

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

Water treatment and water quality

Workshop on Environment Statistics

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Prepared by

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Water treatment and water quality

Waste water generation

Total waste water generated

- agriculture, forestry and fishing (ISIC 01-05)
- Mining and quarrying (ISIC 10-14)
- Manufacturing Industries (ISIC 15-37)
- Production and distribution of electricity (ISIC 40)
- Construction (ISIC 45)
- Other economic activities
- Households

Waste water treatment

Types of wastewater treatment processes

- 1- Mechanical treatment**
- 2- Biological treatment**
- 3- Advanced treatment**

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**

The background is a dark blue gradient with several large, semi-transparent gears of various shades of blue and purple. 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 facilities

- Population connected to waste water collecting system
- Population connected to waste water treatment
- Population connected to independent treatment (septic tanks)

- Waste water treatment plants

Design capacity of waste water treatment plants



Water quality

conditions and substances
affecting the quality of water

- Physical conditions
- *General chemical conditions*
- Pathogens
- Oxygen-consuming substances
- Nutrients
- Toxic sub-stances
- Radioactive substances

Water Quality Indicators in some selected Arab Countries

Country	Water quality worldwide ranking	Water quality indicator value
Algeria	104	-0.64
Egypt	63	-0.15
Jordan	119	-1.26
Lebanon	60	-0.11
Libya	85	-0.33
Mbrocco	121	-1.36
Saudi Arabia	65	-0.18
Sudan	118	-1.06
Syria	79	-0.29
Tunisia	99	-0.54

Source: World Water Development Report, World Water Assessment Programmed (WWAP), UNESCO, 2003

The background is a dark blue gradient with several semi-transparent gear shapes of varying sizes scattered across it. On the left side, there is a vertical strip with a colorful, abstract, and somewhat pixelated texture in shades of orange, yellow, and brown.

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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Water quality for aquatic life and wildlife

Water quality standards

Table w6 water quality of selected rivers

Table w7 : water quality of selected lakes

**Table w8: water quality of
selected coastal areas**