



# Fighting Water Pollution to Achieve the SDGs

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# Overview

- Why is water pollution becoming a global environmental priority?
- Sources of water pollution: UN Environment reports and GEO
- Impacts of water pollution on environment and human health
- Sustainable Development Goals and SDG 6
- UN Environment interventions:

# Global Water Pollution

It is estimated that **a hundred million people** across the world are affected annually by pollution.

Freshwater pollution from **nutrients loading, chemicals and wastes**, is considered the primary threat to the environment and human health.

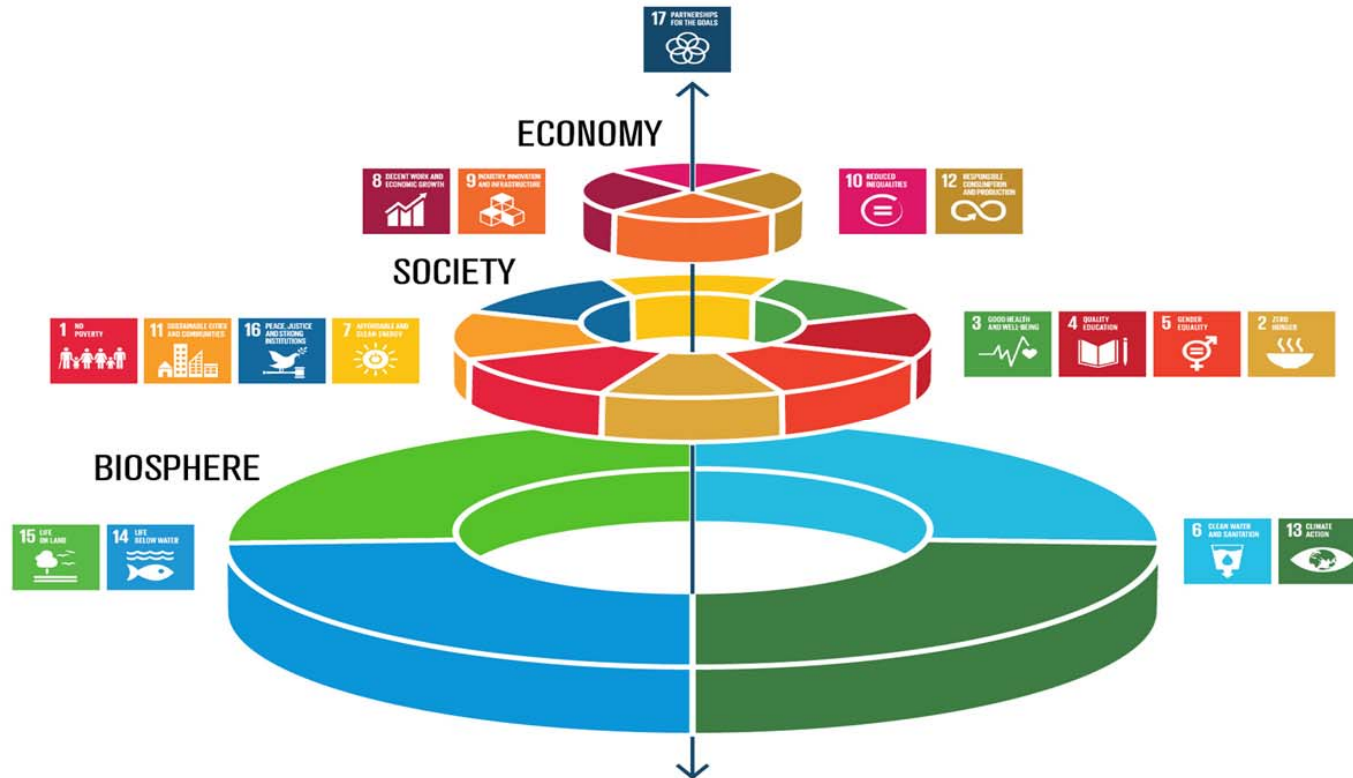


Every day, **2 million tons** of sewage and industrial and agricultural waste are discharged into the world's water.

GCC countries produce about 60 per cent of the world's desalinated water. While the need for desalination in GCC countries is inevitable, **associated environmental impacts need attention.**

# Strengthening the Environmental Pillar of SD-

## Strengthening the ecological basis of Water



Securing a pollution free (or clean) planet can help achieve the Sustainable Development Goals and **multiple benefits** of clean water and environment, food security, health, clean, energy efficiency, gender equality, and social justice

# Impacts from Waste water

The UN estimates that the amount of wastewater produced annually is about 1,500 km<sup>3</sup>, **six times more water than exists in all the rivers of the world.**

untreated wastewater are responsible for increased pathogen pollution, affecting around **one-quarter** of Latin American rivers, **one-tenth to one-quarter** of African rivers and up to **half of Asian rivers.**

Worldwide, it is estimated that **80% of wastewater** is released back into freshwater bodies without treatment

Most villages in the **Mashreq** lack adequate wastewater disposal systems and rely on individual **household cesspits**, contributing to the contamination of groundwater, often a source of untreated drinking water. Extensive use of manure as fertilizer aggravates the problem, as run-off seeps into aquifers. Once groundwater becomes polluted, it is difficult and usually **cost-prohibitive** to rehabilitate, especially in a region with very low groundwater recharge rates.



# Human induced pollution

- Lack of adequate sanitation is one of the most significant forms of water pollution. Worldwide, 2.5 billion people live without improved sanitation. **More than 80 Millions in Arab countries.**
- 18% of the world's population, or 1.2 billion people (1 out of 3 in rural areas), defecate in the open. Open defecation significantly compromises quality in nearby water bodies and poses an extreme human health risk.

# Human Health Impacts

- infectious diseases such as waterborne diseases are the number one killer of children under five years old **4 billion cases of diarrhea each year 2.2 million deaths, mostly of children under five.**
- In Tunisia Nitrate causes methemoglobinemia (blue baby syndrome) in infants, a condition that can result in death

# Underground and Drinking Water Quality

- The overexploitation of groundwater resources throughout West Asia has resulted in a **deterioration of water quality, seawater intrusion, depletion and salinization** of aquifers, and rising pumping costs.
- The naturally occurring **arsenic pollution** in groundwater now affects nearly 140 million people in 70 countries on all continents.
- In France, drinking water testing uncovered that **3 million people were drinking water whose quality did not meet WHO standards,** and 97% of groundwater samples did not meet standards for nitrate in the same study.





## Water Pollution from Agriculture



Nitrate\* is the most common chemical contaminant in the world's groundwater aquifers.

In Gaza nitrate levels have risen to 600–800 mg per litre due to agricultural and wastewater pollution, much higher than the maximum allowable limit of 50 mg per litre for drinking water.



## Infrastructure Affects Water Quality



Sixty percent of the world's 227 biggest rivers have interrupted stream flows due to dams and other infrastructure.

Interruptions in stream flow dramatically decrease sediment and nutrient transport to downstream stretches, reducing water quality and impairing ecosystem health.

# Pollution from Industry and Mining

**70% of industrial wastes** in developing countries are disposed of untreated into waters where they contaminate existing water supplies.

An estimated **500,000 abandoned mines** in the U.S. will cost \$20 billion in management and remediation of pollution

Chlorinated solvents were found in **30 percent of groundwater** supplies in 15 Japanese cities, sometimes traveling as much as **10 km** from the source of pollution.

Roughly one unit of mercury is emitted into the environment for every unit of gold produced by small-scale miners, a total of as much as **1000 tons of mercury emitted each year.**

# Water pollution ecosystem Impacts: food security and fisheries

There has been widespread decline in biological health in inland (non-coastal) waters and ecosystem productivity.

**24 % of mammals and 12 % of birds** connected to inland waters are considered threatened.

flows from Cairo untreated discharging into Lake Manzala in the northeast Nile Delta. This contamination has resulted in high fish mortality and malformation, a third of Egypt's fish harvest.

# Costs and Benefits of Clean


## Water:

- **faster economic growth:** annual economic growth rate of 3.7 percent among poor countries with better access to improved water and sanitation services, while similarly poor countries without access had annual growth of just 0.1%.
- for every \$1 **invested** in Sanitation and drinking water, there is a projected \$3-\$34 economic development return.
- **Economic losses** due to the lack of water and sanitation in Africa as a result of the mortality and morbidity impacts is estimated at \$28.4 billion or about **5% of GDP**.

# Socio economic gains from waste water management

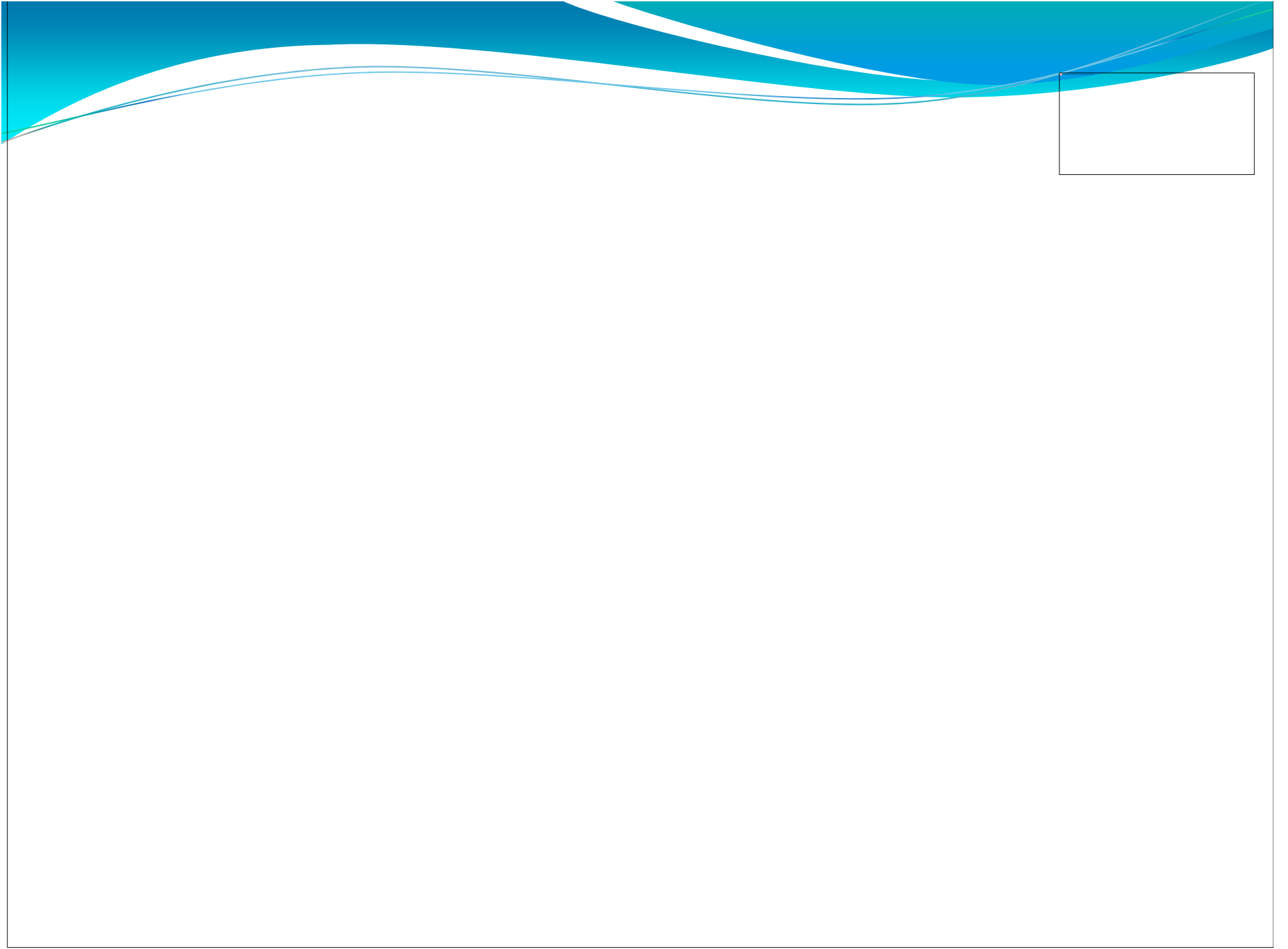


- Wastewater transformation: making available scarce resources, particularly **water, fertilizer and clean energy** (in the form of biogas) can lead to productivity gains in other sectors, such as community development, transportation, agriculture, aquaculture and forestry.
- while most wealthy cities and countries have well-developed sanitation and wastewater management systems, these systems are **not well suited to resource recovery**



## OPTIONS FOR DECOUPLING ECONOMIC GROWTH FROM WATER USE AND WATER POLLUTION

- the ambitious 2030 Agenda for Sustainable Development seeks to decouple economic growth from water consumption and **pollution by integrating water** related issues across each of the 17 goals and making a specific commitment that **“ensures availability and sustainable management of water and sanitation for all.”**
- by 2030, annual demand for water in North America and Sub-Saharan Africa could increase by 42 and 283 per cent respectively, compared to 2005 levels.



# UN Environment work on sustainable solutions for sanitation and wastewater management.

- Nature based solutions-
- Freshwater Ecosystem Strategy
- UN Environment Medium Term Strategy 2018-2021
- UNEA 3, pollution resolution, Global Water Quality Guidelines
- GEMI/GEMS monitoring SDG 6 indicators 6.3, 6.5, 6.6,



# New UN Environment Freshwater Strategy 2018-2021

## *Areas of Expertise*

- *Ambient Water Quality* Improvements in the **quality of water in freshwater ecosystems** through pollution reduction and the establishment of international water quality guidelines.
- *Integrated Water Resources Management*
- *Valuation of Freshwater Ecosystems and their Services*

## *Proposed Types of Activities*

1. *Collaborating on policy mainstreaming and standardization*
2. *Supporting integrated monitoring through GEMI*
3. *Commissioning case studies and demonstration projects*
4. *Capacity-building and Education*
5. *Gender Mainstreaming*



- UNEA**
- 2030 agenda**
- Paris Agreement**

**Water is an  
ecosystem  
service”**



# Pollution Free Planet

- detoxify the environment (air and water pollution);
- decarbonize the economy;
- decouple environment degradation from resource use,
- enhance ecosystem resilience and restoration, integrated strategies.



# Conclusion & Recommendations



The UN Environment is calling its member states to undertake transformative actions and pledge commitments at the global, regional, national and local levels on key pollution risk areas

A Framework of guidance principles and proposed Transformative Actions in key pollution risk areas:

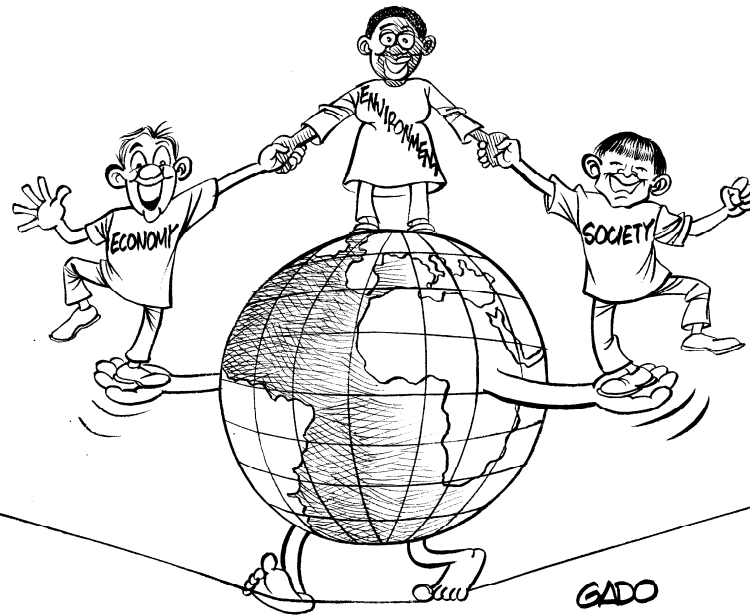
- adopting multiple benefits of action,
- integrated approaches,
- Leapfrog technologies and
- access to innovative financing,
- build capacity and skills to address implementation and take action at all levels of governance

**IT'S TIME TO CHANGE THE WORLD  
TELL EVERYONE**

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**THE GLOBAL GOALS**  
For Sustainable Development

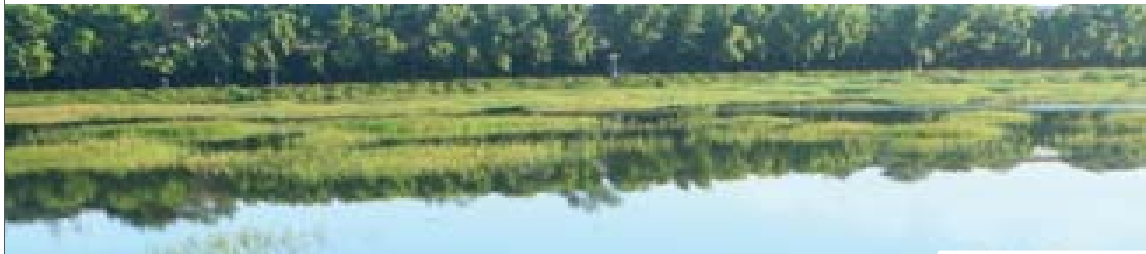


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**Thank you**

# The role of ecosystems in sustaining the availability and quality of water:

- Ecosystem protects the water source
- The provision of water in sufficient quantity and quality is a service provided by ecosystems and hence underpinned by biodiversity.
- 60% of precipitation on land comes from vegetation through evapo-transpiration.
- Therefore water needs to be managed in an ecosystem context;



Freshwater ecosystems provide more than **US\$75 billion in goods** and ecosystem services for people, but are increasingly threatened by a host of water quality problems.

The greatest single service freshwater ecosystems provide—marshes in particular—is **water purification** and the assimilation of wastes, valued at US\$ 400 billion (2008\$) worldwide