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"The key role of WETLANDS in addressing the global water crisis"

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Abstract

In 1998 the challenge for the global community is to recognise that natural water systems (called waterways here for simplicity) are not infinitely resilient to the assaults of the human species. We cannot continue to pollute them, regulate them, starve them of water and exploit them for food and economic development. The priority has to be zealously protecting those attributes which are critical to sustaining these systems. Wetlands are one of the vital elements which help to sustain the waterways that provide us with food and drinking water, and yet we continue to allow their destruction around the world. This Conference should recognise the important role of wetlands and urge all Governments to take, as one of their immediate responses to the global water crisis, all steps necessary to ensure there is no further destruction of the remaining wetlands. As a longer term measure to repair our water systems, Governments, the donor agencies and local communities should afford high priority to restoring and rehabilitating those wetlands which have been lost or degraded.

Introduction

As world leaders have turned their attention to the water crisis, there have been a number of very clear messages about what has caused the problem. These have included a rapidly growing population with rising expectations of quality of life and food and water security; over-consumption and misuse of water resources, including ill-conceived water regulation schemes; increasing urbanization; and expanding international trade and economic activity. But, what we have failed to acknowledge is that all of these factors are contributing to the inexorable breakdown of the natural ecological processes which make the waterways (used here to mean natural water systems) our lifeblood. Destroy these processes and the outcome is inevitable, and not difficult to forecast. And yet we still have the inescapable challenge of providing clean water to one billion people who do not have it and proper sanitation to 1.7 billion still lacking this basic need.

The challenge for the global community is to recognise that waterways are not infinitely resilient to the assaults of the human species. We cannot continue to pollute them, regulate them, starve them of water and exploit them for food and economic development without also recognising and zealously protecting those attributes which are critical to sustaining these water systems. Wetlands are one of the vital elements which help to sustain the waterways that provide us with food and drinking water, and yet we continue to allow their destruction around the world. Through ignorance we have repeated the same errors in managing water systems in every part of the world. Wetland destruction has been one of those mistakes. It is now time to learn from these mistakes, and take urgent action to restore and protect our waterways. What is needed are a number of short, medium and long term measures to protect and restore the intrinsic ecological processes which allow the waterways to sustain human life and global biodiversity.

WETLANDS - a vital part of the response to the water crisis

In 1971 the representatives of 18 countries went to a small town on the shores of the Caspian Sea in Iran to put their signatures to an international treaty. The town was Ramsar, and the Convention on Wetlands was born on that day. The architects of the Convention had the foresight and vision to recognise the importance of wetlands as vital elements of inland waterways and coastal systems. They also recognised the many values, functions and services which wetlands provide and formulated the concept of “wise use” with which the Convention is synonymous today.

The action taken on that day may not have seemed of such global significance at the time, but 27 years later, and with the world now struggling to find the solutions to the water crisis, the Ramsar Convention is more relevant and needed than it has ever been before. Why? Because wetlands are a key part of the cure to the problem. They represent a vital element of “healthy” and sustainable waterways. This Conference should recognise the important role of wetlands and urge all Governments to take, as one of their immediate responses to the global water crisis, all steps necessary to ensure there is no further destruction of the remaining wetlands. As a longer term measure to repair our water systems, Governments, the donor agencies and local communities should afford high priority to restoring and rehabilitating those wetlands that have been lost or degraded. The developed world can take this action very quickly and the donor community must mobilise its resources to assist the developing countries and those in economic transition to implement this action.

Is this over-simplifying the problem? No, we have to look for short, medium and long term ways to address the water problem. Some, like introducing the principles of integrated water resource management, can be acted upon in the medium term but will take many years to be fully implemented. A global call to protect wetlands is an immediate response which no-one can deny is an appropriate one. It is not the only response, but it is a tangible response which there is now clear evidence to support.

What do wetlands do for us?

A quick summary of some of the functions, values and benefits of wetlands shows why wetlands are a key to dealing with the water crisis. Unlike the other water sectors which require positive interventions and investment to obtain benefits from the use of water resources, the major benefits from wetlands are derived from the inherent functions of

these ecosystems. We must recognise this immediately and act to retain wetlands as a “tool” for achieving sustainable water management.

Suppliers of water. Wetlands are a key to providing potable water in the long term. They have been called the “kidneys of the planet” because of the natural filtration processes which occur as water passes through. It has been calculated that one hectare of tidal wetland can do the job of US \$123,000 worth of state-of-the-art wastewater treatment. Groundwater recharge also occurs when water moves from a wetland down into the underground aquifer. By the time it reaches the aquifer, the water is usually cleaner than when it began to filter down from the wetland. Once in the aquifer, it may be drawn out for human consumption, or may flow laterally underground until it rises to the surface in another wetland as groundwater discharge.

Regulators of water flow. Many rivers remain reliable sources of water throughout the year because flow is diverted from the main channels into peatlands, swamp and marsh areas in the catchment. Wet season downpours drain away more slowly because of the wetlands, extending the period when water is available in dryer times. Where streams are straightened and uplands denuded of forests and swamps, flash floods cause chaos after storms, and the accelerated run-off leaves little to rely on in summer drought. The draining and ploughing of floodplains and riverine wetlands have had a similar effect in hydrological terms to the loss of upland forests.

Suppliers of food. Most of the fish we eat depend upon wetlands at some stage in their life cycle, while millions of cattle and wild herbivores are supported by floodplain pastures. Wetlands are the natural habitat of one of the world's principal food grains, rice, most strains of which are cultivated in a modified wetland habitat. In Asia alone it is estimated that more than 2 billion people depend on wetland crops and fish as their main staple and protein sources. In Zambia, it was the importance of the fishery, pasture and wildlife resources of the Kafue floodplain, and the failure of intensive irrigated agriculture, that led local leaders to argue strongly for the maintenance of the natural floodplain as the most effective way of meeting the needs of the rural people.

Focal points of economic development. Wetlands are now recognised globally as a cornerstone and focal point of economic development in both the developed and developing worlds. Fish production is leading the way as an income earner but it is closely followed by ecotourism. Wetlands such as Kakadu National Park in Australia, the Okavango in Botswana and the Pantanal in South America are visited by hundreds of thousands of tourists each year and through this the local economies benefit. In many countries the harvesting of reed beds from wetland areas for producing paper and basketry is a vital part of economic growth.

Climatic benefits. Wetlands also provide climatic benefits, both at the macro and micro level. Evapo-transpiration from wetlands maintains local humidity and rainfall levels. In forested wetlands, much of the rainfall is evaporated or transpired from the trees back into the atmosphere, and then falls as rain again in the surrounding area. If the wetland is destroyed, the amount of local rainfall will decrease with adverse effect on local crop yields. In the valleys of south-west Uganda, local concern for the effect of wetland loss upon the local micro-climate has been an important factor leading to a 1986 ban on wetland drainage.

The extent of and threats to the wetland resource

Protecting wetlands CAN HAVE a global impact on the water problem. It is estimated that wetlands cover approximately 8.6 million km² or 6.4% of the earth's land surface – an area slighter larger than Europe. They are found on every continent except Antarctica and in every climate from the tropics to the tundra. The greatest proportion is made up of bogs (30%), fens (26%), swamps (20%) and floodplains (15%), with lakes accounting for just 2% of the total. Globally, peatlands occupy more than 2.3 million km².

Since 1990 it is estimated that more than half of the world's wetlands have been destroyed. We have converted them to other uses under the euphemism of "reclamation". The drainage of wetlands has commonly been regarded as a progressive, public-spirited endeavour to enhance the health and welfare of society, to alleviate the dangers of flooding, improve sanitation, and reclaim land for agriculture. Wetland loss has been greatly exacerbated by a general lack of understanding of the importance of wetlands at all levels of society but especially amongst decision makers and project managers.

Water system regulations and drainage for agriculture and urban development have been the major causes of the loss of over 50% of the wetlands in countries such as the USA, New Zealand, Australia, Pakistan, Thailand, Niger, Chad, Tanzania, India, Viet Nam, and Italy. This has happened at a time when there was little knowledge and recognition of two important factors. The first is that in making decisions about water use, the environment itself is an important user of water. It sounds like a platitude: water systems need water (the right quantity in the right place) to function properly and to secure a constant and quality supply for other users. Yet some water managers still have difficulty understanding that the allocations for human use can only be satisfied in the long term by first ensuring the "environmental allocation" that the systems require to continue to perform. The second factor that has affected wetlands has been widespread ignorance about the multiple and beneficial functions that they perform in the basins and coastal areas where they are located.

The direct causes of wetland loss often result from a combination of ignorance, social and economic forces, and political decisions. The global rise in urbanization exemplified by the growth in population of the 30,000 or so medium-sized cities in developing countries is accompanied by dramatically increasing pollution loads to the environment. Although a wetland might itself remain, but in a degraded state, many of its benefits are lost.

Population growth coupled with inequitable distribution of resources and access rights has increased the demand for land which in turn has put the greatest pressure on wetlands. For example the human carrying capacity of the Sahel region is already matched or exceeded by population density; dryland agriculture or large-scale migration to other parts of the region are unlikely to be able to relieve the situation. As a result, wetlands will be more sought after, and pressure for conversion of wetlands to rice fields is on the increase due to increasing urbanization in West Africa and its demand for rice. Droughts also tend to increase pressure on wetlands because they affect the migration patterns of people in the area. During the severe droughts of 1975 to 1988, the number of villages on the Nigerian section of Lake Chad increased from 40 to more than

100. Similarly the use of the Hadejia-Nguru wetlands in Nigeria for agriculture has increased due to droughts.

In addition, policies and incentives in different sectors contribute by encouraging drainage, or the cultivation of particular crops at the expense of wetlands. Trading patterns can also alter the balance of production leading to loss of natural wetlands – an example of this is the worldwide demand for high-priced shrimp from aquaculture ponds. Lack of legislation and its enforcement can also be a cause of wetland loss, particularly where there are inadequate regulations to control water pollution.

The Convention on Wetlands – already playing its part

One hundred and six countries have to date joined the Convention on Wetlands, and this is expected to reach 125 by the next millennium. By so doing, these countries have committed themselves to a range of actions which recognise that the planet needs wetlands – not only for their species richness but also because they are vital to sustaining the water systems which support human life.

The Ramsar Contracting Parties engage in a process of identifying sites within their territories which can be classified as “Wetlands of International Importance”, so as to provide special attention to their conservation and sustainable use. Almost 900 such sites, covering some 67.5 million hectares (more than the total area of France or Kenya), have been placed so far in the Ramsar List kept by the Convention. In addition, the parties to the treaty promote the sustainable use (wise use, Ramsar calls it) of all wetlands within their territories, through the adoption of appropriate policies, legislation, training, research and awareness-raising activities.

Under the Convention, countries give priority to developing national wetland policies, establishing cross-sectoral consultative committees to advise government, completing inventories of their wetland resources and developing integrated management plans for the Ramsar and other wetlands within their jurisdiction. Special priority is given to developing cooperative and integrated approaches to the management of water systems and wetlands that cross national frontiers.

At its next Conference of the Contracting Parties the Convention on Wetlands will further develop “tools” for its signatories under the themes of “Ramsar and Water”, “National Planning for Wetland Conservation and Wise Use”, “Involving local people at all levels”, “Tools for assessing and recognising wetland values” and “Frameworks for regional and international cooperation”. In short, Ramsar is already taking on the issues which some people and organisations are just beginning to recognise as the priorities in sustainable water management.

If the global community recognises wetlands for the natural capital they offer and moves to give them prominence in response to the water crisis, then the Ramsar Convention must also be recognised for the momentum and support it has. Ramsar is not all the answer, but it is a key part of the answer; just as wetlands themselves are vital. If wetlands receive this global recognition it must also be recognised that we have a head start in the race to use them as a weapon to respond to the water crisis – 18 countries gave us that head start 27 years ago in Ramsar, Iran. We now have to escalate the effort.

In 1998 the international community will move, through a series of meetings, to focus on the water crisis and formulate a response. Let us not fall into the trap of believing that the answer lies in complex engineering solutions. Nature has given us the best technology and we must first and foremost recognise, respect and protect that. A large part of this natural technology is wetlands.

Over the next five years we must move decisively and cooperatively towards the new paradigm of integrated water resources management which, in order to succeed, has to bring together all the stakeholders: communities, governments and business. It must also begin from the central tenet that ecosystems are the fundamental building blocks of “healthy” and productive waterways. They cannot, and should not, be expected to fight to get in the queue with the other “users” when hard decisions have to be made. They must always be at the head of that queue.