

**Speech by Alvaro Rodriguez, Country Director, UNDP, Pakistan**  
**Roundtable Panel discussion on Climate Change: The impact on**  
**Biodiversity and Agriculture**  
**Case Study – Pakistan Wetlands Programme**  
**International Biological Diversity Day, 2008**

Today I wish to highlight one specific case in which we can observe the links between climate change, biodiversity and agriculture. The case is that of Wetlands in Pakistan.

**General Background Information on Climate Change:**

By way of background, I can only recapitulate what we all know. According to the Inter Governmental Panel Report on Climate Change (IPCC), changes in climate will lead to an intensification of the global hydrological cycle and could have major impacts on regional water resources. Climate change may also lead to shifts in the geographical distribution of wetlands and an increase in the severity and extent of coral reef bleaching and mortality. At the global level, human activities to keep up with the ever increasing needs of the rising population have caused a loss in biodiversity. Climate change and consequent global warming is putting additional pressure on species and life support systems. The changes have affected the timing of reproduction in animals and plants and/or migration of animals, the length of growing season, species distribution and population sizes and the frequency of pest and disease outbreaks. Furthermore, a number of plant and animal species of global importance are threatened or some have become extinct due to these profound changes in global climate.

Now, what is the link of biodiversity with agriculture. I would mention just two points. First, a fifth of domestic animal breeds are the risk of extinction. I must admit I was baffled when I learned this. Second, of 7,000 species of plants domesticated, we rely on just 30 for the vast majority of the food we eat. Indeed, agriculture as the mainstay of a majority of people living in developing countries, is itself at risk if we do not address the challenges of biodiversity protection. Thus, food security among other issues cannot be dealt with unless we deal with sustainable use regimes around natural resources.

## **Role of Wetlands**

Wetland ecosystems provide fundamental ecological functions including the regulation of water regimes as well as providing habitats for flora and fauna. Wetlands also provide invaluable services and benefits for human populations around the world including the regulation of global and local climates.

Many components of wetland ecosystems also provide resources locally for direct human consumption including: water for agriculture, water for drinking (humans and livestock), fish and fruit to eat, reeds for thatch roofs, timber for construction, peat and fuelwood for fire. The harvesting of wetland goods, while respecting the production rate and the regenerative capacity of each species, can provide significant benefits to society. In many areas fisheries rely heavily on healthy wetland ecosystems. In many rural areas, the amount of water available depends largely on water extracted from shallow boreholes or local springs. If areas of recharge are maintained and protected, aquifers and springs can provide a sustained amount of water resources for communities. Proper management of wetlands is therefore essential to ensure water security for the present and future generations. Poor management of wetlands can lead to deterioration in water quality that is harmful to all forms of life.

And 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.

## **Wetlands in Pakistan**

Despite the generally arid nature of Pakistan's climate, the country supports an estimated 780,000 ha of wetlands that cover 9.7% of the total surface area of the country. In excess of 225 significant wetlands sites are on record. Nineteen of these have been internationally recognized by the *Ramsar Convention* as being of global importance.

Indeed, the diverse assortment of freshwater and marine wetlands that occur within Pakistan support unique combinations of biodiversity.

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 high global significance of Pakistan's wetlands is attributable to the diversity of species that they support. In all, eighteen threatened species of wetlands dependent mammals are found in the country including the endemic Indus River Dolphin. Further, twenty threatened bird species are supported by Pakistan's wetlands in addition to twelve reptiles. Pakistan's wetlands also support between 191-198 indigenous freshwater fish species (including fifteen endemics) and a total of 788 marine and estuarine fish species<sup>1</sup>. The high altitude wetlands, characterised by sites such as Karumbar Lake and Saucher Lake, at 4,250 m on the Deosai Plains, represent a relatively unique category of alpine wetlands that is confined to the Himalaya, Hindukush and Karakoram mountain corridors.

Despite their important, there are many threats to Pakistan's wetlands. We can categorize them into four:

- Unsustainable anthropogenic use of wetlands e.g. extracting more water from the water bodies than the replenishment capacity;
- Physical changes to wetlands on an eco-system level. Included in this category are activities such as bringing more land under agriculture, deforestation and over-grazing in catchment areas.
- Off-site activities that cause physical and chemical changes to wetlands, for example, polluted water from upstream industrial or agricultural activities draining into the wetlands

- Impact of global warming, with extended drought period and overall rise of water temperature in the water bodies leading to bleaching of coral reefs and loss of species

## **Pakistan Wetlands Programme**

The Pakistan Wetlands Programme fits well within Pakistan's development goals by aiming to promote equitable sharing of natural resources, securing rights-of-access, especially for poor communities, diversifying livelihoods, improving the income earning potential of stakeholder communities and creating incentives for sustainable wetlands management.

- The purpose of Pakistan Wetlands Project is to conserve globally important biodiversity in Pakistan without exacerbating poverty. The immediate objectives and their expected outputs are:
  - To create and maintain an enabling environment for effective and sustainable conservation of natural wetlands at federal, provincial/territorial, and local levels
  - To implement sustainable wetlands conservation at four representative sites that will serve as replicable models for subsequent nationwide wetlands conservation initiatives.
- Pakistan Wetlands Programme is active in four representative areas: These include; a) coastal wetlands, b) riverine wetlands; c) lakes in the salt range; and, d) lakes in the high alpine regions of the country. These different types of wetlands are supporting livelihoods of local people dependent on fish catch, agriculture and livestock raising. The Programme is working to promote management models that sustain these human activities and at the same time conserve the biodiversity.

- The Pakistan Wetlands Programme is funding by UNDP, GEF, RNE, WWF and executed by the Ministry of Environment. This is a seven year project with a total budget of US \$ 12 million.

**Concluding Remarks:** Wetlands are critically important ecosystems that provide globally significant social, economic and environmental benefits. If we do not protect them, we all stand to loose.

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