

Raising awareness of biodiversity

Prominent biologists and ecologists are all out to make 2001 and 2002 breakthrough years in communicating findings about the status of biodiversity and its links to human welfare, writes Arun Devnath

OVER the years, scientists have worked together across disciplinary and national boundaries to advance knowledge about the earth, its oceans and its atmosphere. The limited awareness of life forms on earth stifles the ability of policymakers to make decisions for sustainable development around the globe.

Concerned about ecology and its close link to human sustenance, scientists from around the world have declared the International Biodiversity Observation Year, or IBOY for short. The IBOY has been inspired by the International Geophysical Year of 1957-1958.

Loss of biodiversity has been dubbed as the quintessential global issue. Global because consumption of resources is occurring at a breathtaking pace around the world and species producing resources are sinking into oblivion.

What is biodiversity? At its simplest, biodiversity is the variety of life forms on Earth. It is most often measured as the number of species of plants, animals and microbes but can also be measured in terms of the enormous diversity of genes that make up these species or the variety of different ecosystems on the planet such as deserts, rainforests and coral reefs.

Diana Wall, biologist at Colorado State University, USA and chair of the IBOY, says how little is known about biodiversity. "Scientists have described about 1.75 million species but we estimate that there are over 12 million species still to be described. For 99% of species we simply don't have good information on their distribution, abundance and their role in providing goods and services that we get from ecosystems such as renewal of soil fertility, decomposition of waste and

purification of water."

The international team of researchers who masterminded IBOY believes disseminating knowledge about biodiversity may be the greatest scientific and educational challenge of the twenty-first century. Wall predicts that "exploring biodiversity will unlock many benefits, through discovery of new genes and chemicals that can be used for drugs, crops or for restoring polluted land.

New technologies such as molecular techniques that rapidly measure genetic diversity, satellites that monitor changes in forests and oceans, and the internet that allows global data-sharing, put the goal of understanding and conserving biodiversity within reach. Scientists, however, fear that much of the world's biodiversity may be lost before these efforts are successful. According to scientists, extinction rates are now 100 to 1000 times the background rate expected without human influence and they are accelerating. If current trend continues, the total loss of biodiversity will be equivalent to those during the previous five mass extinction events in Earth's geological history.

Sometime in the last few million years, human beings became dissociated from ecological equilibrium and emerged as super-predators. But with this ability to drive any species into extinction will come a need, then a responsibility for restraint. The need springs from the ever-snowballing awareness that no species exists in an environmental vacuum. Organisms and their environments are inextricably interrelated. Scores, perhaps hundreds of species may be dependent upon a key plant or animal.

Why are these associates so

important that we should guard against the loss of anyone of them? The answer lies in the relationship of humans to this species diversity. If we were passive bystanders, we could rationalise extinction. It is fair to say that no extinction has been purely natural since the emergence of human beings on earth.

The process of biodiversity loss is quickened by the state's desire for revenue yield. Trees yielding "commercial wood" are preferred over natural plants. Missing, as a result, are all those trees, bushes, and plants that hold little or no potential for state revenue. Also missing are all those aspects of trees that may be useful to the indigenous peoples but whose value cannot be converted into fiscal receipts. Gone are the vast majority of flora and fauna. Gone, not surprisingly, are reptiles, birds, amphibians and innumerable species of insects.

Each species represents a pool of genetic information that adapts uniquely to its environment. When this information is lost through the process of extinction, a valuable key to survival with all of its economic, scientific, and aesthetic potential is irrevocably lost as well.

It is time that we, as self-aware members of most of the earth's ecosystems, developed the ecological sensitivity to refrain from invoking the enormous power of extinction that we have inherited from our ancestors. We must do this for the sake of enlightened self-interest, to be sure, but all other organisms on earth have a right to exist equal to our own. Our archaic domination over animals is a belief ossified for millennia is not a mandate for mindless exploitation but a charge of responsibility.

"Intensive climate research and monitoring over the past few years has given scientists greater confidence in their understanding of the causes and effects of global warming," the UNEP Executive Director added.

"The scientific consensus presented in this comprehensive report about human-induced climate change should sound alarm bells in every national capital and in every local community. We must move ahead boldly with clean energy technologies, and we should start preparing ourselves now for the rising sea levels, changing rain patterns, and other impacts of global warming," he said.

The IPCC report is a three-year compilation of the best scientific knowledge about the effects of rising global temperature and concludes that much of the damage to the environment is already irreversible.

The atmosphere concentration of carbon dioxide, the most prevalent of the so-called 'green house gases', has surged by 31 per cent since 1750 -- a rise unparalleled in the last 20,000 years, the UN report concludes.

Current concentrations of the gas are at levels likely to have been unsurpassed for 20 million years, with 75 per cent of carbon dioxide emission caused by fossil fuel burning and the remainder by

Yet another warning

QUAMRUL ISLAM CHOWDHURY

CLIMATE change scientists and government officials from around the world have finalised a major report at a recent climate conference, held in Shanghai on January 22, confirming that the evidence for human's influence on the global climate is now stronger than ever before.

Impact of global warming is much more severe than earlier thought and would have a profound impact for centuries, said Professor Robert Watson, chairman of the International Panel on Climate Change (IPCC), while addressing the conference.

IPCC is a UN administered body composed of leading scientists from more than 100 nations.

The IPCC report forecasts a more severe weather changes raising the sea-levels and temperatures, reducing the agricultural productivity and straining already scarce water resources. "Flooding could displace tens of thousands of people in Bangladesh, China and India because of the climatic changes," Professor Watson warns.

The new IPCC assessment, jointly sponsored by the United Nations Environment Programme (UNEP) and the World Meteorological Organisation (WMO), projects a potentially devastating global warming of 1.4 degree Celsius to 5.8 degree Celsius over the century pushing sea levels up between 0.09 and 0.88 metres.

"The scientist consensus presented in this comprehensive report about human-induced climate change should sound alarm bells in every national and in every local community," UNEP Executive Director Klaus Topfer told reporters after the conference in Shanghai.

Topfer called on governments and the private sector to "move boldly ahead with clean energy technologies," and to begin preparing for "rising sea levels, changing rain patterns, and other impacts of global warming."

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deforestation, the report adds.

Since the 1950s, the earth's temperature has risen by an average of one-degree Celsius each decade, with the 1990s likely to be the warmest year on record since 1861, the report says.

New analysis of tree-rings, corals, ice cores, and historical records for the northern hemisphere indicate that the 20th century is the warmest in the last 1,000 years.

Although the abstract numbers might seem small to the layman, scientists warn that resulting global climate change will be large and its implications ominous.

The IPCC chairman warns rising temperatures will "cause decrease in agricultural productivity in the tropics and subtropics... areas where we already have hunger".

Climate extremes such as the El Niño storms seen in the late 1990s will likely become more frequent with greater extremes of drying and heavy rainfall in many regions in the 21st century.

These will also be increased risk of droughts and floods that occur with El Niño, the report said.

Such changes will be enough to destroy some ecosystems and swallow others, with the world's coral reefs likely to die if sea temperatures increase by as much as one degree Celsius and flat island communities such as the Maldives expected to be threatened, Watson says.

Over the next century, carbon dioxide emissions from fossil fuel burning will continue to be the dominant influence on atmospheric concentration of the gas, the report predicts.

Few developed nations have ratified the Kyoto Protocol, the UN's cornerstone treaty on global warming, with only a handful of nations such as Britain and Germany on track to cut their emissions of greenhouse gases over the decade.

But developing countries such as China, whose priority is economic growth and poverty alleviation, are likely to be the worst hit by coming climate change, says the report. Bangladesh is likely to be another worst-hit country.

The IPCC's Third Assessment Report is being written and reviewed by hundreds of climate change experts on the basis of the most up-to-date, peer-reviewed research available. In addition to the just released Volume I with the title "Climate Change 2001: The Scientific Basis" the IPCC Report will include a Volume II on impacts (to be finalised in mid-February) and a Volume III on response strategies (early March).

"The scientific findings reported at Shanghai Conference should convince governments of the need to take constructive steps towards resuming the climate change talks that stalled last November in The Hague," said Michael Zammit Cutajar, Executive Secretary of the UN Climate Change Convention. "These talks must finalise the rules of the game in order to set developed countries on the path to making early cuts in their greenhouse gas emissions." But the failure in COP6 in The Hague was because of the ostrich-like attitude of some of the delegates from the developed countries, which have been responsible for most of the greenhouse gas emission globally. The delegates from the developing countries were also failed to rise to the occasion as most of them lacked proper homework and not familiar with the climate change negotiations. They

should now look at Bonn technical meeting of the Conference of Parties in a couple of months and should complete their homework for COP6.5.

There is now and stronger evidence that most of the warming observed over the last 50 years is attributable to human activities. Since the IPCC's 1995 Report confidence in the ability of models to project future climate has increased. For example, there is now a longer and more closely scrutinised temperature record. Reconstruction of climate data for the past 1,000 years, as well as model estimates of natural climate variations, suggest that the observed warming over the past 100 years was unusual and is unlikely to be entirely natural in origin. In addition, detection and attribution studies consistently find evidence for an anthropogenic signal in the climate record of the last 35-50 years. However, there are still many remaining gaps in information and understanding about climate change.

The IPCC has made two momentous revisions in its forecasts of global warming. The panel has substantially raised its projections of the Earth's likely temperature increases over the century, and it has become sharply more emphatic in its conclusion that human activities as (as opposed to natural planetary cycles) are driving the increase. The IPCC, issued its first report projecting global warming and imputing anthropogenic (human) causality in 1992, and a second, stronger report in 1995.

In its 1995 forecasts of temperature increase, the IPCC projected that the planet will warm by 0.7 to 2.2 degrees Celsius during the 21st century. But the new report revises that projection upward. The revision is based on new evidence about the effects of sulphate pollution from factories and power plants.

Sulphates have a cooling effect, which to some extent offsets the warming effect of the carbon dioxide blanket now forming over the planet. Because sulphate emissions are expected to be reduced substantially in the coming years as a result of efforts to mitigate other environmental effects (such as acid rain), that offsetting effect will be reduced -- and temperature increases will likely escalate.

The real magnitude of the climate disruption is going to be alarming. And Klaus, who was once a very bold and successful German Environment Minister and now heads UNEP, has rightly rang the alarm bells for the leaders of both developed and developing countries to take adequate defensive measures and cut back emission. We should discard our ostrich-like attitude toward global warming. So far some of the developed country leadership has shown only contempt for the Kyoto accord.

Our reckless inaction will only fuel the fire of global warming. Bangladesh officials and experts should prepare themselves for the upcoming global climate change negotiations for our own national interests and survival. Planting trees only will not save us. Because, global warming is poised to be worse than earlier predicted and planting trees alone will not help stem the tide to be precise rising sea levels, freaky weather phenomena and more greenhouse gases.

ENVIRONMENT WATCH

UN out of The Hague trauma

Climate talks to resume in mid-2001

AFP, United Nations

International talks on climate change, which broke up in disarray in The Hague last November, will resume for two weeks between mid-June and late July, the official in charge said Monday.

"The exact dates and the venue will be decided shortly based on availability of suitable conference facilities," Dutch Environment Minister Jan Pronk said in a statement here.

"I hope that the shock of our inability to reach agreement in November will spur all governments to further efforts to find the middle ground of compromise and consensus," he said.

Towards clean Asian air

Asian city leaders thrash out pollution strategies at Bangkok meet

AFP, Bangkok

Leaders from a dozen Asian cities meeting here Monday heard calls to solve the growing problem of urban air pollution which kills thousands and makes millions sick every year in Bangkok alone.

Experts at the United Nations-sponsored conference said Asia's poor were particularly at risk from the choking smog that blankets their cities.

The urban poor are particularly vulnerable to air pollution, due to above-average exposure to outdoor air pollution, said World Bank representative Keshav Varma.

"It's time for our cities to take action and show to their residents that improvements in air quality are possible."

The World Bank is launching a regional Clean Air Initiative aimed at helping developing nations to manage urban air and protect public health.

One of the initiative's first projects was to target motorcycle pollution in Bangkok, where dust and particulates are the major culprit in damaging city-dwellers' health.

The Bangkok Metropolitan Administration and the World Bank, in co-operation with manufacturers, set up "motorbike clinics" to encourage riders to fix their smoke-belching machines.

"One of the important parts of this initiative is reaching out to polluters who are poor and can't afford to buy a cleaner-running bike," said the World Bank's country director for Thailand J. Shivakumar.

"We have to work in partnership with the private sector to make this work."

Shivakumar said that in Bangkok alone, the World Bank estimates damage to health caused by air pollution is in the order of 500 million dollars a year.

"Emissions from vehicles, factories, heating, cooking and refuse burning are threatening the well-being of city dwellers, particularly the most vulnerable populations including children and the urban poor," he said.

Cities represented at the three-day workshop entitled "Fighting Air Pollution: From Plan to Action" include Bangkok, Beijing, Ho Chi Minh City, Hong Kong, Jakarta, Kuala Lumpur, Manila, New Delhi, Shanghai, Singapore, Surabaya and Tokyo.

Depleted uranium scare dispelled

Unlikely to cause leukaemia: Swiss scientists

AFP, Spiez, Switzerland

Swiss health experts said on Thursday that contracting leukaemia from exposure to depleted uranium (DU) ammunition was very unlikely.

The team of scientists is carrying out tests for the UN on samples taken from Kosovo over fears that the controversial munitions fired by NATO during its 1999 air campaign in Yugoslavia could be responsible for a spate of cancers among former peacekeeping troops.

"Leukaemia is the last sign that one would expect to see from depleted uranium in such a short time," Bernhard Anet, one of the experts told journalists.

"To contract leukaemia, you have to receive a strong dose of radiation throughout your body" which didn't happen in Bosnia or Kosovo, according to another expert, Max Keller.

Former international peacekeepers and veterans' families have claimed that exposure to DU ammunition used by NATO is responsible for illnesses including cancer -- and notably leukaemia -- among Balkan veterans.

But the scientists said that of a group of five Italian former peacekeepers who had died of leukaemia, one of them had never even come into contact with DU.

Keller also pointed to the case of around 30 US soldiers who were wounded by DU rounds during the Gulf war, saying, "None of these people are known to have suffered serious ill effects on their health."

He added that in his opinion, DU "slowly dissolves and is excreted by organisms."

The Swiss scientists carried out analysis of soil, water and plant samples and of ammunition taken from Kosovo in their investigations into the effects of NATO's use of DU in the Balkans.

The team from the laboratory here -- which specialises in the effects of biological, chemical and nuclear weapons -- said they thought their analysis "would confirm scientific knowledge" on DU built up over decades.

The laboratory is one of five European institutes carrying out tests on samples taken from 11 sites in Kosovo. The results from the analysis are due to be delivered to the United Nations Environment Programme at the end of February.

What makes a truffle tick

French government moves to stop the rot in "black diamond" production

AFP, Paris

The French government has served up a special programme of aid to help save one of the country's most prized culinary delicacies disappearing from gourmet menus.

Agriculture Minister Jean Glavany has signed a deal aimed at halting the fall in production of the venerable truffle or "black diamond".

For nearly a century the annual harvest of the most sought-after variety, the Black Perigord Truffle, has been in steady decline. A production of 1,000 tonnes a year at the end of the First World War shrank to just 12 tonnes in 1995. The figures recovered a little after that but are once again on the way down with 25 tonnes the estimate for the 2000-2001 harvest.

The Agriculture Ministry has agreed to work with the country's 20,000 truffle growers on a five-point plan to get to the roots of the problem.

This includes the encouragement of more research, exchange of information between growers, quality control of market produce, and ways of further developing so-called "truffle orchards".

The truffle growers have expressed their gratitude for the state interest in their plight by planting three special oak trees, known to encourage truffle growth, in the gardens of the Agriculture Ministry. All being well, they should produce several kilos of the prized fungus in about 10 years time.

In the meantime, truffle growers will try to understand more about exactly what makes a truffle tick or -- to be more precise -- rot.

As fungi, they are particularly fickle fare when it comes to finding the right underground conditions.

The special mould depends on three key factors to multiply; the type of soil, the roots of specific trees and the right weather.

The current year's production in France, for example, has been particularly badly hit by an overly dry summer and too much rain during the autumn and winter just when harvesting was due to get under way.

Larger-scale attempts at controlled cultivation of the truffle began in the 1960s when special orchards of trees known to support the underground fungus -- oak, hazel, pine and lime -- were planted.

These are then left for four years, after which a bare or "burned" area can be seen around the trees indicating the early subterranean progress of the much sought-after mould. Depending on tree type, they can produce up to 40 kilos (88 pounds) a hectare (2.47 acres).

But growers have to wait 10 years before they can finally unearth their "black diamonds" -- aptly named with current market prices of up to 4,000 francs (610 euros/564 dollars) a kilo (2.2 pounds).

For the sea, of the sea



Indonesian fishermen go about their business as the Singapore-registered tanker Stead Fast (background) sinks in the Java sea after it was pounded by a typhoon a mile offshore from Tegal in central Java on February 13. The tanker was carrying 1250 tonnes of sump oil and fishermen threatened to sue those responsible if the spilled oil pollutes the waters.

Towards environmental ethics

SHEELA KABIR

IN rich countries the post-war period created an expectation for prosperity. As the fruits of technology were being harvested, nature was exploited thoughtlessly. "Nature is made for man," was the guiding force. Now, the optimism of post-war period has been replaced by the pessimism of 1970s. We have realised that a global culture of a primarily technological nature is now encroaching upon the world's environment. It is desecrating living condition for future generations. Fauna, flora, rare species and natural habitats are being overwhelmed by man-made developments. And today we are faced with an environmental crisis of massive proportions.

Alterations of the environment can destroy our nature. Indeed we are exploiting nature without any restrictions. When we use the nature then we think the production of goods is more important than people. We also think that we have no obligation to future generations to conserve resources. We want more technological development and the present situation is an "exponentially increasing, and partially or totally irresponsible environmental deterioration or devastation perpetuated through firmly established ways, production and consumption, and a lack of adequate policies regarding human population increase."

Our environmental consciousness is a recent phenomenon. All over the world there is realisation of the necessity of environment conservation. On January 22, 1970, US President Richard Nixon said, "The great question of the seventies is: shall we make our peace with nature and begin to make the reparations for the damage we have done to our air, our land, and our water? clean air, clean water, open spaces these would once again be the birth-right to every American; if we act now, they can be."

What we need today is a transvaluation of our values. We need to realise that the environmental problems arise due to degradation of our environment, due to destruction of what surrounds us, the immediate which we are within. We need to identify ourselves with nature and not have a master-slave relation with it. We need to realise the nature's value. We are today blindly following the West where exploitation of nature and its resources was the order of the day. We say 'waste' because recently, even the European public is becoming aware of the devastating effects of the exploitative tendencies of industrial societies. We should aim at quality of life rather than material standards of living. We require to develop an ecological attitude.

The transvaluation of values which is needed will require fundamental changes in the social, legal, political and economic institutions that embody our values. It may require a fundamental change in our lifestyle. Sound evaluative conclusions on resource use require not only correct valational premises but also correct empirical premises. We need both facts and values. The evaluative conclusions have to be grounded in factual data. An eco-philosopher cannot isolate himself from factual premises. These factual

premises are provided by the ecologist. Our ecological knowledge provides us with factual premises on the basis of which we derive valational premises. So there is an interrelationship between ecology and environmental ethics.

There are two ecological movements -- the shallow ecological movement and the deep ecological movement. The shallow ecological movement often gives us recommendations for reform, but the deep ecologist, on the contrary, is more interested in changing our attitude and our values. A project, which is harmful for the endangered species, is acceptable for the shallow ecologists. They will try to set up this project in a reforming way. But the environmentalists, specially the deep ecologists, will not accept this project because it is harmful for the endangered species which are becoming extinct.

In *Environment and the Moral Life: Towards a New Paradigm* S. K Chahal consider some examples to clarify how specific situations could be approached with a deep ecological perspective. They are:

(i) A forest fire burns in a natural park, putting visiting tourists in danger. Should the dangers put it out or let it burn? Fires are a natural part of the healthy existence of a forest. They are thus sometimes necessary. Conditions would have to be carefully considered before the fire is tampered with.

(ii) Before building a hydropower project it is customary to estimate the useful life of the dam and lake. How long would it last before it will become filled with silt and be unusable? A suitable lifetime according to the industry might be 30 years. The deeper opinion would be that such a solution to our energy needs is largely irrelevant. It may be useful in this limited period, but it is no substitute for long-term thinking and planning an irrigation project in an excessively dry area, one should see it as a process to help the soil and the land itself, not only to improve productivity for man. It is the health of the soil which is at stake; man can only make use of this with due respect for the earth.

Deep ecology is to be seen as a root for practical work, not as a code of ethics. Deep ecology is a question of ontology, not ethics. His opines, "The appropriate framework of discourse for describing and presenting deep ecology is not one that is fundamentally to do with the value of the non-human world, but rather one that is fundamentally to do with the nature and possibilities of the self, or we might say the question of who we are can become, and should become in the larger scheme of things"

In the essay *The Land Ethics*, Aldo Leopold, regarded as the prophet of environmental ethics, describes as historical 'extension' of ethical concern, focussing first upon the family and village, then the community, nation, and international community. Late Leopold in this essay mentions two ethics:

(i) religion as a man-man ethics and (ii) democracy as a man-to-society ethics. He writes, here we have come to a stop, for "there is as yet no ethic dealing with man's relation to land and to the animals and plants which grow upon it. Land, like 'Odysseus' slave girls, is still property. The land-relation is

still strictly economic, entailing privileges but not obligations. When god-like Odysseus returned from the wars in Troy, he hanged, all on one rope, some dozen slave-girls whom he suspected of misbehaviour during his absence. This hanging involved no question of property, much less justice. The disposal of property was a matter of expediency not of right and wrong. Criteria of right and wrong were not lacking from Odysseus Greece. The ethical structure of that day covered wives, but had not been extended to human chattels.

"The extension of ethics to this third element in human environment is an evolutionary possibility and an ecological necessity," Leopold continues. The content of this next step in this ethical extension is "we abuse land because we regard it as a commodity belonging to us. When we see land as a community to which we belong, we may begin to use it with love and respect. There is no other way for land to survive the impact of mechanised man, nor for us to reap from it the aesthetic harvest, it is capable under science, of contributing to culture. That land is a community is the basic concept of ecology, but that land is to be loved and respected is an extension of ethics.

Finally the slogan "A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise" (Leopold, 1949). Leopold's powerful formulation of the imperative necessity of our moral perspective from the limitations of anthropocentric focuses on personal and interpersonal duties and obligations, towards enlarged moral conception. He has tried to open a new subject which will deal with the relation between man and nature and he called it "Land Ethics", issue of 'Environmental Ethics'.

We could consider environmental ethics as an applied ethics. But then what would be its foundational principles? Would they be Kantian or utilitarian? The deep ecologists say that both the frameworks, as well as other frameworks of traditional ethics are all anthropocentric whereas as ecologist requires an ecocentric framework. Now it may be question where environmental ethics will be fitted. May we find out environmental ethics in the monistic framework? The monistic framework is anthropocentric. So there is no hope for environmental ethics in it. We may find environmental ethics in the pluralistic framework. "If only one theory cannot account for the variety of things and situations around us our next alternative is moral pluralism." Though it is difficult to find out environmental ethics in this framework but we can place it in this framework, we can think of the possibility of environmental ethics. And in this way we can give a short description about environmental ethics.

Environmental ethics deals with the behaviour of human beings towards nature. It has an important role to protect the nature. Environmental pollution including industrial pollution should be controlled to preserve the nature.