GEFÖRDERT VOM

Bundesministerium
für Bildung
und Forschung

GRoW
WATER AS A GLOBAL RESOURCE

2nd GRoW Workshop on "SDGs: Hitting the targets"/
"SDG-Zielerreichung"

11 December 2018, Osnabrück

Working Group: Indicators, Data, Models

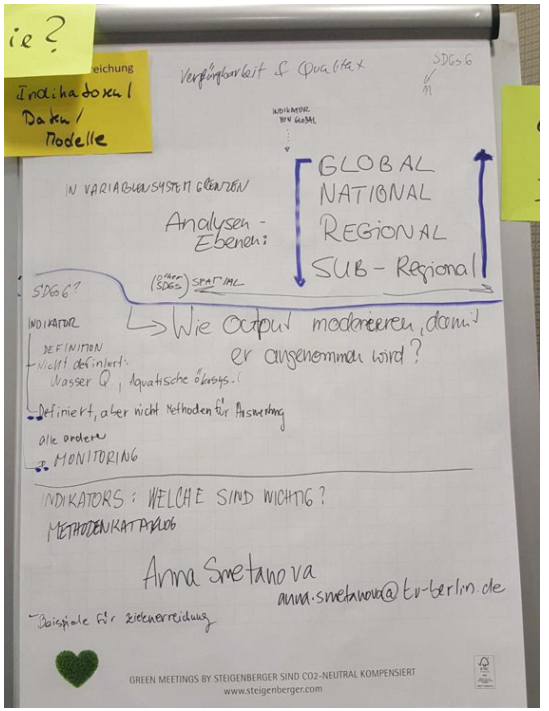
Contact: Anna Smetanova, anna.smetanova@tu-berlin.de

Working Group: Indicators, Data, Models

GRoW
WATER AS A GLOBAL RESOURCE

WHY?

23. März 2018



Working Group: Indicators, Data, Models

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WHY?

- GRoW's projects are in-/directly linked to SDG6 +
- GRoW = experience on sub-regional to national and global level
- GRoW's strengths are methods for data acquisition and analysis

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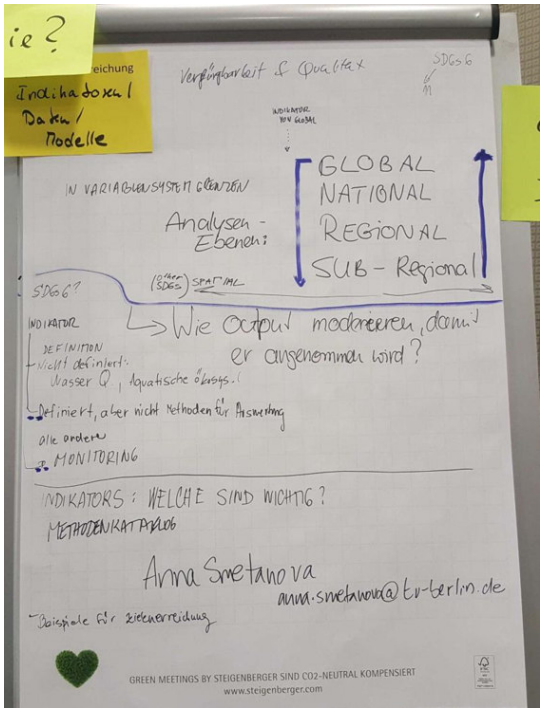


Working Group: Indicators, Data, Models

GRoW
WATER AS A GLOBAL RESOURCE

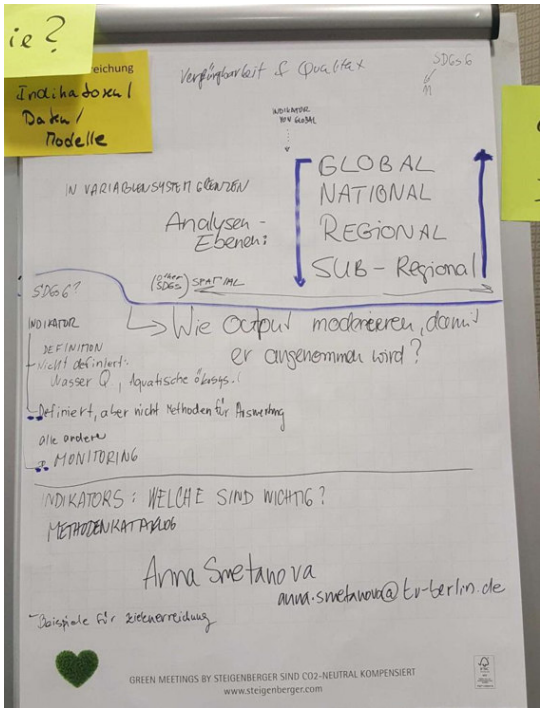
WHY?

- GRoW's is in-/directly linked to SDG6 +
- GRoW = experience on sub-regional to national and global level
- GRoW's strengths are methods for data acquisition and analysis

WE DECIDED:

- Contribute to improve methods for SDG's monitoring
- Create catalogue of methods and best practices for SDG6 monitoring

23. März 2018



SUSTAINABLE DEVELOPMENT GOAL 6

Ensure availability and sustainable management of water and sanitation for all

Target 6.1 "By 2030, achieve universal and equitable access to safe and affordable drinking water for all"

Indicator listed by IAEG-SDG

- Proportion of population using safely managed drinking water services

Target 6.2 "By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations"

Indicator listed by IAEG-SDG

- Proportion of population using safely managed sanitation services, including a handwashing facility with soap and water

Target 6.3 "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"

Indicators listed by IAEG-SDG

- Proportion of wastewater safely treated
- Proportion of bodies of water with good ambient water quality

Target 6.4 "By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity"

Indicators listed by IAEG-SDGs

- Change in water use efficiency over time
- Level of water stress: freshwater withdrawal as a proportion of available freshwater resources

Target 6.5 "By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate"

Indicators listed by IAEG-SDGs

- Degree of integrated water resources management implementation (0- 100)
- Proportion of transboundary basin area with an operational arrangement for water cooperation

Target 6.6 "By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes"

Indicator listed by IAEG-SDGs

- Change in the extent of water-related ecosystems over time

Target 6.a "By 2030, expand international cooperation and capacity-building support to developing countries in water- and sanitation-related activities and programmes, including water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies"

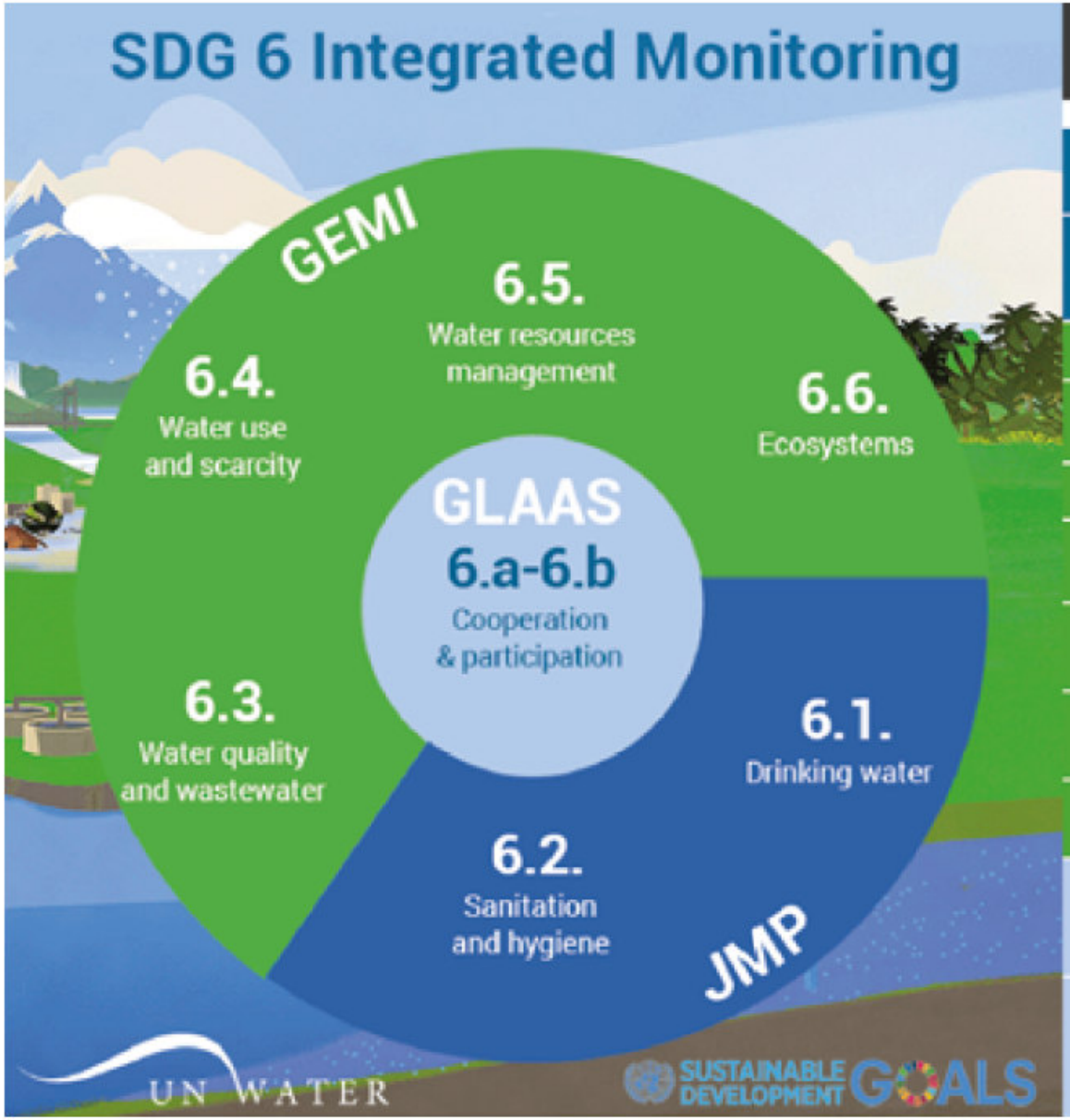
Indicator listed by IAEG-SDGs

- Amount of water- and sanitation-related official development assistance that is part of a government coordinated spending plan

Target 6.b "Support and strengthen the participation of local communities in improving water and sanitation management"

Indicator listed by IAEG-SDGs

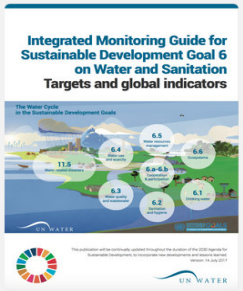
- Proportion of local administrative units with established and operational policies and procedures for participation of local communities in water and sanitation management



INDICATORS	CUSTODIANS
6.1.1 Proportion of population using safely managed drinking water services	WHO, UNICEF
6.2.1 Proportion of population using safely managed sanitation services, including a hand-washing facility with soap and water	WHO, UNICEF
6.3.1 Proportion of wastewater safely treated	WHO, UN-Habitat, UNSD
6.3.2 Proportion of bodies of water with good ambient water quality	UN Environment
6.4.1 Change in water-use efficiency over time	FAO
6.4.2 Level of water stress: freshwater withdrawal as a proportion of available freshwater resources	FAO
6.5.1 Degree of integrated water resources management implementation (0-100)	UN Environment
6.5.2 Proportion of transboundary basin area with an operational arrangement for water cooperation	UNESCO, UNECE
6.6.1 Change in the extent of water-related ecosystems over time	UN Environment, Ramsar
6.a.1 Amount of water- and sanitation-related official development assistance that is part of a government-coordinated spending plan	WHO, UN Environment, OECD
6.b.1 Proportion of local administrative units with established and operational policies and procedures for participation of local communities in water and sanitation management	WHO, UN Environment, OECD

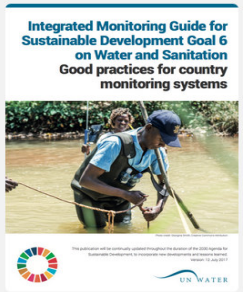
- Tier I indicators have established methodologies and data regularly produced by a critical mass of countries
- Tier II indicators have established methodologies but data are not regularly produced by countries
- Tier III indicators have methodologies that are under development

Methodological guidelines (updated 2018)



Integrated Monitoring Guide for Sustainable Development Goal 6 on Water and Sanitation – Targets and global indicators – AR, EN, FR, RU, SP, ZH

22 January, 2017



Integrated Monitoring Guide for Sustainable Development Goal 6 – Good practices for country monitoring systems – AR, EN, FR, RU, SP, ZH

12 January, 2017

Step-by-step methodology for monitoring drinking water and sanitation (6.2.1)

30 December, 2016

Step-by-step methodology for monitoring drinking water and sanitation (6.1.1)

30 December, 2016

Step-by-step methodology for monitoring international cooperation (6.a.1)

30 December, 2016

Step-by-step methodology for monitoring stakeholder participation (6.b.1)

30 December, 2016

Integrated Monitoring Guide for SDG 6 – AR, CH, EN, FR, RU, SP

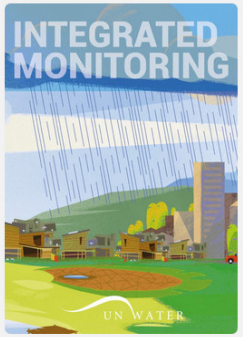
30 January, 2017

Step-by-step methodology for monitoring wastewater treatment (6.3.1)

30 December, 2016

Step-by-step methodology for monitoring water quality (6.3.2)

30 December, 2016



Step-by-step methodology for monitoring water stress (6.4.2)

30 December, 2016

Step-by-step methodology for monitoring integrated water resources management (6.5.1)

30 December, 2016

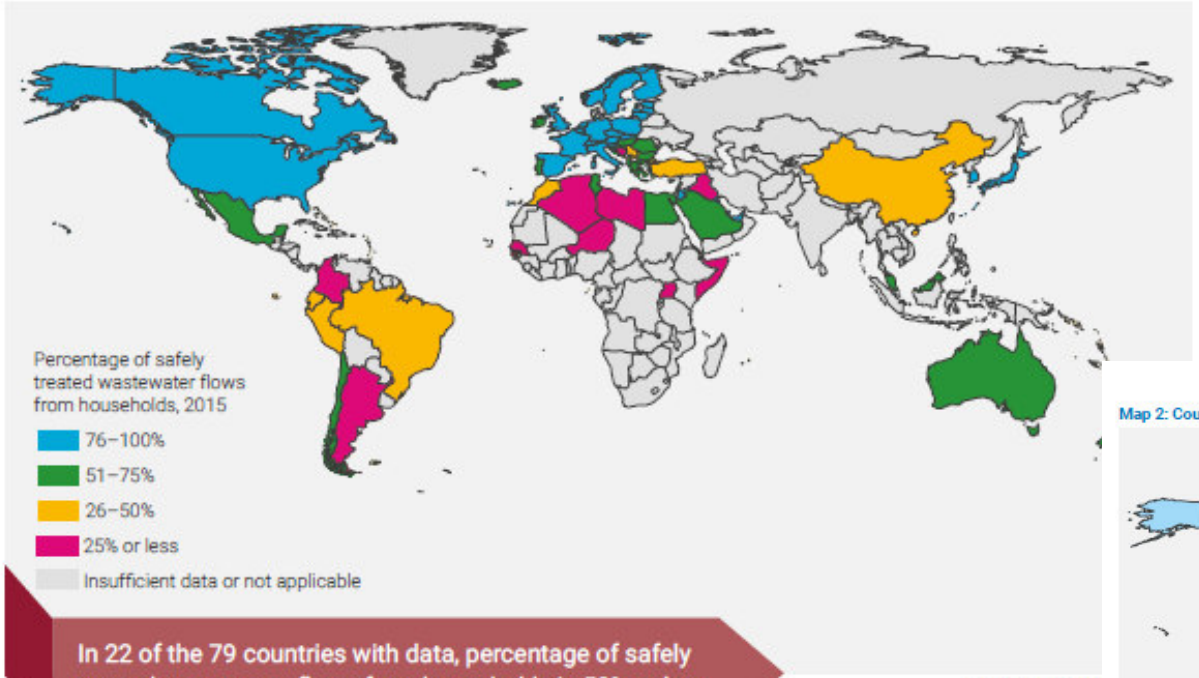
Step-by-step methodology for monitoring transboundary cooperation (6.5.2)

30 December, 2016

Progress reports on monitoring:

Key messages: 6.3.1 Wastewater treatment

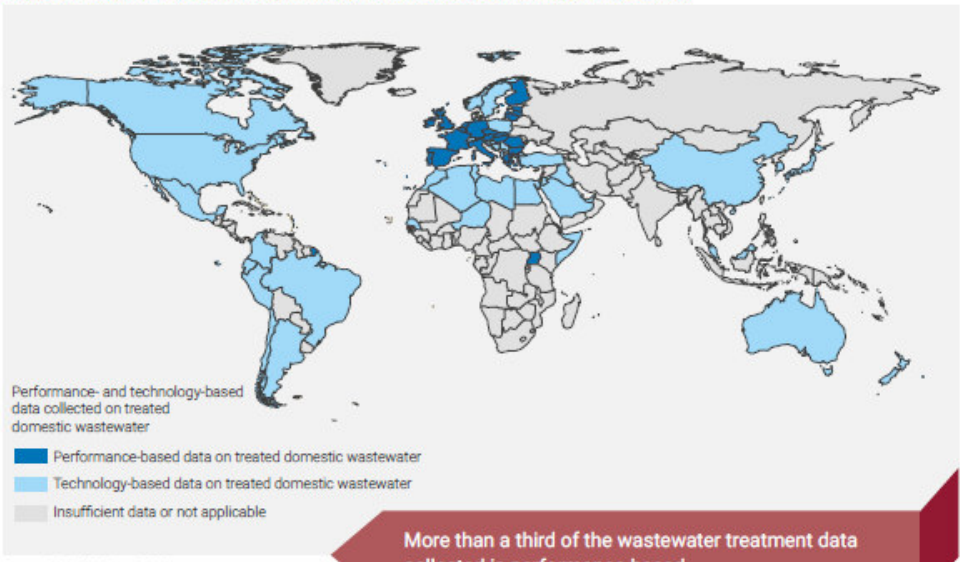
Map 1: Preliminary estimate for domestic wastewater treatment (6.3.1a)



In 22 of the 79 countries with data, percentage of safely treated wastewater flows from households is 50% or less

Source: United Na

Map 2: Countries for which preliminary estimates for 6.3.1a are derived from performance data



Source: United Nations, 2018

More than a third of the wastewater treatment data collected is performance-based

Key messages: 6.3.1 Wastewater treatment

Preliminary[a] estimates for domestic wastewater have been made for 79 mostly high- and middle-income countries, excluding much of Asia and Africa. Preliminary domestic estimates cover households only, and are derived from 120 data sources for 149 data points. Of these data sources, 111 out of 120 are from 2010 or more recently. Below is a summary of the findings:

Key feedback from countries and stakeholders

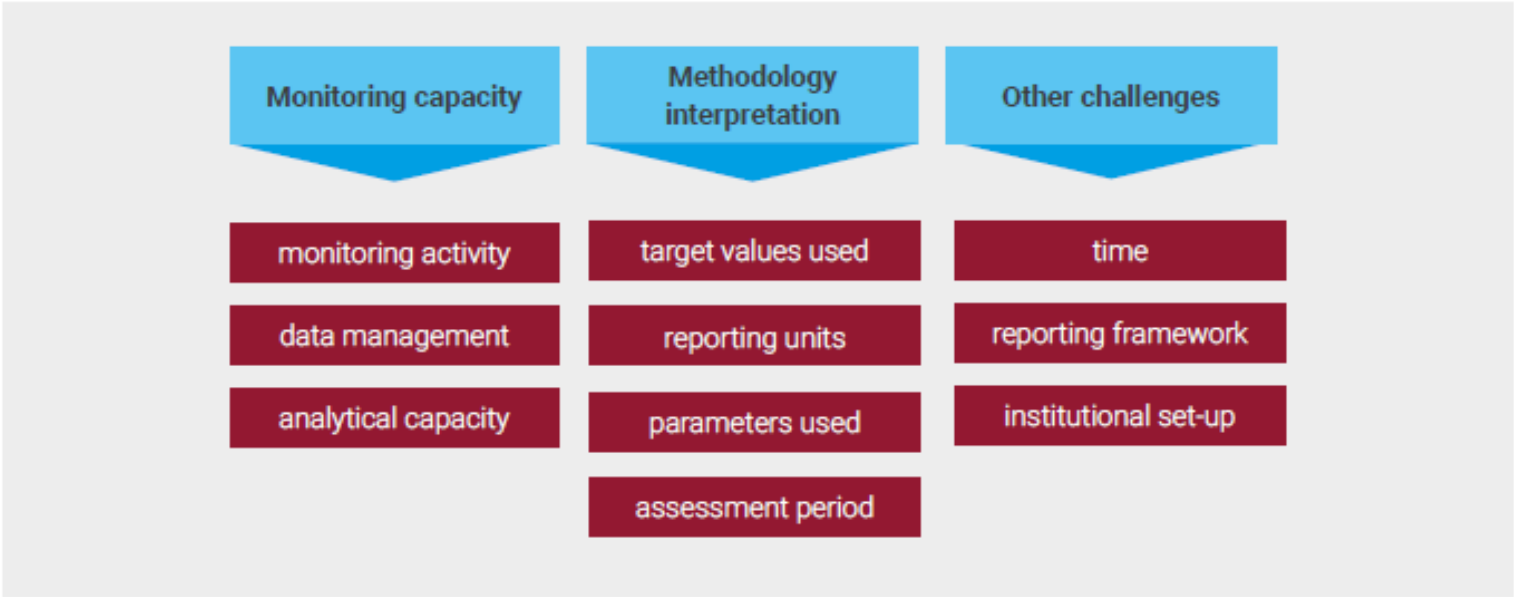
The following key themes emerged from the stakeholder consultations, expert reviews and country testing:

- The indicator should account for all wastewater generation, including blackwater and greywater production.
- Estimates of wastewater flows generated should be calculated as a proportion of water consumption flows for water supplies on- and off-premises.
- The indicator should assess actual treatment performance against national standards, taking into account the environmental and public health sensitivity of the receiving water and next use.
- The monitoring mechanism should draw on and harmonize with existing regional monitoring mechanisms (e.g. Eurostat, African Ministers' Council on Water (AMCOW)) to avoid placing additional reporting burden on national statistical authorities that are already stretched.
- There was a range of monitoring capacities among countries; as such, they requested flexibility on progressive monitoring approaches, relevant to the country's capacity level.
- Most countries measure wastewater treatment plant performance by testing effluent water quality; however, in most countries, regulatory authorities do not aggregate data at the national level.
- Few countries collect data on treatment performance of on-site systems (i.e. septic tanks) despite a significant proportion of the population using them in all countries and the majority of premises using them, especially in low- and middle-income countries.
- Permits for industrial discharges into sewers and the environment cover a small proportion of total industrial discharges in countries. Where permits are issued, they are often not checked for compliance and compliance data are not aggregated to the national level.
- National responsibilities for monitoring domestic and industrial wastewater treatment often fall to line ministries (i.e. public services and industry) and are reported through different reporting mechanisms. In many cases, this makes combining data into a single indicator challenging.
- However, stakeholders also highlighted the need to promote the polluter pays principle to drive and prioritize action towards achieving target 6.3. To do this, a degree of aggregation and differentiation of pollutant load by domestic and industrial sources is needed.

Key messages: 6.3.2 Ambient water quality

- Countries were selective in methodology interpretation (water basin, monitoring station, variables)
- Indicator miss some of relevant parameters (microbiological, heavy metals)
- Harmonization of target values reported is required for comparisons, and for management in transboundary rivers
- Monitoring constrained by capacity, expertise, finance, institutional challenges in the country, or no monitoring at all (16 countries from 47 not reporting)

Figure 8: Summary of challenges faced during the 2017 data drive



- Use HydroBasins Level 6-7 (Lehner and Grill, 2013)
- Use HydroLakes (Messager et al., 2016)
- Parameter groups and core paramaters
- Groundwater monitoring
- Earth observation+ Citizen Science
- Expanding monitoring networks (protocols, metadata)

Key messages: 6.4.1 Water use efficiency

- Most difficult was to calculated the gross value added from rain-fed agriculture,
- Use of international sources to fill national data gaps (reported values without metadata, gaps, reference times, old data)
- National data (weak monitoring, different standards and parameters to produce variables)

Key messages: 6.5.1 Integrated water and river management

- 83% of countries have IWRM plans, and institution exists on basin and aquifer level
- BUT! in 43% of countries they do not guarantee effective IWRM implementation

For most management instruments, 20-30 per cent of countries report either that none exist, or that management instruments occur in short-term projects rather than via ongoing initiatives (very low or low implementation).

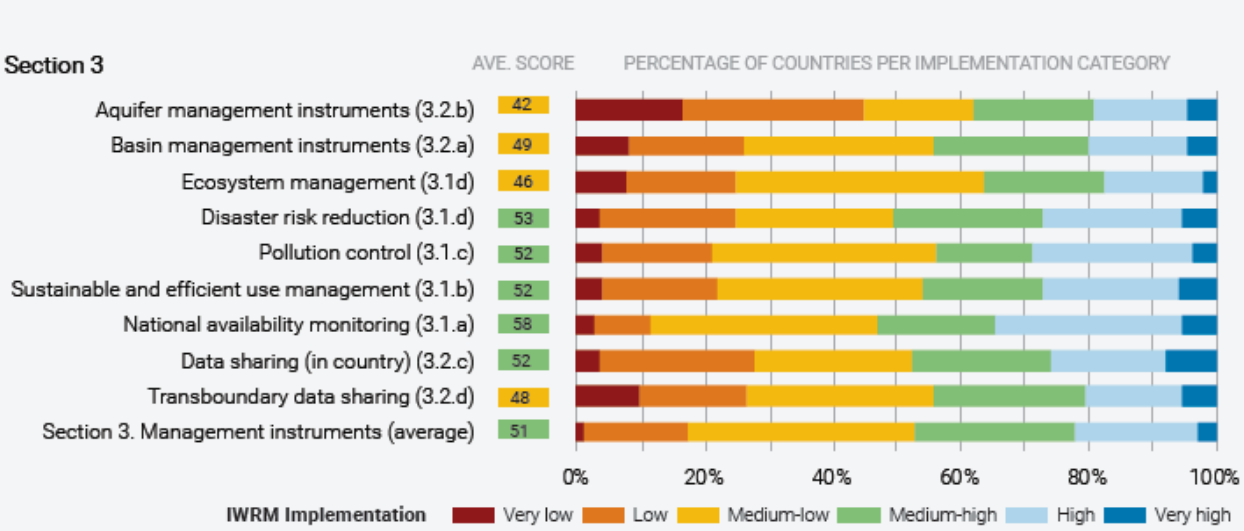


Figure 22 Implementation of management instruments

Almost half of reporting countries (73 countries) either have no aquifer management instruments, or are limited to short-term projects.

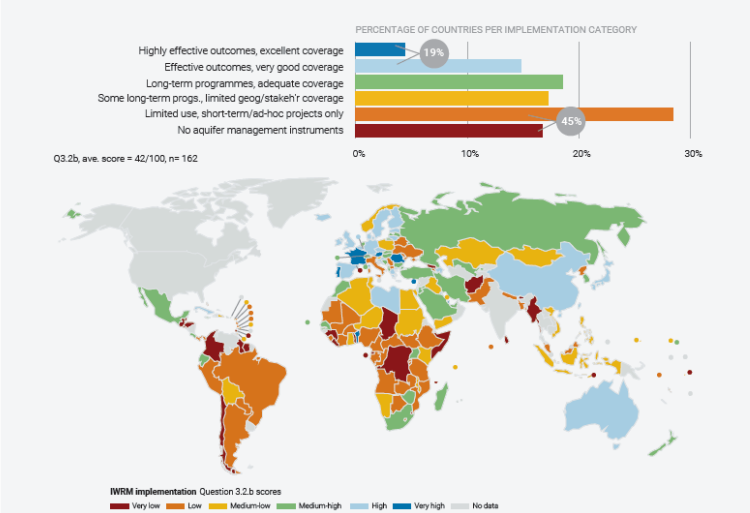


Figure 23 Implementation of aquifer management instruments (Q3.2b)

- other related issues recognized by some countries: data sharing, monitoring (pollution control), ecosystem management, …

Key messages: 6.5.1 Transboundary waters

Figure 1:Transboundary river and lake basins, transboundary aquifers and international borders

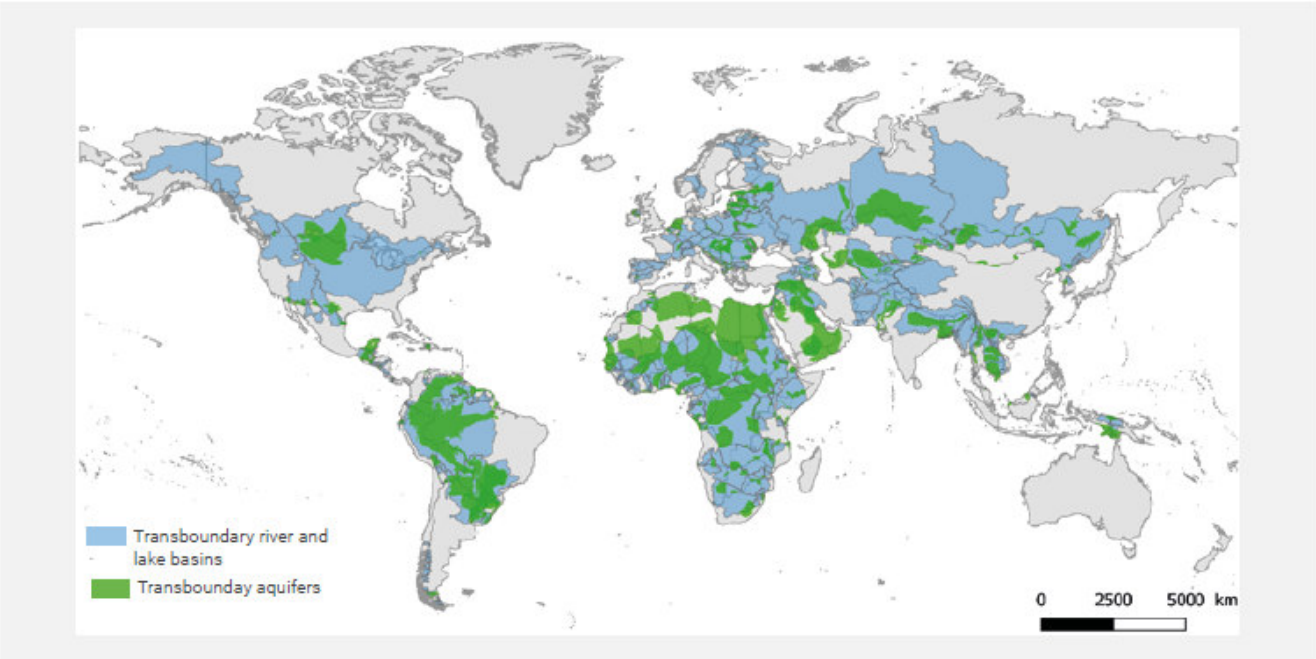
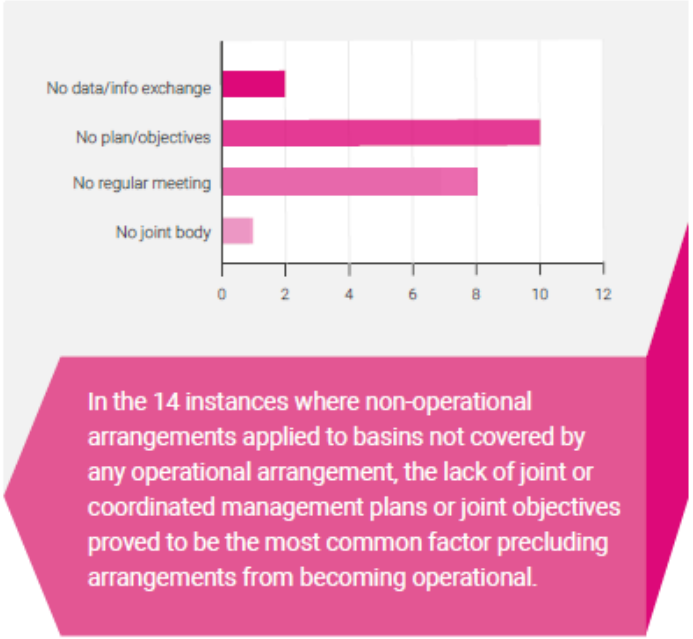


Figure 20: Operationality criteria not fulfilled



- Integration of aquifers – delineation problem
- Indicator measure existence of arrangements not their outcomes
- Indicator does not measure cooperation in case of absence of arrangement

Key messages: 6.6.1 Water related ecosystems

- lack of data on vegetated wetlands and river flows with no recent global data sets available

- technical and institutional capacity to report indicator is lacking, inter-sectoral monitoring is needed, now willingness to report (as Trier III)

Methodology reclassification (=> Trier II)

- UN Environment responsible for methodology, Ramsar Convention Secretary separate reporting on SDGs 6.1
- the use of globally available environmental data to enhance country-derived data, filling data gaps (to achieve SDGs 6 more quickly)
- 2 levels of indicated :

1. global-> countries verify (extend of water related ecosystem, water quality of lakes and artificial bodies)
2. country-based (quantity of water in rivers and estuaries, water quality – 6.3.2, quantity of water in aquifers)

3.2. Indicator 6.6.1 limitations

This methodology mobilizes the collection of widely available Earth observation data on spatial extent and some water quality parameters that will be validated by countries. In many countries, tools and training will be necessary to build capacity to validate data. The data itself are presented as easy-to-understand images and numbers. However, the methodologies used to generate these data are technical in nature and some countries may wish to gain a better understanding of these. The methodology employs internationally recognized methods, from expert communities – such as the GEO and international space agencies – to derive statistically comprehensive and technologically advanced Earth observation data sets for sub-indicators 1 and 2.

Sub-indicator 1 measures the spatial extent of water-related ecosystems. Two distinct methodological approaches are required to distinguish and generate spatial extent data on open water bodies and specifically on vegetated wetlands. The data generated on open water bodies are separated into lakes, rivers and estuaries and artificial water bodies. The resulting data sets

obtained from Earth observations on the spatial extent of vegetated wetlands and artificial water bodies are excluded from the calculation of spatial extent values for lakes, rivers and estuaries to prevent duplicated spatial extent estimations. Data on artificial water bodies are also separated from data on natural water bodies. Satellite imagery can determine new and lost water bodies, thus helping to locate where new artificial water bodies are formed and where natural water bodies are lost. This requires the collection of in situ data to validate where new water bodies are being formed.

Sub-indicator 2 only measures two water quality variables (chlorophyll-a as an indicator of nutrient enrichment and total suspended solids (TSS) as an indicator of poor land-use management in the basin), though it is recognized that measurements of multiple parameters are needed to determine good water quality. However, these globally available data can indicate potential hotspots of pollution or human disturbance, allowing countries to undertake more local assessments of water quality. As part of level 2 monitoring, in situ water quality data can be used to improve understanding about the situation in a basin (the data being imported directly from the SDG 6.3.2 results), though these data are also limited by the number of variables that are monitored. Countries should exercise wisdom in assessing these data, as in many local situations severe water pollution may be caused by substances that are not included in the SDG monitoring, which could lead to spurious conclusions on the overall water quality situation. Thus, data describing these additional variables should override the conclusions drawn from the SDG indicators. Such situations should be clearly indicated as part of SDG data submissions and more importantly, should be incorporated into local water quality assessments.

Global data sets of river flow or discharge are poor and have generally deteriorated in the past decades. The global community is encouraged to begin adding to the presently sparse collection of data to develop a new global data set that can be used to support indicator 6.6.1 reporting.

Monitoring groundwater data remains difficult. The early version of the indicator 6.6.1 methodology proposed to measure the actual volume of water contained within aquifers, but in the interest of simplicity, this has been altered to measure the depth to the groundwater table only, which is now the proxy for groundwater volume.

This methodology concentrates on wetlands of significant size and may miss small, ephemeral groundwater dependent ecosystems such as seeps and springs. However, it should be recognized that in desert regions, these small water-related ecosystems can be particularly critical water resources. Ground surveys have shown that approximately 90 per cent of springs and seeps are not identifiable from satellite imagery.

While the target 6.6 language "protect and restore" suggests the need to measure water-related ecosystem management practices to quantify how much protection and restoration is occurring, this management aspect is not monitored as part of the target. In view of this, the indicator may require additional refinement in future to ensure that data are collected on the scope, scale and effectiveness of different protection and restoration measures.

At present, indicator 6.6.1 does not require ecosystem health to be directly monitored, as the information can be determined primarily through monitoring biological indicators. Given that all of the sub-indicators under indicator 6.6.1 are drivers of ecosystem conditions, any deterioration to these is expected to result in a corresponding deterioration of an ecosystem's biological component. This method requires countries to collect biological data in order to develop an improved understanding of ecosystems' conditions and facilitate better management practices. As such, there will be a procedure to submit these data in the future as part of SDG reporting.

Indicator 6.6.1 has been designed to generate data that supports decision-making aimed at protecting and restoring water-related ecosystems. While it is expected that countries use the data to actively make such decisions, these actions are not currently being measured. The data generated should be considered alongside other data, such as land-use change, to enable decision makers to protect and restore these ecosystems.

3.3. Reporting cycles and key calendar milestones for indicator 6.6.1

The data for sub-indicators 1 and 2 are available annually. For sub-indicators 3, 4 and 5 data are already available from some countries, though national authorities should aim to strengthen their monitoring and reporting efforts in order to expand data availability for these three sub-indicators.

Data collection for all sub-indicators was included in the 2017 data drive to countries, which are still being validated. In addition, national spatial extent data for 188 countries using Earth observations have been collected from 2001 to 2015 to support sub-indicator 1. Countries report their data to UNSD for all five sub-indicators every five years following national data drives. The last data drive occurred in 2017 and the next two drives are planned for 2022 and 2027. Annual estimations can be made available for countries using their data, though there is a risk that releasing this information will highlight short-term changes, which is not the objective of the SDGs.

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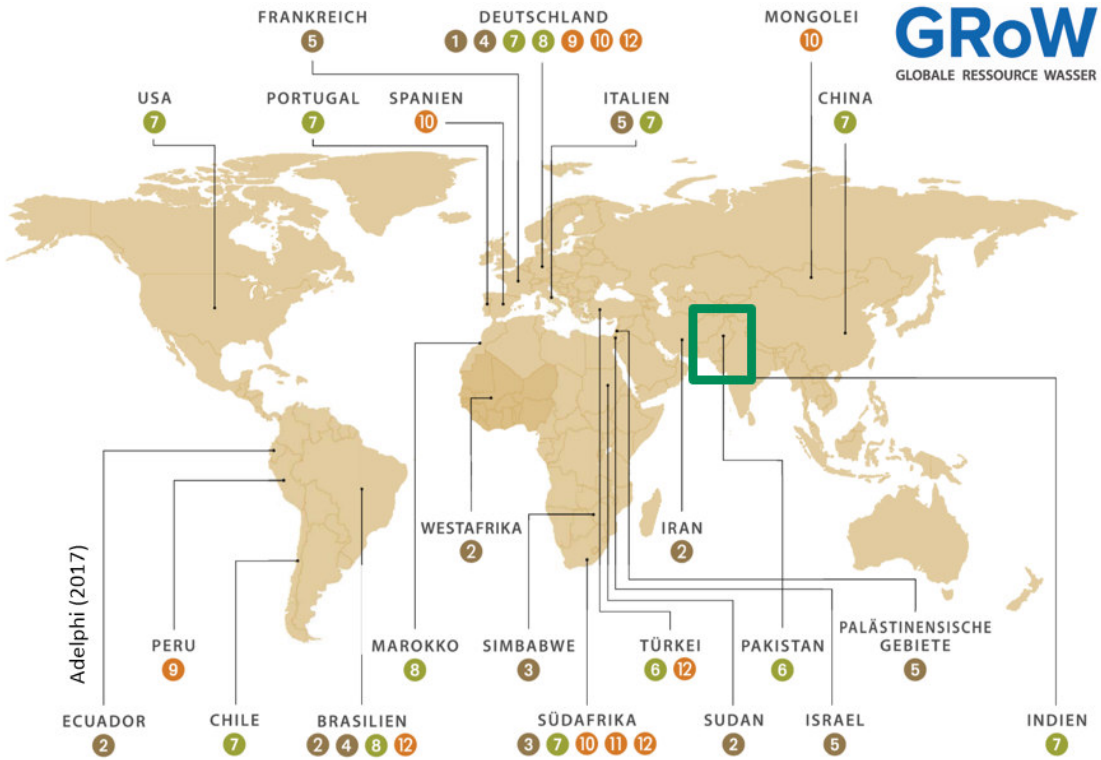

11. **December 2018**

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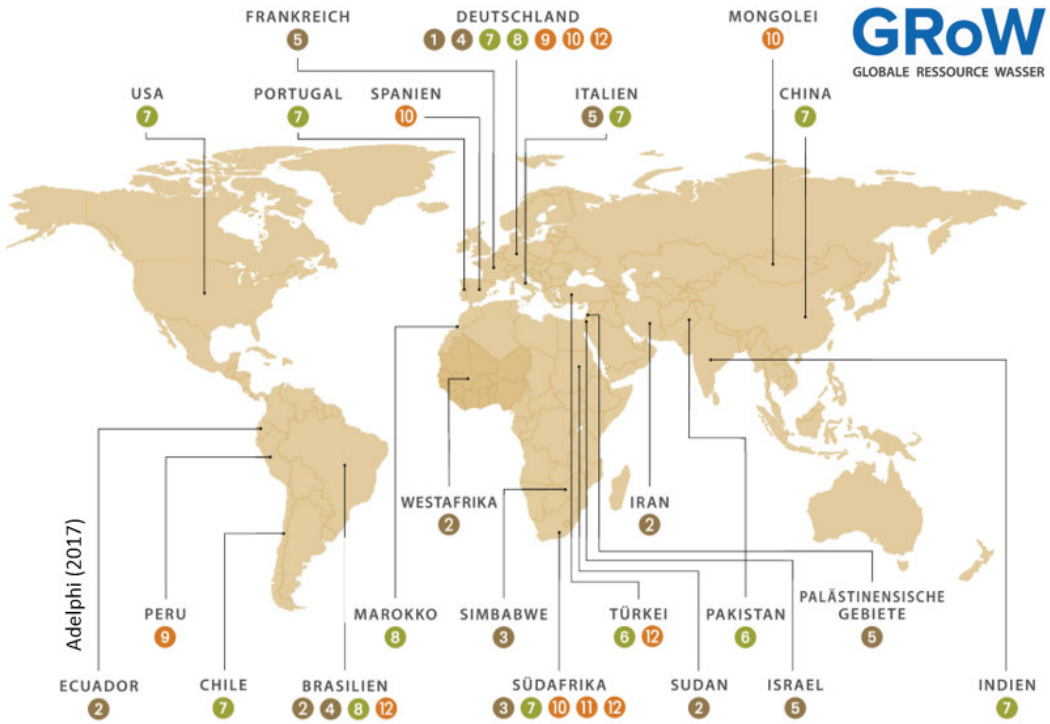

11. **December 2018**

Preliminary work: Data questionnaire

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AIM:

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2. Which GRoW methods can improve existing monitoring process?

3. Give real life example(s) where GRoW approaches can improve existing monitoring.

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EXPECTED outputs:

- Challenges in monitoring
- Opportunities for GRoW
- Examples of best practices

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=> Policy briefing / Opinion paper

- To be drafted on the next meeting

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Looking forward to work with you!

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