Moving towards a Holistic and Inclusive Global Water Quality Monitoring

Leveraging Emerging Technologies and Global Partnerships to inform Climate, Nature and Pollution Action

Sustainability Research & Innovation Congress 2021
June 14, 2021

Objectives of this session

Initiate redesign process of global water quality monitoring
(Environmental and people dimension of Climate, Nature and Pollution Action)

- Build **effective partnerships** with regard to new technologies with the potential **to fill data gaps** and allow GEMS/Water to go **beyond providing opportunistic *in-situ* water quality information**.

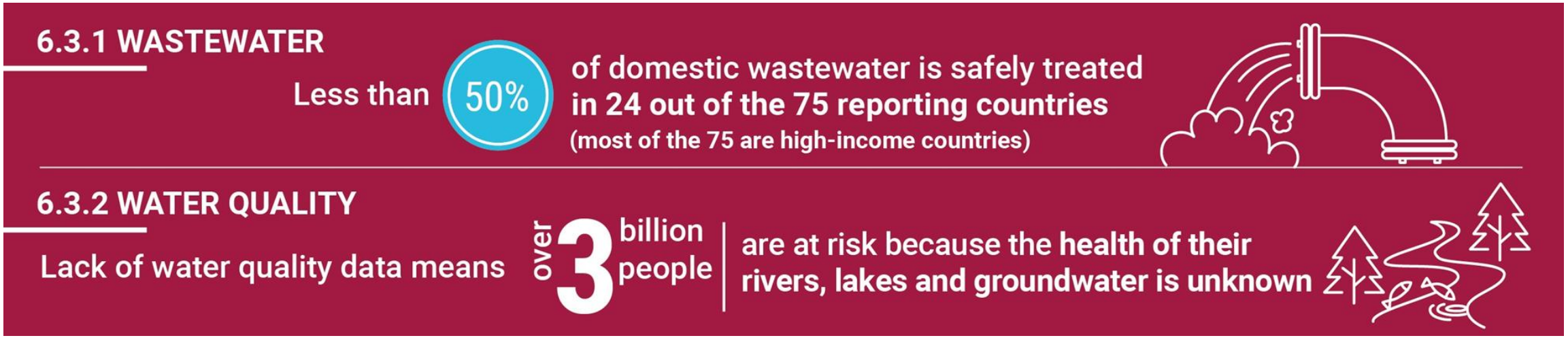
- **Collecting views** and **stimulate input** from the participants to engage and also recommend partners – start **building the network towards a collective action plan**.

Water Quality
«A big unknown in the sustainability equation»

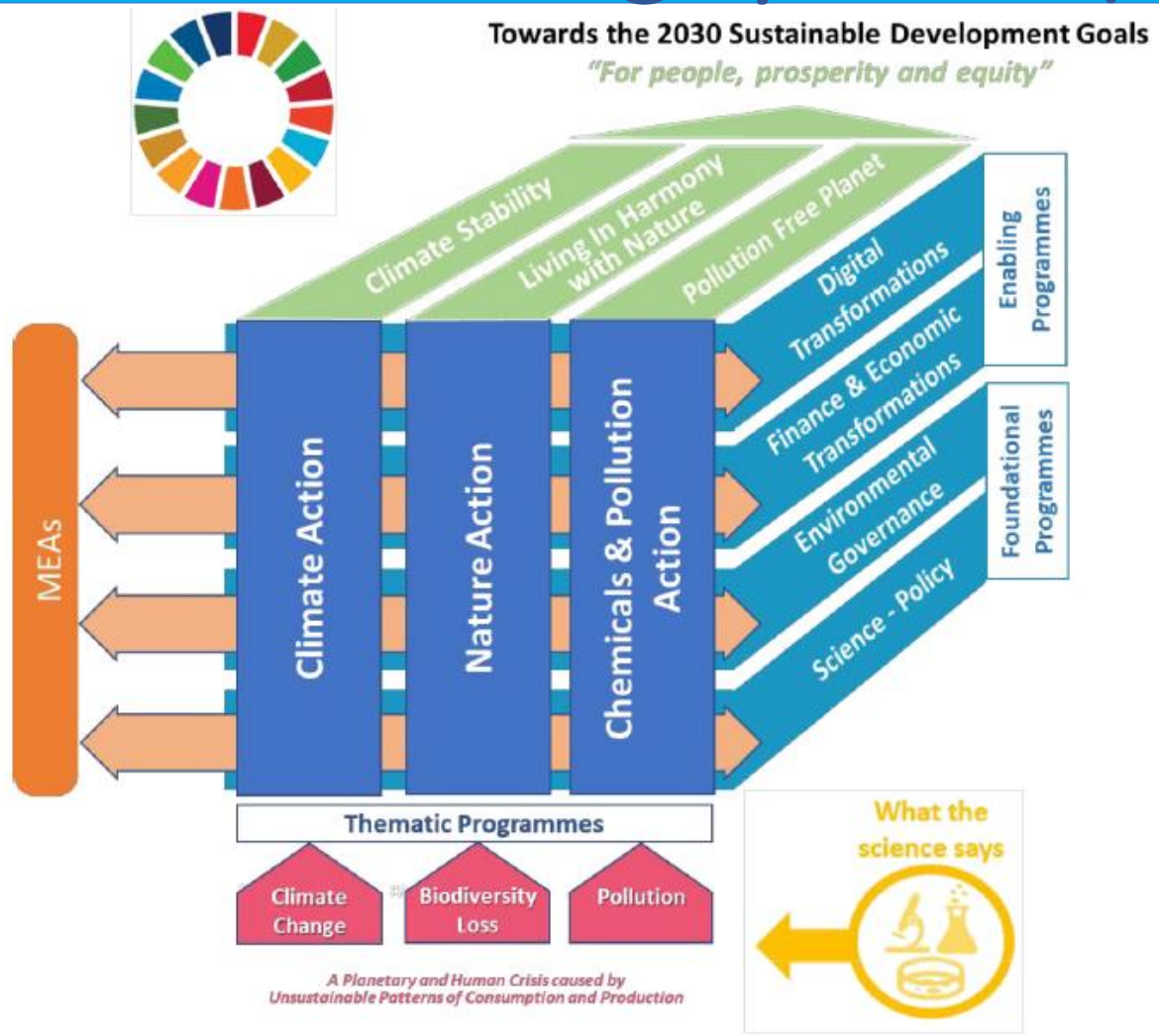
"Without monitoring how do we know about the problems, where they are and where we should focus our efforts?"

" New approaches – digital transformation and social engagement - make global environment monitoring so much more accessible and valuable for the community, private sector and governments"

Andrea Hinwood – UNEP Chief Scientist



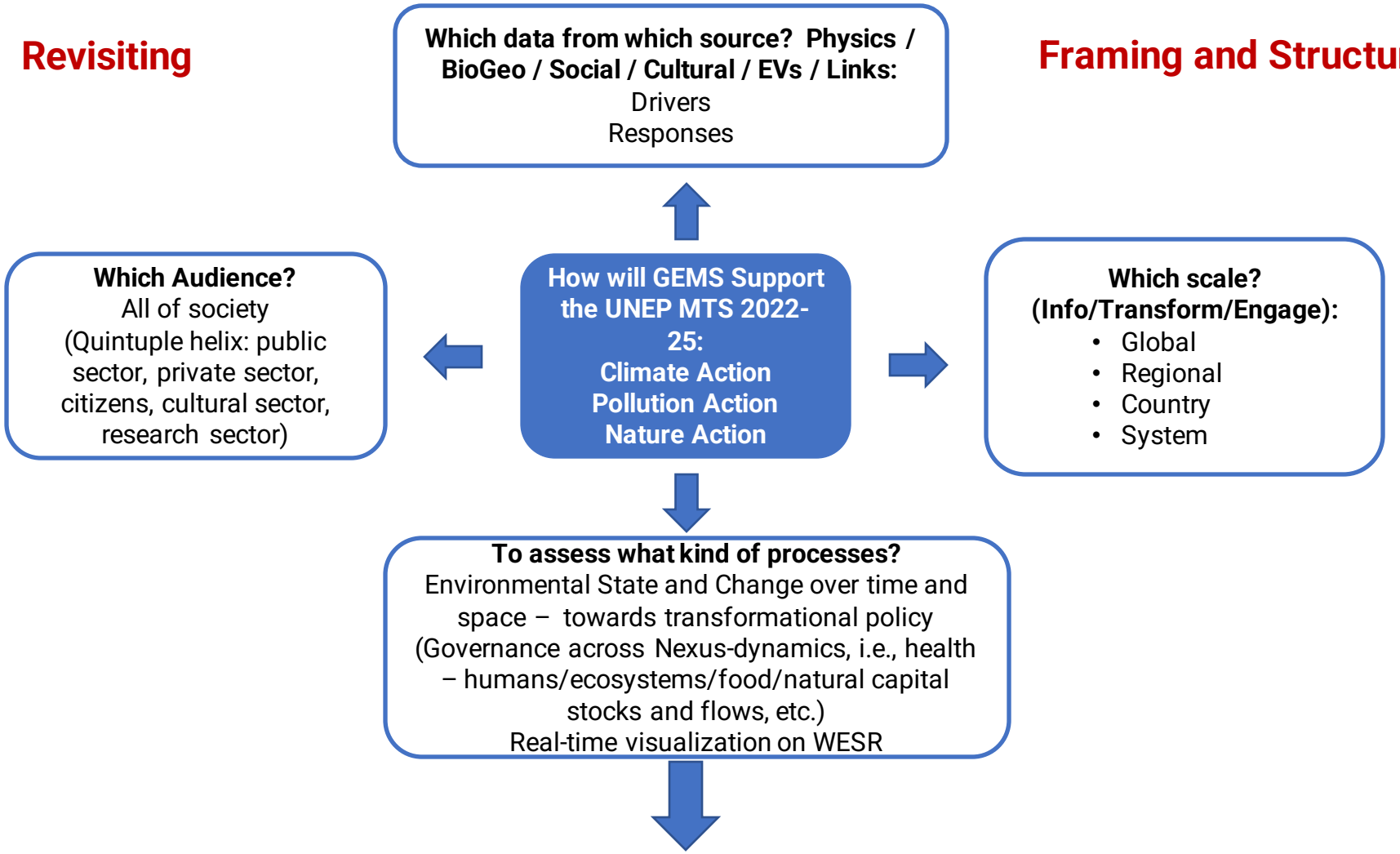
MTS Readiness - Implications for Global Environment Monitoring Systems (GEMS)



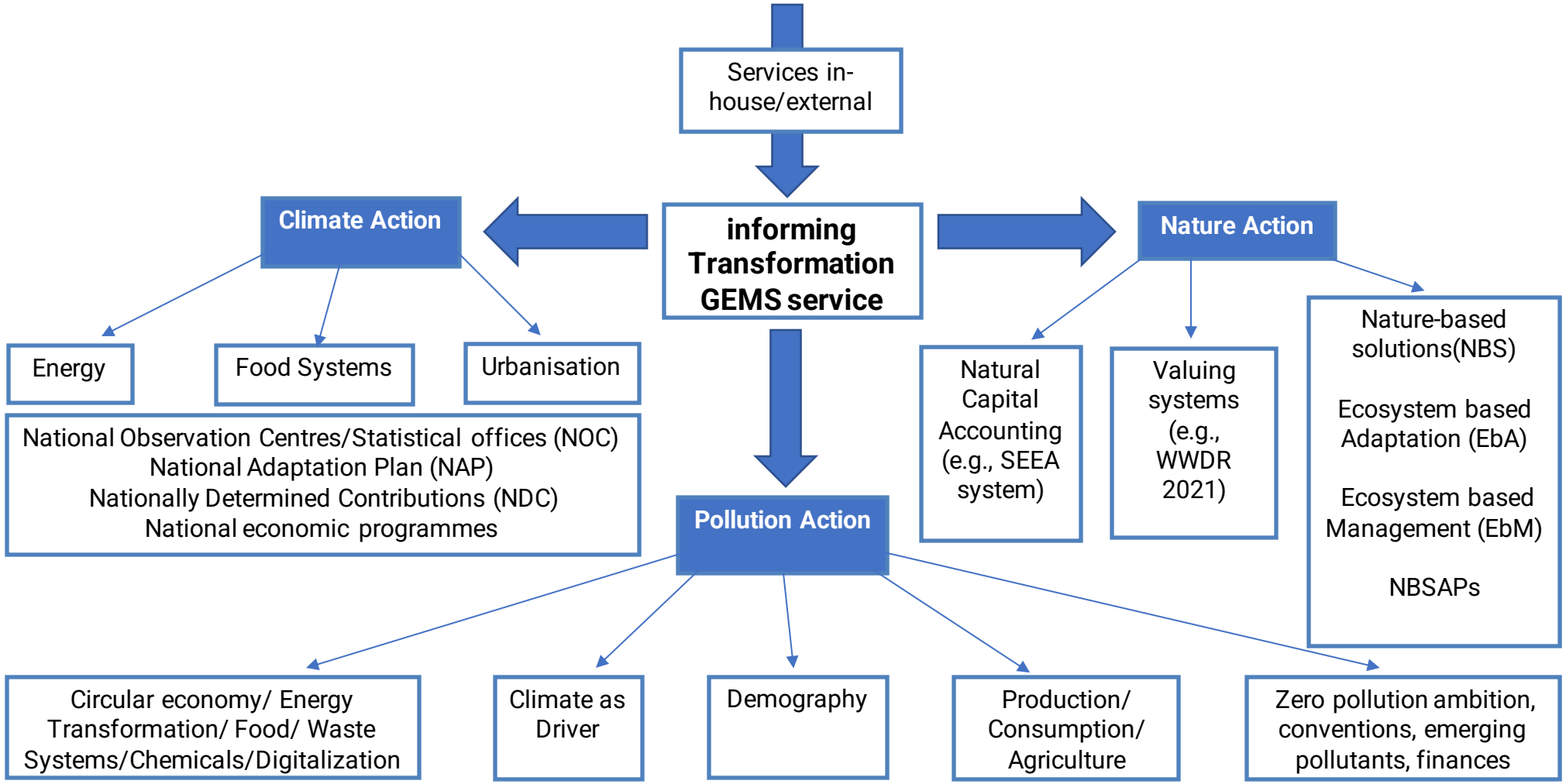
MTS Readiness - Implications for Global Environment Monitoring Systems (GEMS)

Revisiting

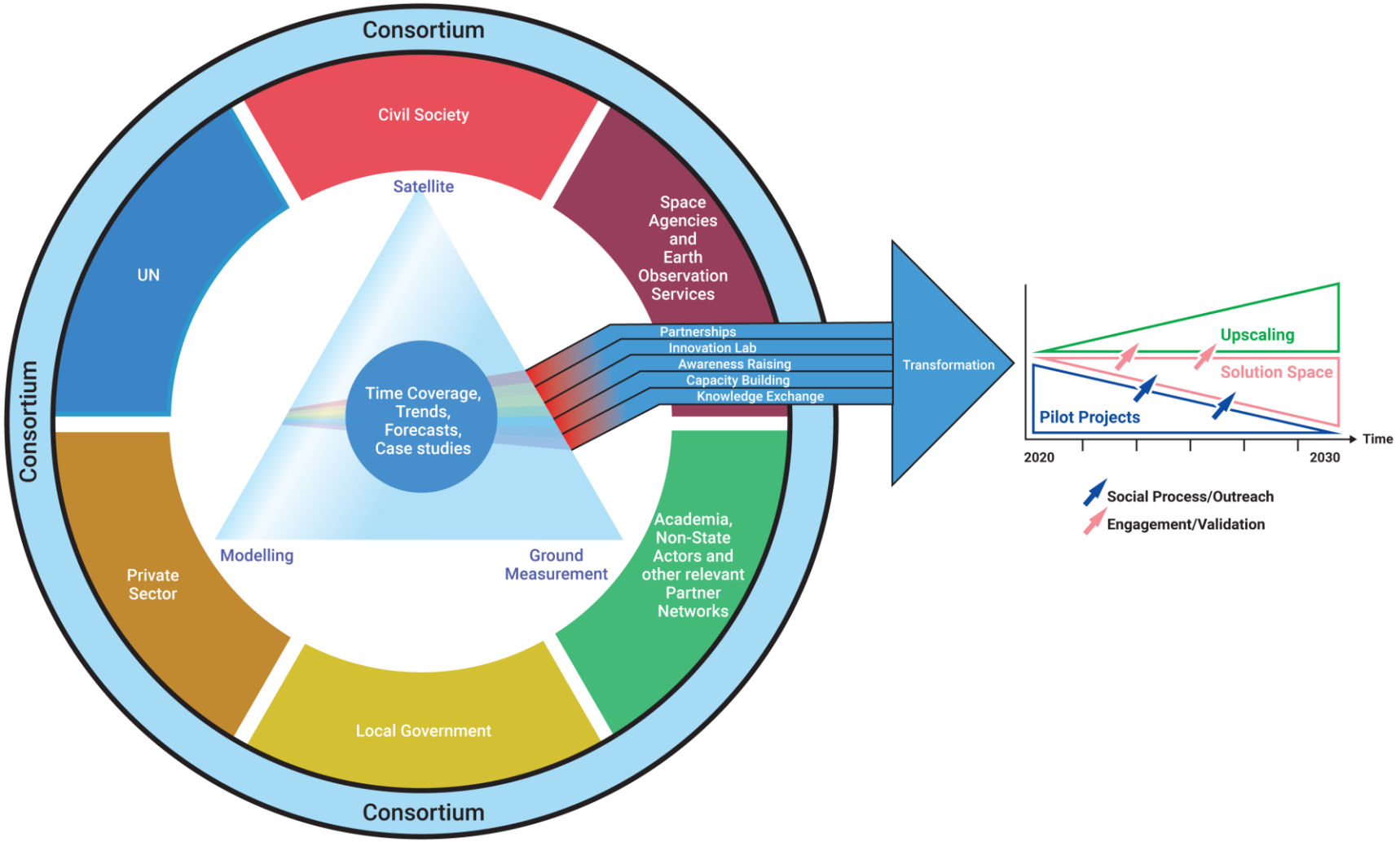
Framing and Structure



Global Environment Monitoring System & Thematic Observation



From monitoring to actionable information



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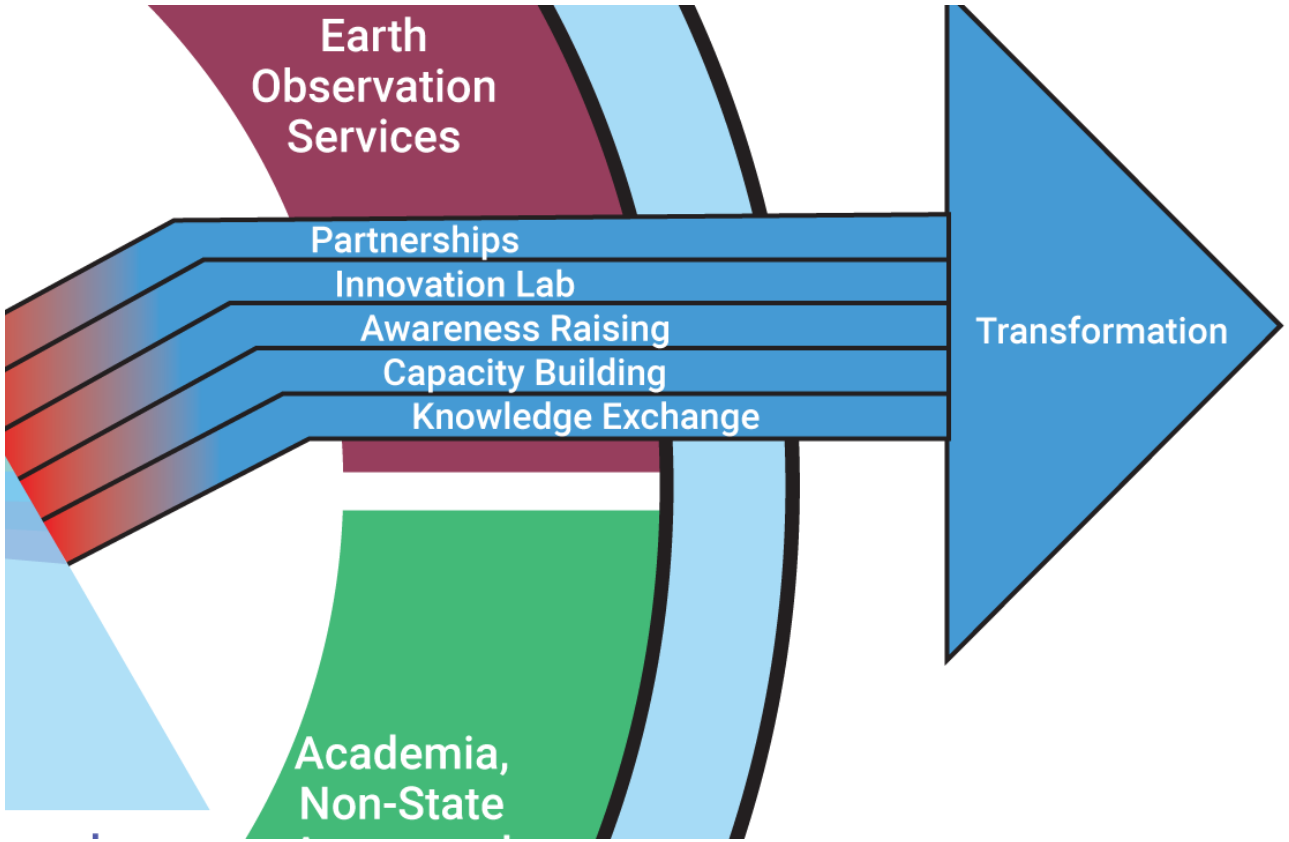
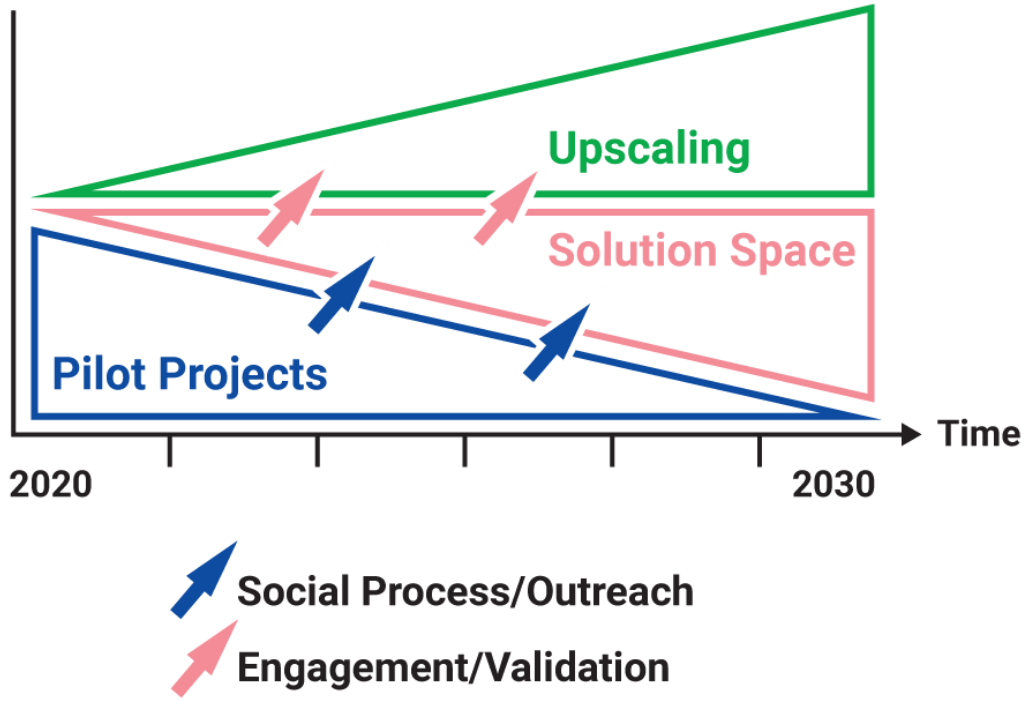




GEMS in UNEP's Data Strategy

World Environment Situation Room

Environment Live (Open data and forecasting)

Indicator Reporting Information Systems

Geospatial information systems

SDG Reporting and International Obligations

Building national capacity on environment statistics and economic environmental accounting

Indicators informing policy - SDG policy briefs, data use and analysis, and Open -Data Databases

Providing access and use of scientific information for developing countries

Library and knowledge services

Knowledge management tools and services

Network partners e.g. Online Access to Research on the Environment

Global Environmental Monitoring Systems on Water

Air Quality Monitoring

Monitoring Land and Biota Systems

Monitoring the oceans

Global Environment Outlook

Global Chemical Outlook

Natural Resources Outlook and Factsheets

Frontiers

Emissions Gap Report

and more

Private institutions, business and other non-governmental organizations

Citizen Science Data with relevance in e.g. environment and health, such as the Global Mosquito Alert Consortium, or City planning

Data for the Future

Horizon scanning, Scenario building, Modelling

Supporting decision- making and action

Preparedness and prevention

Global Water Quality Data Collection

GEMStat

- ~13K monitoring stations in 88 countries
- ~15M monitoring values, ~ 500 different parameters

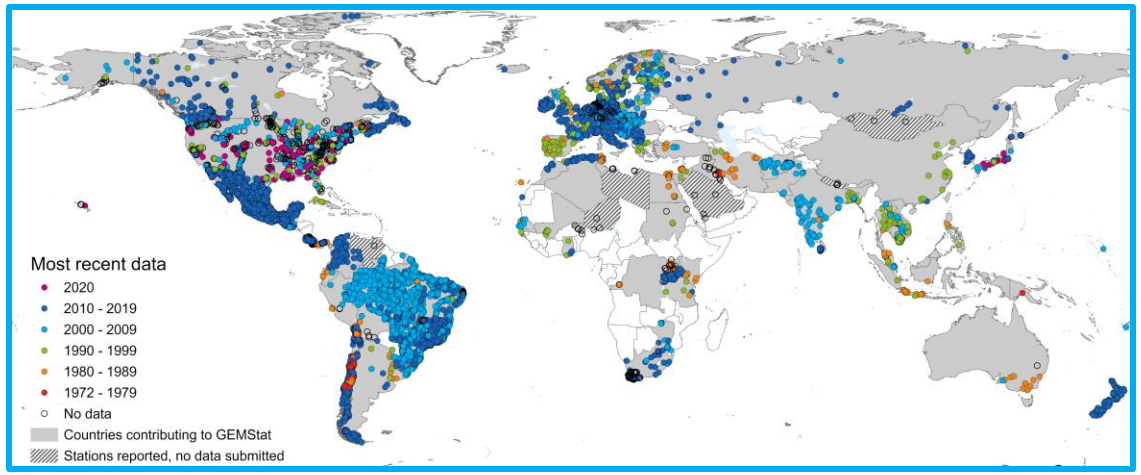
Challenges

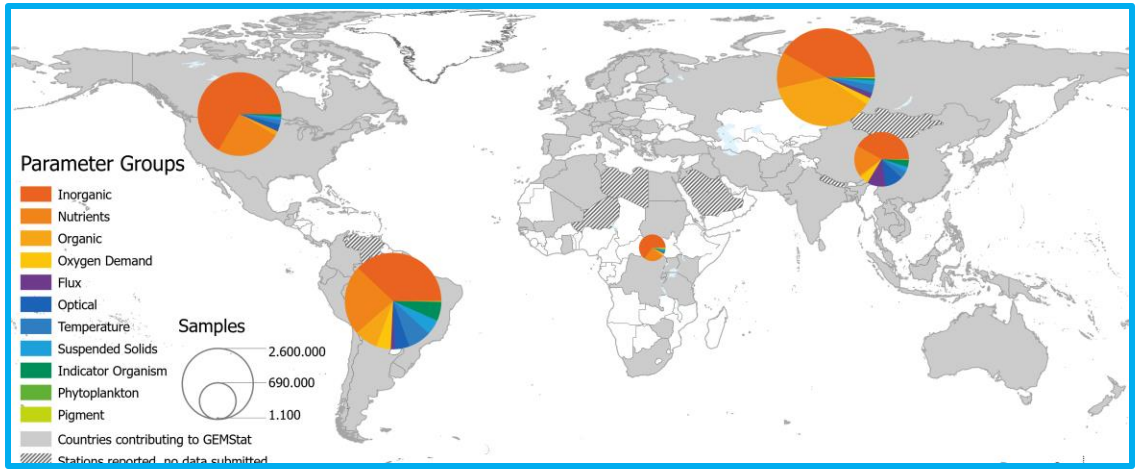
Political & Institutional

- Willingness to share data
- Maintaining data provider contacts

Technical

- Lack of proper data management in many organizations => low data quality
- Lack of centralized data collection at institutional/sub-national/national levels
- No internationally agreed, harmonized (meta)data formats and controlled vocabularies for reporting => requires huge efforts in data harmonization





Guided Discussion

Public water quality monitoring systems often fail to provide reliable data in a timely manner at necessary spatial and temporal scales suited to support policy making.

Q1 - How do we get water monitoring on the agenda?

Q2 - How can the capacity of governmental authorities in charge of these monitoring systems be improved to deliver data that is fit-for-purpose?

Also, data is currently focused on “State of the Environment” reporting (e.g., for SDG 6.3.2) and not on monitoring the effectiveness of measures or governance.

Q3 - Should this be changed and is there a role for UNEP GEMS/Water?

Guided Discussion

It could be very powerful to direct information from Earth Observation, modelling, citizen science and regulatory monitoring into a single platform that allowed users to select and understand their local waterbodies.

Q1 - How can we bring different forms of water quality data and information, such as Earth Observation and citizen science data, together in an integrated manner?

Q2 - What barriers need to be overcome to integrate these data sources, maintain quality and metadata standards, and support the data and information requirements relevant for decision-making?

Q3 - How can we establish regular reporting mechanisms for these alternative data sources?

Guided Discussion

We know that spatial and temporal scales could be improved simply by having more funds available (more staff for sampling, lab work, maintenance of monitoring stations).

Is there a role for SDGs and Conventions to advocate for national natural resources targets?

Q1 - How can monitoring 'pay for itself' (value proposition related to governance, management and ecosystem services)?

Q2 - How can existing monitoring systems and budgets be used more efficiently?

Wrap up and outlook

- This is just the start of the process
- Please stay engaged with us –provide us with your email address so that we can continue to engage you in this process
- Suggest other potential contacts & partners to engage
- We will reach out regarding the next steps and share the feedback and analysis from this session

Thank you for your participation!

For further information please reach out to gemswater@un.org or melchior.elsler@un.org

www.unep.org www.gemstat.org