

Keeping the Ganges Clean

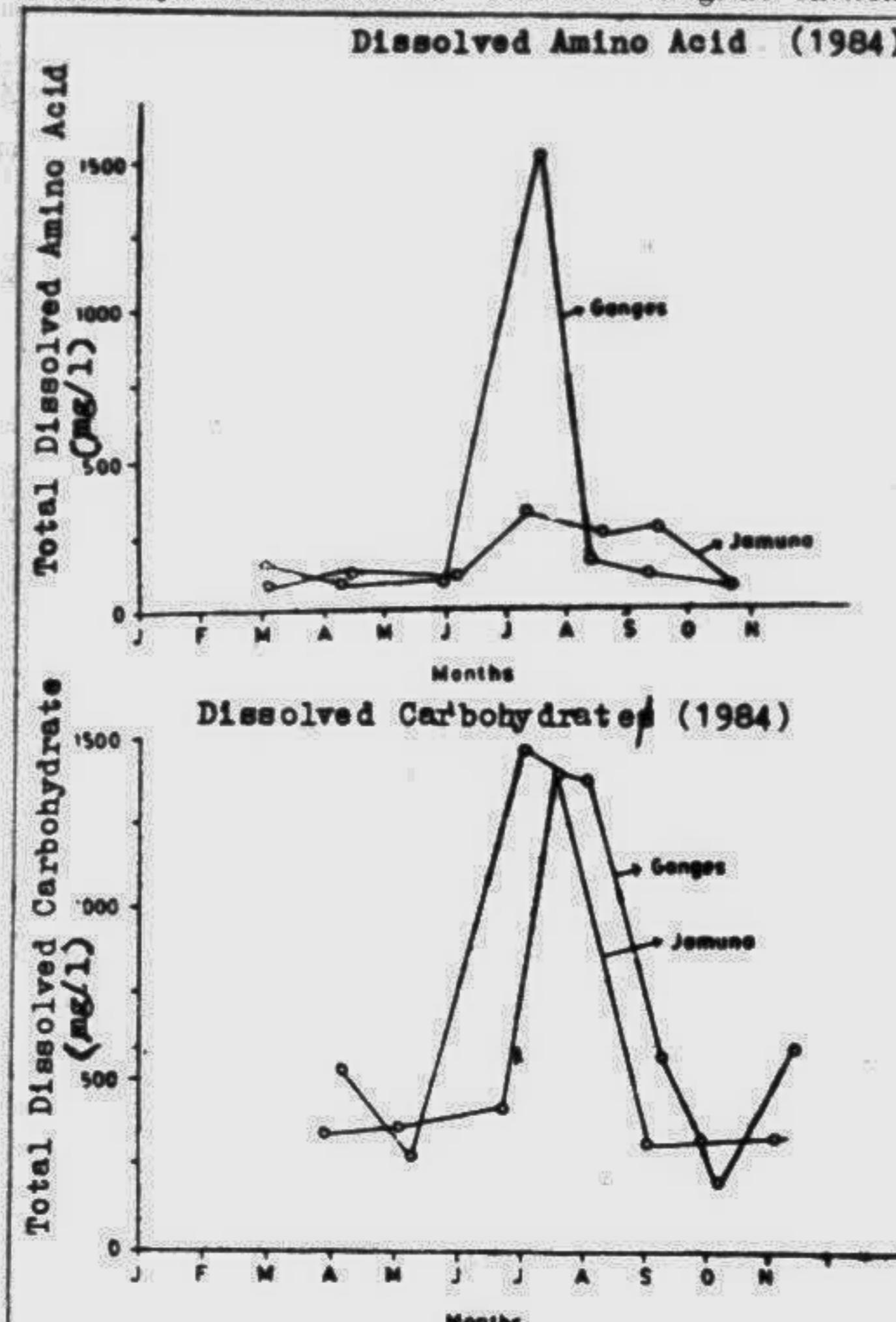
by Md Shah Alam

FOR millions of years the Ganges, as it flows from its source, remained in pristine condition. The motor action of this river has formed a vast flood plain, much of which is in Bangladesh. For thousands of years our culture and civilization have flourished by the bounty of the Ganges. We are in every sense a river people. And until recent time, whatever flowed through this river was accepted as nature's gift to us. Such is not the situation today. The flow of the river has not only diminished, thanks to the creation of a dam at Farakka and at other upper reaches. We have good reasons to be concerned about the aquatic health of the river. There are 4700 large and small towns on its banks at its upper reaches. The anthropogenic interference in the form of untreated municipal wastes and industrial wastes, discharged into the river naturally have grievous consequences in the lower riparian region.

Before 1981 there was hardly any systematic study in this respect. In 1981, a project was undertaken by the departments of Chemistry and Geography, Jahangirnagar University, under the auspices of UNEP/SCOPE Carbon Centre in Hamburg. During the study the researchers found that the monthly variation of amino acid content could be used as a symptom of anthropogenic activity when it is considered with the carbohydrate content. From figure it can be seen that the Ganges has a very high amino acid content during the monsoon while Brahmaputra shows a

low value. Whereas both the rivers have identical variation of carbohydrates in dissolved

organic carbon. The above observation was interpreted in terms of bio-genic environ-



Monthly variation of dissolved amino acid and carbohydrates in the Ganges and Brahmaputra (1984).

mental pollution in the upper reaches of the Ganges flood plain. The Ganges flood plain is one of the most heavily populated areas of the world. During the flood seasons nitrogenous organic carbon (human excreta and others) is profusely discharged into the river giving rise to a high value. While carbohydrates being mostly of plant origin the variational profile for both the rivers are similar. Thus the Ganges is not only gagged at its upper reaches but is decidedly dirty as it flows down from its source head bearing unforeseen environmental burden for the lower riparian Bangladesh.

It is heartening to know that the Government of India took a comprehensive programme for a clean Ganges under the direct supervision of late prime minister Rajiv Gandhi. They had taken that programme specially to save the poor in the riparian part of India. Dr Nilap Chowdhury, Chairman of Indian Water Pollution Prevention and Control Board, said that 80 per cent of the various diseases of India was water borne. The outbreak of cholera, diarrhoea, jaundice, gastric ulcer was excessive in the Ganges basins. According to a study, three people (specially children) die per minute in this basin.

Indian government has also taken a programme to transfer the discharged dirty substances into some useful by-products. Bangladesh is yet to take up any such treatment measure of water of the river in its part — an exercise that in the lower riparian of the country.

BIOLOGICAL diversity is defined as the variety and variability among the living organisms including the genetic variability within species and populations, of their interactions, and the ecological processes which they influence or perform. Why is biological diversity important? Firstly, we could not survive without the services provided by nature. Secondly, wild animals and plants play a crucial role in the human arts and cultures. As a result of these values, governments throughout the world have now accepted that the conservation of biological diversity is essential.

Bangladesh is rich in biodiversity of plants but suffers from lack of adequate field studies on the one hand, and the over exploitation of the genetic resources on the other, to the extent that the species are being endangered.

The important forested areas include the mangrove forests in the south, wetland areas of the northeast, the sal formation of Dhaka-Tangail-Mymensingh, and the hill forests of Sylhet, Chittagong, and the greater Chittagong Hill-Tracts. One such area recently investigated by Dr Salar Khan and the botanists at the Bangladesh National Herbarium was the Teknaf game reserve in Cox's Bazar district. This tract comprising mixed evergreen formation and tidal vegetation provides refuge to a small population of Indian elephants, primates and a number of smaller mammals

besides a diverse avifauna. Declared as a protected area in 1983, the reserve with its seven forest blocks stretches southwards from Ukhia in a narrow peninsula with rugged hills up to 700m high on the west overlooking the Bay of Bengal, and with tidal mud flats fringing the river Naf on

life, before they are even recorded. There has been pressure on minor forest products like bamboo and firewood exacerbated during the influx of Myanmar refugees. The scarcity of elephant feed in the forest has been the main reason for the increased raiding of field crops

cases where the species have restricted distribution. One of the current works at the Bangladesh National Herbarium is the revision of the annotated list of medicinal plants of Bangladesh prepared in 1975. The revised edition would include about 400 flowering plants of known medicinal value.

The botanical survey of the Teknaf game reserve resulted in 381 plant collections preserved at the Bangladesh National Herbarium besides a large number of plants not in flower and fruit recorded for the reserve. One of the important plant species recorded was a wild relative of mango (*Mangifera longipes*). It has a low germination rate but the seedlings collected from the wild can provide material for rapid multiplication through tissue culture. *Mantisia saltatoria* and *Osbeckia aspera* with spectacular flowers have a great potential as ornamental plants in gardens.

Some of the original pristine condition of the forest and its biodiversity can be restored by reforesting the damaged spots with the seedlings of native trees like *Civit* (*Suitonia floribunda*), *Bolam* (*Antisoptera scaphula*), *Chundal* (*Tetrameles nudiflora*), and various species of *Jane* (*Syzygium*, *Crajan* (*Dipterocarpus*), and *Ficus*). The cooperation of the local people may be sought to collect seeds and other propagules and build up nurseries.

— Bangladesh Environmental News Letter

Conservation of Plant Biodiversity in Bangladesh



Mantis Saltatoria with its spectacular flowers has a great potential in horticulture. Photo: Dr Salar Khan

the east bordering Myanmar.

The once dominated *Dipterocarpus* formation and the associated tall trees of timber value have been ruthlessly destroyed through human interference.

The current threats to this reserve indicate an imminent danger of losing some of the potential keystone species that play an important role in ecological processes and maintain

by the wild elephants.

Bangladesh is well-known for its traditional use of herbal medicine. There is a great local demand for the crude plant drugs supplied by the professional collectors due to which natural resources are being greatly depleted.

Unless plantations of medicinal herbs are established urgently there is a danger of plants being seriously threatened especially in those

If Every Indian and Chinese Drove a Car ...

by Daya Kishan Thussu from Bangkok

they are given decent working conditions and special schooling," she said.

Meena Moorthy-Shydas, of the Asian and Pacific Development Centre, in Kuala Lumpur, said that women need to be given priority in any development debate since they form the productive half of the world's population: "As careers

sumers of non-renewable resources.

Some participants argued that rapid population growth was not the cause of poverty in the Third World, but rather the result, as poor families regard children as economic assets. They said rather than being poor because they have many children, people may

North."

Held in a city being choked by ever-increasing traffic and pollution, these points about environment and development were brought home to the journalists. They wondered what would happen if every Third World capital were to develop like Bangkok.

Javed Malik, from Pakistan, asserted that the South's environmental problems are often

Twenty journalists from 12 Asian countries have attended a workshop in Bangkok on environmental reporting, organised by Gemini News Service and sponsored by three UN agencies. They concluded that environmental journalism was not just about reporting on how to save trees and tigers. But they agreed, reports Gemini's Associate Editor who conducted the workshop, that ecological issues are linked with the survival of the human race.

Twenty journalists from 12 Asian countries attended



Twenty journalists from 12 countries attended

and producers of food for sustenance, women feel the direct impact of depleting natural resources."

Population growth is often blamed in media reports for ecological damage in the developing world, but less emphasis is given to the relentless exploitation of land and sea that is threatening the world's environment.

The lifestyles of the developed countries now being promoted in the Third World are not sustainable with the earth's finite resources.

"If every Indian and every Chinese were to start driving a car, the world will not be able to cope," was one observation. The key theme in environmental debates now is the idea of sustainable development, so that there is an environment for future generations to live in.

The developed countries have to take a lead in this by changing their wasteful lifestyles and those in charge in the developing world should not ape the Northern lifestyles, delegates agreed.

At Rio last year, the rich countries promised to transfer environmentally friendly technology to the Third World. Instead they have been exporting more and more TV images of affluent consumerism. No wonder the entertainment business is the second biggest export industry in the United States after the arms industry.

This fundamental issue was best summed up, the participants felt, by a report from the UNDP: "Environmental degradation is a result of poverty in the South and affluence in the

related to the poverty of its people.

He argued that Northern countries should end protectionism against Southern manufacturers and encourage trade with developing countries. The North has to undertake a global economic reform involving debt cancellation and fairer trading relationships, for example in commodity prices, he added.

As well as sessions on women, children and the environment, the workshop also included practical editing exercises and a comparative study of the media coverage of the Earth Summit.

By the end of the week, the journalists felt that they had learned why it was important for them to have a better understanding of the linkages between economics, politics and the ecological debate for future generations to live in.

Journalists have to be well-informed about the real issues behind environmental stories to sift through the mass of official handouts from governments and UN agencies, said one participant.

However, the people most affected by environmental degradation are often those with the least access to the media. Much of the media remains elitist and urban-oriented. The participants felt it was important to encourage more local journalists to get involved in environmental reporting.

ENVIRONMENTALLY, the 1980s were a dismal decade. We became more aware of land degradation, desertification, deforestation, and air and water pollution, and by the end of the decade, we had added destruction of the Earth's ozone shield and climate change to a list seemingly set to plunge us into an ecological Armageddon.

But if humanity took two steps backward in its efforts to combat the environmental crisis, it also took a few steps forward. The most heartening response in India came from rural communities, many of which took their future in their hands and made their degraded land green, showing that sustainable development can be an ordinary, everyday reality.

In the early 1980s, international experts were still discussing the conflict between the environment and development, and which comes first. But grassroots movements, such as the famous Chipko Movement in which Himalayan women threatened to hug trees in danger of being felled, had already begun to show that it is the poor who suffer the most when the environment is degraded. And, therefore, the poor have a vested interest in the sustainable management of their natural resource base, both for survival and for growth. Soon, development experts began to accept that any development that degrades the environment degrades the people who live in it and exacerbates poverty, and so obviously cannot be called development.

Nearly one-third of India's land area is today considered a wasteland. Both agricultural productivity and production from grasslands and forests in these areas are very low. As a result, there is an acute shortage of food, fuel, fodder and daily water. Soon after the monsoon, the streams run dry and groundwater levels fall dramatically. A woman's life is one long trek to collect basic needs such as water and fuel.

But that is no longer the case in Sukhomajri village in the sub-Himalayan Shivalik hills. Over-grazing and deforestation had left the village environment badly degraded, with extremely high rates of erosion, able only to support a destitute people. Crop lands produced a few tonnes of grains for food. The deficit was made up with purchases from the local town — with the help of earnings sent back to the village by migrant workers.

In 1977, soil conservationist Priya Ratna Mishra tried to dissuade the villagers from the uncontrolled grazing in their watershed. The village stream was carrying thousands of tonnes of silt to a large reservoir which supplied water to the state capital, Chandigarh, and was reducing its water-holding capacity. But Mishra's pleas fell on deaf ears. Sukhomajri's shepherds had their own problems of daily survival. Their goats at least gave them some income and support. But things began to change when a village elder suggested to Mishra that he should bring the villagers water. So Mishra built a small earthen dam to hold back the

monsoon rain. Villagers immediately asked Mishra for the water and, in return, promised to protect the watershed, especially as the silt would now accumulate in their own reservoir. The forest department also took a daring step to let the villagers manage the watershed. The villagers, in turn, banned all grazing in it and levied a charge on every family collecting fodder from it. In five years, the irrigation

Water.

"No," he said. "I see milk in it. It is this water which gives us milk and honey."

Sukhomajri is not the only village in India where the people have responded to the ecological crisis. In Ralegan Siddhi, in the drought-prone district of Ahmednagar, Krishna Bhaurao Hazare has achieved a miracle that has turned the village into Mecca for the environmentally concerned. Hazare, a jeep driver

in the Indian army, returned to his village in the mid-1970s to find the environment extremely degraded, the villagers extremely poor, liquor brewing the sole occupation, and heavy male migration. Hazare slowly mustered support for a campaign against liquor brewing and turned the community's attention to its environment.

Taking advantage of the

... and with irrigation from the small dam, villagers began to harvest three assured crops, instead of just one risky crop, a year.

The Aravallis are today one of the most degraded hill ranges in India...

... but the forests of Seed village, protected by the villagers themselves, give them grass year after year.

Hunger and destitution have disappeared. The village collective sells the extra grass from the watershed; in 1989, the village became the first in India to be levied income tax on its earnings from a regenerated forest. The average earnings of a household in the village have increased by about US \$200 a year, and all on a sustainable basis. Mishra estimates that if the forest department allows the villagers to harvest the wood in the watershed, they could net at least US \$100,000.

During a television interview with an elder from the village, he suddenly asked me: "Tell me, sir, what do you see in this reservoir?"

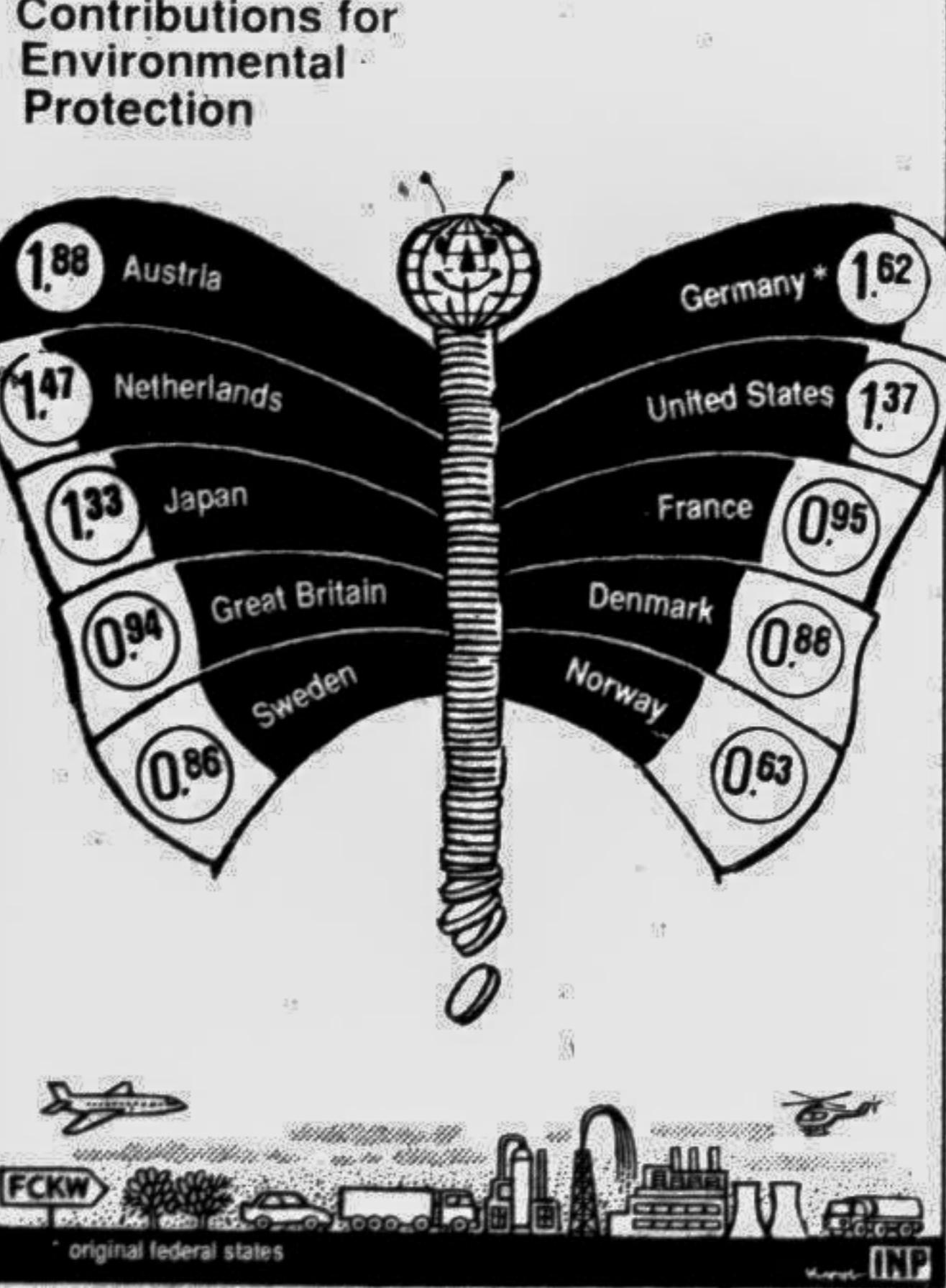
I hesitantly replied, because my answer seemed so obvious: collect grass from this forest. In other areas, villagers can graze their animals, but they cannot break even a leaf from the trees. Even private trees cannot be felled without the permission of the village assembly.

Environmentalists across India are clearly excited that sustainable development is indeed possible. Sukhomajri, Seed and Ralegan Siddhi are just three outstanding examples. There are hundreds of others, which are also responding to the ecological crisis. But they need a nudge from the government, which must enact laws to create democratic village institutions that have legal control over their environment.

collect grass from this forest. In other areas, villagers can graze their animals, but they cannot break even a leaf from the trees. Even private trees cannot be felled without the permission of the village assembly.

Environmentalists across India are clearly excited that sustainable development is indeed possible. Sukhomajri, Seed and Ralegan Siddhi are just three outstanding examples. There are hundreds of others, which are also responding to the ecological crisis. But they need a nudge from the government, which must enact laws to create democratic village institutions that have legal control over their environment.

Contributions for Environmental Protection



original federal states

FCKW INP