



Methodologies and Mechanisms for Reporting on SDG Indicators: 6.3.2, 6.5.1 & 6.6.1

Abdelmenam Mohamed, PhD
Regional Officer, Science-Policy Interface, UNEP

Key items

- Overview: SDG-6 & IAEG classification
- Indicator 6.3.2 (**ambient water quality**)
- Indicator 6.5.1 (**IWRM**)
- Indicator 6.6.1 (**water related ecosystems**)

Table 6. Latest set of indicators proposed by the IAEG-SDGs

Table 5. The SDG-6 targets			Indicator	Lead agencies	Indicator title	Status	Tier
Target Number	Target Year						
6.1	2030	Achieve universal and equitable access	6.1.1	WHO & UNICEF	Proportion of population using safely managed drinking water services		II
6.2	2030	Achieve access to adequate and equitable sanitation and hygiene for all and upgrade existing facilities, paying special attention to vulnerable situations	6.2.1	WHO & UNICEF	Proportion of population using safely managed sanitation services, including a hand-washing facility with soap and water		II
6.3	2030	Improve water quality by reducing pollution, eliminating hazardous chemicals and minimizing releases of hazardous chemicals and waste, and substantially increasing recycling and reuse of water resources	6.3.1	WHO & UN-Habitat	Proportion of wastewater safely treated		III
			6.3.2	UNEP	Proportion of bodies of water with good ambient water quality		II
			6.4.1	FAO	Change in water-use efficiency over time		I
			6.4.2	FAO	Level of water stress: freshwater withdrawal as a proportion of available freshwater resources		I
6.4	2030	Substantially increase water-use efficiency in all sectors and substantially increase the supply of freshwater for sustainable development, taking into account changing conditions and needs, and reduce the number of people suffering from water scarcity	6.5.1	UNEP	Degree of integrated water resources management implementation (0-100)		I
6.5	2030	Implement integrated water resources management at all scales, from local to global, to ensure sustainable freshwater systems and ecosystems	6.5.2	UNECE & UNESCO & UNEP	Proportion of transboundary basin area with an operational arrangement for water cooperation		II
6.6	2020	Protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, lakes and coastal ecosystems, with the goal of increasing their resilience to drought and major disasters, flood and storm events and droughts, and addressing climate change	6.6.1	UNEP	Change in the extent of water-related ecosystems over time		II
Means of implementation indicators			6.a.1	OECD & WHO & UNEP	Amount of water- and sanitation-related official development assistance that is part of a government-coordinated spending plan		II
6.a	2030	Expand international cooperation and mobilize additional financial resources for water and sanitation, including through innovative financing, and promote and protect sustainable technologies and innovation	6.b.1	WHO & UNEP	Proportion of local administrative units with established and operational policies and procedures for participation of local communities in water and sanitation management		II
6.b	-	Support and strengthen the participation of local communities in water and sanitation management					

Indicators for which there is general agreement; A first tier for which a methodology has been developed and data are already widely available; A second tier for which a methodology has been developed but data are not easily available; A third tier for which a methodology has not yet been developed.

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

Indicator 6.3.2



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

The indicator allows countries to assess the outcomes and impacts of water quality management measures

General principles of indicator 6.3.2



- “Good quality” is assessed in relation to target values for key ambient water quality parameters
- Countries set their own targets for good ambient water quality
- For baseline global reporting, five water quality parameters (DO, EC, DIN/TN, TP, FCB) have been recommended
- Monitoring data for selected parameters at each station on a water body are compared to target values to produce an index value
- Data are aggregated by water body to produce the country level indicator value

Choice of water quality parameters

Dissolved oxygen: essential for aquatic organisms, low values may indicate organic matter pollution

Nitrogen (DIN/TN): an essential aquatic nutrient but high concentrations often result from agricultural run-off or waste inputs

Phosphorus (DIP/TP): an essential aquatic nutrient but high concentrations, often associated with agricultural run-off and sewage effluents, lead to eutrophication

Electrical conductivity: a measure of dissolved substances, high values may suggest wastewater inputs

Faecal coliform bacteria or *E. coli*: indicate presence of human and animal faecal matter and a potential risk for human health

Depending on national capacities and requirements, additional parameters can be included, and spatial and temporal intensity can be increased

Internationally recognized standard methods should be used with appropriate quality assurance

Step by step approach

- ✓ Categorize and select representative water bodies
- ✓ Select parameters and target values (baseline of five core parameters)
- ✓ Carry out monitoring and/or use existing monitoring data
 - Past and present water quality monitoring data may already be available for many countries through the UNEP GEMS/Water Global Water Quality Information System GEMStat
- ✓ Calculate indicator at national level
 - Use of GEMStat as an existing data portal and webservices infrastructure for the global reporting (indicator calculation in country or on request by GEMS Data Centre (hosting GEMStat))

Current work taking place

- ✓ Methodology guide for implementation is being finalized to be applied in 6 initial Proof of Concept countries.
- ✓ Inception workshops conducted between April/May and June 2016 – feedback from country partners being analyzed and reflected in a revision of the methodology until End of 2016.
- ✓ Ongoing work on refinement of water quality monitoring through GEMS/Water program.
- ✓ New partners, revised work plan.

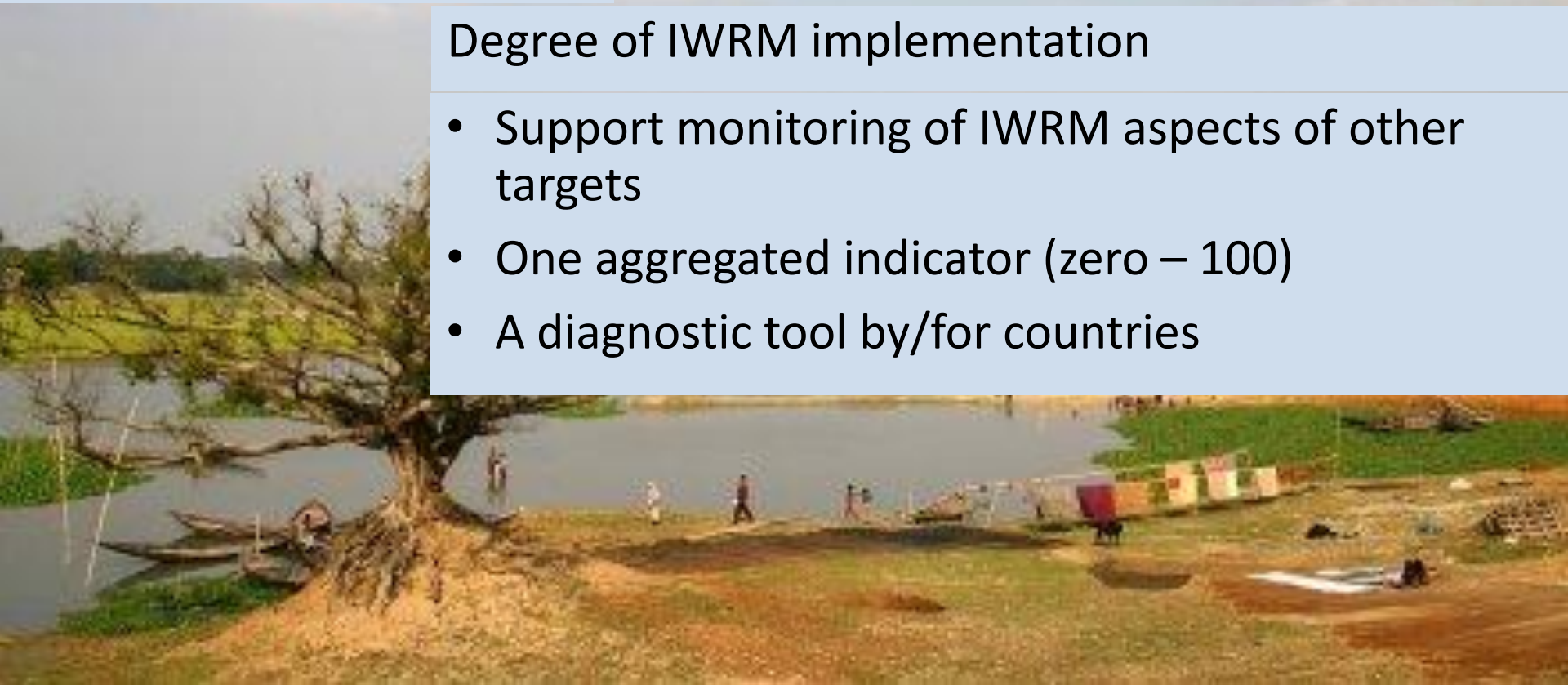
Target 6.3

Implement IWRM at all levels, including through transboundary cooperation as appropriate

Indicator 6.3.2

Degree of IWRM implementation

- Support monitoring of IWRM aspects of other targets
- One aggregated indicator (zero – 100)
- A diagnostic tool by/for countries



Multiple dimensions

- aspects of IWRM
- "at all levels"
- across all sectors
- supporting other targets
- implementation progress (steps vs coverage)

4 Categories of IWRM Indicators

1. **Enabling Environment:** Policy, laws, plans
2. **Institutions:** cross-sector coordination, stakeholder participation, capacity, gender and effectiveness
3. **Management Instruments:** programs, monitoring, knowledge sharing, capacity development
4. **Sustainable Financing:** for water resources development and management

Example:

1: Indicators for Enabling Environment: Policy, Laws, Plans

1/2

		Level of implementation (0 – 100)					
		Very low (0)	Low (20)	Medium-low (40)	Medium-high (60)	High (80)	Very high (100)
1.1 Are there policies, laws and plans that support Integrated Water Resources Management (IWRM) at the national level?							
a	National water resources policy	Development not started , or not based on an IWRM approach.	Being prepared , based on IWRM, but not approved by government.	Approved by government.	Being used by the majority of relevant authorities to guide work.	Policy objectives consistently achieved	Objectives consistently achieved, and periodically reviewed and revised .
	Score: select 2.	Further info. or reason for n/a	Click here to enter text.				
b	National water law(s)	Development not started or not based on an IWRM approach.	Being prepared , based on IWRM, but not approved by government.	Approved by government.	Authorities clearly mandated to apply laws .	All provisions in the water law applied across the country.	All people, companies and organizations found breaking the water law are held to account .
	Score: select 1.	Further info. or reason for n/a	Click here to enter text.				
c	National IWRM plan or equivalent	Development not started .	Being prepared , but not approved by government.	Approved by government.	Funding allocated , and the plan is being used by majority of relevant authorities.	Plan objectives consistently achieved .	Objectives consistently achieved, and periodically reviewed and revised .
	Score: select 1.	Further info. or reason for n/a	Click here to enter text.				

Target 6.6

by 2020 protect and restore **water-related ecosystems**, including mountains, forests, wetlands, rivers, aquifers and lakes

Indicator 6.6.1

Percentage of change in **water-related ecosystems** extent over time.

- *Their spatial extent*
- *The quantity of water contained within these ecosystems*
- *The health or state of these ecosystems*

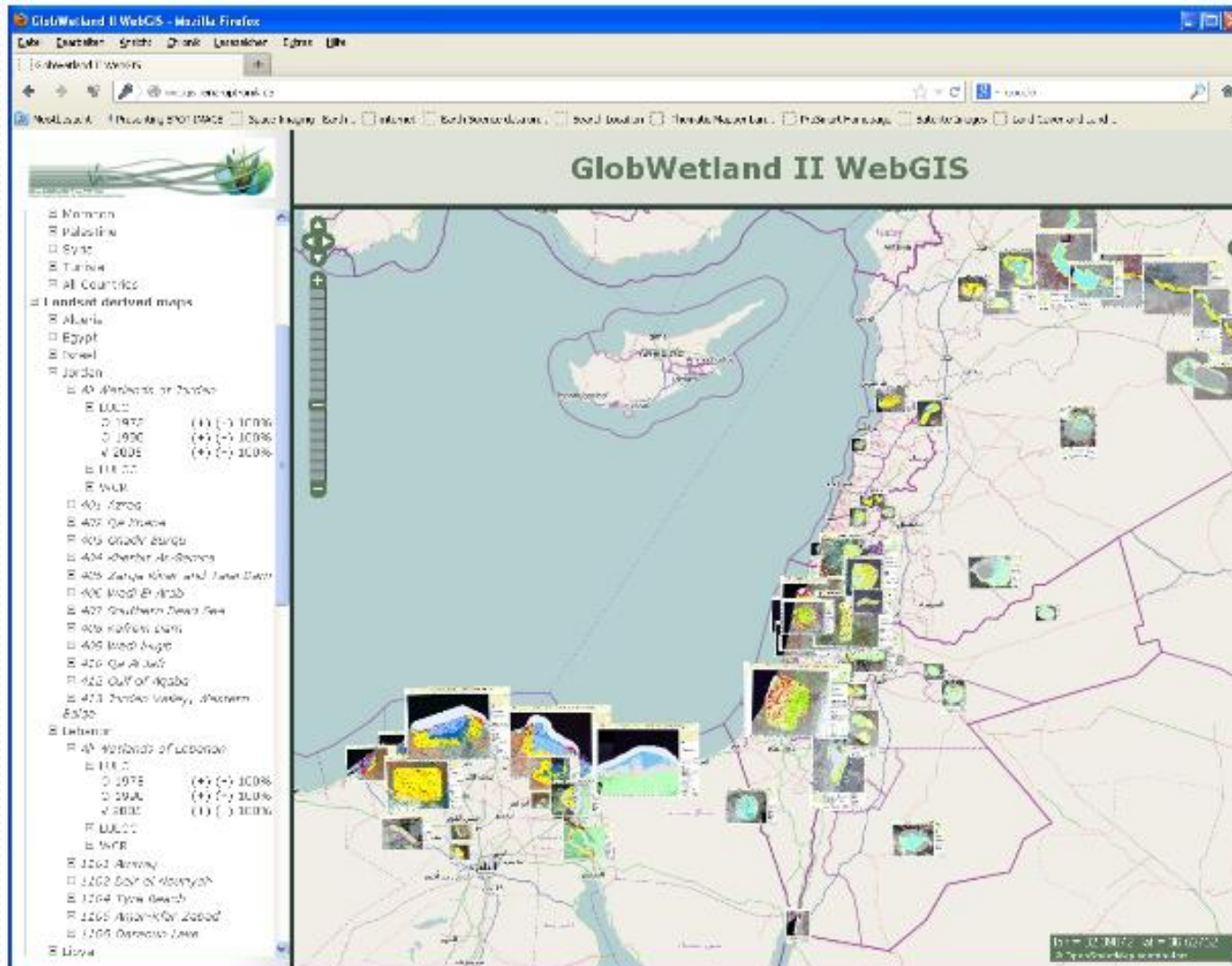


Ecosystem category	Extent indicator	Ecosystem health indicator
Wetlands (swamps, marshes and peatlands)	Spatial extent/area	Wetland health indices
Inland open waters (lakes and reservoirs)	Spatial extent/area and quantity (volume)	Lake health indices
Rivers and estuaries	Quantity (streamflow)	Biological indices, river health indices
Groundwater	Quantity (depth to groundwater table)	Groundwater interaction with surface water

Sub-indicator	Data produced	Units of measurement
Change in the spatial extent of water-related ecosystems	Quantitative measure of wetland extent	% change in area (km ²) from reference condition
Change in quantity of water	Quantitative measure of river flow, lake volume and groundwater depth	% change in the volume of flow (Mm ³) from reference condition. % change in volume (Mm ³) of water in lake % change in depth (m) to groundwater
Ground based interpretation of Earth Observation data	Quantitative measure of wetland extent and also qualitative descriptions	% change in area (km ²) from reference condition
Ground based assessment of ecosystem extent and also classification of wetland type	Quantitative measure of wetland extent and also qualitative descriptions	% change in area (km ²) from reference condition
Change in health or state of ecosystem health	Quantitative measure of ecosystem health	% change of biological indicator from natural reference condition

Sub-indicator	Sub-indicator	Ref	Pres	Change	% change	% change
Change in the spatial extent of water-related ecosystems	Change in extent of palustrine wetlands	656 km ²	439 km ²	217 km ²	-33	-30.5
	Change in extent of floodplain wetlands	110 km ²	79 km ²	31 km ²	-28	
Change in the quantity of water in water-related ecosystems	Change in river flow	108 Mm ³	93 Mm ³	15 Mm ³	-14	-8.3
	Change in lake volume	1121 Mm ³	1087 Mm ³	34 km ²	-3	
	Change in groundwater depth	32 m	35 m	3 m	-8 [#]	
Change in the health of water-related ecosystems	Change in river health	156 index score	123 index score	33 index score	-21	-15.3
	Change in estuary health	8.0 index score	6.2 index score	1.8 index score	-23	
	Change in lake health	33 index score	32.3 index score	0.66 index score	-2	
TOTAL CHANGE (AVERAGE)						-18

Earth observations and ground data





Thank you



Integrated Monitoring Initiative
GEMI



What is good ambient water quality?

Water quality that does not damage ecosystem function or present a risk to human health, i.e.

- It is not severely impacted by human activities, e.g. sewage and wastewater discharges, agricultural run-off
- It supports a balanced ecosystem, including fisheries
- It is safe for recreational activities, such as water contact activities

