



River Water Quality

Section **0**: Introduction
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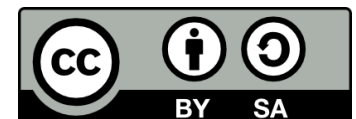


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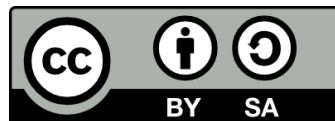
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Introduction

Freshwater Ecosystem Problems

Section Contents

1. Freshwater Ecosystem Crisis
2. Challenges & Solutions
3. Management in Mediterranean Region



Section Goals

- To face the challenges for societies to establish a sustainable world since the Earth's water resources are under increasing pressure due to irrational use and management by human activities and uneven population growth.



Section Outcomes

- Understanding the actions for:
 - ✓ improvement of water management,
 - ✓ pollution control &
 - ✓ sustainable levels of abstraction



Freshwater ecosystem crisis

- Increased water scarcity is due to the nature of the resources & to undervaluation and ineffective management of water use
- Global Water crisis within 25 years with political, economic & social dimensions
 - ✓ 100% population growth the last 50 years (6 billions) & intensification of human activities
 - ✓ 1 billion people lack access to safe drinking water
 - ✓ 2 billion people lack access to adequate sanitation



Freshwater ecosystem crisis

- Affects Water as a natural resource
- Affects freshwater ecosystems goods & services to humankind
- Affects political, economic and social conflict in all sectors

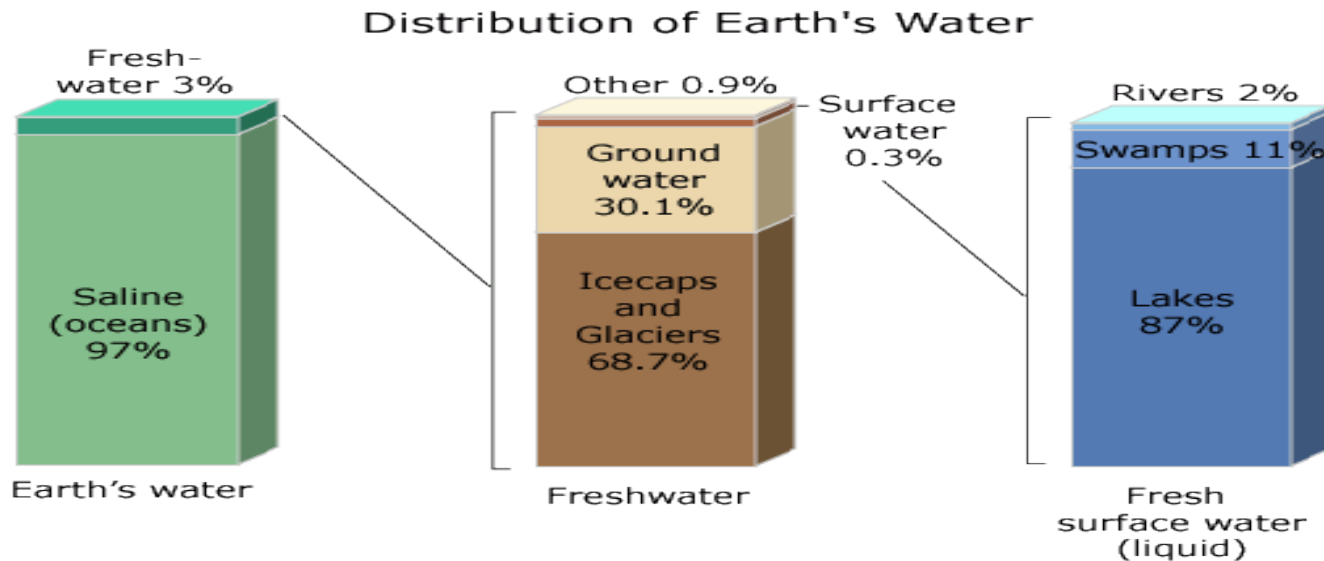


Image indicating the extreme scarcity of the resource. Earth's water distribution, From: http://commons.wikimedia.org/wiki/File:Earth%27s_water_distribution.gif#, courtesy of the U.S. Geological Survey - USGS, 1996. CC-BY-SA.



Challenges

Which are the Challenges?

Major environmental & resource Problems:

- Air pollution (climate change, Urban air pollution, Acid deposition, indoors & outdoors pollutants, noise)
- Water pollution (Nutrient overload, toxic contaminants, infection agents, oxygen depletion, sediment)
- Biodiversity depletion (Habitat destruction, extinction, invasion of alien species)
- Food supply problems-inadequacy (Overpopulation, overfishing, overexploitation, pollution, erosion)

Waste pollution (Soil waste, Hazardous waste, human health)



Solutions

Are there any solutions to the challenges?

- Rational Use of Resources
- Education of the general public on ecological & economic values of freshwater ecosystems
- Participation & Responsible Behavior of Societal Groups
- Strengthening of Water Resources Management Institutions, institutional co-operation, River Basin Authorities & NGO
- Harmonizing, updating and enforcing legislation at regional & national levels
- Sustainable funding mechanisms to resist over-exploitation & ecosystem degradation



Management in Mediterranean Region

Unsustainable water management

- Intensive urbanization & concentration of population in the coastal areas. The south and east Mediterranean countries face increased competition for remaining resources.
- Water-stress in arid coastal regions poses a threat to the economic development
- Water policy: supply oriented with sectoral approach
- 72% of water consumption corresponds to the agricultural sector
- High pressure during summer period - increased water demand (tourism & agriculture)



Management in Mediterranean Region

Environmental risks

- Human activities cause heavy pollution problems in the Mediterranean Sea
- Aquatic ecosystems are threatened because of deterioration in water quality & quantity
- More than 50% loss of the wetlands
- Over-utilisation of water resources and climatic change will result in years of drought
- Urbanization – urban expansion & deforestation will result in temporary floods
 - Threat to social stability if current management & governance practices continue in the same way



References

- Agenda 21, Chapter 18
- EEA 1995: Europe's Environment. The Dobris Assessment. Edited by David Stanners and Philippe Bourdeau. European Environmental Agency. Copenhagen
- UNEP 2004: Freshwater in Europe - Facts, Figures and Maps. 2004, United Nations Environment Programme / DEWA~Europe
- International Conference on “Sustainable Development for Lasting Peace: Shared Water, Shared Future, Shared Knowledge” May 6-7, 2003, Athens, Greece
- Millennium Conference (2000)
- UNESCO & WWAP 2003: Water for People. Water for Life. The United Nations World Development Report.
- Gleick, P.H. 1998: The World's Water. 1998 - 1999. The Biennial Report on Freshwater Resources. Peter H. Gleick, Island Press, Washington D.C





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