

How Real is the Threat of Greenhouse Effect

IN recent years, the term "greenhouse effect" has worked its way into our environmental vocabulary. According to scientists, global temperature depends on atmospheric composition, which is affected by human activities like burning fossil fuels. Consequently, these activities may cause atmospheric warming. This is a nutshell is the greenhouse effect.

Temperature data for the last 120 years show an irregular warming of about one degree Fahrenheit in the past century. In recent times, this warming was relatively rapid. The 1980s have been such a period, as were the 1890s and 1920s.

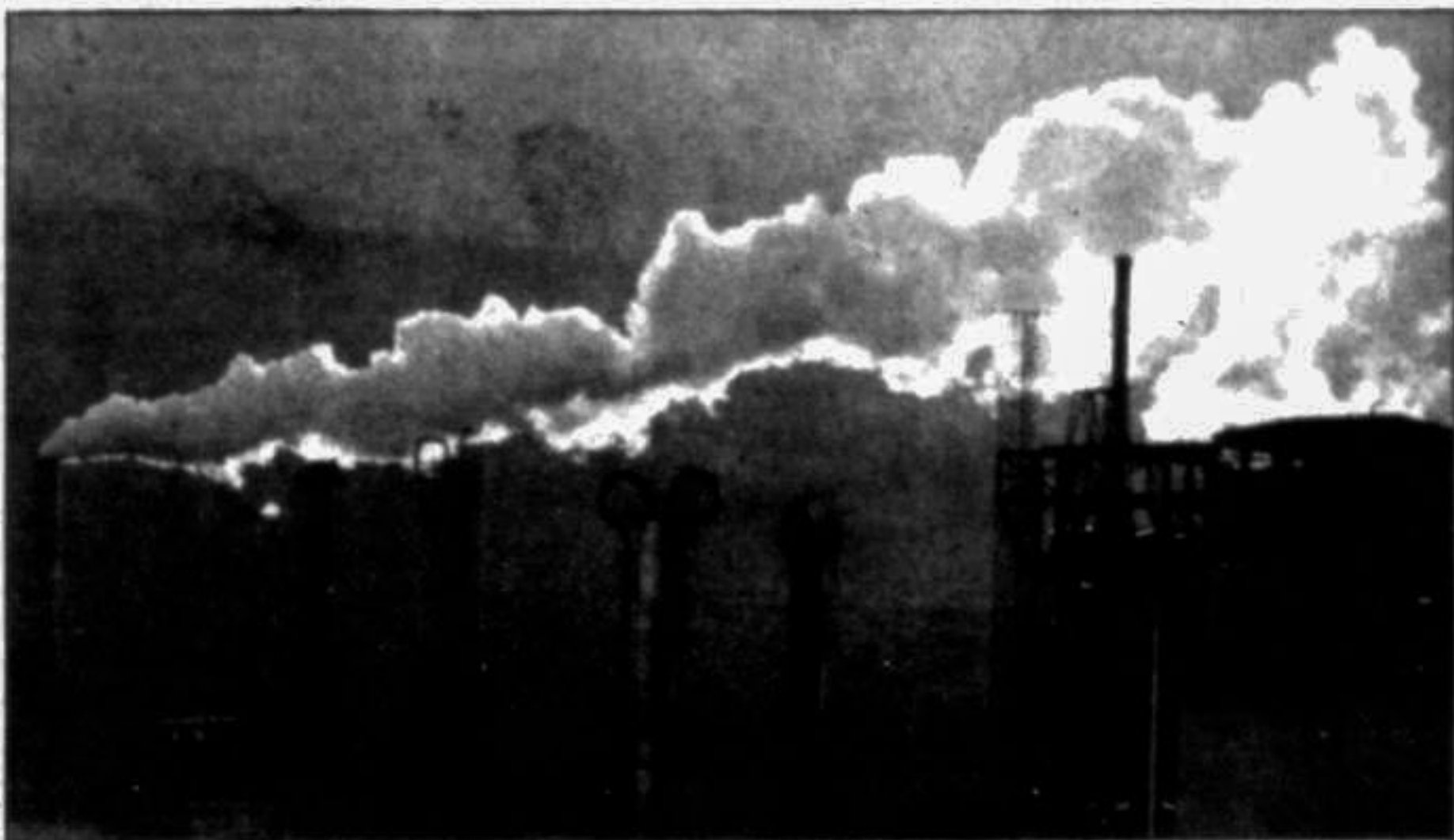
Because the greenhouse effect is associated with warming and the data show warming, some say that greenhouse effect has already begun. But there are indications that current warming is unrelated to the greenhouse effect. The rate of warming is far below than predicted under the greenhouse effect.

The current warming started before the greenhouse effect could have begun. If the warming had begun during the course of data, we would see the warming accelerate. No acceleration appears in the data. The current warming is consistent with a mild post-glacial period, probably the aftermath of the so-called "little ice age" that ended during 19th century.

CO₂ is a by-product of fossil fuel consumption; its build-up is a natural consequence of a modern civilization's need for

more energy. According to the US Department of Energy, the main users of fossil fuel energy are industry, transportation, power production, and agriculture.

Data show that the amount of CO₂ in our atmosphere has been increasing every year



Greenhouse effect — a word that threatens our existence

since the industrial revolution began, and the rate of increase has accelerated considerably in the last 30 years. Right now, we are at about 346 ppm (parts per million) compared to 315 ppm in 1958 (in 1860 it was 275 ppm). Many scientists predict that at the current rates of increase, the CO₂ concentration will reach 550 ppm by the year 2050 and will hike up the global "thermostat"

about 40°C (70°F). Now we will see how increased CO₂ will affect agriculture. Nicolas T. De Sansure, a French scientist, first demonstrated in 1804 that peas exposed to high concentrations of CO₂ grew better

They further predict some low-lying atolls in the Pacific and Indian Ocean will be submerged or made uninhabitable causing thousands of people to move to other countries as "environmental refugees". Ja-

by Mamunul Haque Khan

Ganges Delta in India and Bangladesh, the Irrawaddy Delta in Burma, the Phraya Delta in Thailand, the Mekong Delta in southern Vietnam and Cambodia and the Yellow River in China are vulnerable to flooding by sea water due to greenhouse effect.

Mostafa K. Tolba, Executive Director of the United Nations Environmental Programme (UNEP) said scientists now generally agree that the greenhouse effect was likely to produce a mean temperature increase of between 2.5 to 5.5 degrees Fahrenheit over the next 30 to 40 years. He however says, despite greater research, understanding of the global climate is in its infancy.

W. Doral Kemper, head of the ARS Climate Impact Programme, in Beltsville, Maryland, says: "While other groups of scientists are writing disaster scenarios about drought, decreased yields, and rising sea levels, our data indicate benefits.

And there is little doubt that wheat, rice, and corn — the three major foods for earth's population, — will benefit from extra CO₂."

Thus from the differing opinions of scientists and experts, we may conclude in the words of Andrew R. Solow, a statistician at Woods Hole Oceanographic Institute in Massachusetts: "We cannot yet make useful predictions about climate and that existing data show no evidence of the greenhouse effect."

Forests Burning in Kalimantan

WIDELY varying estimates of the extent of the damage reflect the dearth of reliable information about the fires. During four days in early October, for instance, estimates of the damage reported on three international wire services varied from as little as 12,500 hectares to 100,000 hectares. Throughout October, Indonesian Forestry Minister Hasjrial Harahap's estimate remained at 50,000 hectares while Malaysia's New Straits Times put it 10 times higher at more than 500,000 hectares.

Assessments of the damage have focused solely on the area of forest destroyed, not on the scale of human suffering the fires have caused. Indeed official statements could easily lead to the impression that the forests are devoid of human beings. No attempts by the government to assess the damage caused to people's land, homes and livelihoods have been carried out, or made public, to our knowledge.

Only rarely has the impact on local people been glimpsed in the Indonesian press. One report in the Jakarta Post said that East Kalimantan's biggest river, the Mahakam, had been contaminated and was spreading cholera. The fires were blamed for one plane crash and an emergency landing in Kalimantan.

Information about the impact on neighbouring countries and on airline companies is more easy to come by. Skies over neighbouring Brunei, Singapore and Malaysia were covered by a thick haze for days at a time, causing respiratory problems and skin and eye irritations. Many flights to destinations in West and East Kalimantan and Central Sumatra were cancelled, disrupting communications and dealing another blow to the tourist trade.

Wildlife has also been suffering the effects, although little information has been forthcoming about the fate of the forests' many rare species. Only freshwater dolphins (a protected species) in East Kalimantan received international attention when Agence France Presse reported that a number were trapped in channels linking disappearing lakes.

The back-drop to the fires was the unusually long dry season, which has ruined harvests

and dried up rivers and dams throughout Java and western Sumatra. There are signs that the drought, which has also affected Australia for the past four years, heralds the next El Nino, a dramatic reversal of wind and ocean currents off the equatorial Pacific Ocean. El Nino can last up to a year, destroying fisheries and causing floods and crop failures. The last was in 1987, but more severe was the one in 1982/3 triggering the great Kalimantan fires that destroyed an area the size of Belgium.

Indonesia. In East Kalimantan, the area worst affected by the fires, five lakes dried up and the water level in the Mahakam River was three metres below normal.

There are sombre predictions for the future from Australia's leading climate modeller Barrie Hunt: "My fear is that the greenhouse effect

could drag the Pacific towards an almost permanent El Nino. That would be disastrous." One report in the Indonesian Observer said fires in the Bukit Soeharto area (where the first fires broke out in Kalimantan) had left behind a "glowing coalfield". Coal deposits lying just beneath the surface are thought to be one of the main causes of the fires in Kalimantan.

According to Population and Environment Minister Emil Salim, the fires were fanned by high winds carrying sparks from burning coal deposits to trees, dry from the drought. Satellite imaging showed 17 fire points in Kalimantan, he said, which appear to match up to the blazes of 1986. This suggests that the underground coal may have been smouldering since then, or in some areas, possibly since the huge fire of 1982/83.

Negligence, carelessness and human error, according to President Suharto, are often responsible for forest fires. But negligence by whom? Official blame is usually directed toward local farmers, who burn fields as part of their agricultural activities. As they have no political or financial clout, they are an easy scapegoat for the authorities. Thus, when the fires started in Bukit Soeharto

the list of scapegoats, since many resort to burning forests to open new fields, when their allocated plots fail to produce enough for subsistence needs. However, migrant farmers are rarely the first to open up an area. Loggers, miners and plantation developers clear the forests and build roads. The farmers follow their lead.

Much of the blame must lie with the legion of loggers, who leave trails of waste wood wherever they go. As an Indonesian Forestry Ministry document pointed out in 1989, "The effects of logging include the accumulation of litter on the forest floor which, when it dries out, increases the fire hazard. The possibility of drying out is increased by the fact that the forest canopy has been partly cleared over a large area."

Both Indonesia's prominent environmental organisation SKEPHI and WALHI, have stated that logging is to blame for the rapid spread of the fires. A member of WALHI who went to Kalimantan said, "Most fires are raging through logging areas. Faulty management in logging has worsened the situation."

Companies clearing huge areas of land for plantations also bear responsibility for spreading fire. According to a

lecturer at the University of Riau, Sumatra, an Indonesian company licensed to clear 30,000 hectares of forest in central Sumatra, set fire to debris on a 16,000 hectare area it had cleared. He warned that the haze created by the fires could be worse this year if the Astra Group (Indonesia's second largest conglomerate) burnt and cleared a total of 770,000 hectares for another proposed plantation scheme.

Discussions on how to combat the fires have also been going on among Indonesia's neighbours. Malaysia has been particularly badly affected by smoke which has combined with industrial pollution and traffic fumes to create a thick smog hanging over Kuala Lumpur and the Klang Valley. In October Malaysia called for an emergency meeting of the Association of Southeast Asian

Nations (ASEAN) to find a way of combating the haze. One suggestion was to pool resources to buy or rent a water bomber to put out the fires and another, to set up a joint ASEAN fire-fighting force to combat forest fire in the region.

The question on everybody's lips now is will there be a repeat performance this year? If the El Nino prediction is correct, there is a strong possibility that another drought will create the right conditions for more fires. An additional problem is that the rains alone will not be capable of extinguishing the subterranean fires in Kalimantan's coal deposits. Some under-ground fires are thought to originate from the 1982/83 fire and could well re-emerge the next dry season.

Various suggestions for this year have been put forward including a plan, coordinated by the government, to regulate burning activities. According to the Director General of Forest Protection and Nature Conservation, Sutisna Wartaputra, during the coming dry season, land clearing activities will be conducted in line with government guidelines determining when and where fires can be started and the extent of forested land which may be

cleared. There have been calls for more equipment (currently Indonesia only has two airborne fire-fighting units) for early warning systems and for more information during the early stages of the fires.

All this creates a certain sense of deja vu, however, as many of the same recommendations were made in the wake of previous fires. A 1989 Ministry of Forestry and the Food and Agriculture Organisation (FAO) paper describes the lack of clarity over the government's fire-fighting capacity and admits: "It appears that few of the fire-fighting towers have been constructed and few of the specified necessary items of fire-fighting equipment have been purchased."

The paper recommended that action be taken rapidly to initiate training in fire control in the outer islands and that fire-fighting equipment be purchased. There is no evidence that these recommendations were acted upon.

Is more equipment and expertise the answer anyway? Once a fire is underway there is little to be done short of praying for rain. Water bombers, for instance, cannot operate effectively in the heavy haze hanging over the burning forests.

There is a growing conviction that the problem of forest fires must be tackled at a more structural level. Some Indonesian non-governmental organisations (NGOs) now believe that only when the government forestry policy is radically changed can future disasters be averted.

The relentless drive toward commercialisation of the forests by logging, pulp and plantation companies shoves aside the people with the traditional skills and knowledge necessary to safeguard the forest against man-made disaster. Until this stopped and the forest is returned to the control of local people, the technological fixes will remain a costly and ineffective exercise in damage limitation.

— Third World Network
Features
(Carolyn Marr works for the International Campaign for Ecological Justice in Indonesia, a project managed by the Asia Pacific People's Environment Network (AIPEN). She also works for the World Rainforest Movement.)

Greens Get Victory in Colombia

Peter Nares writes from Bogota

THE Bogota River, one of the most contaminated waterways in Latin America and long known as Colombia's largest sewer, is finally to be cleaned up at a cost of more than \$300 million.

The project is an example of the Colombians' new-found concern for their environment, and the willingness of international credit organisations to provide money for ecological clean-ups.

The Bogota has been polluted for years by thousands of tonnes of sewage and industrial waste. Where it flows through the capital of the Andean republic, its water is biologically dead.

Nearly 1,500 noxious substances have been identified in its foul-smelling current, affecting the health of Bogota's five million residents and the villagers who live downstream.

In Bogota itself, the stench from the river aggravates the contamination caused by factory chimneys and the city traffic. Villagers downstream wash their clothes and irrigate crops with the river's water.

Until recently, food and water supplies in some districts were so contaminated that a high proportion of the population had ailments attributable to substances such as arsenic and mercury in the river.

At its source, in the Andean highlands overlooking Bogota, the river is pure and crystalline, but the industrial pollution begins only a few miles downstream. Tanneries, slaughterhouses, chemical plants and hundreds of factories all discharge effluents, often untreated, into the river.

The ecological havoc is not restricted to the Bogota River. Its toxic waters flow into Colombia's largest river, the Magdalena, which is fished extensively and also used to irrigate farmland.

Over the years, central and local government authorities have repeatedly promised to decontaminate the river, although it will cost millions of dollars to restore it to biological health and to end the pollution.

Money on this scale is rarely available in a nation like Colombia, whose authorities are so hard-pressed for funds that they can barely provide health services for low-income families in urban zones, let alone rural areas.

Despite their promises, the enormous cost meant authorities for years turned a blind eye to the problem. They also had to contend with Colombia's powerful industrial lobby, which was reluctant to install costly anti-pollution plants and filters.

So the contamination of the river continued, worsening year by year. Scientific studies of the problem also continued, but most were shelved, without action, for lack of money.

It was not until the Eighties that the situation finally changed. Colombia's fledgling ecological movement had begun to gather force, and environmentalists found they could no longer be ignored.

For example, in one country region contaminated by the Bogota River, an entire town, Tocaima, went on strike because of the pollution of its water supplies. The pollution was not only a health hazard — it also threatened the region's earnings from tourism.

The government was forced to act and Tocaima today has a new water network. Water supplies have also been upgraded in other downstream districts through which the Bogota River flows.

In the capital itself, the waterway remains as fetid as ever, but it is now hoped that

contamination will be reduced within five years to an internationally acceptable level.

The government, in response to pressure from ecologists, negotiated multi-million dollar loans from international credit organisations. More than 20 water treatment plants are to be constructed, and a new system is to be installed for the safe disposal of sewage and industrial effluents.

The fact that international bankers are now prepared to finance such environmental

in addition, there is the ultimate sanction: factories that persist in ecological offences are closed, either temporarily or permanently. In Bogota, 26 offending industrial plants were shut last year.

The authorities themselves these days practise what they preach. When it was established that a state firm, Alcala, was seriously contaminating the Bogota River with its carbonate factory, the government closed its own plant, even



programmes, which yield no immediate cash gains, testifies to the ever-growing influence of ecologists around the world.

For its part, the Colombian government, though neo-liberal in economic outlook, eschews development at any cost. While actively seeking in-

though this led to the loss of hundreds of jobs.

As for the future, a ministry of the environment may soon be created to reinforce the work of the natural resources protection agency, Inderena. The agency ensures that wildlife stays in Colombia, and that the ecological balance of Colombian parks is not upset by uncontrolled tourism.

The Andean republic of Colombia has abused its environment for years, pumping toxic effluent into its rivers and stripping its forests in the name of development. Now the country's environmentalists, long ignored, are finding they have the international clout to force change. The fetid Bogota River is being cleaned and, as Gemini News Service reports, Colombians are finding that it is possible — though difficult — to protect and develop their natural resources.

The government, in conjunction with the private sector, is now implementing widescale reforestation projects. Millions of trees are being planted by government agencies and commercial firms in a bid to combat erosion, which affects nearly half the country's cultivatable land after ruthless exploitation of the forest.

The private and state sectors are also cooperating to protect the environment from the ravages of coalmining. Colombia is one of the world's largest coal exporters thanks to its enormous deposits of the mineral in the northern regions.

These regions, though, are close to Colombia's Caribbean coast, whose beach resorts attract thousands of vacationers each year. New coal ports, it is envisaged, will be situated only in isolated zones, away from tourist areas, and they will be operated in strict conditions that ensure there is minimal environmental contamination.

In practice, it remains to be seen if coalmining and tourism can function harmoniously side by side. But the programme, if successful, could set a precedent for other developing nations which, like Colombia, are trying to protect and develop their natural resources. — GEMINI NEWS

Peter Nares is a British freelance journalist based in Bogota, Colombia.



Environment-friendly: Claus-Dieter Koetke, from Reinstorf in north Germany, has designed an ecological spray. He has invented a plastic, thin-walled, inner bag which separates the contents from the propellant. Hair spray or deodorant is crushed in the bag and then sprayed by pressing a button. Photo: IN-Press



Metal Pollution Alert in the Ganges

THE long-running dispute between Bangladesh and India over the sharing of the waters of the Ganges river is likely to become even testier with the finding that the waters are heavily polluted with metals.

Research carried out by the University of Rajshahi, Bangladesh's second largest institute of higher learning, shows that near the Bangladesh side of the border the river contains chromium concentrations of seven parts per million (ppm) compared with a permissible

level of 0.05 ppm.

After a series of tests by Fahmida Zerin of the department of applied chemistry under the supervision of Professor Fokrul Islam, Prof Fokrul said the water was unacceptable because of the difficulty of eliminating heavy metal pollution.

He warned that continuous taking of Ganges water might cause cancer, and that fish caught in the river could transmit toxins to the human body. PANOS