

Sustainable Development Asia Pacific

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From the Editor's Desk

Dear readers,

With the World Environment Day being celebrated this month, (this year's theme, as you know, is *Melting Ice - A Hot Topic?*), and climate change being discussed all over the world following the IPCC report, we have made Climate Change the theme of this issue. Consequently, you will find that some of our regular columns have been omitted in order to accommodate the theme related items.

As usual we look forward to your feedback on the issue. And please post your opinions on the sustainability topic which is being debated on www.knowledgeforsustainability.org. Do remember to circulate this newsletter to all your contacts or send us the email ids of those who might be interested in being on our mailing list.

Happy reading!
The Editorial Team

Readers' Write

Excellent work; Congratulations!

Indeed you are well ahead of time with your APNN Hope in future, Pacific Islands ESD News and articles also will receive some coverage in the issues. I'll circulate the NL to all my contacts in the Pacific. *Kanayathu Koshy, PACE-SD, University of South Pacific*

Thanks a lot for sending the APNN. Further, it is a good move to start a forum for sharing sustainability issues. We will actively participate in the process.

Dr. K.C. Veeranna, Animal and Sciences University, Bidar, Karnataka, India

Congratulations on the launching of such an informative and refreshing newsletter, with such a good expose of the Asia Pacific perspectives. I shall share the newsletter with fellow scientists at our University. *Dr. Sulaiman Yassin, Malaysian University*

Centre for Environment Education (CEE) was established in 1984 as a Centre of Excellence in Environmental Education, supported by the Ministry of Environment and Forests (MoEF), Government of India. CEE today is an internationally reputed organisation engaged in conservation and sustainability education. CEE has been awarded the Indira Gandhi Paryavaran Puraskar for excellence in environmental education and, more recently, the Global Award for Outstanding Service to Environmental Education by the North American Association for Environmental Education (NAAEE).

CEE is hosting the 4th International Conference on Environmental Education (Tbilisi plus 30) during 26-28 November 2007 in Ahmedabad, India. For more details, log on to <http://www.tbilisiplus30.org/index.htm>



Guest Article**Climate Change and the People****Prof. S. K. Dash****Centre for Atmospheric Sciences
Indian Institute of Technology, Delhi, India**

In the earlier days people were living in harmony with the ecosystem surrounding them. They were less in number, their needs were reasonable and hence the demands from Nature were within limits. Everybody was taking care of the environment around him so much so that in some societies like India it has become a tradition to worship trees, rivers, mountains and several other such elements of Nature. Humankind, being the superior race on the earth, has the ability to think for the 'new and better' and this thinking power has brought about tremendous progress in science and technology. In due course, several technological gadgets have been invented for the safety, comforts and luxury of the masses and hence the people have forgotten the style of harmonious living with Nature. Their ever growing needs have put a tremendous stress on the environment leading to exploitation of Nature. This has ultimately created an imbalance against the climate system consisting of the earth, atmosphere and ocean. The continuous flow of news about the alarming changes in the climate system in different parts of the world and the concern of the scientists expressed through the reports of the Inter-governmental Panel on Climate Change (IPCC) and several other scientific publications today, raise a vital question on our life style and our unreasonable consumption of energy in the name of growth.

There are a number of evidences for the climate becoming warmer at different places on the surface of the earth. The melting of the North Pole ice-cap, the collapsing of the Antarctic ice shelves, the retreating of the Siachen glacier, the flooding of the Himalayan lakes, the bleaching of the Great Barrier Reef in Australia, the ozone hole and, in the recent past, the discovery of the Asian Brown Cloud are the most widely discussed topics now-a-days. In India too, there are enough evidences of climate change and environmental degradation. Less frequent snow fall in Shimla, the ablation of snow in Himachal Pradesh, prolonged fogs and cold waves in north India, intense rain storms and tropical cyclones, sea level rise, degradation of mangrove wetlands, deforestation and desertification are matters of concern for all of us. In addition, issues of environmental pollution such as that of air and water, presence of pesticides in food materials, coastal pollution and industrial and urban wastes also create apprehension in our minds about the future of the environment.

We have accepted the concept of industrial growth with simultaneous environmental degradation as the only path to march ahead with prosperity. Two centuries ago, when the industrial revolution began, the situation was different. Then, nobody had visualized the magnitude of its growth and the consequent adverse impacts on the climate system. Now that there are definite signatures of negative impacts of the large-scale use of fossil fuels, deforestation, faulty practices of land use and environmental degradation, it is time to question the whole concept of industrial growth we have been adopting so far. Being the most intelligent living being on this earth, we have conquered the space, changed the whole scenario of communication technology, invented many new medicines/therapies to cure deadly diseases and brought about revolutionary developments in biotechnology. With such an immense power within us, it is not difficult to follow the concept of development with simultaneous environmental conservation. What we need is collective wisdom, cutting across nations and political thoughts.

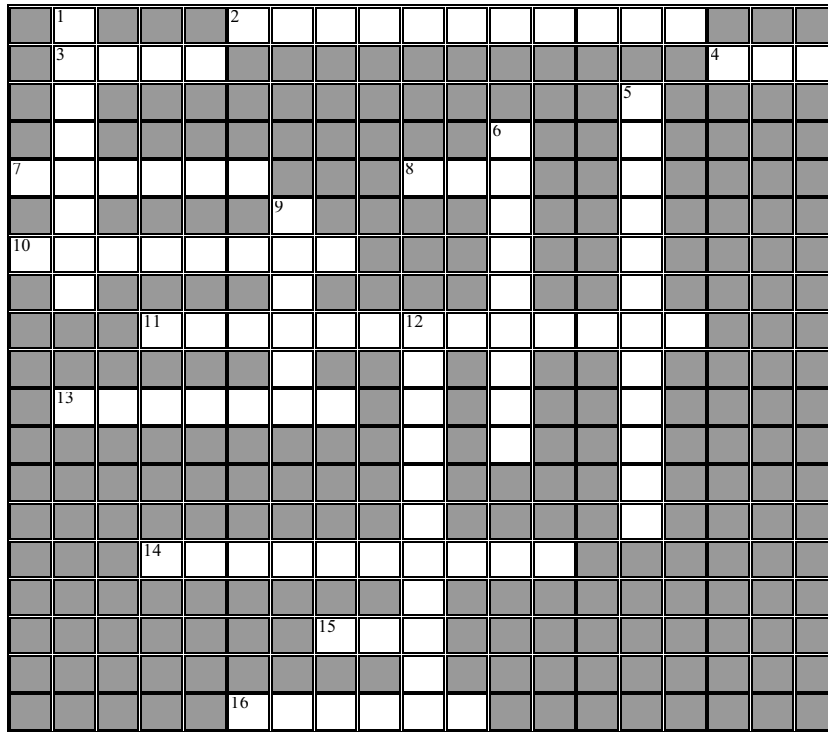
The whole issue of climate change occurring due to human activities can be looked at from two broad angles: emissions of Greenhouse Gases (GHGs) and irreversible damages to the environment. The global warming occurs due to the excessive release of GHGs into the atmosphere. Primarily, carbon dioxide (CO₂), which is released in excess due to the use of fossil fuels as the main source of energy for industrial growth, is the culprit. In the current framework of industrialisation, reducing emissions of GHGs adversely affects the growth of a nation and hence is a matter of global politics. This problem can only be handled through global negotiations. The use of energy other than fossil fuels and the development of clean technology are the most important steps for abating emissions of GHGs without worrying about growth. The national governments across the world should formulate policies so as to encourage industrialists to invest in research and development of bio-fuels, solar energy, hydropower, wind energy, geothermal energy, gasification of coal, hydrogen energy, etc. In addition to these fuel sources, significant switch-over to nuclear energy will be a giant step towards clean power. Besides, transfer of clean technology from developed countries to less developed countries through technology partnerships should be encouraged.

It may be noted that climate is also affected by the over-exploitation of Nature. The pressure on the climate system due to improper land use, deforestation, destruction of the ecosystems and environmental pollutions also causes changes at the regional level. Negative feedback processes, in due course, affect the global climate in the long run. This second category of adverse impacts on the climate system is equally dangerous, since the recovery procedure may take much more time. Also the corrective majors for the environmental damages are more complicated than those for the GHG abatement. Issues related to environmental degradation are local and for their remedies, the direct involvement of the people is very essential. Large-scale mass movements are necessary to tackle the issues related to this second cause of climate change. No government alone can solve the problem by formulating laws. Realisation of the people about the seriousness of the issues related to our survival and their willingness to contribute at the individual level for the betterment of the environment are the real issues.

Efficient use of energy and energy management should be given utmost priority at all levels. Every individual has a role to play in the adequate but careful consumption of energy. Individuals have an equally important role in sustaining forests, adopting efficient agricultural practices, conserving water and biodiversity, and using land traditionally.

It is well known that the study of climate change is full of uncertainties. There are uncertainties in the assessment of the magnitudes of climate change at different places and also uncertainties in the climate scenarios generated by various mathematical models. There are also disagreements on whether the current climate changes are natural or due to human activities. In such a situation, the formulation of a mitigation strategy is extremely difficult and may be meaningless. It is, therefore, essential to assess the uncertainties in the magnitude of climate change at different places and then adopt a systemic approach to the solution of climate change problems using regional models. Instead of creating hype about the whole issue of climate change and politicising it, there should be attempts to educate the people properly and instill in them the concept of development with simultaneous environmental conservation. The role of the people is vital in formulating an effective interface between science and policy so as to maintain the health of the climate system.

Prof. S. K. Dash has authored the book **Climate Change: An Indian Perspective**, which will be published by CEE under its Environment & Development (E&D) book series. Prof. Dash is a member of several international bodies like the Royal Meteorological Society, the National Academy of Sciences (India) and the American Meteorological Society. He can be contacted at skdash@cas.iitd.ac.in

**Across**

2. A greenhouse gas (5,6)
 3. A panel set up by the United Nations in 1988 to review scientific information on climate change (4)
 4. The abbreviation for the principle that countries should in some way compensate others for the effects of pollution that they (or their citizens) have generated (3)
 7. A situation in which emissions (of a country/sector/company) are well below a target due to the target being above emissions that materialised under the normal course of events (3,3)
 8. Goes with your drink; is part of the theme for World Environment Day 2007 (3)
 10. Solid or liquid particles dispersed in the air, including dust, soot, microorganisms, etc.; considered air pollutants (8)
 11. The long-term removal of trees from an area because of changes in land use (13)
 13. Glacier lying in the extreme north-central part of Jammu & Kashmir, stretching over

almost 72 km (7)

14. The layer of permanently frozen ground that underlies nearly half of Canada (10)
 15. This country invented emissions trading, which has become a key concept in reducing greenhouse gases worldwide (3)
 16. The fraction of solar energy (shortwave radiation) reflected from the earth's surface back into space (6)

Down

1. The most abundant gas in our atmosphere (8)
 5. Cells, usually made of specially-treated silicon, that convert solar energy from the sun to electrical energy (12)
 6. Energy that comes from sources that have an unlimited supply, such as sun, wind and falling water (9)
 9. Man behind the truth not so convenient (2, 4)
 12. One of the greenest countries, contributes 70 per cent less GHG emissions than America (11)

(Answers on page 13)

Feature Article

The Kyoto Protocol and India's Stand

Malavika Adnur

As the world warms up to the inconvenient fact that there will be widespread rise in temperatures and, consequently, changes in the climate systems across the globe, concerted efforts are underway to find ways of reducing the destruction that these changes will entail. This change is not just about rising average temperatures but the negative implications it will have on the food production, water supply, health, energy, biodiversity and all other aspects of life across the globe. The UN Intergovernmental Panel on Climate Change (IPCC) has in its recent report stated that global warming was "unequivocal" and caused by human activity. Therefore, mitigating the effects of global climate change is now the responsibility of every country that has attained some degree of industrial and infrastructural development, whether or not it is expected to cut its greenhouse gas (GHG) emissions under the Kyoto Protocol, a treaty brought out by the United Nations Framework Convention on Climate Change (UNFCCC).

Although the UNFCCC came in to force in 1994 and the Kyoto Protocol, which has more legally binding measures, was brought out a decade ago in 1997, the latter came into effect only in 2005 when Russia ratified it making the total GHG (green house gas) emissions of the countries party to the Protocol, a requisite 55% of all the emissions. The countries that ratify the protocol are categorised into Annex I and Non-Annex I countries depending on the degree of development that the country enjoys. Developed countries fall into the former and the developing and the transition countries including India and China fall into the second list. The Annex I countries are expected to reduce their GHG emissions by 5% below the 1990 levels during the first phase of the protocol from 2008 to 2012 and the Non-Annex I countries do not have this obligation.

While till date there are 171 countries as party to the protocol, the biggest polluter, the United States of America, which accounts for about 25% of the total GHG emissions, withdrew its commitment in 2001. The US's stand has faced plenty of criticism from the developing world. The general feeling is that the US's insistence that India and China ought to have caps on their emissions, however, is nothing but an excuse to shrug off responsibility for the damage its emissions have caused, since caps on GHG emissions translate into speed-breakers for any economy that aspires to grow.

News

The Village That Was Swallowed by the Sea

A small coastal village called Khun Samutchine to the south of the Thai capital Bangkok, is facing a daily battle with the sea: the sea comes in at a rate of approximately 25 metres a year, causing a loss of nearly 600 km of Thailand's coastline. The average height of the waves have increased from one to 1.5 metres to two and four metres high; and the sea is rougher during monsoon.

Several institutions (like health centre, school and temple) and equipment of this village have been lost due to the encroachment of the sea. The households in the community have had to abandon or move their houses further and further inland.

Dr. Thanawat, a scientist from Bangkok's Chulalongkorn University, has initiated a project to save the community by building large concrete structures five hundred metres out into the sea to break the power of the waves, as part of a case study. The power breakers have reduced the energy of the waves by up to 50 per cent. The government has yet to approve their use across all affected areas.

Meanwhile the future life for the people of Khun Samutchine, as a coastal community, remains in jeopardy.

Source: <http://news.bbc.co.uk/2/hi/asia-pacific/6683865.stm>

The Indian Prime Minister, Dr. Manmohan Singh, told a conference earlier this year, "The principal polluters are the United States and the countries of western Europe. [Their] per capita emissions are far ahead [of India and China]. You cannot preserve energy by perpetuating poverty in the poor nations." India's emissions are a mere 1.1 tonnes of CO₂ per person compared to 20.2 tonnes per person in the US. Even UK's per capita emission is less than half of that of the US. It is true that both India and China are potentially the biggest emitters of GHGs of the future due to the sheer size of their populations, which put together is 2.4 billion, even though the per capita emissions are a fraction of that of the US. For now, however, they do stand to benefit from the transfer of technology and foreign investment that the Kyoto protocol has made room for in its Clean Development Mechanism.

India's accession to the protocol however, speaks of its interest and pro-active stance in mitigating the effects of climate change even if it has not till now contributed significantly to it. Additionally it is a partner in the Asia-Pacific Partnership on Clean Development and Climate, which is considered to be a complimentary treaty to the Kyoto Protocol, and has Australia, China, India, Japan, the Republic of Korea, and the United States as its partners. This partnership aims to meet goals in energy security, national air pollution reduction, and climate change in ways that promote sustainable economic growth and poverty reduction. The partnership will focus on expanding investment and trade in cleaner energy technologies, goods and services in key market sectors. The partners have decided on eight public-private sector taskforces, viz.

1. Aluminium
2. Buildings and Appliances
3. Cement
4. Cleaner Use of Fossil Energy
5. Coal Mining
6. Power Generation and Transmission
7. Renewable Energy and Distributed Generation
8. Steel

India has been wise to take such steps to deal with it since, along with other developing countries, India is most vulnerable to the effects of climate change simply because they are not equipped to adapt to the effects of the same. Developing countries like India lack the infrastructural and financial strength to adjust to large-scale climatic changes that would affect agriculture and the natural systems.

News

US Seeks Revision of G8 Climate Change Text

According to documents seen by BBC, the US is trying to block sections of a draft agreement on climate change prepared for the G8 summit in June.

Washington objects to the draft's targets to keep the global temperature rise below 2C this century and halve greenhouse gas emissions by 2050. The US has proposed revisions like striking out a clause saying "climate change is speeding up and will seriously damage our common natural environment and severely weaken (the) global economy... resolute action is urgently needed in order to reduce global greenhouse gas emissions", and a statement that "we are deeply concerned about the latest findings confirmed by the Intergovernmental Panel on Climate Change (IPCC)".

A spokeswoman for the White House Council on Environmental Quality, in response, commented that "...we are working with our G8 partners as well as developing nations to identify the promising new technologies that will help the whole world address the long term challenges of climate change."

The European Union, which includes half of the G8 members, has already adopted commitments to aim for a global temperature rise of less than 2C, and to reduce greenhouse gas emissions by 20% from 1990 levels by 2020. Japan is also keen to push fellow G8 members for tough targets.

Source:

[Http://news.bbc.co.uk/2/hi/science/nature/6651295.stm](http://news.bbc.co.uk/2/hi/science/nature/6651295.stm)

Extreme events predicted include floods, soil moisture deficits, tropical and other storms, anomalous temperatures and fires. The impact of extreme events often are large locally and could strongly affect specific sectors and regions. Increasing food security, reducing freshwater scarcity, protecting the livelihoods of forest dwellers, dry land farmers and coastal settlements and reducing health risks are some of the measures that need to be taken and would require enormous funds. In this context, when India is already in a disadvantaged position, it cannot compromise on the economic growth or the well being of its people and industry when it is just gearing up to match that of the developed countries.

The Chairman of the UN IPCC, Dr. Rajendra Pachauri recognises this: "(But) we cannot ask developing countries like India and China to bear all of this burden. Both have a point when they say that all the carbon dioxide was emitted in the process of the west becoming industrialised, especially by the United States." He said the only reasonable solution was to cut emissions of GHGs gradually, while attempting to find new, low-carbon, energy sources, such as wind, solar, water and nuclear power. "Instead, we will find that people in the west will have to change their behaviour and conserve energy, use less power, perhaps wear warmer clothes in cold winters rather than turning up the central heating. It also means countries like India will need to help build railways so that their public transport systems can cope with the growth."

The Indian government has established a ministry for new and renewable energy sources 15 years ago and the President of India, Abdul Kalam, a former scientist, has called for 25% of power generation to come from renewable sources by 2030. The figure is currently 6%.

India is on its way to establishing a 500 wind-turbine site with a capacity of 1,000 MW. This ambitious farm would make India one of just four countries that manufacture and export such technologies. This project would fill the power deficit that the 8-10% economic growth would bring about.

It is the choices that we make that can spark off a change and India has already made the choice. With its initiatives in establishing renewables as a substantial source to attain energy and its willingness to take action in the direction of climate change mitigation and adaptation without compromising its economic progression, it is heading in the right direction towards the future.

Sources: *The Hindu*, June 6, 2007

India Today, June 25, 2001

[Http://environment.guardian.co.uk/waste/story/0,,2042999,00](http://environment.guardian.co.uk/waste/story/0,,2042999,00).

News

Climate Change Impacts Whales

Whales, dolphins and porpoises are facing increasing threats from climate change, according to a new report published by WWF and the Whale and Dolphin Conservation Society (WDCS) ahead of the 59th meeting of the International Whaling Commission. The report *Whales in hot water?* highlights the growing impacts of climate change on cetaceans that range from changes in sea temperature and the freshening of the seawater because of melting ice and increased rainfalls, to sea level rise, loss of icy polar habitats and the decline of krill populations in key areas.

Climate change impacts are currently greatest in the Arctic and the Antarctic. Hence cetaceans that rely on polar, icy waters for their habitat and food resources, such as belugas, narwhals and bowhead whales are likely to be dramatically affected by the reduction of sea ice cover.

And as sea ice cover decreases, there will be more human activities, such as commercial shipping, oil, gas and mining exploration and development as well as military activities, in previously untouched areas of the Arctic. All of these pose threats to these marine animals.

Source:

http://uk.oneworld.net/external/?url=http%3A%2F%2Fwww.panda.org%2Fnews_facts%2Fnewsroom%2Findex.cfm%3FuNewsID%3D102980

Window to the Asia Pacific

Fiji

Name: Republic of the Fiji Islands

Location: Fiji is a group of islands in the South Pacific ocean, about two thirds of the way from Hawaii to New Zealand. Geographic coordinates: 18 00 S, 175 00 E

Capital: Suva (Viti Levu)

Share boundary with: None, but Tuvalu lies to the north of Fiji, Western Samoa is on the northeast, Tonga is to the southeast, and Vanuatu lies to the west.

Land area: 18,270 sq km
Includes 322 islands of which about 110 are inhabited, and more than 500 islets.

Coastline: 1,129 km

Population: 893,354 (July 2005 est.)

Natural Resources:

Minerals: Gold, copper, offshore oil potential

Water: 29 cubic km

Flora: The flora of Fiji consists of 5,330 species, with 3,070 being endemic. Hardwood trees, mangroves, bamboo, and coconut palms are commonly found in the islands.

Fauna: Mammals like rats and bats, cattle, dogs, goats, horses, and sheep; 74 species of birds, which include owls and parrots, are found in Fiji. Snakes and lizards are also common. Pink-billed Parrot finches, Peale's pigeons, Red-throated lorikeets, the extraordinary Silktails, Monkey-faced fruit bats and Mastiff bats, Fiji petrels.

Endemic species: Fiji Goshawk (*Accipiter nuditroques*), Golden dove (*Ptilinopus luteovirens*), Orange dove (*Ptilinopus victor*), Whistling dove (*Ptilinopus layardi*), Collared Lory (*Phigys solitarius*), Red Shining Parrot (*Prosopeia tabuensis*), Masked Shining Parrot (*Prosopeia personata*), Slaty Flycatcher (*Mayrornis lessoni*), Azure-crested Flycatcher (*Myiagra azureocapilla*), Silktail (*Lamprocolia victoriae*), Fiji Bush Warbler (*Cettia ruficapilla*), Orange-breasted honeyeater (*Myzomela jugularis*), Kadavu Honeyeater (*Xanthotis provocator*), Red-headed Parrot-Finch (*Erythrura cyaneovirens*), *Degeneria vitiensis* (flora), Fijian monkey-faced flying fox (*Pteralopex acrodonta*), Fiji banded iguana (*Brachylophus fasciatus*, EN), Fiji crested iguana (*Brachylophus vitiensis* CR), Fiji tree frog (*Platymantis vitiensis*) and Fiji ground frog (*P. vitiana*)

Endangered species: Monkey bat (*Pteralopex acrodonta*), Polynesian Sheath-tailed Bat (*Emballonura semicaudata*)



Extinct: Fiji crocodile (*Volia athollandersoni*), Vitilevu giant pigeon (*Natunaornis gigoura*), Vitilevu (*Vitirallus watlingi*), Giant Fiji ground frog (*Platymantis megabotoniviti*), Macgillivray's Petrel (*Pterodroma macgillivrayi*), Barred-winged Rail (*Nesoclopeus Poecilopterus*), Giant Fiji megapodes (*Megavitiornis altirostris*), Skink (*Tachygia microlepsis*)

Climate:

Type: Tropical marine climate with a wet and dry season. The seasonal temperature variation is slight and the average temperature varies from 20-30 degrees C.

Precipitation: 250 cm annually

Interesting feature: The largest islands are of volcanic origin and are mountainous. Sigatoka Sand Dunes is Fiji's first national park.

Places of interest:

- ✍ Koroyanitu National Park
- ✍ Sigatoka Sand Dunes National Park
- ✍ Colo-i-Suva Forest Reserve
- ✍ Bouma National Park
- ✍ Nausori Highlands
- ✍ Ovalau

Leading Newspaper: *The Fiji Times* (English) was established in 1869 and has remained the dominant newspaper. Its circulation is roughly 27,000 during the weekdays. It has an online version www.fijitimes.com. Its main competitors are the *Fiji Sun* and the *Daily Post*.

Environmental Organisations:

- ✍ Fiji Ecotourism Association
- ✍ Foundation for the Peoples of the South Pacific
- ✍ International Board for Soil Research and Management (IBSRAM)
- ✍ Keep Fiji Beautiful Association
- ✍ South Pacific Action Committee for Human Ecology & Environment (SPACHEE)

Current Sustainability Issues:

As a result of **erosion**, soil is transported into coastal ecosystems and adds to existing problems like coral sand extraction, oil exploration, sewage and overfishing. Frequent flooding causes pollution from latrines and piggeries to spill into the waterways; solid waste is not properly disposed. These make **waste management** a major problem. Unsustainable **resource extraction** and **reclamation** of mangrove areas and marine littoral zones for industry and tourism, are other problems that Fiji faces.

International Environmental Agreements:

Fiji is party to:

- ✍ Convention on Biological Diversity
- ✍ UN Framework Convention on Climate Change & Kyoto Protocol
- ✍ Convention on Fishing and Conservation of the Living Resources of the High Seas
- ✍ United Nations Convention on the Law of the Sea
- ✍ Vienna Convention and Montreal Protocol on Substances that Deplete the Ozone Layer
- ✍ Convention Concerning the Protection of the World Cultural and Natural Heritage
(Also Desertification, Endangered Species, Tropical Timber 83, Tropical Timber 94 agreements)

News from All Over

World Environment Day 2007 at Tromsø, Norway

World Environment Day was celebrated across the world on 5 June 2007. In Norway, which is hosting the international celebrations, previous Sophie Prize winners, including Canadian Inuit activist Sheila Watt-Cloutier, and Nobel Peace Prize winner Wangari Maathai, joined UNEP Executive Director Achim Steiner in a panel discussion on the environment and sustainable development. Later in the day, children from across Norway took to the streets in an Environment Parade to help raise awareness on the environment and climate change.

Source:

http://www.unep.org/wed/2007/english/information_material/wed_highlights.asp

New York's Yellow Cabs Turn Green

New York's 13,000 yellow taxis are going green, with Mayor Michael Bloomberg ordering the entire fleet to be hybrid by 2012. He announced the initiative on NBC's *Today Show*, as part of the city's long-range plan to reduce its carbon emissions by 30 per cent by 2030.

New York has just 375 hybrid taxis but a 1000 will be on the road by October next year. The entire fleet will be converted within five years.

Hybrid cars generally have small fuel-efficient engines combined with an electric motor that helps the engine when accelerating. The electric motor is powered by batteries that recharge automatically while the car is in use. The resulting fuel economy means hybrids emit much less pollution than standard petrol vehicles.

Source: <http://www.news.com.au/story/0,23599,21780233-401,00.html>

Climate change threatens Indonesian agriculture

According to a study published in Proceedings of the National Academy of Sciences, rice agriculture in Indonesia could be significantly harmed by long-term climate change. The agriculture in Indonesia is strongly influenced by annual and inter-annual variations in rainfall caused by the Austral-Asia monsoon and El Niño-Southern Oscillation (ENSO).

Using the 20 available global climate models by the Intergovernmental Panel on Climate Change, a US-based team from Stanford University found that there could be 30 days delays in monsoon rains in the rice growing regions of Bali and Java and predicted that the country will experience longer dry seasons with decreased rainfall.

Similar studies in Philippines found that the situation was similar to that of Bali and Java, while in China, it was found that the ENSO events could lead to the opposite effect - an increase in rainfall in some important rice-growing regions.

The outcome of the research carried out calls for the adoption of response strategies such as increased investment in water storage, crop diversification, development of drought-tolerant crops and early warning systems.

Source: <http://www.scidev.net/News/index.cfm?fuseaction=readNews&itemid=3605&language=1>

UN Report Warns of Impact of Biofuels

A UN report, produced by a cross-agency body UN Energy, says that biofuels can bring real benefits but warns that a hasty switch to biofuels could have major impacts on livelihoods and the environment. There can be serious consequences if forests are razed for plantations, if food prices rise and if communities are excluded from ownership. It also concludes that biofuels are more effective when used for heat and power rather than in transport. The former is the best and cheapest option for reducing greenhouse gases.

The European Union and the US have recently set major targets for the expansion of biofuels in road vehicles, for which ethanol and biodiesel are seen as the only currently viable alternative to petroleum fuels.

The UN report, ***Sustainable Bioenergy: A Framework for Decision Makers***, notes that, on the environmental side, the demand for biofuels has accelerated the clearing of primary forest for palm plantations, particularly in Southeast Asia. This destruction of ecosystems which remove carbon from the atmosphere can lead to a net increase in emissions. Besides, the use of large-scale mono-cropping could lead to significant biodiversity loss, soil erosion and nutrient leaching.

Water is also a concern. Increased growing of biofuel crops could exacerbate the current pressures on freshwater supplies.

Source:

<http://www.sustdev.org/index.php?option=content&task=view&id=1874>

Mountaineer's Fear Global Warming

Climbers and officials in Nepal are worried that global warming is making the glacial environment unsafe for humans in the Himalayas. They say human settlements and activities such as mountaineering are threatened by glaciers retreating and glacial lakes growing, both in number and size. The mountain community is worried by the rise in precipitation across the region, including popular destinations such as Mount Everest and the Annapurna.

In October 2005, 18 expedition team members - French climbers and Nepalese sherpas among them - were killed in a massive avalanche on the 6,981m-high Mount Ganguru in western Nepal. Climate change has been blamed for heavy snow, which caused the avalanche.

Nepal is home to most of the world's highest mountains. Average temperatures are rising annually at a rate of 0.06C in Nepal, according to the country's Department of Hydrology and Meteorology.

Melting Himalayan glaciers could have a huge impact on water resources and river systems across Asia. According to a recent inventory carried out by Nepal's International Centre for Integrated Mountain Development (ICIMOD) and the United Nations Environment Programme (UNEP), there are 3,252 glaciers and 2,315 glacial lakes in Nepal alone. Of them, 26 glacial lakes are considered to be potentially dangerous.

Source:http://news.bbc.co.uk/2/hi/south_asia/6665257.stm

Japan Pledges \$100 m for Clean Energy

Japan pledged 100 million dollars to support clean energy projects in Asia, to counter the rising emissions of greenhouse gases. Japan will also offer loans totalling up to two billion dollars over five years to promote sustainable development and measures to combat climate change, Finance Minister Koji Omi told the Asian Development Bank's annual meeting.

Source:

<http://www.sustdev.org/index.php?option=content&task=view&id=1866>

News from All Over

Glaciers

Did you know?

- Glacier ice is the largest reservoir of fresh water on Earth, and second only to oceans as the largest reservoir of total water. Glaciers store about 75% of the world's freshwater.
- Elsewhere in the solar system, the vast polar ice caps of Mars rival those of the earth.
- Glaciers cover vast areas of the polar regions but are restricted to the highest mountains in the tropics.
- The only snow to occur exactly on the Equator is at 4,690 m on the southern slope of Volcán Cayambe in Ecuador.
- At present, glacier ice covers about 10% of the earth's land area - this is about 15 million sq km.
- During the last Ice Age, glaciers covered 32% of the total land area.
- Glaciers occur on all continents except Australia.
- Ice covers the land area almost completely in Antarctica and Greenland.
- The land underneath parts of the West Antarctic Ice Sheet has literally pressed the continent two thirds of a mile into the earth, due to the weight of the ice.
- Antarctic ice is over 4,200 metres thick in some areas.
- The Antarctic ice sheet has been in existence for at least 40 million years.
- In the United States, glaciers cover over 75,000 sq km, with most of the glaciers located in Alaska.
- North America's longest glacier is the Bering Glacier in Alaska, measuring 204 km long.
- The Kutiah Glacier in Pakistan holds the record for the fastest glacial surge. In 1953, it raced more than 12 km in three months, averaging about 112 meters per day.
- If all land ice melted, the sea level would rise approximately 70 meters worldwide, endangering the large population staying in coastal areas.

Source: <http://nsidc.org/glaciers/quickfacts.html>

Answers to the Crossword

Across

2. water vapour 3. IPCC 4. PPP (Polluter Pays Principle) 7. Hot Air 8. ice
10. aerosols 11. deforestation 13. Siachen 14. permafrost 15. USA 16. Albedo

Down

1. Nitrogen 5. photovoltaic 6. renewable 9. Al Gore 12. Switzerland

Red Alert

Bougainville Monkey-faced Flying Fox

Description

The **Bougainville monkey-faced bat** (*Pteralopex anceps*) is an Old World fruit bat with a head and body length of 162-275 mm. It has a gestation period of 4-5 months.

Very little is known about this bat. It was mainly known from specimens collected in the 1920s, but six of them were observed during a survey in 1995. They are found only on the Solomon Islands and Papua New Guinea, but no sign of this bat was found during a recent field work in the area.

Food

Mainly feeds on nuts and coconuts.

Habitat

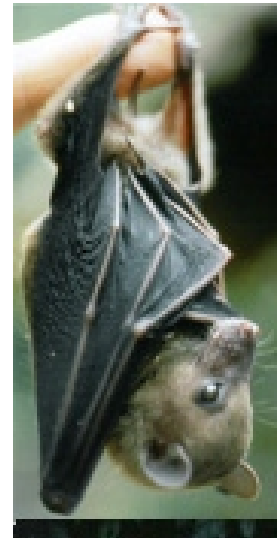
Occurs in several habitats like coastal coconut plantations, lowland rainforest and mid-montane mossy forest. Individual bats have been found roosting in a fig tree. It occurs from sea level to 1900 m (6200 ft).

Conservation Status

IUCN has listed this bat under the 'Critically Endangered'.

Threats

Increased human disturbance and loss of habitat.



Interesting Facts

- ✎ The Bougainville monkey-faced flying fox had mainly been known from specimens collected in the 1920's until 6 of the bats were observed during a 1995 survey.
- ✎ This fox's existence was unknown to a majority of the people of Choiseul, Solomon Islands, where it occurs.
- ✎ The fox keeps itself warm due to its extremely long, woolly fur which offers good insulation from cool temperatures at the upper end of its altitudinal range.

Source: www.animalinfo.org/species/bat/pterance.htm

Interview

Prof. Mohan Munasinghe



Professor Mohan Munasinghe is the Vice Chair, Bureau of the Intergovernmental Panel on Climate Change. With masters degrees in engineering and development economics, and a Ph.D in Solid State Physics, he has held several important positions in international organisations and has worked in advisory capacity with several governments. He has won several international prizes and honours. In this interview with Krupa from CEE Ahmedabad, he talks about some of the issues raised by the latest IPCC report and their implications.

How did the IPCC come into being? What is the role of the IPCC? How was it formed?

IPCC was formed jointly by the World Meteorological Organization (WMO) and the United Nations Environmental Programme (UNEP). IPCC's role is to assess the scientific, technical and socio-economic information relevant for the understanding of climate change.

Roughly, every five years, we publish an assessment report and the Fourth Assessment Report (AR4) is being finalised now. Almost 6000 experts from different countries have participated in the review of the AR4, making it highly representative. It provides the latest information; the issues are dealt with in depth and have a huge consensus.

What, according to the AR, are the best ways to mitigate climate change?

Well, I have been associated with IPCC since the first report. If you look at the evolution, the emphasis in the first report was on how the climate or weather would change. By AR4, we are talking much more about human impacts, and have brought development and particularly sustainable development (SD) into the equation. This is a very important step. The human dimension, vulnerability and adaptation are themes that have been included in this.

The mitigation strategy indicates that the rich countries should take the lead and provide technical and financial assistance to developing countries since the latter cannot afford the cost of mitigation.

While talking about human impact, would you suggest bringing about a change in lifestyle as a practical solution? What are the kinds of changes we need to introduce in our lives for this?

Yes, lifestyle changes are very important. Per capita consumption in industrial countries is four or five times more than in the poorer countries, and lifestyle changes involve reduction in their per capita consumption. The IPCC report suggests that this can be done at a reasonable cost, but political will is particularly necessary to undertake these efforts.

What are the necessary changes the developing countries should undertake, since lifestyle is not a major problem in these countries?

Changes required in the developing countries including India and China, are not so much in the lifestyle but changes in the growth path. We should not be copying the wasteful growth patterns adopted by the industrialised countries during the industrial revolution. We should leapfrog with the new technology.

The production structure should become more efficient. Of course, the per capita consumption and emissions would continue to rise - they are still very low in poorer countries - but the rate of growth of emissions will reduce. In the case of rich countries, emissions will come down; in the poorer countries, emissions will continue to grow, but at a slower pace.

Are cleaner technologies considered pro-growth in developing countries? Are they really affordable for such countries? What can be done about the huge investment required for these?

Mitigation could become a costly exercise for developing countries. Therefore, we need technical assistance and also financial help from the developed countries. Mitigation efforts actually mean a global partnership among all stakeholders

Many technologies known today can help in reducing the greenhouse gases (GHGs) efficiently. Some of the new developments like renewable energy and innovative technologies like carbon capture and storage (this is an approach to mitigate climate change by capturing CO₂ from large point sources like power plants and storing it away safely instead of releasing it into the atmosphere) are promising. We can also continue using coal-based power plants, if we can find a way of reducing emissions.

There is the other side to it: if the price of energy increases due to such technology, people will obviously focus on more energy conservation, for instance, switch off more lights. But while this has a good effect on consumption, it affects the poor negatively. So, when we hike prices, we should also try to protect the poor. Thousands of millions of people who are poor would be deprived of power and thereby the use of modern appliances if the price goes out of their reach.

What is carbon trading?

Carbon trading allows a rich country to transfer its burden to a poorer country. This is through a process called Clean Development Mechanism or CDM. It is a mechanism of carbon transfer. For instance, say Netherlands finds it difficult to reduce carbon emissions as it is very expensive. Instead it goes to Costa Rica or Srilanka and helps create a forest there which helps reduce the carbon dioxide in the atmosphere. Some rich countries can decrease their burden by such initiatives.

Solutions like carbon sequestration have adverse impacts on other resources. Are we looking at these solutions in a holistic manner especially when we look at CDM and other technologies?

This is the key point made in the last two assessment reports. All problems, including climate change, should be addressed within a framework of sustainable development (SD).

We have to develop policies and technologies in a way that they don't hurt the poor. My book, other research and some practical cases show that there are ways in which we can make development more sustainable while also solving the problem of climate change. We are not only talking about mitigation, but also adaptation; as I have mentioned earlier, we should not follow the bad strategy of the rich countries. We have to find a more sustainable path and I feel that the developing countries would do it and the key point about adaptation is that if by a miracle, emissions stop completely today, even then, we already have a lot of greenhouse gases in the atmosphere from the past, emitted by the rich countries. Even with zero emissions today, we will at least have 2 degree rise in temperature in the next hundreds years. So, whatever we do for mitigation, we still have to face adaptation. There will be a change in climate, particularly in the tropical belt, where most of the countries are in the developing stage. These countries, while using the resources for mitigation, should also reserve some funds to protect poor citizens from the adverse impacts of climate change. This is what we mean by making development more sustainable.

The heart of the issue is not to treat climate change as an ad hoc issue but to integrate it with other issues in order to make development pro-growth.

Is this process accepted?

Some people are not in favour of this concept. Many environmentalists claim this is a way in which the rich countries can escape their obligation.

But, to be practical, we have to allow some mechanisms for clean development and carbon trading. Because through carbon trading, rich countries, in order to overcome their obligation, actually pay the developing countries money, which become necessary funds for the latter. The developing countries have to be careful enough to ensure that they receive adequate compensation for the efforts they are undertaking. This is the simple mechanism of carbon trading. Currently, the price of carbon ranges from \$10 -70 per ton. But, I think that the carbon market would pick up very rapidly.

Do you think strategies like carbon trading are a practical solution to this global problem? Or is it just a way of transferring the problem from one region to another?

It is a practical change in the following sense. As per the Kyoto Protocol and the UN climate change, the developed countries have an obligation to reduce their GHGs while developing countries have no obligation at all. The developed world has to cut down their emissions by 5-7%, but some countries like USA have refused to cut down their carbon emissions. On the other hand, Europe seems committed to do this. The bottom line is that most of these rich countries have not put in much effort because it is very costly. Carbon trading is a practical solution in this situation.

According to the Stern report, 1% GDP is required to maintain emissions in the range of 500-550 ppm. Can you explain the idea? What is the GDP required to maintain the same range in the Asia Pacific region?

The Stern report has been published by an eminent economist, but it is only one report, whereas the IPCC findings have taken into account hundreds of reports including the Stern report. So let me quote the IPCC results. Globally, we should aim for a carbon dioxide concentration of roughly 550 ppm. The 550 ppm level is important because it is twice the historic level, i.e. the atmospheric carbon dioxide concentration was 275 ppm before the industrial revolution. Though 275 ppm is considered to be a safe level, currently it is close to 400 ppm. So, people are talking about where it will stop. To stabilise at 550, it would require ½ % of GDP by 2030, which is not a big amount.

To stabilise at 550 ppm, ½% GDP is required and the temperature rise would be 3 degree C; for 450 ppm, the GDP required will be 2-3% and the temperature rise would be 2 degree C. To stabilise at 650ppm, which is a dangerous level, the GDP required is 0% and the temperature rise would be 4 degree C.

Now these are global averages, we do not generally know what they are by country. I would say the rich and the developed nations should undertake the bulk of the cost. We hope that developing countries will have a smaller proportion of GDP loss, with developed countries sharing the problem.

Are there particular sectors that contribute more towards climate change? And what are the sectors most affected by it?

Energy production, particularly, power sector, water and agriculture, and urbanisation are the ones that mostly contribute to climate change.

Water resources are the most affected due to climate change. This is because due to climate change, dry areas will become drier and wet areas will become wetter; so in the wet areas, floods would be a problem; in dry areas, agriculture would be severely affected. So, water and agriculture are the two sectors that are critical.

Due to the temperature rise, the incidence of vector borne diseases like malaria, dengue etc. would be high especially in the tropical belt.

Coastal regions are the most vulnerable as these areas would be affected by the rise in temperature - the sea level will increase affecting the coastal population. Other vulnerable areas are those affected by glacier melting: the Himalayas, the Arctic and the Antarctic. Biodiversity will be badly damaged, especially in the developing countries.

What is your answer to the argument that the developed countries should have the major responsibility to reduce emissions since they are the greater polluters?

India and China are being blamed for their high emissions, which is not true, because the per capita emissions in these countries is very low when compared to the North.

Are there examples in the Asia Pacific region where successful initiatives have been introduced to mitigate climate change?

One key area in this phenomenon is energy. Energy conservation by simple means like using public transport, can reduce the per capita consumption which in turn has an effect on the GDP. Other key areas are land use and deforestation. In Indonesia, forest burning causes local air pollution problems and brown clouds. In the Himalayas, deforestation and reduction in land cover cause erosion and watershed problems. So, to mitigate climate change, we could focus on deforestation and land use in order to protect the local environment and thereby the global environment.

We know that new technologies have emerged in the last thirty or forty years, but what we really need is political will.

What could be the effects of climate change on island countries? What can they do to thwart these effects?

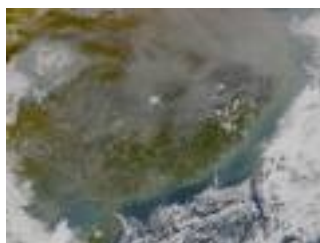
The Association of Island Countries (ASIOS) are looking into this. For example, Maldives is only a few centimetres above sea level, and our predictions are that sea levels would go up by at least half a metre in the next hundred years, probably 30-40 cms in the next 20-50 years. So Maldives would be submerged. In anticipation, Maldives are seeking help to deal with this problem. There are also many small islands that would be affected. Small and island countries are not the cause, but the victims of climate change, since the developing countries together are only responsible for about 10-15% of emissions. There is an issue of equity and fairness here since the ones who emit very little are the ones who suffer the most. So, there should certainly be financial compensation to these countries not only for mitigation, but also for adaptation.

What is your message to the countries in the Asia Pacific region on climate change? What can they do to mitigate its effects?

We have to address climate change without affecting development. A large part of our population is poor, so we need development to bring them out of poverty.

The poor people are especially vulnerable to climate change. Our Governments should integrate some adaptation strategies into the policies and processes of development. This will make development more sustainable.

As global citizens, we should participate in mitigation, but the industrial countries should take the lead. We should strive to reduce the rate of emissions.



The Asian Brown Cloud



Career Wise

Course Title: Short term Courses in Climate Change

Mode: Online

Duration of Course: 4 to 5 weeks

Organisation conducting the course:

Earth Council Geneva

Maison des Associations, 15 rue des Savoises

1205 Geneva, Switzerland

Email: info@earthcouncil.com Website: www.earthcouncil.com

Fees: Ranges from US \$130 to US \$ 532

Topics covered:

There are several programmes offered on specific topics on climate change. Some of them are listed below. Each course is highly specialised and details about them may be accessed at

<http://www.learnsd.org/angel/frameIndex.htm>

- ✍ Climate Change: Science, Scenarios and Possible Impacts
- ✍ Introduction to CDM (Foundational Course to CDM Project Development)
- ✍ CDM Project Development
- ✍ CDM Opportunities in the Cement Sector
- ✍ Introduction to CDM and LULUCF
- ✍ Emissions Trading Overview
- ✍ The Design of an Emissions Trading Program
- ✍ Joint Implementation (JI) Project Development

Nature of Programme: Each course is offered online and on an average for a period of 4 to 5 weeks. The student is required to put in about 15 to 30 hours online. The course consists of three levels of interaction. The learners interact (i) with the content (i.e., online exercises, quizzes and games), (ii) with other learners through discussions and exchanges and (iii) with online instructors who provide guidance.

Evaluation: Evaluation is done by monitoring attendance (login activity), test results as well as activity levels (participation in discussions, submission of exercises), and user feedback through polls and surveys. Support is provided round the clock through e-mail and Skype.

Prospects: The courses offer specialised and cost-effective learning in climate change. They provide an understanding of various topics ranging from Joint Implementation and Clean Development Mechanism to Emissions Trading to Project Development, thereby empowering professionals, organisations and agencies.

Entry requirements: No specific entry requirements. Representatives of government, civil society, business, the media, and other practitioners who are interested in enhancing their professional skills by interacting with international classmates and world-class instructors and experts may enroll for the course.

Reminder

Forum for Sharing Sustainability Ideas

Light up the world with CFLs!!!

Lighting is an important element in our lives. While sunlight is available abundantly, it is not enough to light up interiors during the day and of course in the night. Historically, oil lamps were used for lighting, until the incandescent lamp and electricity became easily available. Fluorescent tubes were a great advancement on the incandescent lamps and were widely used to replace incandescent bulbs in homes and offices.

With population increase and development needs, power is in shortage and thus there is a constant search for more energy efficient means of lighting. Compact fluorescent lamps (CFL) has emerged as the answer to this need. CFLs are small fluorescent tubes with attached electronic ballasts. Compared to incandescent lamps, they consume 80% less energy and last 10 times longer. Their quality of light is comparable to incandescent bulbs and they generate much less heat. They are available in various wattages and can replace incandescent bulbs of any wattage.

Dear readers,

*Do not forget to post your ideas, comments, suggestions, experiences, and even case studies on the current sustainability issue showcased in the **Forum for Sharing Sustainability Ideas**.*

So, log on to www.knowledgeforsustainability.org!

The APNN Editorial Team

Editorial Team

Prithi Nambiar
G. Padma
Priya B
V. Krupa

Centre for Environment Education
Knowledge for Sustainable Development
(CEE-KSD)
No. 143 Kamala Mansion
Infantry Road, Bangalore - 560001
Karnataka, India
Phone: 91-80-22860414/418
E-mail: ksdbangalore@ceeindia.org
Website: www.ceeindia.org

CEE Australia Inc.
Suite 18, Lindfield Executive Centre,
Tyron Road,
Lindfield, NSW 2070, Australia
Phone: (612) 9416 0432
Fax: (612) 9416 2583
Postal address: PO Box 42, Lindfield, NSW
2070, Australia
Website: www.ceeaustralia.org

Note: For all email correspondence on APNN: apnn.ksd@gmail.com

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Asia Pacific

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