cropping pattern might also be changed.

However, the objective of

her study was not to assess the impact of the changing temperature on the country's environment, she said.

Global warming takes place for many reasons, both natural and man-made, but it happens mainly because of deforestation and green-house effect, she added.

An assessment of the Bangladesh Centre for Advanced

by Masud Hasan Khan

Studies (BCAS) says that if the sea-level rises by one metre, more than 35,000 square-kilometre area of Bangladesh will submerge, displacing more than 13 million coastal people.

Some 85 towns and cities, and the 5770-sq-kilometre Sundarbans mangrove forest will also be threatened by the one metre sea level rise, the

BCAS report said.

The thesis on temperature holds that the south-western region including Khulna and the eastern Rangamati districts is the warmest part of the country.

Earlier, it was presumed that the greater Rajshahi district was the warmest area in the country.

Analysis of the temperature shows that northern and north-eastern part of the country (Rangpur, Dinajpur, Srimangal and Sylhet) is the coolest.

In the last 40 years, the highest mean annual temperature, 25.8 degree Celsius was recorded in 1987 while the lowest at 25 degree Celsius, in 1950s and 1960s.

In the thesis, daily temperature data of 20 meteorological stations across Dhaka, Chittagong, Khulna and Rajshahi divisions from 1948 to 1987 were processed in mainframe computers for detailed

statistical analysis.

According to the available daily data, the country was divided into four regions alike in temperature trend. The four thermal regions are:

Region-1: Rangpur, Dinajpur, Sylhet and Srimangal.

Region-2: Rajshahi, Ishwardi, Bogra, Mymensingh, Dhaka, Faridpur, Comilla, Maitteed Court, Bhola and Chittagong.

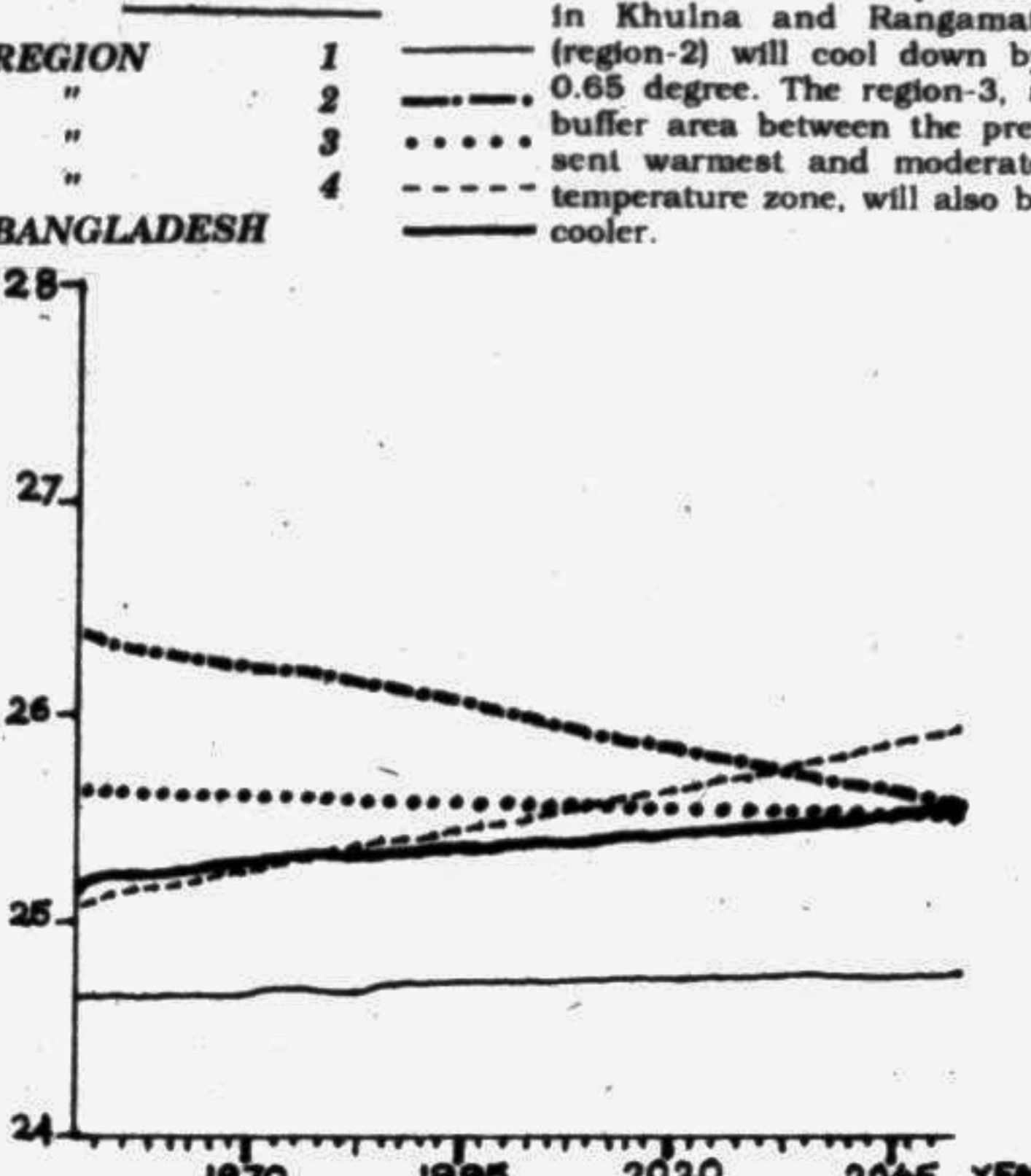
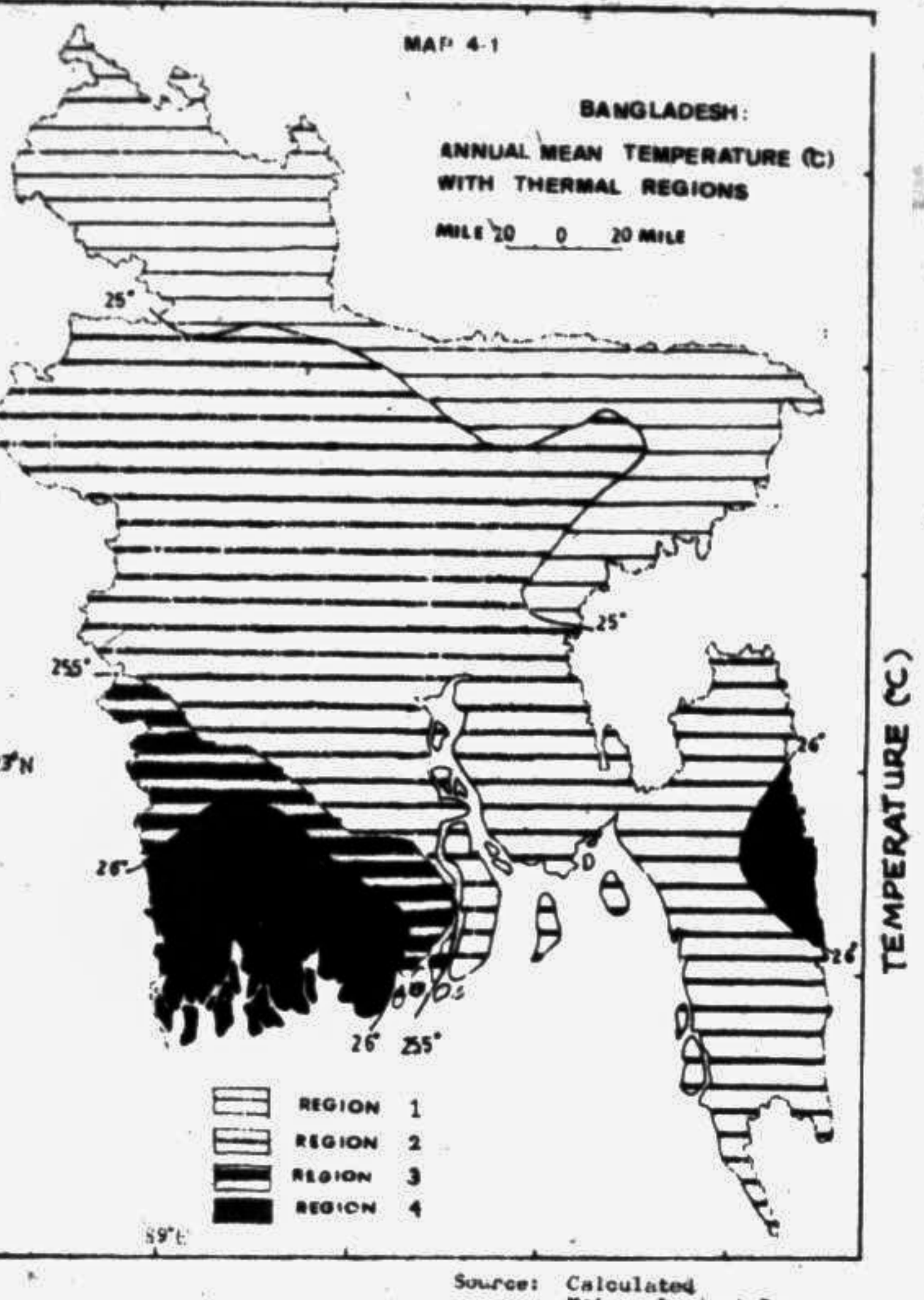
Region-3: Jessore, Sathkhira and Barisal and Region-4: Khulna and Rangamati.

The future projection of the country's temperature at different regions shows that by the year 2050, the largest region-2 will grow warmer by 0.95 degree Celsius because of the growing urban and industrial areas located there.

The temperature of region-1 will also rise by 0.21 degrees as against the 1948 scale of 24.66 degrees.

However, the extreme characteristics of temperature in Khulna and Rangamati (region-2) will cool down by 0.65 degree. The region-3, a buffer area between the present warmest and moderate temperature zone, will also be cooler.

FUTURE TREND: MEAN ANNUAL TEMPERATURE (°C) OF BANGLADESH BY REGION (1948-2050)

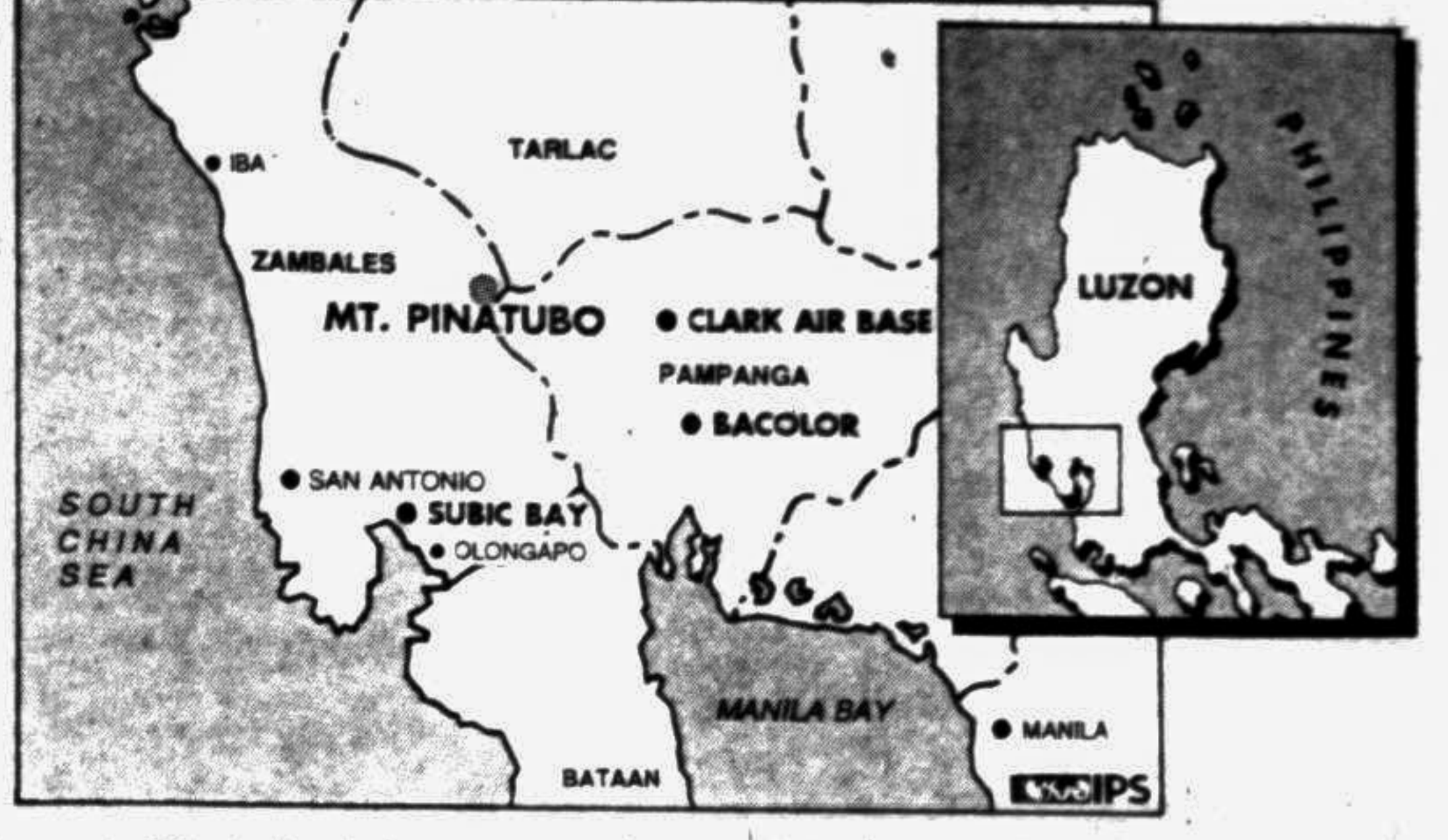


Pinatubo's Lingering Disaster

FOUR months after this century's biggest volcanic eruption ruined vast areas of the main Philippine island of Luzon, the nightmare has not ended for

soil into the rich farmlands of the heavily populated Pampanga plains north of Manila. Pampanga's main rivers are now choked with volcanic silt; the murky brown waters are

Lahar damage has changed the whole dimension of the disaster. Over 100,000 hectares of rich farmlands are buried under mud and rocks. Most areas



thousands living in the shadow of Mt Pinatubo.

After the volcano first erupted in mid-June, many in this town an hour's ride north of Manila thought they had seen the worst. There were apocalyptic scenes as noon turned into night, roofs collapsed under the weight of thick ashfall and crops were buried.

Continuous eruptions went on for two months, accompanied by floods as heavily silted rivers burst their banks. Then came the lahar — deadly steaming torrents of mud, sand and boulders.

Carmelita Ferrer, the principal of a elementary school in the town of San Antonio, remembers getting ready for bed one night last month there was a roaring sound outside and hot mud oozed into her living room. She quickly climbed on to some tables and spent the night on the terrace of her house as the dark steaming mud swirled below.

At least 17 people died in Bacolor and surrounding towns that night. Many more were swept away or scalded to death as they ran across the paddy fields to outrace the rising lahar.

For the magnitude of the disaster, the total death toll so far of 582 is quite low, but the authorities fear this could rise as children die from epidemics sweeping the evacuation centres.

Philippine volcanologists estimate that Mt Pinatubo has spewed out about eight cubic km of debris — compared to the one cubic km given off by Mt St Helens eruption in the United States in 1980.

The debris lies up to 200 metres deep in some valleys below the mountain. And although the volcano is now quiet, heavy monsoon rains have been washing the loose

weaving their way down to the plains — across sugarcane and rice fields, through towns and along highways.

The Pasig-Portero River which brought down the lahar on September 7 is no longer where it was on the map. The river now flows through shops and people's backyards and along the main street of Bacolor.

Roofs of houses and the tops of palm trees stick out of the hardening deposits of grey sand and pebbles. Inside Bacolor's historic Spanish-era church the mud is at altar level, and the graves at an adjacent cemetery are buried in sand.

"The town is devastated. It is total, total," says Ferrer, who has taken refuge with 25 other homeless families at a school building in the centre of town. There is a ladder leading up to a hole in the ceiling — an escape route if the lahar comes again.

"Everytime it starts raining, we start praying," she says. Experts at the Philippine Institute of Volcanology and Seismology (Phivolcs) are still keeping a vigil over Pinatubo's activity and mapping the lahar hazard. They say only five per cent of the total volcanic deposits have been washed down so far.

Original government estimates were based mainly on damage caused by ashfall. Officials now admit it was grossly underestimated.

Help is coming from donor governments and through the United Nations Development Programme (UNDP) which has channelled nearly US\$ 2 million worth of relief through various UN agencies.

There are still an estimated 200,000 refugees crammed in various evacuation centres. The worst-hit have been the nomadic Aeta people who used to live on Mt Pinatubo itself. All 17,000 Aetas are now in low-land refugee camps, where 300 — mainly children — have died.

The government is drawing up a long-term rehabilitation plan, but unless there is a massive infusion of cash most experts say rebuilding will be a slow and drawn-out process.

For the people of Angeles City, Pinatubo has been a double tragedy. When the United States decided to close down its volcano-damaged Clark Air Base nearby, many lost their jobs. Now there is uncertainty about the future of the big naval base at Subic Bay, 30 km west of her where an estimated 50,000 Filipinos are employed.

Just the cost of digging towns, farms, highways and bridges out from the lahar and building dykes to protect them from future floods has been estimated at a staggering US\$ 10 billion.

The governor of Pampanga province, Bren Guiao, says the town of Bacolor needs to be completely relocated, and just this could cost anything up to US\$ 30 million.

— IPS

The Nile Perch Gobbles Family Livelihoods

by Robert Okinyi Otani

THE old man is sitting on an upturned fishing boat that is no longer in use. He is in the shade of a lone mango tree a few metres from the lake shore. With his two children, Atieno, eight, and Dorinio, five, he gazes across the remorseless expanse of water.

Ogola Jagere was once a successful fisherman. Not any more.

He bids the children to chase away the fowls feasting on the omena, a sardine-like fish, that he has spread out on an old fishing net to dry in the morning sun. The children

year its population was already being felt by the other fish species and the fishermen.

The scientists thought the Nile Perch would be a more readily available and a cheaper source of protein than the traditional types. They did not foresee that it would devour the others almost to extinction-species that had hitherto been the major source of food and income for the residents

so that some have got used to it and grown to like it."

Before the Nile Perch and the collapse in 1977 of the East African Community, which promoted economic co-operation between Kenya, Uganda and Tanzania, Muhuru Bay was one of the fastest growing towns in Kenya's rural areas. Shops were well stocked.

The mud-and-thatch huts skirting the township proper were home to many families from a variety of ethnic groups in Kenya and its neighbours. Their livelihood came from catching and marketing fish. Which involved little capital outlay.

As Mbuga said, the increase of the Nile Perch "resulted in the decline of the traditional subsistence fishery which had hitherto employed low-income subsistence fisherfolk."

The commercial buildings at Muhuru Bay and other lakeside townships like Mbita, Sindo and Karungu, are virtually empty. The only commercial enterprises still showing life are those owned by locals working in Nairobi and Mombasa on the Indian Ocean coast.

The Kenya section of Lake Victoria, the largest freshwater lake in Africa and second in the world only to Lake Superior in America, had been teeming with fish of all sizes and species, especially the tilapia family, mud-fish and the large komongo.

Drainage channels bringing food into the lake from higher ground made its soil rich in fish protein, that deficiencies among the communities was unheard of. People found it unalarming to go into the major towns to find salaried jobs.

Now the fish families have disappeared into the belly of the giant Nile Perch. The only two species that have resisted its jaws are the tilapia and the omena, but since the Bay has no river that empties its waters into the lake, there is no tilapia in that area.

The tilapia tends to abound at river mouths because of the incoming food and the Nile Perch avoids estuaries because of the fast flowing water impedes its speed and sight and hinders hunting.

The nearby Mara river in Tanzania should be useful to Muhuru Bay people, but the Tanzania authorities will not allow Kenyan fishermen onto their territory. Jagere says at fleet of 22 Kenyan fishing boats were recently impounded by the Tanzanians.

So the Muhuru people are

left with only the small omena and the perch itself. And they never see a single perch for food.

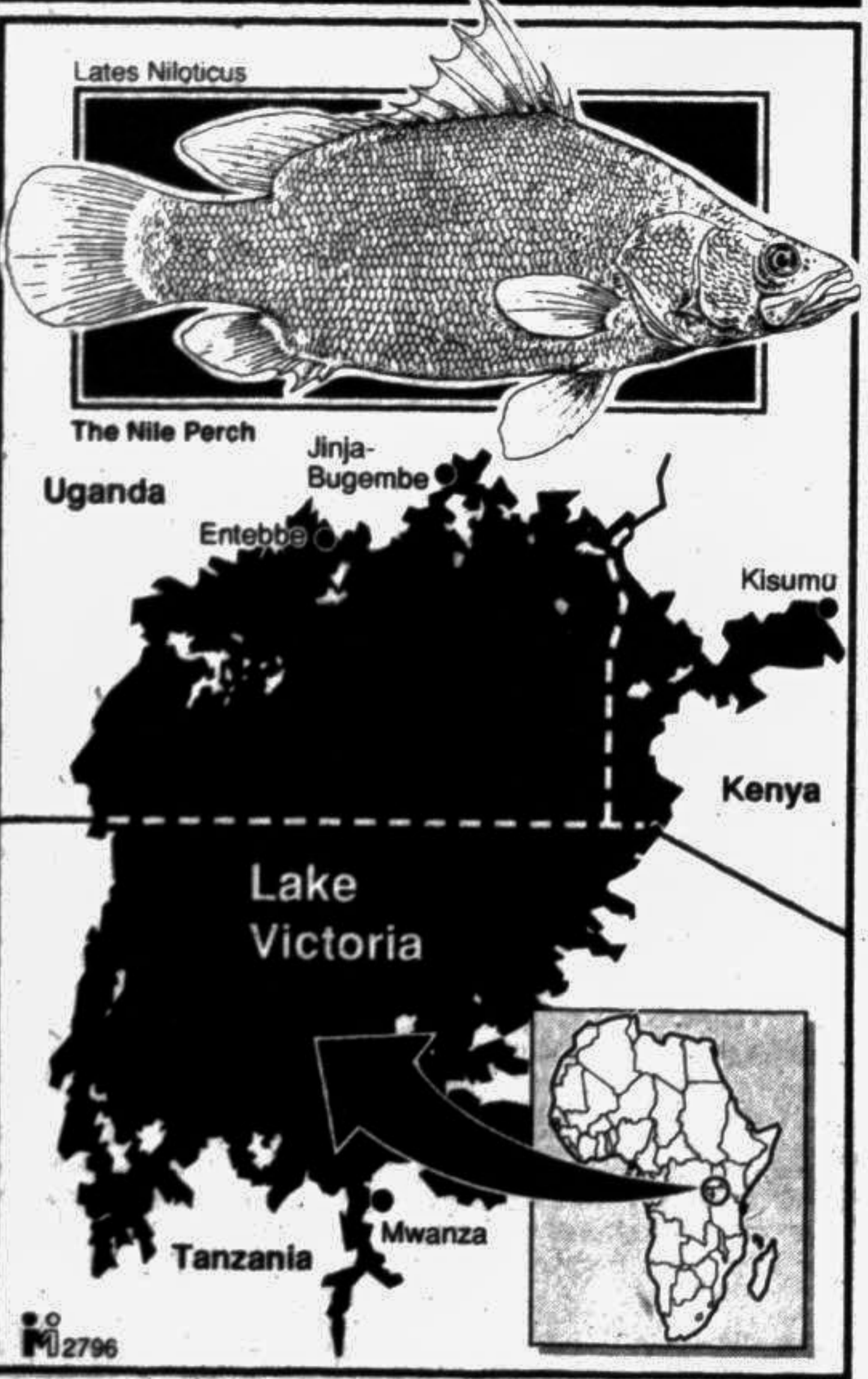
Catching it has become so commercialised that vans fitted with cold-storage facilities buy the catches on arrival at the shores. When the competition gets tough the rich buyers go out in speedboats and buy the fish from fishermen on

the spot. Some buyers come from Mombasa, 700km away.

Protein-related diseases like kwashiorkor have now become a major threat to the life of the children of Muhuru Bay. Laments Ogola Jagere. "God is great. Maybe one day the Kenyan authorities will wake up to the need to rid the lake of this ravenous fish for a return to the good old days."

— Gemini News
About the: ROBERT OKINYI OTANI is Bureau Chief, Western Kenya for The Daily Nation, Nairobi.

The gobbler



have thin, gnarled bodies and distended tummies.

Their father points to the omena: "This is the only source of food and livelihood we are left with in this part of Kenya. This greedy Mbuta you people introduced in to the lake has done us untold damage."

Jagere is referring to the giant Nile Perch, a predator in Lake Victoria introduced into the lake in the late 1950s by researchers on the Uganda section of the lake. It proliferated so much that within a

of Muhuru Bay, where Jagere lives, and other lakeshore areas.

The Nile Perch has since aroused positive and negative reactions. James Swo Mbuga, technologist from the Fisheries Department of the Kenyan Ministry of Environment and Natural Resources, said in a conference paper last year: "being the only alternative commercial fishery after the decline of the other stocks, both fishermen and consumers have adjusted to the situation,

Magazine with a Difference

TOMORROW — the Global Environment Magazine published from Stockholm, Sweden has blended the idea of industrial products and their marketing with the environmental concerns. The whole range of products we use in our daily life are not necessarily environment-friendly. To cope with the environmental challenges, products now have to be reassessed for tempering them with the new demands.

This is what seems to be the governing motive behind bringing the magazine out. Below is a brief account of what the journal is about, according to Editor in Chief Claes Sjöberg:

Environmentalism is the single greatest marketing opportunity of the decade — products and services have to be renewed across the board to meet demands which have almost universal acceptance.

TOMORROW — The Global Environment Magazine is an insightful, entertainingly written, global source of business/environmental information. It's a unique meeting place for the ideas and trends that are energizing our age. It's a place for environmentalists to test the economic viability of their ideas and for industry to listen, learn — and advise, from the vantage point of society's engine room, the business economy.

It has access to the best specialist journalists, worldwide.

And behind the editorial team is an Editorial Advisory Board made up of scientists, researchers and businesspeople from respected institutes and successful companies.

The Roof of Africa Begins to Dry Up

by Lucas Lukumbo

THE "Last Water Point" on Mount Kilimanjaro — was dry when Major-General Mirsho 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 metres (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 Fielemo 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 Prosopa 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 chase and forced to return home, some-

times 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 metres (2,625-4,921 ft) above sea level, is "the centre of the whole problem." It is the most heavily populated area, where people grow coffee, bananas and beans and rear livestock.

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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 mea-

asures 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, groundnut 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 Mwanga 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 Mwanga 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.

One 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

