A knowledge asset of the African Ministers’ Council on Water

This material is shared as a learning resource to promote awareness and good practice in the provision, use and management of water resources for sustainable social and economic development and maintenance of African ecosystems.

Copyright for this material rests with the authors.
Innovations in Water Quality Monitoring

GEMStat and the Role of Data

Dmytro Lisniak
GEMS/Water Data Centre
International Centre for Water Resources and Global Change
German Federal Institute of Hydrology
Global Data Availability

Data Flows to GEMStat

National Focal Point Status
(September 2018)
- NFP established
- awaiting confirmation
- no NFP

Year of most recent data flow
- 2000
- 2014
- 2017

gemstat.org
Global Data Availability

Availability of Water Quality Data in GEMStat

Parameter Groups
- Chemical
  - Inorganic
  - Nutrients
  - Organic
  - Oxygen Demand
- Physical
  - Flux
  - Optical
  - Temperature
  - Suspended Solids
- Biological
  - Indicator Organism
  - Phytoplankton
  - Pigment

Number of Samples
- 1,000,000
- 500,000
- 100,000

gemstat.org
The Role of Data

Overview of Water Quality
SDG Indicator 6.3.2 (Proportion of Water Bodies with Good Water Quality)

- Example of Indicator 6.3.2
  Situation in South Africa

www.unwater.org/publications/progress-on-ambient-water-quality-632
Spatial Data Gaps in GEMStat

Station Types
- Groundwater station
- Lake station
- Reservoir station
- River station
- Wetland station

- Stations reported, but no data submitted
- Countries contributing to GEMStat
Temporal Data Gaps in GEMStat
Global Data Gaps

SDG Indicator 6.3.2

- 19 African countries involved in SDG 6.3.2 Data Drive
SDG Indicator 6.3.2

- 19 African countries involved in SDG 6.3.2 Data Drive
- 13 of them provided valid data for the indicator
New Sources of Water Quality Data

**Water Quality from satellite observations**

- Only optical properties measurable (chlorophyll, turbidity)
- Only shallow layer
New Sources of Water Quality Data

- Makes identification of pressures and hot-spots possible.
- Allows to derive a trophic state for lakes.

Lake Volta with extreme high turbidity in the northern part of the lake.

Lake Kasumigaura (Japan) with hot-spots of extreme high chlorophyll concentrations.

www.odermatt-brockmann.ch/sponge
Thank you for your attention.

Merci pour votre attention.

Dmytro Lisniak
GEMS/Water Data Centre
International Centre for Water Resources and Global Change
German Federal Institute of Hydrology

Lisniak@bafg.de