



United Nations
Educational, Scientific and
Cultural Organization



International Centre
for Water Resources and Global Change
under the auspices of UNESCO



Integrated monitoring and assessment of ambient water quality for SDG 6

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Session 4: Water quality as a challenge for achieving SDG 6



Short introduction of ICWRGC

- Since 1975 **German secretariat IHP/UNESCO and HWRP/WMO** located at the German Federal Institute of Hydrology (BfG) in Koblenz
- Head is **hydrological adviser** for the permanent Group of **German Ministries for foreign water affairs**
- Head ICWRGC is **hydrological adviser** to the Permanent German representative **to the WMO**
- Head ICWRGC is German rep. in the International Commissions for Hydrology of the river **Rhine (CHR) and Danube (RCD)**
- Since 2014 **UNESCO Category 2 water centre** and renamed as ICWRGC
- Since 2014 host and developer of the **World Water Quality data centre GEMStat** under auspices of **UN Environment**
- Since 2017 **Coordination** of the Global Terrestrial Network Hydrology - **GTN-H/ WMO**
- **knowledge partner of FAO**



International Center for Water Resources and Global Change (ICWRGC)



Research projects

Simulation and monitoring of SDG indicators

Climate change in the Medit. area

Climate change adaptation

Water quality from remote sensing

Water diplomacy

Water scarcity

Seamless Prediction



Data

GEMStat
Hosting and operation of this Water Quality Database.

GTN-H
Coordination of this network of operational data centers.

Global Water Information System
Future vision of a centralized access to water data from different sources.



Education, Capacity Dev.

E-Learning: module on IWRM.

Summer Schools, e.g.:

- Climate skeptics (Koppelsberg, 2017)
- Groundwater and Energy (Bochum, 2017)
- Plastics in the Environment (Koblenz, 2017)

Flood and Drought Management: Training and guidelines (Jakarta, 2016)

Hydroforum: Database on water courses in universities.



Events

Conferences, workshops, meetings, e.g.:

- Workshop “Indirect Potable Reuse“, 2018, Koblenz
- Int. Symposium „Ecohydrology for the Circular Economy and Nature-Based Solutions towards Mitigation of Climate Change“ (2017, Lodz)
- Podium: Wastewater – The Untapped Resource 2017, Bonn
- Int. Symposium on Water Diplomacy (2016, Stockholm)



Networks

National:
BMUB, BMVI, AA, BMBF, BMZ, DFG, GPCC, GRDC, Universities.

International:
IAHS, ERCE, ICWC, SWFP, IAS, ESA, CHR.

Supranational:
UNEP, FAO, UNESCO, WMO, WWAP, UN Water.

Scientific advice

German IHP (UNESCO)/HWRP (WMO) Secretariat - UNESCO Cat 2 Water Center

www.waterandchange.org

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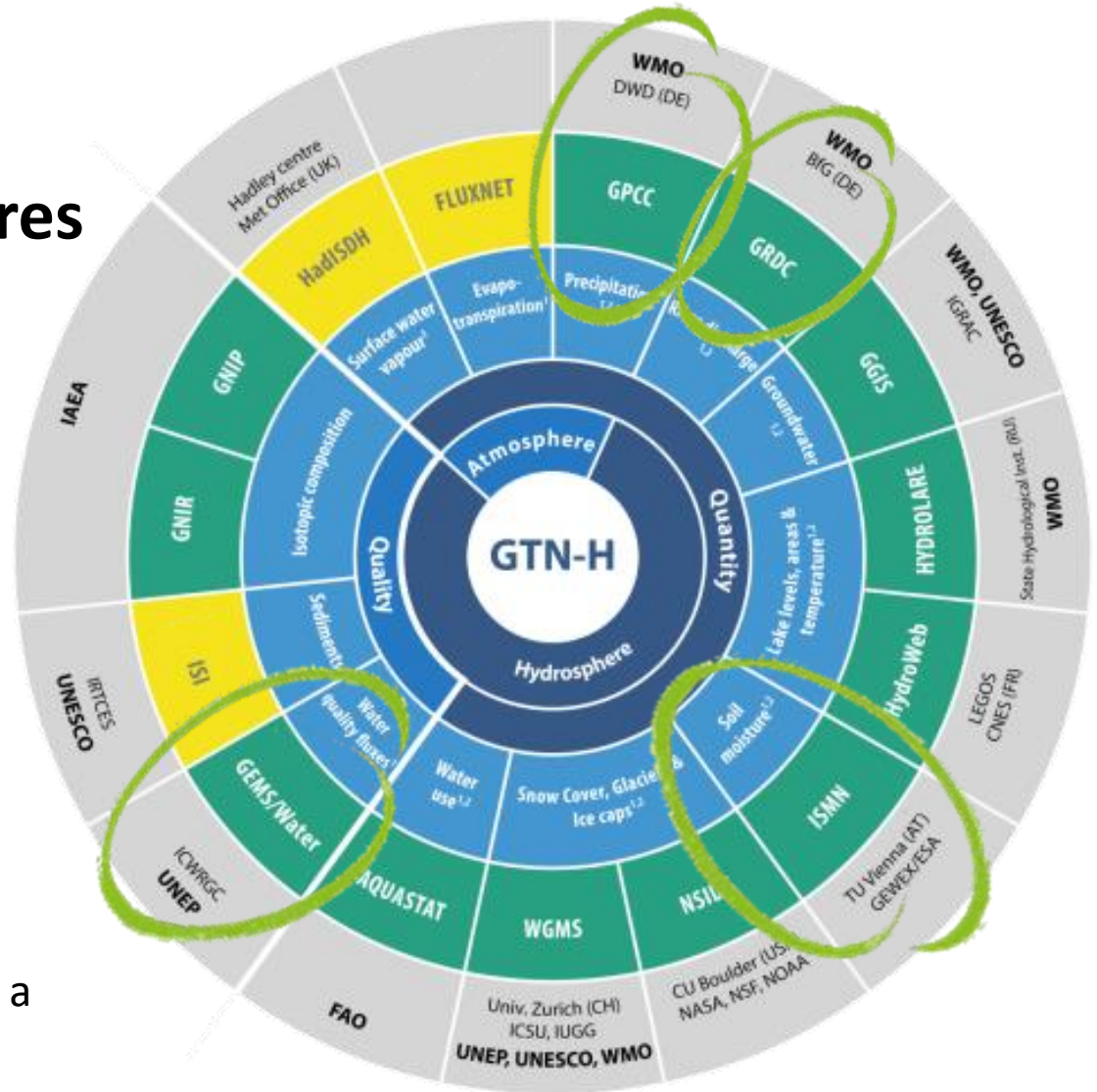
Global water data centres

mandated by different UN Organizations WMO, UNEP, UNESCO, FAO..

How do get research data in these databases?

Federated network of major global water data centres, linking water-related observations at a global scale: <http://www.gtn-h.info>

Joint project of the World Meteorological Organization (WMO) and the Global Climate Observing System (GCOS), coordinated by ICWRGC since 2017



- Variable, ¹GCOS Essential Climate Variable, ²GEO Essential Water Variable
- GTN-H member network
- Global network/identified/suggested to join GTN-H



? How is German Water Research connected ?

e.g. to the

- **Hydrology and Water Research Programme (HWRP) of WMO**
 - Towards a future enhanced integrated and seamless Global Data-Processing and Forecasting System (GDPDS) (WMO-Resolution 11 - Cg-17, 2016)
 - Towards a Hydrological Status and Outlook System - HydroSOS
- **International Hydrological Programme (IHP) of UNESCO**
 - With many subprogrammes/flagships
 - IHP VIII (2014 – 2021), IHP IX to be drafted in 2019
- **Global Environmental Monitoring System on Water (GEMS/Water) of UNEP**
 - Global Water Quality Data Centre (GEMStat)
 - World Water Quality Assessment (WWQA)



Integrated Monitoring of SDG 6 Sub-Targets (GEMI)

GEMS/Water coordinates the development of a global water quality indicator for SDG sub-target 6.3

Proportion of **bodies of water** with **good ambient water quality**

6.3.

6.4
Water use and scarcity

6.5
Water management

6.6
Eco-systems

6.a and 6.b
Cooperation and participation

6.3
Waste-water and water quality

6.2
Sanitation and hygiene

6.1
Drinking water



United Nations Environment Programme

UN HABITAT

unicef



Food and Agriculture Organization of the United Nations



World Health Organization





Implementation of SDG 6 integrated monitoring

Phase 1: Global baseline (2015 – 2018)

- Define monitoring methodologies
- Test approach in pilot countries
- First data drive
- Invest in national capacities
- Reports on water-related indicators
- First global report on progresses towards water-related targets

Phase 2: Build national ownership (2019 – 2022)

- Evaluation of Phase 1 monitoring methodologies
- Strengthen national monitoring capacities
- Test innovative data collection methods
- 2nd round of data gathering and analysis
- Support national and regional-level reporting
- Second global report on progresses towards water-related targets
- Thematic reports in support to global action by target

Phase 3: Integrate and mainstream (2023 – 2026)


- Further improve the monitoring methodologies and guide, including the use of innovative data collection methods to fill critical data gaps.
- Seek convergence of all water-related monitoring efforts into one single multidisciplinary process
- Encourage systematic national reporting
- Mainstream Initiative into wider national SDG monitoring processes
- Design sustainability plans for long term water monitoring and reporting
- Provide global reporting mechanism and continue periodic global reporting and analyses by target

Phase 4: Consolidate and sustain (2027 – 2030)

- Ensure long-term sustainability of integrated monitoring process at national level
- Consolidate Initiative reports as authoritative sources of information on water-related targets at national, regional and global levels
- Link national reports systematically with policies and investments
- Strengthen the effectiveness of target-based reporting by providing governments and donors with clear analysis
- Provide data, information and analysis in support to post-2030 planning



Target 6.3 - Water quality and wastewater



“By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally”



6.3.1 Proportion of wastewater safely treated

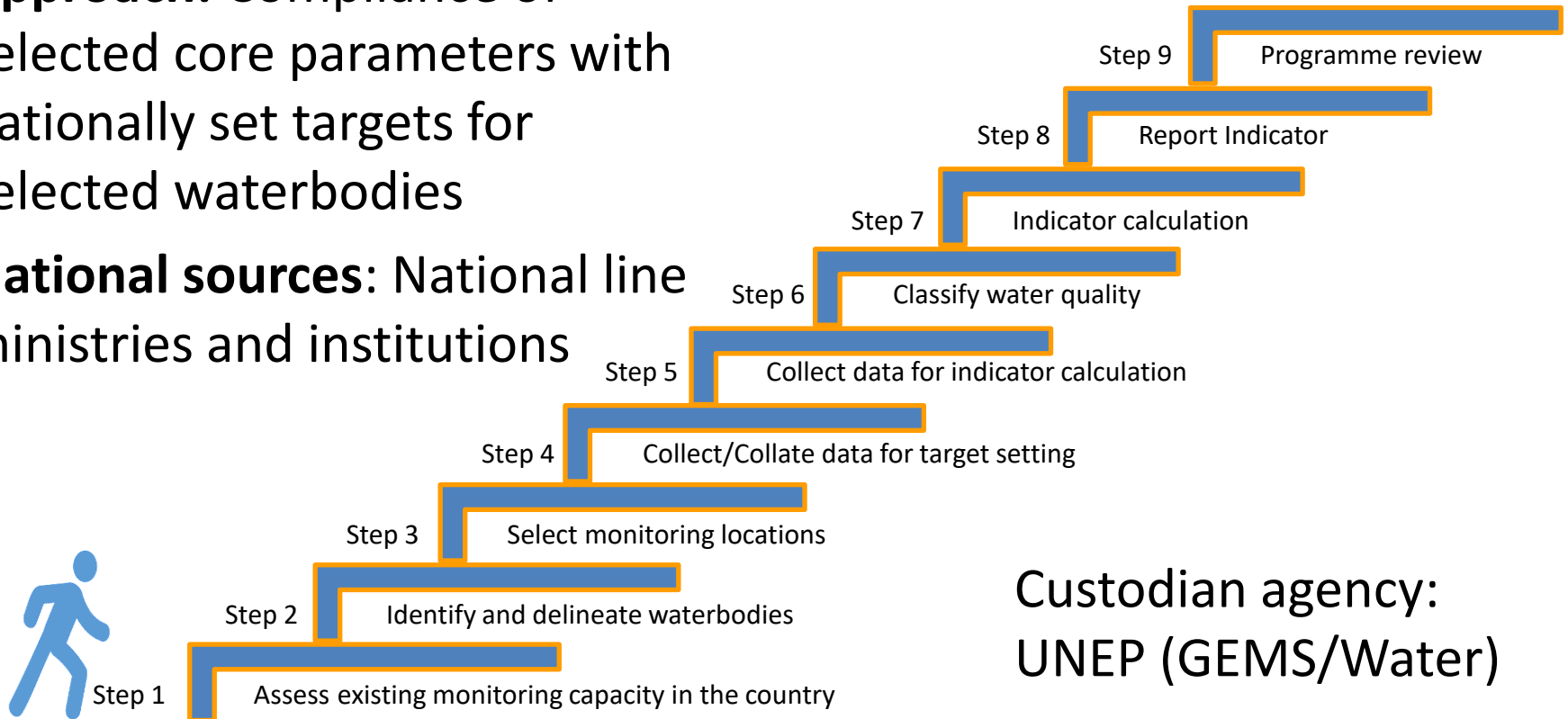
6.3.2 Proportion of bodies of water with good ambient water quality



Target 6.3 - Water quality and wastewater

Indicator 6.3.2: Proportion of bodies of water with good ambient water quality

- **Approach:** Compliance of selected core parameters with nationally set targets for selected waterbodies
- **National sources:** National line ministries and institutions





UNEP Global Environment Monitoring System Water

GEMStat

UN environment

Water ^{GEMS}

GEMS/Water Data Centre

- Data collection
- Quality control
- Reporting
- Data products



Assessments

GEMS/Water Capacity Development Centre

- Scoping
- Training courses
- Guidebook
- Guidance material



Data



Water Quality Monitoring



Capacity Development



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bfg Bundesanstalt für Gewässerkunde

Bundesministerium für Umwelt, Naturschutz und nukleare Sicherheit



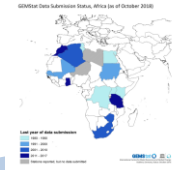
Networks

National and Collaborating Focal Points



World Water Quality Assessment (WWQA)

3 African **Use Cases** – WWQA
ToR and Servicesheets
Co-design test 2019-20
(Volta, Victoria, Cape Town)



WWQA request for
Expression of Interest
– UN Water and
external **(80
approached; 50
positive responses)**
Mid 2018

UNEP/EA3/Res 10

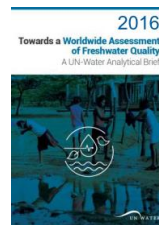
Dec 2017 – **WWQA
Mandate**

Snapshot Report



& **Analytical Brief**

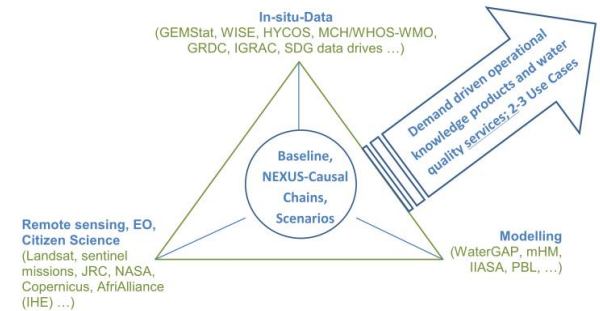
UNEP/UN Water 2016



Inception WMO/UNEP,
Geneva Nov 2018 –
**Mapping of expertise/
activities – World Water
Quality Alliance is formed**



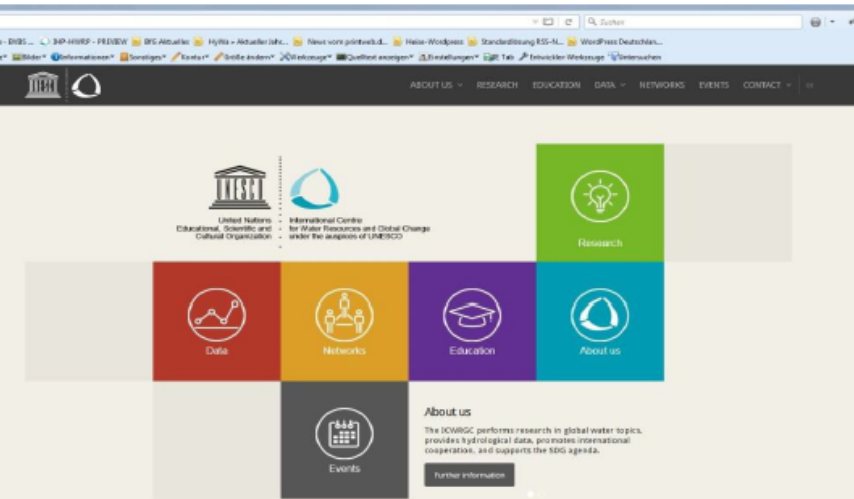
Globe WQ – DPSIR – approach
(2019-22)...



Data/Remote Sensing (EO)/Modelling driven – **Water Quality Baseline – UNEA 5 & long term operationalisation in GEMS/Water; 14+ Pilot Cases – aligning (Snapshot/WWQA/GEMI (SDG6))**
Platform and pilot tests in cases



Website of the International Centre for Water Resources and Global Change



+ new research portal “PLA-NET” at ICWRGC since 2018:

<http://www.plastic-network.org>;

a platform about plastics in freshwater and coastal environments to boost information exchange between various global regions



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An aerial photograph of Koblenz, Germany, showing the Rhine river winding through the city. In the foreground, a large blue and white cargo ship is moving down the river. To the left, the Kaiser Brewery is visible on a peninsula. The city is densely packed with buildings, and a large green area with many white tents or structures is visible on the right bank. The sky is blue with some clouds.

Thank you
for your attention

**International Centre for Water Resources and Global Change
Koblenz (ICWRGC)**

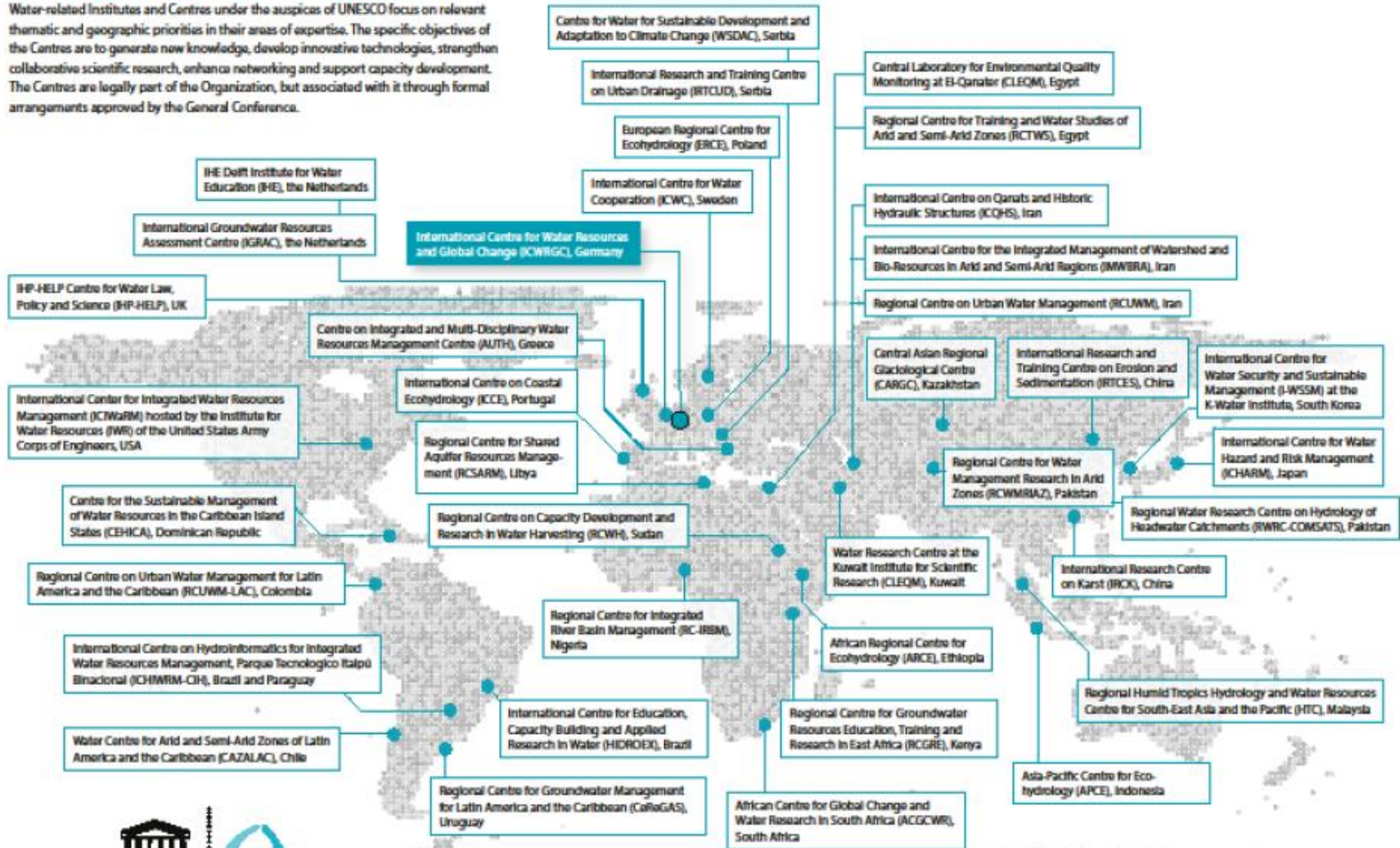
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UNESCO Category 2 Water Centers

UNESCO Cat 2 Water-Related Centres

Water-related Institutes and Centres under the auspices of UNESCO focus on relevant thematic and geographic priorities in their areas of expertise. The specific objectives of the Centres are to generate new knowledge, develop innovative technologies, strengthen collaborative scientific research, enhance networking and support capacity development. The Centres are legally part of the Organization, but associated with it through formal arrangements approved by the General Conference.




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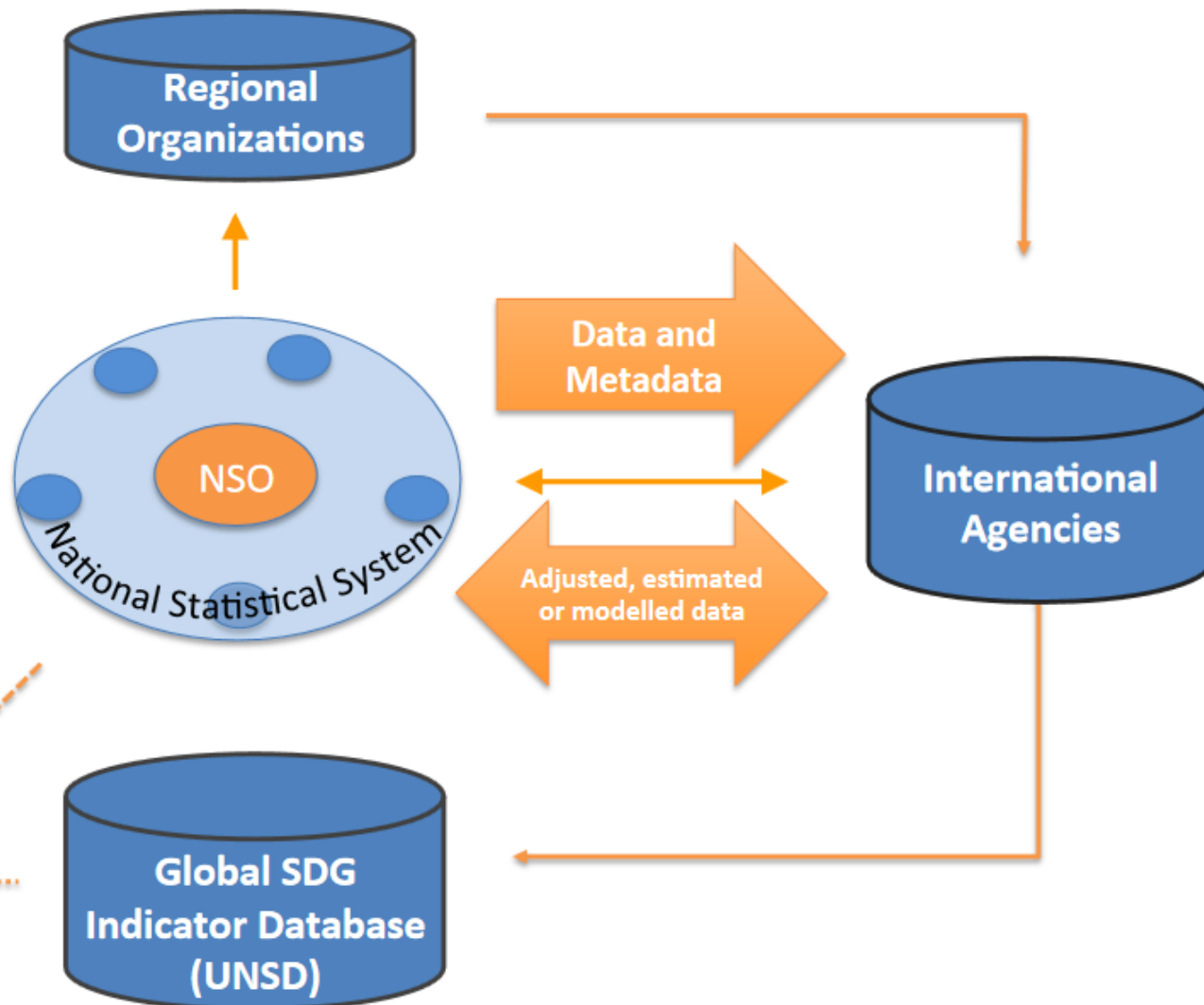
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Global indicator framework

Data flow in SDG reporting

- Custodian agencies to **send requests for data** to countries
- Countries to **send data** to the custodian agency
- Custodian agencies to **validate data** in consultation with countries
- Countries to **sign-off validated data**
- Custodian agency to **send validated data** to UNSD
- UNSD to **publish data**





Follow-up and review

Global level

“Follow-up and review processes at all levels ... voluntary and country-led ... the outcome from national level processes will be the foundation for reviews at the regional and global levels ... global review will be primarily based on national official data sources”



- Global review every year in the High Level Political Forum (HLPF)
- Thematic review – focus on specific SDGs
 - 2016 Ensuring that no one is left behind
 - 2017 Eradicating poverty and promoting prosperity in a changing world
 - 2018 Transformation toward sustainable and resilient societies
 - 2019 Empowering people and ensuring inclusiveness and equality
- Also review of means of implementation and global partnership
- Voluntary National Reviews
 - each country reviewed two times in during the SDG period
- Annual SDG Progress Report
 - data on global indicators, aggregated to major regions
 - annual requests for data
 - reporting frequency not specified

