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The world's water

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Water – the most essential of life-sustaining elements – provides for mankind not only drinking water and sanitation, but also transport, food, fish, recreation, energy, water for irrigation and industrial processes and a range of other goods.

The Earth's population is growing by approximately 100 million people a year, and our ambitions for the planet all demand water. Degradation of freshwater and marine water resources is a major threat to ecological systems and human well-being. Some 80% of the pollutants responsible for the degradation of marine waters originate from land-based human activities.

Degradation of freshwater and marine water resources is a major threat to ecological systems

We pollute water in many ways – by sewage, chemical substances, spills and radio-nuclides. We destroy coastal zones, drain wetlands and interrupt natural watercourses without considering the full consequences. We ruin habitats, with serious consequences for biodiversity, and we catch too many fish, thereby reducing the regeneration of fish populations.

The Global International Waters Assessment (GIWA)

GIWA is an initiative of UNEP designed to address these problems in the world's shared waters, groundwater reservoirs, open freshwater areas and coastal waters.

GIWA is a comprehensive effort to analyse and establish the root causes of environmental problems in international waters. GIWA's mission is – by working in a worldwide network of scientists and universities – to collect scientifically valid information

The most precious resource – but every eight seconds, a child in the developing world dies from a disease caused by unsafe water

Photo courtesy GIWA

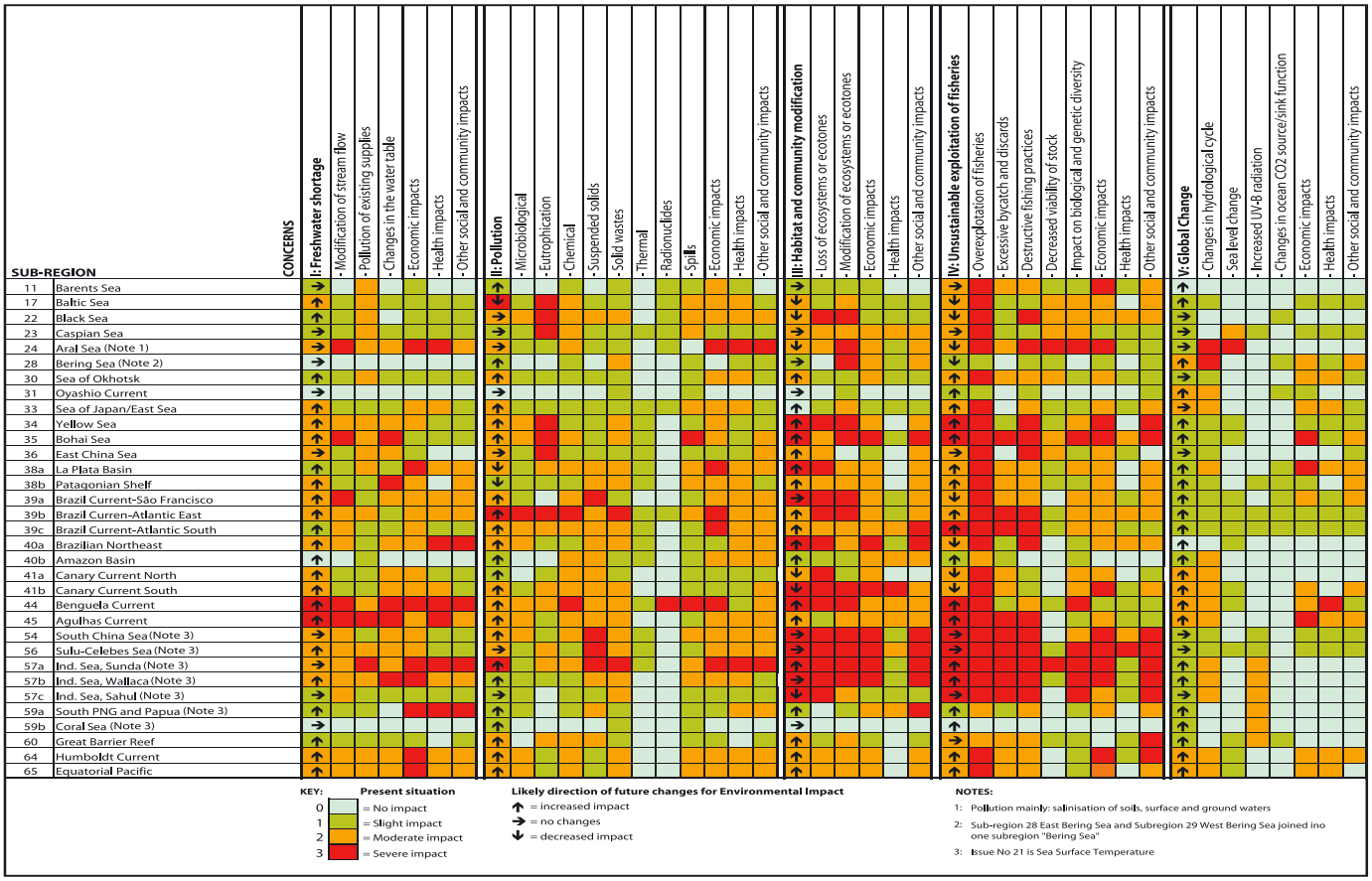

Table 1: GIWA assessments and predictions, by sub-region

on the level of environmental degradation in the world's shared water resources. In this work, the emphasis is both on environmental factors and on the socio-economic factors which are the root causes of the problems.

The main purpose of GIWA is to provide politicians and other decision-makers with information about where they should concentrate their efforts to mitigate environmental degradation in international waters. The information provided by GIWA will be a basis for the prioritisation of actions.

The ecological status of the world's shared waters

A short summary of the outcome of the assessments carried out as part of the tasks under GIWA shows both distinct differences between different sub-regions of the world and several common observations.

Table 1 (*above*) is a summary of the assessments carried out at this stage of the project. The table shows the areas of concern identified by the world's experts and the likely environmental impacts of future changes. It is interesting to note that issues related to the destruction and degradation of ecosystems ('habitat and community loss'), and over-fishing ('unsustainable exploitation of fisheries'), stand out as the most acute in most of the sub-regions.

Over-fishing and related issues such as excessive destruction of bycatch and the use of destructive fishing techniques are ranked the most severe issues in more sub-regions than any other environmental problem. This is particularly obvious in the East and South-East Asian Seas, but it is also mentioned in sub-regions surrounding the Atlantic, and all the big inland lakes. The destruction and degradation of ecosystems are also identified as particularly serious in the East and South-East Asian Seas.

Freshwater shortage
- ❑ Reduction in steam flow
- ❑ Pollution of existing water supplies
- ❑ Lowering of the water table

Pollution
- ❑ Microbiological pollution
- ❑ Eutrophication
- ❑ Chemical pollution
- ❑ Suspended solids
- ❑ Solid wastes
- ❑ Thermal pollution
- ❑ Radio-nuclides
- ❑ Spills

Habitat and community modification
- ❑ Loss of ecosystems or ecotones
- ❑ Modification of ecosystems or ecotones

Unsustainable exploitation of living resources
- ❑ Overexploitation
- ❑ Excessive bycatch and discards
- ❑ Destructive fishing practices
- ❑ Decreased viability of stock
- ❑ Impact on biological and genetic diversity

Global Change
- ❑ Changes in hydrological cycles
- ❑ Sea level change
- ❑ Increased UV radiation
- ❑ Changes in ocean CO2 source/sink

Table 2: Environmental concerns of GIWA

Photo courtesy GWA

Not just for humans: clean water is essential for animal life, and to preserve biodiversity

Further inspection of the experts' assessment of the different sub-regions shows that issues related to freshwater overuse and degradation ('freshwater shortage') and pollution are ranked as problems causing intermediate impacts in most regions. However, in parts of Africa, these problems are considered severe.

Overall, the issues related to climate change ('Global Change') are considered less acute than any of the other areas in the analyses.

A very obvious – and perhaps not surprising – result of the assessments is that a very large proportion of the problems identified in the current analyses are expected by the expert groups to become *more* severe in the years to come. In almost no cases do the experts consider it likely that the problems will actually diminish in the future.

Getting policies and structures right

What are the fundamental causes of the degradation of global water resources around the world? Some people would argue that human opportunism and shortsightedness are the fundamental causes. However, if that is so, what features characterise those societies which have been able to manage their water and related resources in a sustainable way?

In almost no cases do the experts consider it likely that the problems will diminish in the future

The search for the root causes of the deterioration, and the tools for sustainable management, must be based on an analysis of norms, policies and institutions.

Institutions successful in managing natural resources use political, social, economic or administrative mechanisms to highlight resource scarcity and provide incentives to individuals, the private sector and others to take that scarcity into consideration in their decisions.

World Water Day grew out of the 1992 United Nations Conference on Environment and Development held in Rio de Janiero.

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It was decided that each World Water Day would focus on a particular theme relating to the conservation of water resources and that one UN agency would be selected to lead the UN system in its activities.

The theme for 22 March 2002 was Water and Development, and the International Atomic Energy Agency (IAEA) was the lead UN agency.

www.worldwaterday.org

Photo courtesy GIWA

'Water governance' refers to the range of political, societal, economic and administrative systems which are in place to regulate the development and management of water resources and provision of water services at different levels of society.

Prices are one such mechanism – but not the only one. ***Laws*** (especially ***property rights***) and ***standards*** also signal scarcity and provide incentives. In traditional societies, religion and other behavioural norms are useful mechanisms.

When these mechanisms do not function properly, natural resources are mismanaged. This is the case, for example, when countries, through subsidies, promote irrigation using a scarce water resource, subsidise investments in bigger and more effective fishing vessels despite dwindling fish stocks, or promote the extraction of fossile ground water. Scarcity of a resource may vary between adjoining countries, as in the case of the water of a river that flows from one country to another. The upstream country may promote water uses that from a regional perspective are inefficient or even catastrophic but that are, at least in the short term, efficient from the point of view of that country.

So national policies on water usage should be considered from a regional, even global, standpoint, as much as from a domestic one. The GIWA project will identify the socio-economic root causes of the failures to manage water resources sustainably – and will provide options for alternative strategies. ■

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2003: INTERNATIONAL YEAR OF FRESHWATER

The United Nations General Assembly, in resolution 55/196, proclaimed the year 2003 as the International Year of Freshwater. It encourages governments, the United Nations system and all other actors to take advantage of the Year to increase awareness of the importance of sustainable freshwater use, management and protection. It also calls upon governments, national and international organisations, non-governmental organisations and the private sector to make voluntary contributions and to lend other forms of support to the Year.

The International Year of Freshwater provides an opportunity to accelerate the implementation of the principles of integrated water resources management. The Year will be used as a platform for promoting existing activities and spearheading new initiatives in water resources at the international, regional and national levels. The International Year of Freshwater is expected to follow up on agreements reached at the World Summit on Sustainable Development in Johannesburg, and should have an impact far beyond the year 2003.

- **GIWA**
  www.giwa.net
- **World Water Assessment Programme**
  www.unesco.org/water/wwap/case_studies/index.shtml
- **World Water Council**
  www.worldwatercouncil.org