

LEAD UPDATE

One million species' extinction feared through climate change

Climate Change: The Impact on Biodiversity and Agriculture

Roundtable, Islamabad- May 22, 2008

The UN's Millennium Ecosystem Assessment indicates that climate change is likely to become the dominant direct driver of biodiversity loss, by the end of the century. Up to a million species may become extinct, as a result.

As in the rest of the world, climate change is also likely to have a significant impact on agriculture and farming in Pakistan. Local agricultural systems may not be able to continue providing enough food for the population. Understanding of the issue is urgently required, in order to tackle the agricultural implications.

With this view, LEAD Pakistan organized a roundtable on "Climate Change: The impact on Biodiversity and Agriculture" in collaboration with UNESCO, UNDP, the Ministry of Environment and the Planning Commission (Government of Pakistan).

Panel Discussion

Mr. Farah stressed the severity of the problem by pointing out that 80% of biodiversity is located in tropical forests, which have declined by 46%. Dilating upon FAO's goals and different programmes on biodiversity conservation and sustainable agriculture, he told the participants that a high level conference on world food security is being organized to discuss the issue.

Mr. Wani pointed out that major changes in tree species' distribution, expected in Pakistan are likely to impact biodiversity. This change will accompany increased storm frequency, changes and a decline in forest biodiversity (distribution, abundance, life cycles, physiology) due to increased forest fires, greenhouse gases, as well as an increase in pests and pathogens.

In the context of Pakistan, changes in climate are attributed to natural and anthropogenic factors.

GHG emissions are relatively low in Pakistan. Nevertheless, the energy sector, the agriculture and the transport sector are still the largest contributors of the CO₂, methane, N₂O and the CO emissions in Pakistan.



Emissions from the agriculture sector mainly emanate from domestic livestock management, rice cultivation (flooded fields), field burning of residues, agricultural soil/fertilizers and changes in forest cover. For mitigation, forest cover needs to be increased and indigenous species should be promoted. Despite government programmes' focus, the task is of great magnitude: one per cent forest cover denotes a one million hectare increase in land resources and additional water requirement of this area. Dr. Kauser spoke about the problems being posed to agriculture, due to climate change. The nexus between biodiversity and agriculture has obviously become unsustainable. Ironically, agriculture is dependent upon biodiversity, yet it is also the biggest cause of biodiversity loss in Pakistan. The main issue besetting sustainable agriculture is that of water, 80%

LIST OF KEY ORGANIZATIONS

- ✚ Abdul Qadir Rafique, UNDP
- ✚ Ahmad Usman, Care International Pakistan
- ✚ Ayesha Farooq, Quaid-e- Azam University
- ✚ Ali Imran Bangash, Pakistan Television Islamabad
- ✚ Farhan Sami, The World Bank
- ✚ Dr. Ejaz Ahmad, World Wildlife Fund
- ✚ Dr. Ghulam Rasul, Pakistan Meteorological Department
- ✚ Dr. Ghulam Mustafa Awan, JICA
- ✚ Dr. N. M. Butt, Pakistan Science Foundation
- ✚ Dr. Mohammad Pervaiz, SAARC Energy Centre
- ✚ Imran Yusuf Shami, Plan Pakistan
- ✚ Lydia Mutimbanyoka, Oxfam Novib
- ✚ Margaret Stuart, British High Commission
- ✚ Munazza Batool, Friedrich Naumann STIFTUNG
- ✚ Nosheen Butt, National Highway Authority
- ✚ Nusrat Nasab, FOCUS Humanitarian Assistance
- ✚ Prof. S. Shafiqur Rehman, University of Peshawar
- ✚ Shahzad Iqbal, Oil & Gas Regulatory Authority
- ✚ Shakeel Ramay, SDPI
- ✚ Tariq Nazir, Ministry of Environment
- ✚ Tariq Mahmood Khan, Executive (Plant Taxonomist)
- ✚ Tumurdavaa Bayarsaihan, The World Bank
- ✚ Uzma Noreen, Pakistan Wetlands Programme
- ✚ Waqar Ahmad Qazi, Planning Commission
- ✚ Zehra Abbas, RSPN



Key speakers during panel discussion



Participants of the roundtable

May 24, 2008

GOVERNANCE

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of which is used in this sector alone. Problems relating to water efficiency and pollution are the major issues, which need to be looked into. Small dams are much needed for water storage and energy generation.

Mr. Rodriguez highlighted the case of Wetlands in Pakistan. Proper management of wetlands is essential for ensuring water security for the present and future generations. He said that globally wetlands play an important role in the global carbon cycle, and are a significant storehouse of carbon. When wetlands are converted, they emit large quantities of carbon dioxide and other greenhouse gases. Conserving, maintaining, or rehabilitating wetland ecosystems can be a viable element to an overall climate change mitigation strategy. Despite the generally arid nature of Pakistan's climate, the country supports an estimated 780,000 hectares of wetlands, that cover 9.7% of the total surface area of the country. Pakistan's permanent and seasonal wetlands are globally significant in two ways: first, in terms of the intrinsic value of their indigenous biodiversity and secondly, as an acute example of the poverty/subsistence-use nexus, that constitutes one of the most fundamental threats to biodiversity, worldwide. The significance of Pakistan's wetlands is attributable to the diversity of species that they support - 200 indigenous freshwater fish species (including 15 endemics), 788 marine and estuarine fish species, 18 threatened species of wetlands dependent mammals (in addition to 12 reptiles) and 20 threatened bird species. High altitude wetlands, characterised by sites such as Karumbar Lake and Saucher Lake, at 4,250m on the Deosai Plains, represent a unique category of alpine wetlands, that is confined to the Himalaya, Hindukush and Karakoram mountain corridors. The threats to Pakistan's wetlands are primarily the unsustainable anthropogenic use of wetlands. For example, extracting more water from the water bodies than the replenishment capacity, physical changes to wetlands on an ecosystem level, such as bringing more land under agriculture, deforestation and overgrazing in

catchment areas. Off-site activities also cause physical and chemical changes to wetlands. Polluted water from the upstream industrial or agricultural activities drains into the wetlands. The extended drought period and overall rise of water temperature in the water bodies are the impacts of global warming, that lead to the bleaching of coral reefs and loss of species.

The seven year Pakistan Wetlands Programme aims to conserve important biodiversity. He concluded by emphasising the importance of understanding and linking global issues and local initiatives: "Think Globally, Act Locally".

Dr. Irfan argued that the environment provides free of charge services, worth billions of dollars, in terms of clean water, air, food provision, fuel, fibers and drugs. Unfortunately, these essential life support services are not valued in economic or even social terms. He identified land degradation as a major problem, which is adversely affecting the structure and functional integrity of the ecosystems.

Mr. Sequeira spoke about his organization's role in promoting Education for Sustainable Development. This he said is essential, as it generates processes for behavioural change. He highlighted the role of the citizens, the media and the academia.

Recommendations & suggestions

- Renewed international cooperation and cooperation of stakeholders is needed to address the issue of sustainable land use.
- Pakistan is one of the top-listed countries for cost-effective carbon sequestration and potential for carbon trading in the forestry sector (ALGAS,

1998). While mega projects in the forestry sector, worth Rs. 12 billion have been designed with the prime objective of carbon sequestration (for trading in future), progress needs to be undertaken at a much faster rate, under the Government of Pakistan's CDM Framework Policy.

- Forest cover must be increased urgently. Carbon sinks need to be created. The protection and efficient utilization of biomass should be promoted. Vegetation stocks and the pool of carbon in wood products should be expanded. The existing tree cover and the proportion of forest products currently in use need to be regulated. Substitute wood should be derived from renewable sources (plantations), for more GHG intensive products (fossil fuels).
- Addressing the problem of the degradation of ecosystems within the high mountains, requires an integrated sustainable land management approach. This approach not only leads to ecological improvements, but also enables the affected rural communities to develop and pursue sustainable livelihoods.
- Water use efficiency is crucial to agriculture and biodiversity. This needs to be stressed for all sectors: agriculture, domestic consumption etc. While growing water intensive crops like rice, cultivation should focus on the development of low water demanding varieties.
- Domestic livestock management should focus on low nitrogen feeds and controlled fermentation through diet management. Instead of field burning of residues, conversion technologies should be introduced and controlled burning should take place. Instead of pesticides, the largest source of water polluters, the use of chemical fertilizers and nutrients should be judicious. UNESCO and UNDP provided the financial assistance for the event. The roundtable was attended by more than 130 development practitioners, policy makers and public officials. A documentary developed in collaboration with the Pakistan Television was also aired.

LIST OF PANELISTS

- Alvaro Rodriguez, Country Director, United Nations Development Programme, Pakistan
- Bashir Ahmad Wani, Inspector General Forests, Ministry of Environment
- Jorge Sequeira, Country Director, UNESCO, Pakistan
- Dr. Kauser Abdullah, Member, Planning Commission, Government of Pakistan
- Mohammad Farah, Representative, Food and Agriculture Organisation
- Dr. Muhammad Irfan Khan, International Islamic University, Islamabad.