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## WATER AND THE ENVIRONMENT

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### ABSTRACT

*Water and ecosystems are inextricably linked. The ecosystems of our planet, the plants and animals that live within them, need water for their survival. Ecosystem, in turn, regulate the quantity and quality of water. The functions (goods and services) that natural and semi-natural ecosystems provide to humankind are often in economic planning and decision making. Human water management affects ecosystems, which in turn affect the livelihoods of the people that depend on them. Hydrological, ecological, and social processes are closely connected. People are an inalienable part of the ecosystem. Therefore, we must look at the big picture: the management of fresh water within an ecosystem. The ecosystem approach to water management may provide answers to the social, economic, and ecological problems we face. Water security is based on protection of the ecosystems on which resources depend. Recognizing the vital role of healthy ecosystems in the water cycle and protecting them should form the basis of any water management decision.*

### KEYWORDS

ecosystem, sustainable management, water efficiency, water security.

### INTRODUCTION

**W**ater and ecosystems are inextricably linked. The ecosystems of our planet, and the plants and animals that live within them, need water for their survival. For instance, the Okavango Delta in Botswana, the largest Ramsar site (wet-land) in the world at 35,000 square kilometers, directly provides a livelihood to 150,000 people and harbors a unique biodiversity with 2,500 plant species, 65 fish species, 20 large and over 450 bird species.

Ecosystem, in turn, regulate the quantity and quality of water. Wetlands retain water in periods of high rainfall, slowly release it during dryer periods, and purify it of heavy metals and other contaminants. Forests recharge our groundwater, which can be used elsewhere for drinking or irrigation. The functions (goods and services) that natural and semi-natural ecosystems provide to humankind are often in economic planning and decision making. They include:

- **Regulatory functions** for essential ecological processes and life support systems, including air quality, climate, water supply, soils, waste treatment, and biological control of pests and pollination;
- **Habitat functions** for wild plants and animals (and native people) to maintain biological and genetic diversity, including refuges and nurseries for resident and migratory species;
- **Production functions** for food, fiber, shelter, fuel, fodder, fertilizer, medicines, genetic resources, and ornamental resources; and
- **Information, aesthetic, and spiritual functions** such as opportunities for reflection, relaxation, communion with nature, and cognitive development through aesthetically valued scenery, recreation and tourism, cultural and artistic connection to history and heritage, and scientific education.

Not only do natural ecosystems help to prevent floods or provide shelter, millions of people also directly derive their food, water, and fuel from these areas. In the Hadejia Nguru Wetlands or Nigeria, the traditional use of the flood plain yields US\$12 per cubic meter of water, compared to US\$0.04 per cubic meter for a proposed irrigation scheme. Globally, natural ecosystems provide an estimated US\$32 trillion to societies.

### MATERIALS AND METHODS

#### THE DECLINE OF NATURE AND WATER

People are overusing water and natural resources. Half of the 'world's wetlands have already been lost due to over abstraction of water and conversion into agricultural land. With the loss of their ecosystems, more than 3,500 species are threatened worldwide, of which 25 percent are fish and amphibians. In 1999, 20 million hectares of forest were lost. Overuse and misuse of Water harm the human population as well. When too much water is abstracted from rivers, one effect can be that seawater comes inland and makes arable land infertile. It can also damage coastal mangroves, which are vital spawning areas for shrimp and fish. Human water management affects ecosystems, which in turn affect the livelihoods of the people that depend on them. Hydrological, ecological, and social processes are closely connected. People are an inalienable part of the ecosystem. Therefore, we must look at the big picture: the management of fresh water within an ecosystem.

### RESULTS AND DISCUSSION

#### THE ECOSYSTEM APPROACH

An ecosystem approach looks beyond specific sectors, such as food production, hydropower, nature conservation, or sanitation, to find integrated solutions for the variety of demands we place on our freshwater resources. It establishes a management regime that mimics natural processes and productivity and considers all goods and services to be on equal footing with water delivery. It strives to maintain biodiversity and to conserve land and water resources and includes environmental monetary values in determining the cost-effectiveness of interventions and the sustainable allocation of resources.

Because users within a basin are interdependent, an integrated water management approach is essential. Upstream uses of Water have an impact on downstream users, the management of the land affects the water resources, and vice versa. The ecosystem approach is holistic, taking all these aspects into account. Even though the ecosystem approach appears to emphasize hydrological and ecosystem processes, the real focus is on human processes. The different human uses and behaviors in a basin are interlinked; the actions of one can have an impact on another.

Large dams are a good example. In 1979, a dam was constructed in Waza-Logone (northern Cameroon) to supply water to a 70-square-kilometer irrigated rice scheme. But the resulting lack of water downstream of the dam changed the biodiversity of a 50,000 square-kilometer area. Fish disappeared and grasses for livestock no longer grew. Down stream, people eventually moved out of the area because they could not feed their livestock. The benefits of the dam went the owners of the irrigated lands. The communities downstream bore the costs.

For the proper management of a basin, all people that change the quality of Water (the Stakeholders) have to be involved and have a say in water management. Fighting over the resource will not work. It is better to establish the different needs of all parties involved and find the optimum solution for everyone. Local communities, governments, technical institutions, private companies, and nongovernmental organizations have to work together on problem definition, planning, and management of the natural resource base. Such cooperation also allows for setting objectives at the local and basin levels for conservation, sustainable management, and poverty alleviation.

#### ECOSYSTEMS FOR WATER

The protection of ecosystems should be a premise of water management deliberations, as ecosystems are the source of water and life. Some ecosystems, such as cloud forests, springs, and certain wetlands, provide clean water directly. Other ecosystems produce goods upon which communities rely. For ecosystems to



continue producing their goods and services, a minimum amount of water must be left for the ecosystems to function. Using all the water there is destroys ecosystems and the communities that depend on them.

With regard to dams, there have been many debates on the negative impacts on downstream communities and biodiversity and the minimum flood releases required to mitigate or prevent such impacts. The recommendations of the World Commission on Dams need to be complemented by specific tools for optimizing dam design and management. More work needs to be done on the trade-offs between retaining water behind the dam for "reservoir-based livelihoods" (irrigation, hydropower) and releasing it downstream for "flood-based livelihoods." Based on this work, recommendations can be made for using multi-criteria analytical methods to make decisions on flood releases.

The consequence of the ecosystem approach would inevitably be to reduce the amount of water abstracted from ecosystems. The demand for water will have to decrease from irrigated agriculture, which is 70 percent of all the water used in the developing world, but also from industry and households (especially in the developed world). This requires both behavioral changes and technical improvements to increase water efficiency (drip agriculture, crops that require less water). The same line of thought could lead to the restoration of ecosystems that have been degraded. As in the Hadejia Nguru Wetlands, traditional multipurpose use is more beneficial than single-use, irrigated agriculture. Unfortunately, much of the economic value an ecosystem provides has been ignored in the past. At times, it can even be economically efficient to restore an ecosystem to deliver certain functions, especially if clean water becomes a scarce resource.

Increasingly, we see that certain parties in basins are paying for specific services. A water company may pay farmers for not using certain insecticides that pollute the water, or a city may pay mountain communities for protecting the forest that is vital for its water supply. Attention to the financial aspects of water management needs to increase and should start with a proper valuation of the services ecosystems provide. At the moment, much of their value is taken for granted or underestimated. Their proper assessment would certainly lead to other choices for management. Political systems also need to make the participation of stakeholders in basin negotiations possible, and effective laws are required to regulate the processes involved.

## CONCLUSION

Water is a scarce resource. If we continue to overuse and pollute our water and destroy our natural ecosystems, we may fulfill the prediction that 30 percent of the world's population will not have enough water by 2025.

The coming decade will be important for the management of water. The question is how we will use the available water to provide food, safe environments, health; and livelihoods to a growing world population, in harmony with nature. We need to grow more food with less water, meet the growing needs in cities and industry, and so on. It is a question of daunting complexity, but one that has to be answered in the coming years.

The ecosystem approach to water management may provide answers to the social, economic, and ecological problems we face. Water security is based on protection of the ecosystems on which resources depend. Recognizing the vital role of healthy ecosystems in the water cycle and protecting them should form the basis of any water management decision.

## REFERENCES

1. IUCN, (2000), *"Vision for Water and Nature: A World Strategy for Conservation and Sustainable Management of Water Resources in the 21st Century."* Gland, Switzerland and Cambridge, U.K.
2. Pirot, J. Y, Meynell, P.J, and D. Elder, (2000), *"Ecosystem Management: Lessons from Around the World"*, Gland; Switzerland.
3. World Commission on Dams, (2000), *"Dams and Development, A New Framework for Decision making"*, Earthscan: London.

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