Beleaguered Biodiversity

by Md. Asadullah Khan

Experience has turned our apparent concern into what we may call now a disaster. Destruction of forests can have disastrous consequences on our economy and society. Forests are vital watersheds that absorb excess moisture and anchor topsoil. Deforestation contributed to the recent droughts in many parts of the world including Africa, Asia, Europe and North America. And when rains came even in torrential form the parched land could not absorb it and caused inundation of the plains. Halting the assault on bio-diversity will not be easy but we must initiate some actions.

AROUND the world bio-diversity, defined as the full variety and variability of life from genes to species to ecosystems, is in trouble. Small wonder, it is the source for much of the food, medicines and industrial products that humans use and it is disappearing at an alarming rate. The heady face of economic growth fuelled by rapid industrialisation coupled with hurried urbanisation that take people away from traditional employment in rural areas to a state of social and environmental stress has contributed to the degradation of natural resources. But these natural resources are in many ways the foundation of a society and its economy. Shockingly, political economy in many countries emphasises discounting the future value of human development, natural resources and ecological processes in exchange for shorter-term economic development.

Around the globe, on land and in the sea the story is much the same. Spurred by poverty, population growth, ill-advised policies and simple greed, humanity is at war with the plants and animals that share this planet. Mere greed has turned part of East Asia into a disaster area that has hardly any parallel. Every year fire from manmade forest fire in Indonesia envelops parts of Malaysia and Singapore in a cloud of gas and ash. Indonesian government lay most of the blame on 176 companies, mostly plantation and timber interests, for lighting fires to clear land or burn off waste on logged sites. Aggravated by a prolonged drought linked to El Nino, the "hotspots" are spreading from Malaysia, Indonesia and Thailand to India and Bangladesh. Along with this industrial pollution and car exhausts have added to the miasma that plagued the urban areas. The potent mix of carbon dioxide, carbon monoxide, sulphur dioxide, nitrogen dioxide and ash has rendered the air nearly opaque in regions from Malaysia to Bangladesh. This is just a recent example as to how nature's bio-diversity is being destroyed by agents no other than humans simply out of greed. Director of the Missouri Botanical garden predicts that if things are allowed to go on like this, during the next three decades man will drive an average of 100 species to extinction every day. Extinction, believably is part of evolution but the present rate is at least 1000 times the pace that has prevailed since pre-history. Experts like Harvard Biologist E. O. Wilson believes that even the mass extinction 65. million years ago that killed off the dinosaurs and countless other species did not significantly affect flowering plants. But these plant species are disappearing now through greed and population pressure and people not comets or volcanoes are the angels of destruction. Who knows how many valuable plant species like willow, many of them till now unexplored have been extinct for good?

Unfortunately, the earth is suffering the decline of entire ecosystems -- the nurseries of life forms. Reports have it that in Bambey, a place 100 km from Dakar (Senegal), the landscape runs on endlessly, broken by nothing more than a few stunted trees buried under the dust. The soil has lost its protective cover and lies exposed to the relentless forces of wind and sun. As reports have been gleaned, nearly every habitat is at risk. Forests in all parts of the world have fallen to lumbering, development and acid rain. Marine ecosystems around the world are threatened by pollution, overfishing and coastal development. The last best hope to preserve the bio-diversity remains in the tropics. Tropical forests cover only seven per cent of the earth's surface but they house between 50 and 80 per cent of the planet's species.

Even developed countries can't afford to dismiss the growing concern about this planet earth's future or so to say their own countries' environmental woes. It has been stressed time and again that variety is the spice of life or more truly it is the very stuff of life. Life needs diversity because of the interdependencies that link flora and fauna and because variation within species allows them to adapt to environmental challenges. But ironically, as the world's population explodes, other life forms continue to go extinct. And surely humans are indulging in a risky game. Many of us are mistakenly prone to believe that we don't need the great variety of earth's species to survive.

With the alarm bells ringing, governments in many countries have turned their attention to high profile animals like tigers, elephants and rhinos while most people hardly see the point of worrying about insects or plants. These are on the verge of extinction. And extinction is a sort of environmental calamity that is irreversible. As these low species go extinct, they take away with them survival mechanism of other species. Records so far catalogued reveal that only about 1.7 million of the estimated 5 million to 30 million different life forms have been specified. The world has neither the scientists nor money nor time to identify the yet unexplored and uncounted. "It is as though the nations of the world decided to burn their libraries without bothering to see what is in them," said University of Pennsylvania biologist Daniel Janzen. Harvard's Wilson called this profligacy the "folly" that future generations are not likely to forgive.

Humanity has already benefited greatly from the little known species. Some 25 per cent of the pharmaceuticals in use in the US today contain ingredients originally derived from wild plants. Hidden anonymously in clumps of vegetation, ready to be bulldozed or burned might be plants with cures for still unconquered diseases like AIDS and cancers. So said Janzen, "I know of three plants with the potential to treat AIDS. One grows in an Australian rain forest, one in Panama and one in Costa Rica."

In addition to creating a habitable environment, wild species are the source of products that help sustain our lives. Not the least of these amenities is pharmaceuticals. More than 40 per cent of all prescriptions dispensed by pharmacies in the U.S. are substances originally extracted from plants, animals, fungi and micro-organisms. Aspirin, for example, the most widely used medicine in the world was derived from salicylic acid, which in turn was discovered in a species of meadowsweet.

With the advent of genetic mapping and engineering, nature's diversity has offered many opportunities to agriculture, especially to biotechnology firms the potent power to improve crops by transferring genes to wild strains. The most visible results are drought and frost-resistant crops, natural fertilisers and pesticides.

Diversity is the raw material of earth's wealth, but nature's true creativity lies in the relationships that link various creatures. The coral in a reef or the orchid in a rainforest is a part of the ecosystems that supports as well as offer checks and balances integrating life forms into functioning communities. Given the complex workings of the ecosystems, it is never clear which species, if any, are expendable. Biologists have identified numerous "hotspots" where ecosystems are under attack and surely a large number of unique species face an immediate threat of extinction. These troubled areas include Madagascar where 90 per cent of the original vegetation has disappeared; the monsoon forests of Himalayan foothills that include Nepal, India and Bangladesh that are being denuded by villagers in search of fire wood, building materials and arable land, as well as forests of East Africa, Peninsular Malaysia, Indonesia along with the Atlantic coast of Brazil and Mexico.

Since five per cent of the world's tropical forests receive any protection, the stage is set for mass extinction. Some researchers estimate that at least 12 per cent of the bird species in the Amazon basin, as well as 15 per cent of the plants in the central and South America can be counted as "living dead." Many tropical mammals and reptiles face bleak survival in a situation of house arrest in game parks and zoos. Precisely, about 95 per cent of the species that have existed over the past 600 million years are gone. Biologist now point to thousands of species of plants and smaller animals either recently extinct or on the brink. The rarest bird in the world is Spix's macaw, down to one or two individuals in the palm and river - - edge forests of central-Brazil. The rarest plant is Cooke's Kokio of Hawaii, a small tree with profuse orange-red flowers that once graced the dry volcanic slopes of Molokai. Throughout the world, 976 tree species, for example are classified as critically endangered. The animal species facing total extinction are Javan rhinoceros, Philippine eagle Hawaiian Crow, Chinese river dolphin, giant panda, Sumatran rhinoceros and mountain gorilla.

Researchers grimly point out that our descendants would inherit a biologically impoverished and homogenised world. Not only would there be many fewer life forms, but also faunas and floras would look much the same over large parts of the world, with disaster species such as fire ants and house mice widely spread. Humanity would then have to wait millions of years for natural revolution to replace what was lost in a single century. In the long run, the quenching of life's exuberance will be more consequential to humanity than all of present-day global warming, ozone depletion and pollution combined. As it is catalogued now, humanity's food supply comes from a dangerously narrow sliver of bio-diversity. Throughout history, people have cultivated or gathered 7,000 plant species for food. Today only 20 species provide 90 per cent of the world's food and three -- maize, wheat and rice -- supply more than half. Tens of thousands of species of the world's still surviving flora can be bred or provides genes to increase production in deserts, saline flats and other marginal habitats.

Natural pharmaceuticals offered by bio-diversity are also under-utilised. Only a few hundred wild species have served to stock our antibiotics, anticancer agents, painkillers and blood thinners. The biochemistry of the vast majority, millions of other species are unfathomed reservoir of new and potentially more effective substances. The reason is to be found in the principles of evolutionary biology. Caught in an endless arms race, these species have devised myriad ways to combat microbes and cancer-causing runaway cells. We have scarcely begun to consult them for the experience stored in their genes.

Leaving aside other utilities, on ethical consideration more and more leaders of science and religion now pose this question: Who are we to destroy or even diminish bio-diversity and thus the creation? Looking more closely at nature, it would become evident that every species is a masterpiece, exquisitely adapted to the particular environment in which it has survived for thousands to millions of years.

The profligacy of the 20th century has led humanity into a bottleneck of overpopulation and shrinking natural resources. Through this bottleneck humanity and the rest of life must now pass. By the end of the new century, if we are both lucky and wise, we will exist in better shape than we entered with the population peaked around eight billion or less and a gradual decline begun. One of the defining goals of the century must also be to settle humanity down before we wreck the planet. And we have to be concerned about the current spasm of extinction, which has been accelerated by the inexorable expansion of agriculture and industry. Nobody can deny now that the wellbeing of the human race is tied to the wellbeing of many other species and we can't be sure which species are most important to our own survival.

But dealing with the extinction crisis is no simple matter, since much of the world's bio-diversity resides in its poorest nations, especially in Asia, Africa and Latin America. These countries can't think of spending large sums of money to save some species -- be it elephant or an orchid -- in a nation in which a sizeable percentage of the people are living below the poverty line. In a situation like this, the question about promoting wildlife in impoverished nations is something unthinkable. Still, we can and should do a great deal. Governments in developed countries can think about offering development aid and to give local people economic alternatives to cutting forests and ploughing over the land. But shockingly true, that kind of funding is difficult to come by. People in poor countries should not be asked to choose between their own short-term survival and longerterm environmental needs. Since protecting the environment is such a paramount necessity, the money should come from the international sources. And on that consideration the choice is clear. Either the more affluent world helps now, or the world as a whole will lose out. What is needed now is a permanent global endowment devoted to wildlife protection, funded primarily by the government of the industrial nations and international aid agencies. This should be borne in mind that because of dilly-dallying and haphazard actions and handouts that have almost gone to waste, many of the planet's natural habitats are gone forever, but many others can be saved and in time restored.

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a. Squibb, a pharmaceutical company of repute used the venom of the Brazilian pit viper to develop "Capoten," a drug for high blood pressure.

b. By transplanting genes from tropical tomatoes, the NPI biotech firm increased the density of US tomatoes two per cent, promising catsup manufacturers extra profits.

c. Scientists believe that arcelin, a natural protein in wild Mexican beans that repels insects, might protect some US crops without poisoning soil and water.

d. Future newspapers may be printed on paper from kenaf, an African plant that can produce five times as much pulp an acre than the trees normally cut for newsprint.

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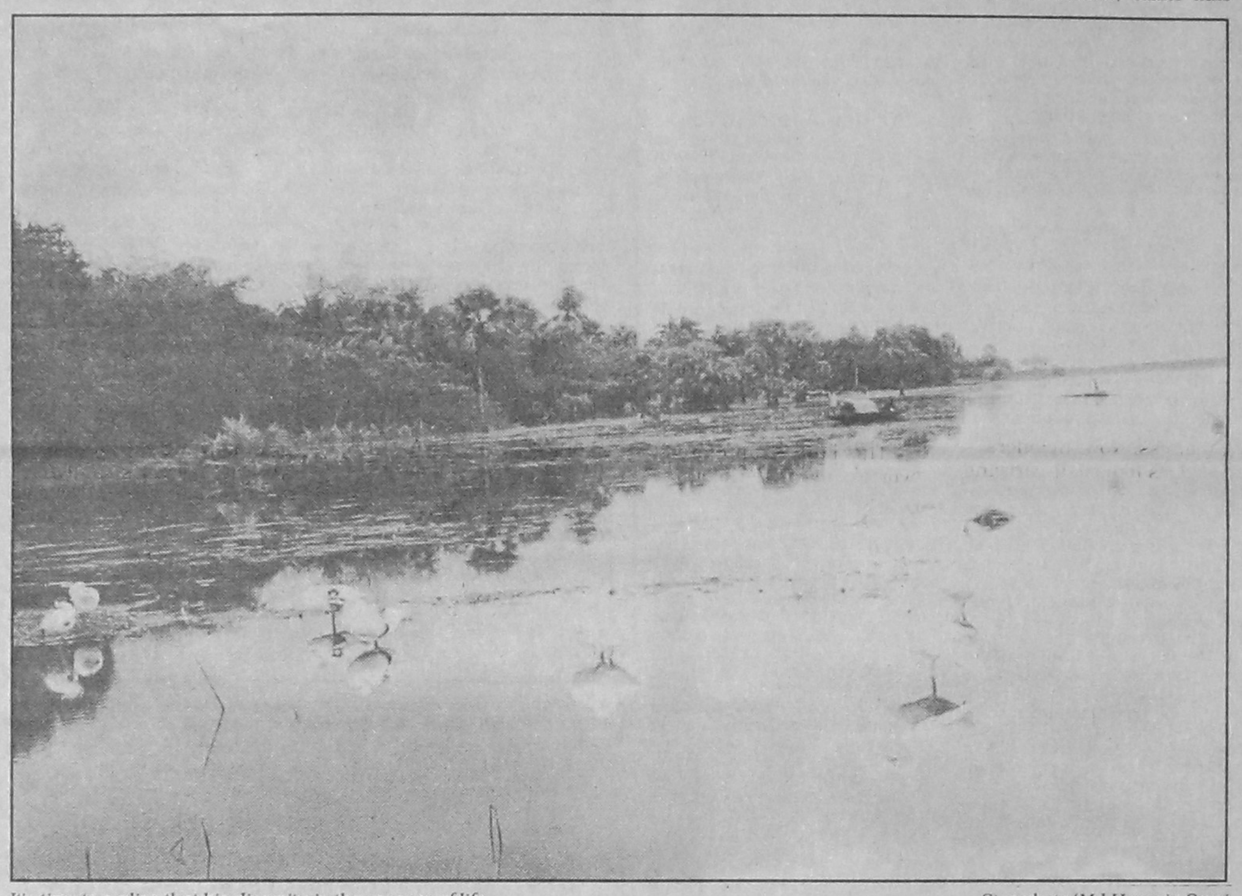

It's time to realise that bio-diversity is the essence of life --Star photo/Md Hossain Seraj

Too little on the plate for the world's hungry

Despite grand commitments to combat hunger, almost one in eight people in the world is not getting enough to eat to live healthy, productive lives. New UN figures have sparked a fresh round of debate on who or what is to blame for hunger. **Doug Alexander** of Gemini News Service listens in on one aspect of the debate: on globalisation of agriculture.

DESPITE grand commitments to combat hunger, almost one in eight people in the world is not getting enough to eat to live healthy, productive lives. New UN figures have sparked a fresh round of debate on who or what is to blame for hunger. Doug Alexander of Gemini News Service listens in on one aspect of the debate: on globalisation of agriculture.

IN today's world, 826 million people are hungry -- 792 million in 98 developing countries and 34 million in the West don't get enough food to lead normal, healthy lives.

And despite a global pledge to cut the number of undernourished in the world by half by 2015, the United Nation's Food and Agriculture Organisation (FAO) now claims the world is nowhere near this goal.

"More needs to be done to accelerate progress in the fight against hunger," says FAO assistant director-general Hartwig de Haen. "The speed by which we saw reduction of the hungry in the second half of the 1990s was not fast enough to reach the target."

The problem is not lack of food: everyone, including de Haen, agrees that there is enough food in the world to feed every man, woman and child. It is about access to food, and some argue that a growing trend toward economic globalisation -- especially in agriculture -- is to blame for a lack of progress in fighting global hunger.

De Haen argues that other factors -- 'low food supply', natural calamities, economic woes and conflict -- have had a greater impact during 1996-98, the latest years for which hunger data is available.

The FAO's newly-released The State of Food Insecurity in the World shows that there has been no improvement in the fight against hunger.

FAO estimates that the world's hungry must be reduced by 20 million a year for the next 15 years in order to reach the target set by world leaders at the 1996 World Food Summit in Rome. The actual rate of decline has been slightly less than eight million people a year since the early 1990s.

Some regions are doing better than others: South and East Asia are on track, while Sub-Saharan Africa remains far from the 2015 target. Latin America falls somewhere in between.

This year's report examines how hungry the hungry are by measuring the depth of hunger with 'food-deficit' -- how many fewer calories the hungry are getting compared to a well-nourished person.

On an average, a person needs 1,800 to 2,100 kilocalories a day to stay healthy.

In terms of sheer numbers, Asia and the Pacific have more chronically hungry people, but Sub-Sahara Africa has the greatest depth of hunger. In nearly half of these African countries, the undernourished are getting 300 kilocalories less than what they need to be healthy. In Asia and the Pacific, 16 per cent of countries suffer this level of undernourishment.

Despite the bleak figures, FAO believes world hunger can be halved by 2015.

"We do not think the goal is too optimistic," says de Haen. "We are realistic that it can happen but deliberate efforts need to be taken."

FAO advocates four measures to fight hunger: reducing conflict; boosting economic growth; establishing a social net for the poor; and improving agricultural production.

But not everyone supports such suggestions.

Tim Lang, professor and food expert at London's Thames Valley University, believes FAO is pursuing the wrong strategy to fight world hunger.

"At the end of the 20th century it was clear that for the last half century in which the FAO was around the world adopted a productionist, high-tech investment strategy to solving hunger," Lang says.

"Without a doubt this had important successes, such as increased cash flow and increased production, but it has done this at immense social costs: driving people from the land, externalising costs of efficient production, destruction of environment ... it has done it by waste."

Lang says the FAO is "in love with" big agriculture, big business, large-scale food production and a high-tech investment strategy. What is needed, he says, is a "bottom-up, community-led agriculture" approach.

The UK-based International Society for Ecology and Culture, a non-profit organisation working on 'locally-based solution' to global problems, blames hunger on globalisation -- and economic changes sweeping through the world's agricultural sector.

"The majority of the people in the so-called Third World are in agriculture, living on the land," ISEC director Helena Norberg-Hodge says. "Economic policies that destroy their livelihoods and offer them no substitute are the main culprit behind hunger."

She says local farmers are being drawn away from growing food for local needs by producing commodities for export -- putting their livelihoods at the mercy of international markets. Such 'cash crops' include tobacco, rubber, tea, coffee, cocoa and flowers.

"The imposition of trade policies worldwide is forcing farmers to grow larger and more specialised crops in order to survive ... it's merge or die," Norberg-Hodge says. "But millions of farmers in the Third World are small farmers, they are not able to compete."

ISEC notes that while threats to food security once came chiefly from natural circumstances -- crop failures due to drought or an unexpected frost, for instance -- farmers hooked into the global food system today continue to face those same risks plus many others of a purely economic nature.

Norberg-Hodge rejects FAO's suggestions, especially anything involving boosting agricultural production. "This is saying we must turn food into a commodity rather than having real food for real people," she says.

FAO's de Haen admits that although it is too early to estimate the impacts of liberalisation of agricultural markets on the world's hungry, some trends are emerging. He says trade liberalisation has meant a tendency for slightly higher import bills for a number of developing countries, which translates into higher prices for food and commodities.

"In general, this may impact on the poor in that they are the buyers in the market," de Haen says. When the poor can no longer afford to buy food they need -- and none is grown locally because farmers have switched to more lucrative cash crops -- hunger is the result. -- GEMINI NEWS

The author is a Canadian journalist.

Asia

Home to endangered species

by Henrylito D. Tacio

ASIA has been listed in a recent report released by the World Conservation Union (IUCN) as among those having the most number of endangered and threatened species.

For instance, freshwater turtles in the region heavily exploited for food and medicinal use in the region went from 10 to 24 critically endangered species since the last assessment in 1996.

Indonesia, India, and China are among the Asian countries with the most threatened mammals and birds, while plant species are declining rapidly in Southeast Asia.

Declining species are reported in almost all parts of the globe. "The fact that the number of critically endangered species has increased mammals from 169 to 180; birds from 168 to 182, was a jolting surprise, even to those already familiar with today's increasing threats to biodiversity. These findings should be taken very seriously by the global community," says Maritta von Bieberstein Koch-Weser, IUCN's Director General.

The report is aptly titled 2000 IUCN Red List of Threatened Species. For the list system, scientific criteria were used to classify species into one of eight categories: extinct, extinct in the wild, critically endangered, endangered, vulnerable, lower risk, data deficient and not evaluated. A species is classified as threatened if it falls in the critically endangered, endangered or vulnerable categories.

"The Red List is solid documentation of the global extinction crisis, and it reveals just the tip of the iceberg," says Russell A Mittermeier, President of Conservation International and Chair of IUCN's Primate Specialist Group. "Many wonderful creatures will be lost in the first few decades of the 21st century unless we greatly increase levels of support, involvement and commitment to conservation."

Human and financial resources must be mobilised at between 10 and 100 times the current level to address this crisis, the Red List analysis report says. IUCN should join forces with a wide range of partners, continue to develop strong relationships with governments and local communities, and engage the private sector at a new level, it adds.

According to the IUCN report, doves, parrots and perching birds (passerines), especially those species in Southeast Asia, have also shown marked increases in threatened species due to the vast deforestation in countries such as the Philippines.

The report noted that the rapidly deteriorating status of tortoises and freshwater turtles in Southeast Asia is due to heavy exploitation for food and medicinal use. Hunting of those species is unregulated and unmanaged, and the harvest levels are far too high for the species to sustain.

"As populations disappear in Southeast Asia, there are disturbing signs that this trade is increasingly shifting to the Indian Subcontinent, and further to the Americas and Africa," the report warned.

Other Asian species, such as snakes and salamanders, are also heavily exploited for use in traditional Chinese medicine, but the effects of this and other pressures on most of these species have not yet been assessed.

Indonesia has more threatened mammals than anywhere in Asia: 135 species. India (80 species) has moved ahead of China (72 species) and Thailand (32 species). The United States has 29 threatened species.

The Philippines has been identified as one of the world's "biodiversity hotspots." After all, the Pearl of the Orient Seas has already lost 97 percent of its original vegetation and has more critically endangered birds than any other country.

The report says threatened birds are concentrated in tropical Central and South America, and Southeast Asia. In the latter, Indonesia has the most threatened birds (115), followed by China (76), then India (74).

Malaysia has by far the most threatened plant species 681 of which a large proportion are tropical timber trees. Indonesia and Sri Lanka follow with 384 and 280 threatened species, respectively.

Human activities have been cited as the primary culprit of the rapid disappearance of the world's biological diversity. Exploitation, including hunting, collecting, fisheries and fisheries by-catch, and the impacts of trade in species and species' parts, constitutes a major threat for birds (37 percent of all), mammals (34 percent of all), plants (8 per cent of those assessed), reptiles and marine fishes.

The IUCN data show that 338 threatened bird species (28 percent of all) 212 mammals (29 percent of all), and 169 plants (7 per cent of all) are impacted by hunting and collecting. Trade affects 13 per cent of both threatened birds and mammals.

(DEPTHnews)