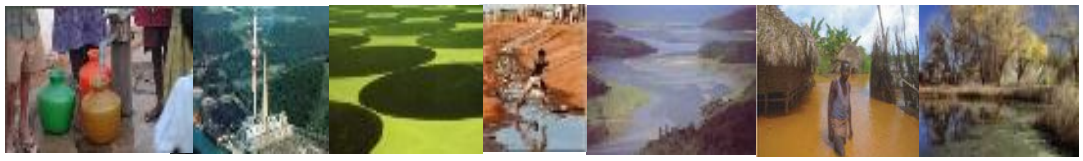
The World
Water Quality
Assessment

The World's Water Quality: Towards a *Full* Assessment



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Workshop on: Water Quality Data and Assessments:
Co Benefits for Sustainable Development Goals, Country Reporting and Decision Support

Stockholm 25 August, 2015

HELMHOLTZ CENTRE FOR ENVIRONMENTAL RESEARCH – UFZ

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UN WATER

Building blocks

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

Building blocks

A pre-study for a worldwide assessment → **Full assessment**

Why a full assessment?

- Gather knowledge about water quality to meet SDG goals - Linkage to several SDG goals
- Reduce our ignorance of world water quality situation, provide knowledge for action
- Maximize utility of GEMS/Water – Data acquisition coupled with assessment
- Provide scientific input/support to national assessments & action

Scope

Freshwater system: Rivers, lakes, [groundwater]

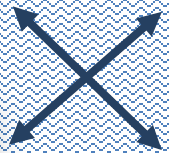
Framework

- Systems approach
- Driver - Pressure - State - Impact - Response

Building blocks

1. Baseline assessment
State of water quality

2. Scenario analysis
Prospects & policy options



3. Mitigation options
Technical, management

4. Governance options
All levels

1. Baseline assessment

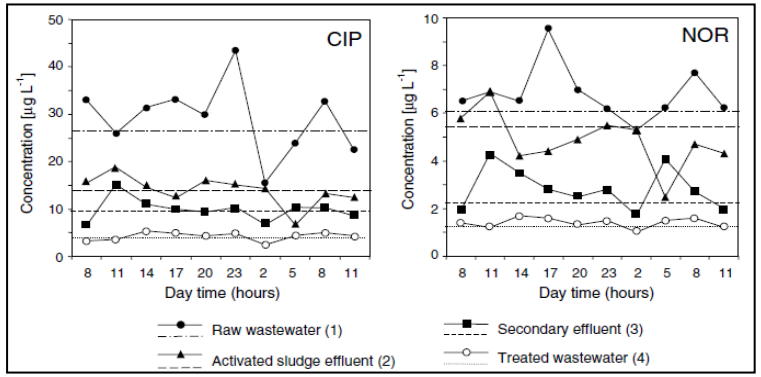
What?

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



Duong 2008 Chemosphere

- Food security (fisheries & irrigation water supply),
- Sustainable consumption & production (quality of water for industry),
- Biodiversity conservation (ecosystem status)

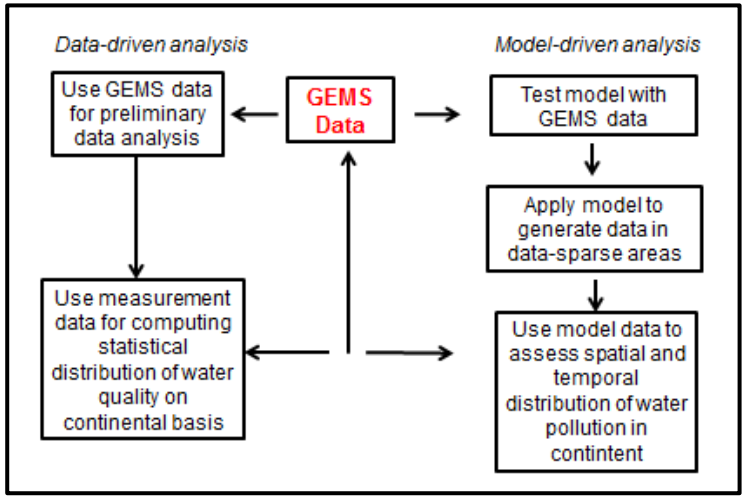
Ciprofloxacin

1. Baseline assessment

How?

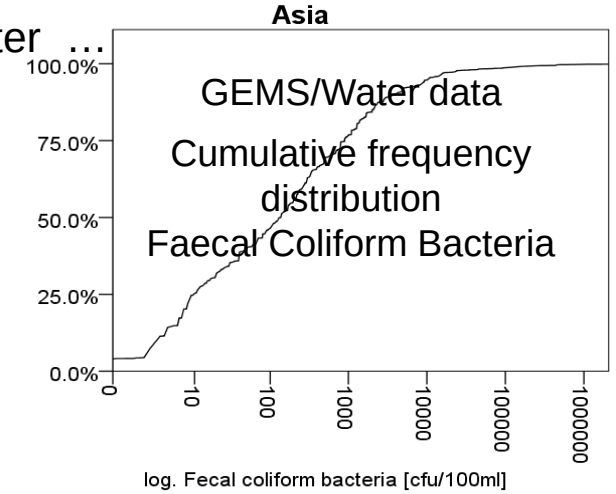
Assess the baseline & recent trends; State of SDG water quality indicators

Build on Pre-Study approach: combined data analysis & modelling



Data and knowledge for baseline assessment:

- Extended "revitalized" GEMS/Water
- Remote sensing – lakes, [rivers]
- Partner UN agencies, : health, fisheries, industry, groundwater …
- "Citizen science" / Capacity building



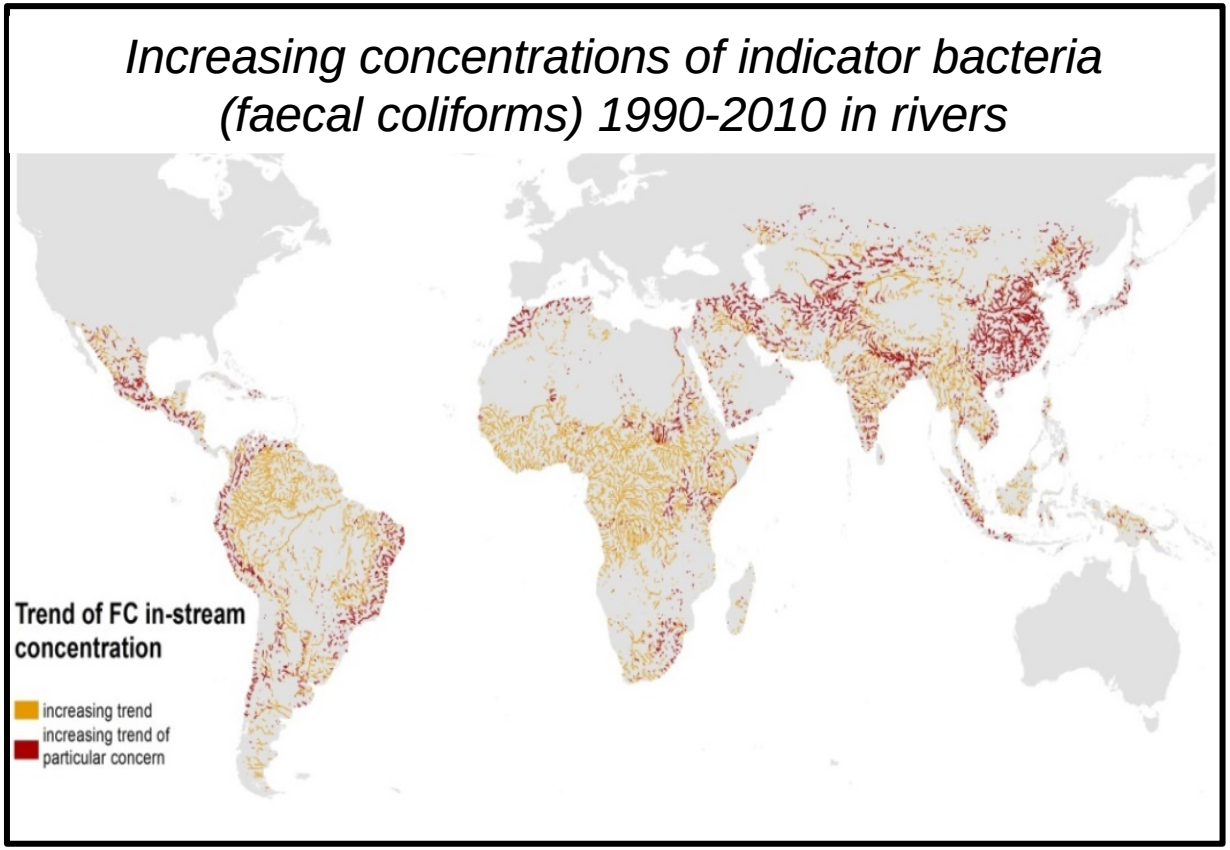
Outputs?

- Identification of priority problems, hot spot areas
- Identification of links to SDGs:
  e.g. water quality → fisheries → food security
  water quality → health risk
- Wastewater inventories: Sources of problems

2. Scenario analysis

Water pollution on the increase

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



2. Scenario analysis

What?

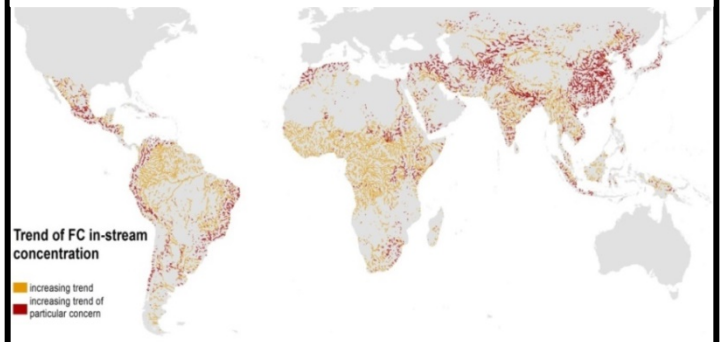
Develop scenarios of water quality

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

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



How?

Pre-study: No scenarios

Build on current best practice → Combined stakeholder consultation + modelling

Outputs?

Future hot spot areas

Input to countries and donors for priority setting

Scenarios of water quality SDG indicators and other input to SDG process

3. Mitigation options

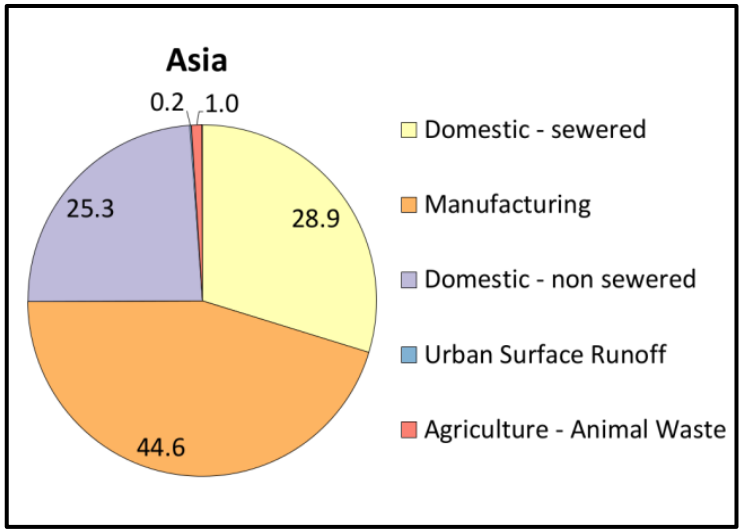
What?

Evaluate options for avoiding, treating, reusing wastewater

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

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

Source of BOD loadings 2010



How?

Pre-study: Water pollution source profiles

Survey of mitigation practices → matching with water pollution source profiles

Preliminary cost evaluations

Outputs?

Wastewater inventories

Reviews of best mitigation practices

Matching of options with wastewater inventories for achieving SDGs

Input to water quality management plans

4. Governance options

What?

Assess governance options

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

How?

Pre-study: 8 case studies, methodology

Regional/country case studies with local partners

International - including SDG process & UN Watercourse Convention

Case study river basins in the Pre-Study

Outputs?

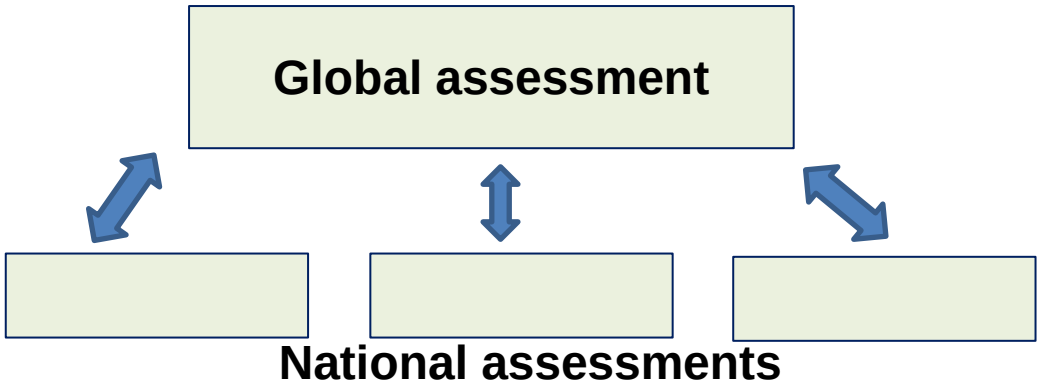
Insights transferable to many regions and countries on best governance practices – institutions, legislation, regulations

Scientific input to UN Watercourse Convention, SDG process, …

Partners

Some important partners

1. GEMS/Water
2. UN organizations, UN-Water, e.g. GEMI - Integrated Monitoring of Water and Sanitation Related SDG Targets
3. Private sector
4. NGOs (citizen science)
5. OECD countries – Analysis of OECD freshwater systems?
6. Developing countries – National assessments, capacity building



Summing up

What?

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

How?

Science based within strong policy context – interaction with stakeholders; strong linkage with SDGs

Build on methods and findings of Pre-Study

Why?

Raise awareness

Understand options

Knowledge to act on the global water quality challenge

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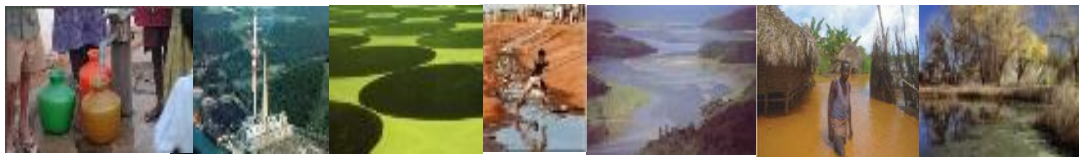

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