

The background is a dark blue field filled with various sizes of semi-transparent gears. On the left side, there is a vertical strip with a colorful, abstract, and somewhat pixelated pattern in shades of orange, yellow, and brown.

Waste Water Treatment and Water Quality Based on UNSD Questionnaire 2002 and 2004

United Nations Statistics Division

Workshop on Environment Statistics

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The background is a dark blue field with several large, semi-transparent gears of varying shades of blue. On the left side, there is a vertical strip with a colorful, abstract, and somewhat pixelated pattern in shades of orange, yellow, and brown. The text is in a bright pink color.

Waste water generation

Total waste water generated

- **Agriculture, forestry and fishing**
- **Mining and quarrying**
- **Manufacturing Industries**
- **Production and distribution of electricity**
- **Construction**
- **Other economic activities**
- **Households**



Sources of data:


Statistical surveys (agriculture, ✨ industries, households)

Administrative sources (waste water ✨ discharge permits)

Expert estimates and calculations ✨ based on production data and emission coefficients



Emissions of pollutants

In the 2002 Questionnaire there was a  table on the volumes of selected pollutants emitted in the waste water. The table was later discontinued due to the lack of responses.

Waste water treatment

Types of wastewater treatment processes

- 1- Mechanical treatment/Primary**
- 2- Biological treatment /Secondary**
- 3- Advanced treatment/Tertiary**

Table no. W 4b

- 1- Waste water treated in public treatment plants**
- 2- Waste water treated in other treatment plants**
- 3- Waste water treated in independent treatment facilities**
- 4- Non treated waste water**
- 5- Total sewage sludge production**



Sources of data:

Survey of the waste water treatment industry ✨

Expert estimates and calculations ✨

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Access to **Waste water treatment facilities**

- **Population connected to waste water collecting system**
 - **Population connected to waste water treatment**
 - **Population connected to independent treatment (septic tanks)**
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- **Waste water treatment plants**
 - Design capacity of waste water treatment plants by level of treatment**



Sources of data:

Survey of waste water treatment industry ✨

Housing census ✨

Household surveys ✨

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Water quality

As part of its biennial environmental data collection, until 2002, UNSD requested annual average water quality statistics for a range of pollutants for a minimum of two of the most polluted rivers, lakes and coastal areas, respectively. Countries were asked to consider their selection of the water bodies in the context of the economic, demographic, and geographic importance as well as in light of the statistical quantity and quality of the available data for the respective waters. For more coherent interpretation of the data, additional meta-information was collected on the location of the monitoring station and the sampling frequency.

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Parameters of water quality

Biochemical Oxygen Demand (BOD5)

Dissolved Oxygen (DO)

Chemical Oxygen Demand (COD)

Total Dissolved Solids (TDS)

Total Phosphorus

Total Nitrogen

Faecal Coliform

Chlorophyll-a (Chl-a)

Key water quality parameters for various water uses

Public water supply	Industrial water supply	Agricultural water supply	Aquatic life and wildlife maintenance	Recreation and aesthetics
Coliform bacteria Turbidity Colour Taste-odour Trace metals Dissolved solids Trace organics Chlorides Fluorides Sulphates Nitrates Cyanides Radioactivity	<u>Processing</u> (except foods) pH Turbidity Colour Hardness Alkalinity/acidity Dissolved solid Suspended solids Trade metals Trade organics Cooling pH Temperature Silica Aluminium Iron Manganese Hardness Alkalinity/acidity Sulphates Dissolved solids Suspended solids Sanitary (same as for public supply)	<u>Farmstead:</u> (same as for public supply) <u>Livestock:</u> (similar to that for public supply) <u>Irrigation:</u> Dissolved solids Specific conductance Sodium Calcium Magnesium Potassium Boron Chlorides Trace metals	Temperature DO pH Alkalinity/acidity Dissolved solids Salinity Carbon dioxide Turbidity Colour Settleable materials Floating material Tainting substances Toxic materials Nutrients Substances adversely affecting wildlife	<u>Recreation</u> Coliforms Turbidity Colour pH Odour Floating materials Settleable materials Nutrients Temperature <u>Aesthetics</u> Turbidity Colour Odour Floating materials Settleable materials Nutrients Temperature Substances adversely affecting wildlife

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Table w6: water quality of selected rivers
Table w7: water quality of selected lakes
Table w8: water quality of selected coastal areas



Data sources:

Water quality monitoring networks ✨
(water authorities, environmental agencies, health authorities)

International: GEMS Water and EEA ✨