World Water Quality Assessment:
Towards a full assessment

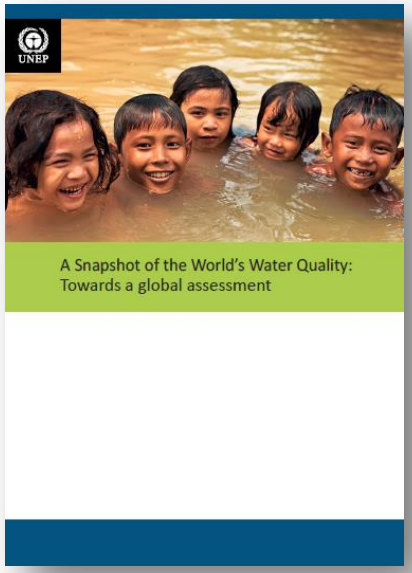
Joseph Alcamo

Executive Director, Center for Environmental Systems Research, University of Kassel, Germany

Side Event of German government, UN-Water, UNEP; 30 November, 2016

Towards a Worldwide Water Quality Assessment

Findings – UNEP „Snapshot“ report on water quality



- Water pollution serious and getting worse in Latin America, Africa, and Asia,
  - Severe pathogen pollution → 1/3 all river kms
  - Severe organic pollution → 1/7 all river kms
  - Severe & moderate salinity pollution → 1/10 all river kms
- Emerging and persistent water quality problems in industrialized countries – e.g. pharmaceutical residues, eutrophication

- Majority of rivers in developing countries still in good condition → Great opportunities for short-cutting further pollution and restoring the rivers that are polluted. → Mix of management & technical options supported by good governance

Snapshot of world water quality
A pre-study for a worldwide assessment

⇨

Full assessment

Important step, but …

… covers limited number of issues

… incomplete geographic coverage; data gaps

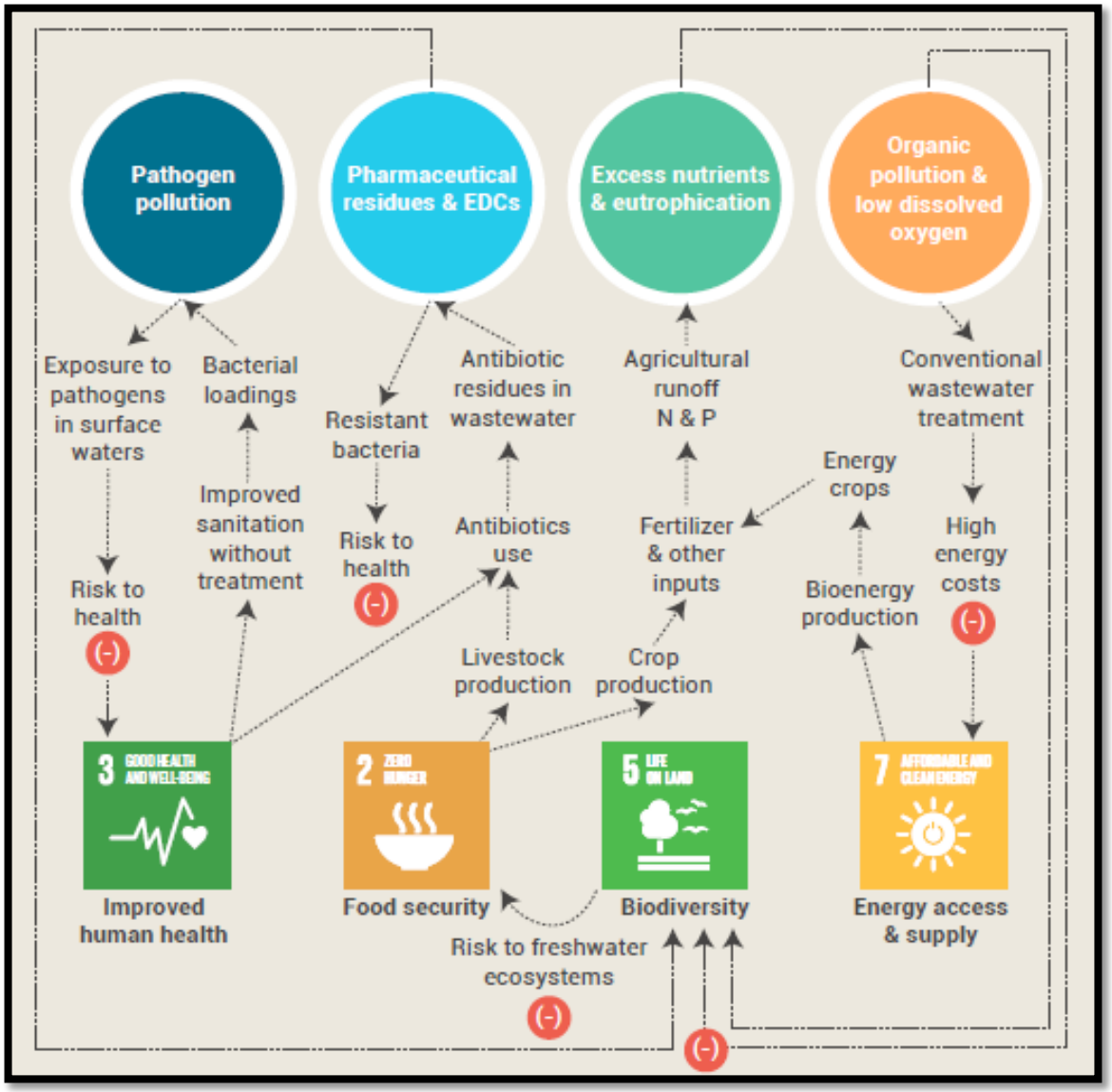
… very brief duration – no time for engagement

→ Provides preliminary results & methodological basis

Main theme of full assessment: Water quality in the context of SDGs

Water quality problems

Other SDGs

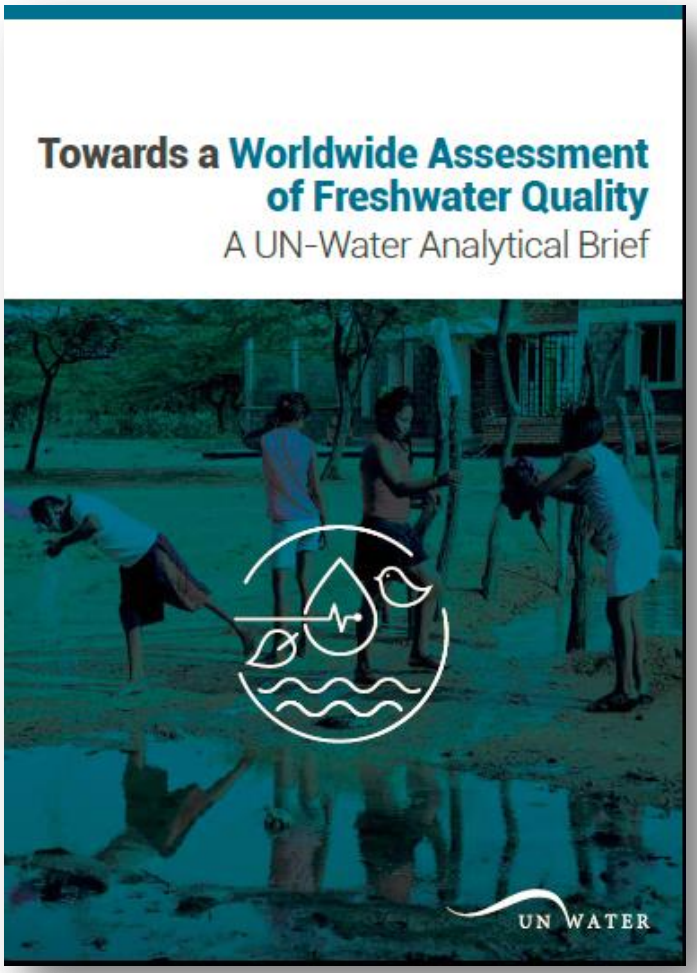


Source:
Towards a Worldwide Assessment of Freshwater Quality
A UN-Water Analytical Brief

Proposed core questions of assessment:

- How can the water quality target under the SDGs be achieved?
- How will worsening water pollution affect SDGs for health, food security, biodiversity … ?
- How can actions to protect and enhance water quality help meet other SDGs?

A roadmap for a worldwide assessment …



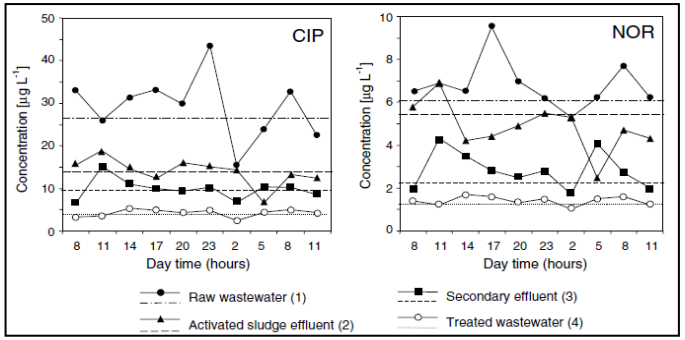
1. Baseline assessment

Assess state of water quality

What is state of water quality especially as it relates to SDGs & Post 2015 Development Agenda? e.g.

- Health – contact with unsafe surface waters → pathogen pollution & trace substances such as pharmaceuticals

Antibiotics in wastewater, Vietnam



- Food security (fisheries & irrigation water supply),
- Sustainable consumption & production (quality of water for industry),
- Conservation of biodiversity (freshwater ecosystems)

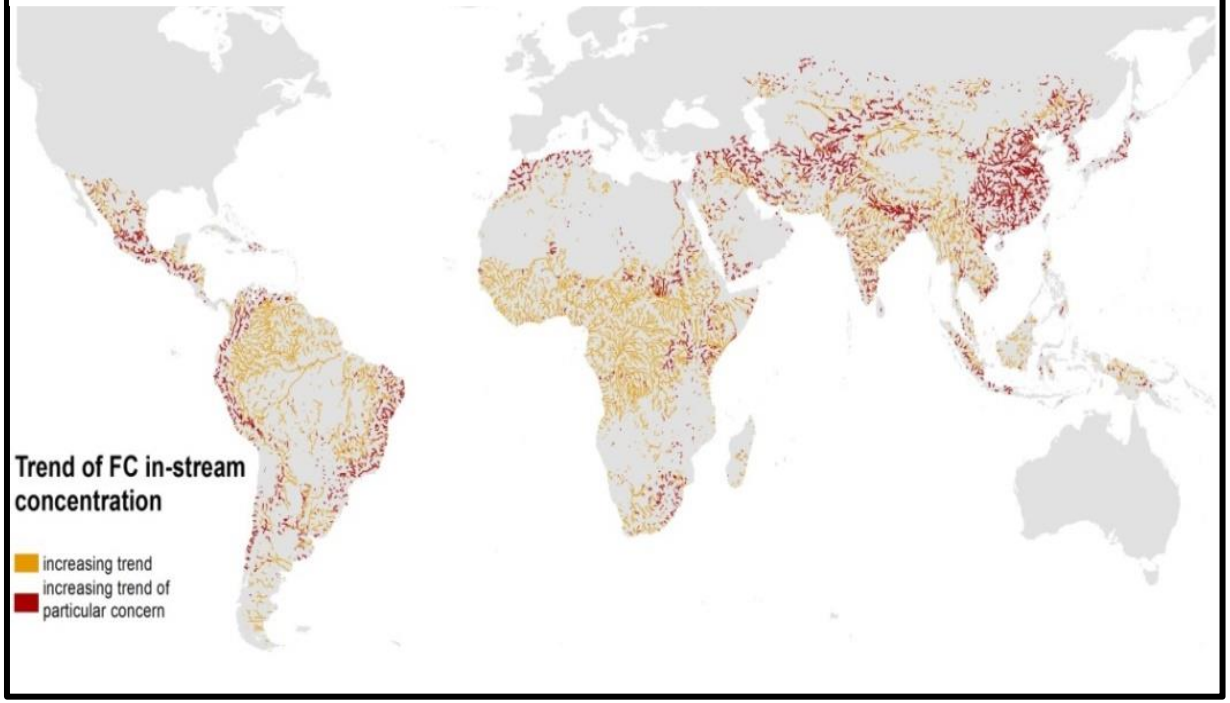
Data for baseline assessment – with GEMS/Water

- ✓ Improve data compatibility -- Integrate national data
- ✓ Network national focal points
- ✓ New water quality surveys – citizen science
- ✓ Remote sensing
- ✓ Modelling

2. Scenario analysis

Water pollution on the increase

Increasing concentrations 1990-2010 of pathogen indicator bacteria (faecal coliforms) in rivers



From: *UNEP (2016) Snapshot of the world's water quality*

2. Scenario analysis

Develop scenarios of water quality

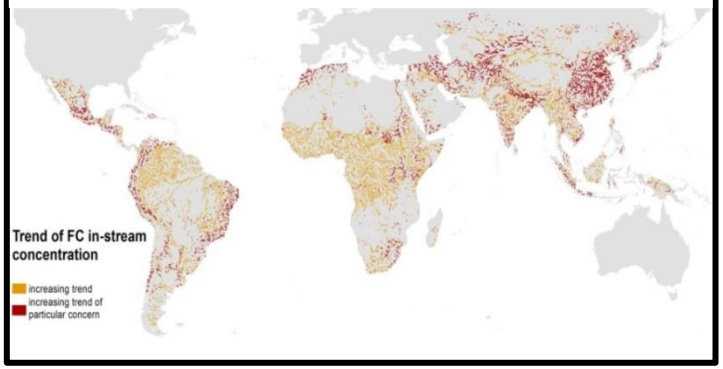
What are trends in water quality and their relationship to SDGs for food, health, … over next 10-20 years? → Input to SDG process

Scenarios of changing water quality as affected by climate change, socio-economic developments.

Baseline and mitigation scenarios

Build on current scenario best practice:
Stakeholder collaboration + Modelling

Increasing concentrations of indicator bacteria (faecal coliforms) 1990-2010 in rivers



Outputs

- ✓ Scenarios of water quality SDG indicators and other input to SDG process
- ✓ Future hot spot areas
- ✓ Input to countries and donors for priority setting

3. Mitigation options

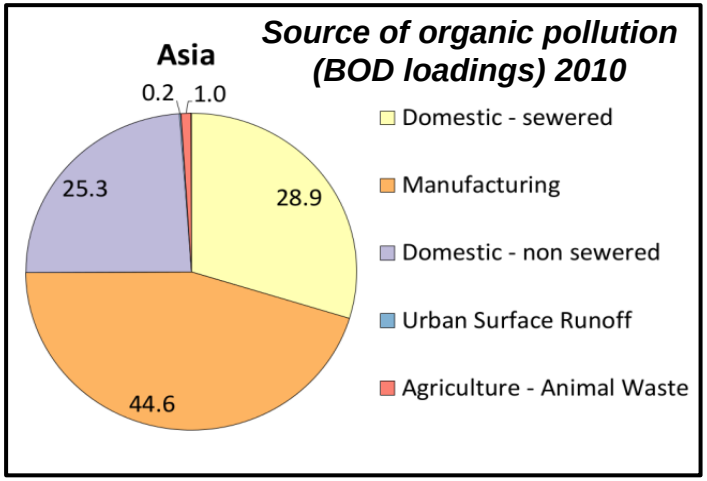
Evaluate options for avoiding, treating, reusing wastewater

What are the options available to countries, regions, communities to meet their water-related SDG goals?

- Technical -- conventional & nature-based, green infrastructure (e.g. ecological wastewater treatment; wastewater reuse) …
- Management – e.g. IWRM

Outputs

- ✓ Wastewater inventories
- ✓ Reviews of best mitigation practices
- ✓ Matching of options with wastewater inventories for achieving SDGs
- ✓ Input to water quality management plans



From: *UNEP (2016) Snapshot of the world's water quality*

4. Governance options

Assess governance options

What are institutions and regulatory frameworks at different levels that are relevant for preventing further pollution and restoring freshwater systems?

Regional/country case studies with local partners

Build on *Snapshot* report: 8 case studies

Local, national, international governance – especially SDG process

Case study river basins

From: *UNEP (2016) Snapshot of the world's water quality*

Outputs

Review of best governance practices → institutions, legislation, regulations → transferable to many regions and countries to achieve SDGs

Summing up

Main theme?

Water quality in the context of the SDGs (health, food, ecosystems …)

What?

1. Assess the baseline
2. Anticipate trends - scenario analysis
3. Evaluate mitigation options
4. Identify governance options

How?

Science-based, strong policy context – interaction with stakeholders

Build on methods and findings of *Snapshot* report

Why?

Help achieve the SDGs, raise awareness, understand options

Knowledge to act on the global water quality challenge

World Water Quality Assessment:
Towards a full assessment

Joseph Alcamo

Executive Director, Center for Environmental Systems Research, University of Kassel, Germany

Side Event of German government, UN-Water, UNEP; 30 November, 2016

Towards a Worldwide Water Quality Assessment