SDG Indicator 6.3.2
Technical Training Workshop for Arab Region

Proportion of bodies of water with good ambient water quality

SUSTAINABLE DEVELOPMENT GOALS

UN environment programme

GEMS Water

Welcome: Introduction of participants

Using the Chat function please share:

- your name
- your country
- your organisation

(In either Arabic or English)

Objectives of the workshop

- Introduce the indicator to those who are unfamiliar
- Provide technical-level training on indicator 6.3.2
- Provide point of contact within UNEP for those tasked with reporting
- Describe the capacity development resources that are available from UNEP
- Encourage efforts to develop an intra-regional support network within the Arab Region

Workshop outline

Time	Description
10.20	Brief introduction to GEMS/Water and SDG Indicator 6.3.2
10.35	Overview of methodology
10.50	Overview of indicator calculation and how to report?
11.05	Tunisia – a country perspective on the 2020 data drive
11.15	Question and answer session for clarification
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SDG 6 global indicators

6.1.1	Safely managed drinking water services (WHO, UNICEF)**
6.2.1	Safely managed sanitation services and hygiene (WHO, UNICEF)**
6.3.1	Wastewater safely treated (WHO, UN-Habitat, UNSD)**
6.3.2	Good ambient water quality (UNEP)**
6.4.1	Water use efficiency (FAO)*
6.4.2	Level of water stress (FAO)*
6.5.1	Integrated water resources management (UNEP)*
6.5.2	Transboundary basin area with water cooperation (UNECE, UNESCO)*
6.6.1	Water-related ecosystems (UNEP, Ramsar)*
6.a.1	Water- and sanitation-related official development assistance (WHO, OECD)*
6.b.1	Participation of local communities in water and sanitation management (WHO, OECD)*

* Tier 1
** Tier 2

Integrated Monitoring Initiative for SDG6

IMI-SDG6

UN environment programme GEMS Water

Update on IMI-SDG6 (1/2)

Phase 1 (2015-2018)

2015

Methodology development

2016

Methodology pilot testing, expert review and revision

2017

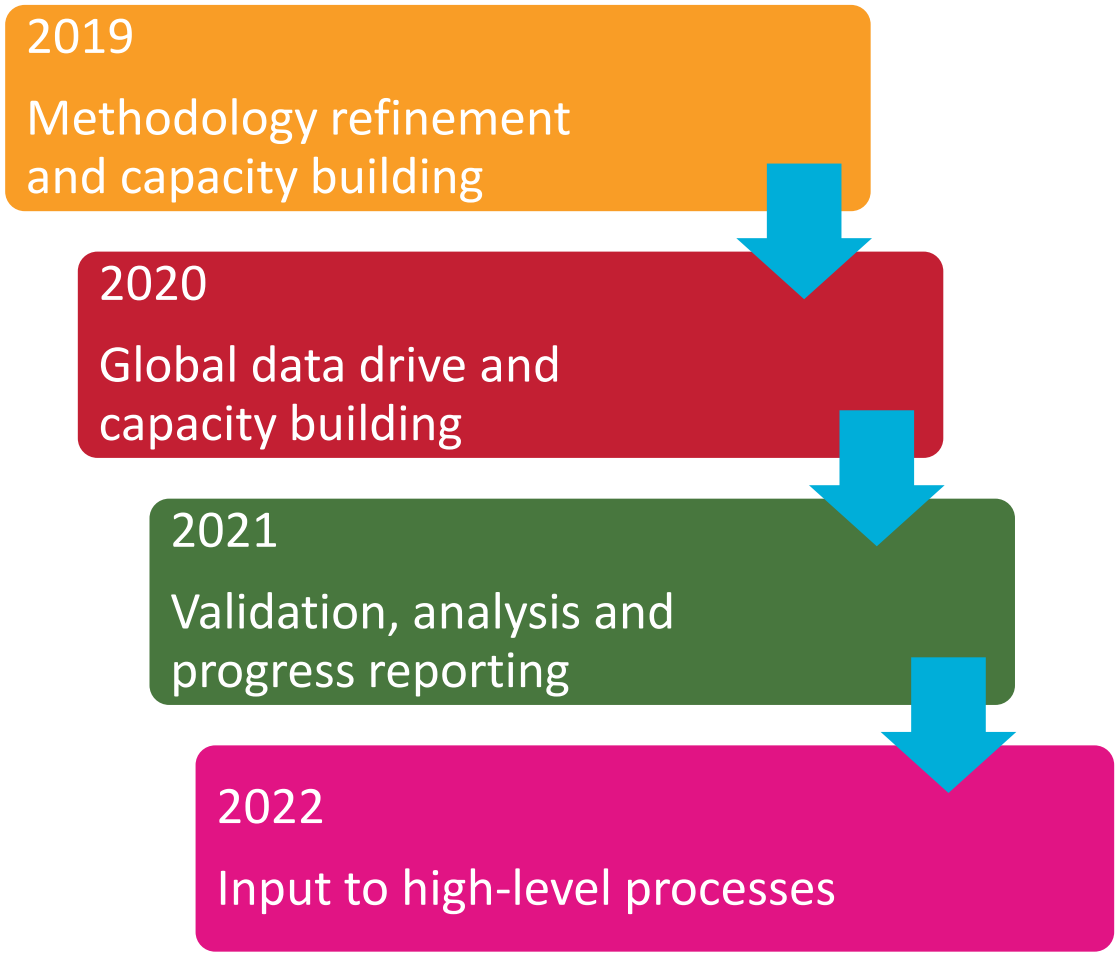
Global implementation, integrated baseline process

2018

Baseline reporting, SDG 6 synthesis reporting

Update on IMI-SDG6 (2/2)

Phase 2 (2019-2022)



Key external events

- First draft of the World Water Quality Assessment
- High-level Political Forum (HLPF)
  - Every year
  - Next in-depth review of SDG 6?
- One-day high-level meeting of the President of the General Assembly
  - New York in 2021
- Preparatory process Midterm Comprehensive Review of International Decade for Action (2018-2028)
  - Regional and global meetings, 2022
- United Nations Conference on the Midterm Comprehensive Review of International Decade for Action
  - New York, World Water Day 2023

Target 6.3 and Indicator 6.3.2

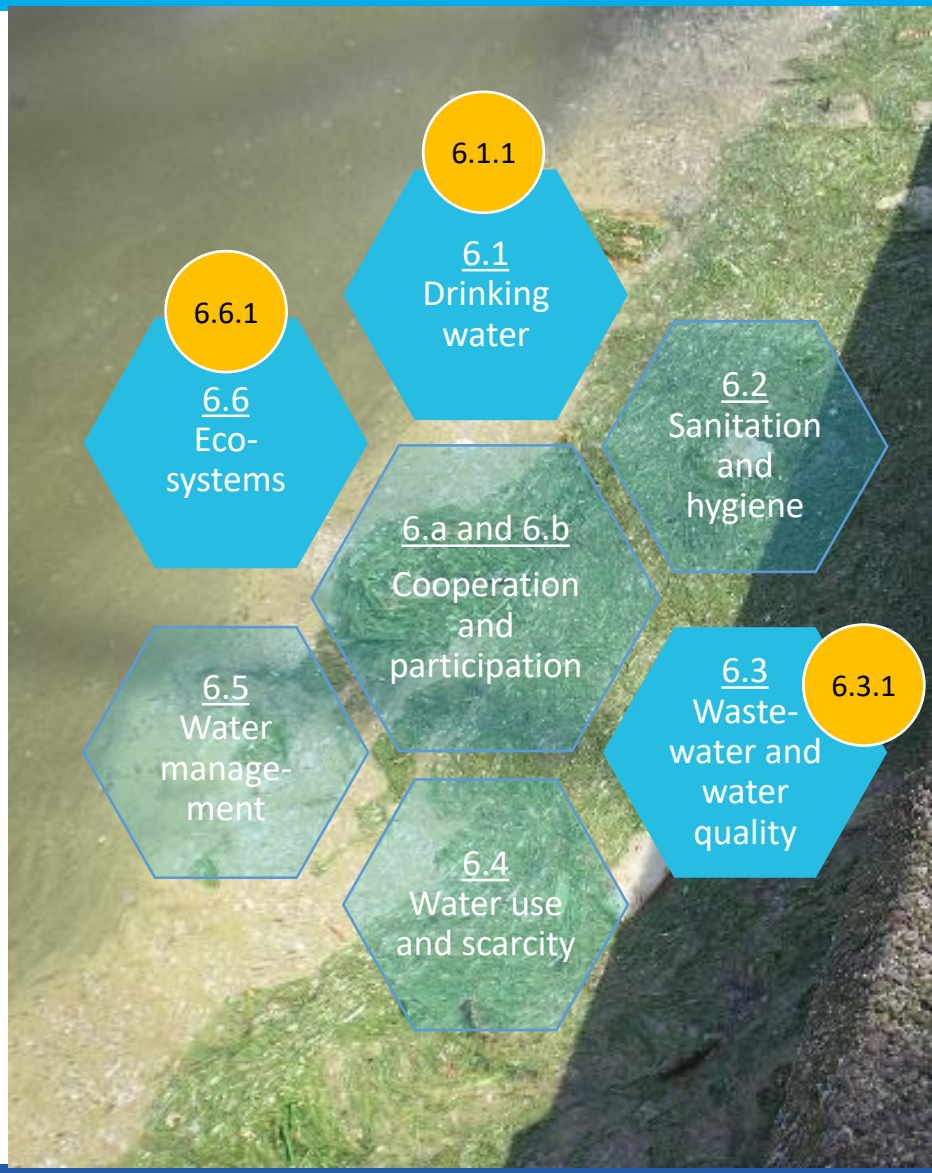
By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally

- Indicator 6.3.1 - Proportion of wastewater safely treated
- **Indicator 6.3.2 - Proportion of bodies of water with good ambient water quality**

Indicator 6.3.2 supports water management at national level

No information, or inaccurate information, could lead to incorrect management actions, such as:

- Lack of appropriate controls on discharges to waterbodies
- Inadequate treatment to waters used for drinking water supplies
- Delayed or inadequate conservation or remediation of waterbodies and wetlands



Feedback and review

The first global drive took place in 2017.

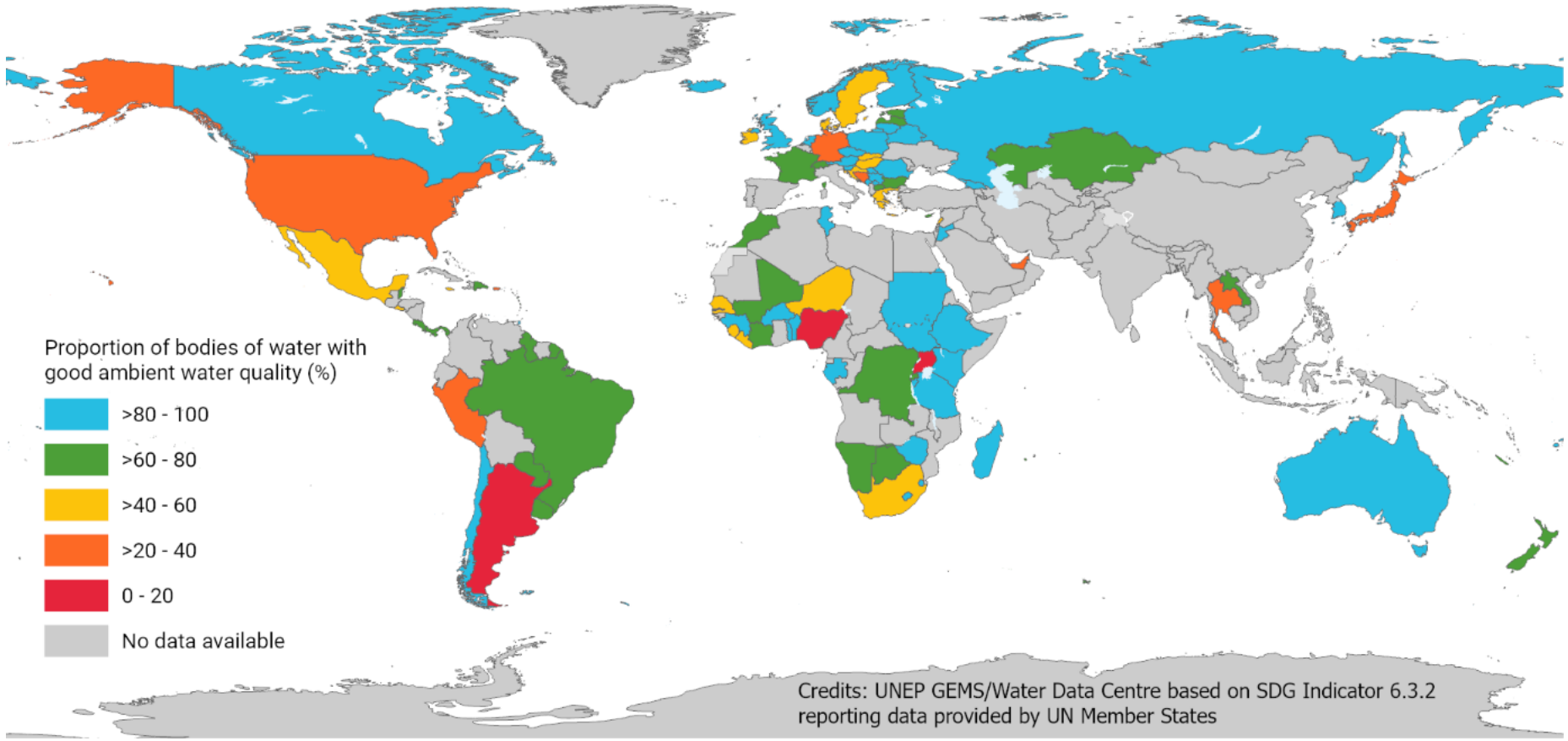
In 2018 we undertook a review and sought feedback in order to refine and improve the methodology.

In 2020, second global data drive. Progress report to be published in August 2021

https://www.unwater.org/app/uploads/2018/12/SDG6_Indicator_Report_632_Progress-on-Ambient-Water-Quality_ENGLISH_2018-1.pdf
https://www.ucc.ie/en/media/research/watercapacitydevelopmentcentre/CDC_SDGTechnicalFeedbackProcessReport_20191008.pdf

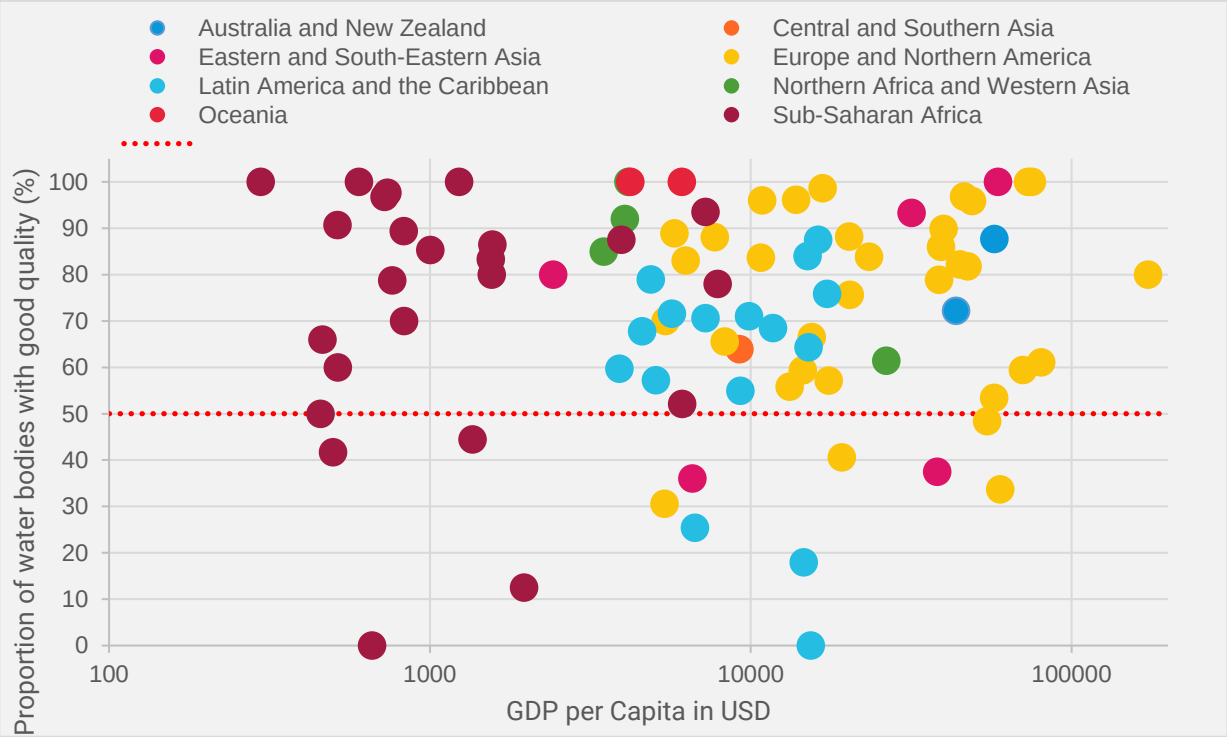
Summary results from 2020 data drive

- 96 submissions
- Over 100 % more than in 2017
- Gaps in Central and Southern Asia and Arab Region

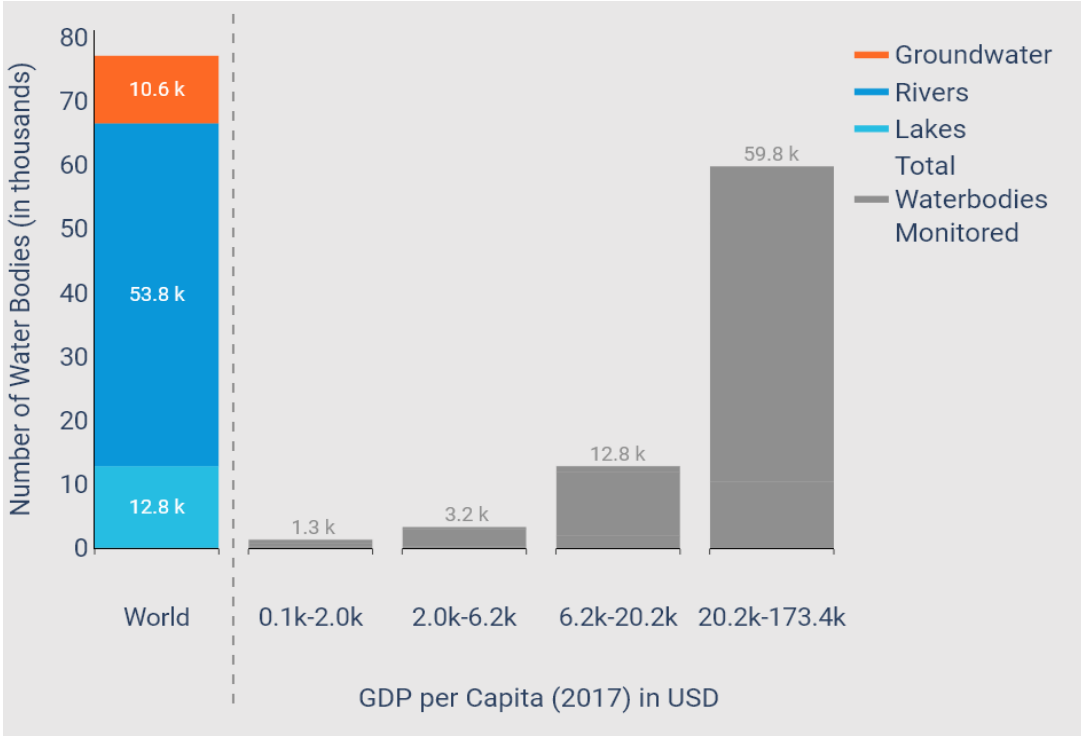


Summary results from 2020 data drive

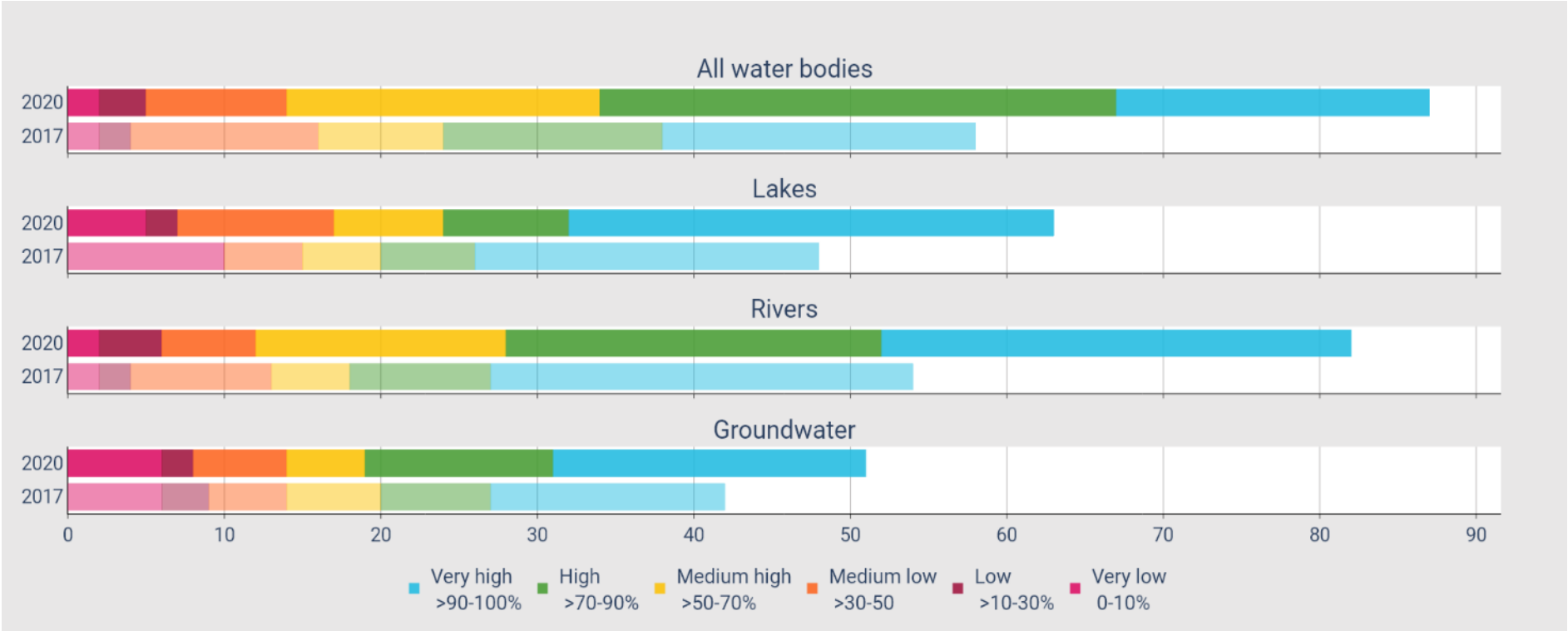
Both good and poor water quality reported in all world regions



Richer countries used more data to calculate their indicator



Fewer countries reported on groundwaters compared with surface waters



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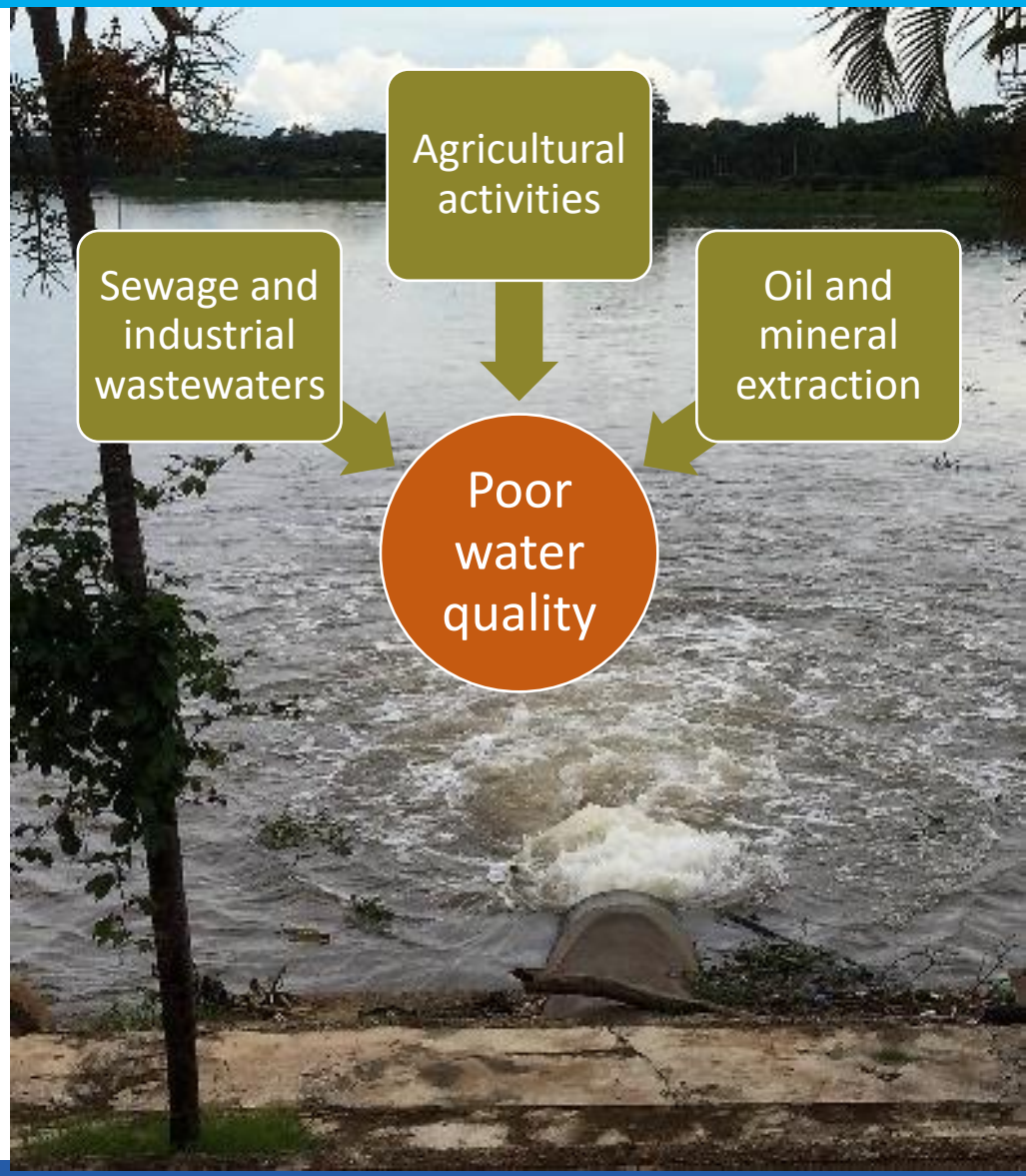
Rationale for the indicator

Good ambient water quality does not damage ecosystem function or present a risk to human health

Supports a balanced ecosystem including fisheries	Requires minimum treatment before domestic, agricultural or industrial use	Safe for recreation, such as water contact activities



Methodology Description

Indicator 6.3.2 provides information on the current status of freshwater bodies, and how water quality changes over time. But you need:

Network of monitoring locations in designated water bodies

In-situ measurements and sample collection

a data management capacity

We have learnt that many countries have data gaps, and do not have a clear understanding of the quality of their freshwaters.

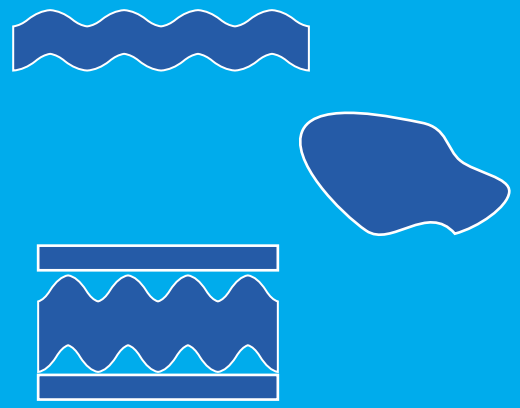
Proportion of bodies of water with good ambient water quality

Waterbodies need to be defined within the country:

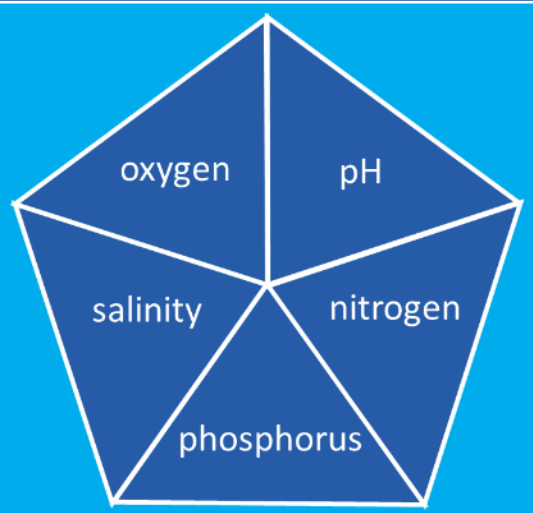
rivers,

lakes, and

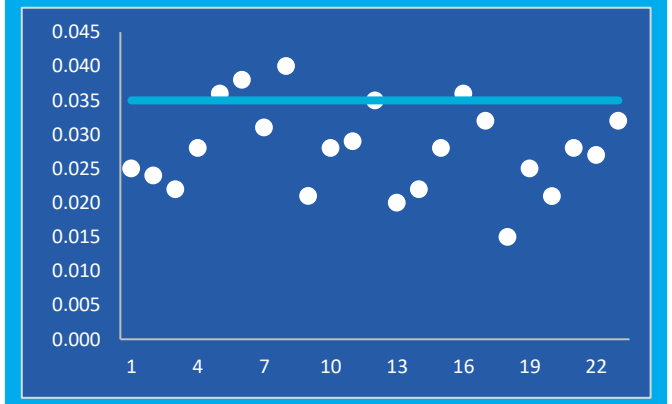
groundwaters



Water quality is classified by comparing measurements with **target values** for specific **parameters** from specific **parameter groups**



Good water quality represents at least **80%** compliance of measurements with target values



Core Parameter Groups

Parameter group	Parameter	River	Lake	Groundwater	Reason for Inclusion / Pressure
Oxygen	**Dissolved oxygen**	●	●		Measure of oxygen depletion
	Biological oxygen demand, Chemical oxygen demand	●			Measure of organic pollution
Salinity	**Electrical conductivity** *Salinity, Total dissolved solids*	●	●	●	Measure of salinisation and helps to characterises the water body
Nitrogen*	**Total oxidised nitrogen** *Total nitrogen, Nitrite, Ammoniacal nitrogen*	●	●		Measure of nutrient pollution
	Nitrate**			●	Health concern for human consumption
Phosphorous*	**Orthophosphate** *Total phosphorous*	●	●		Measure of nutrient pollution
Acidification	**pH**	●	●	●	Measure of acidification and helps to characterises the water body

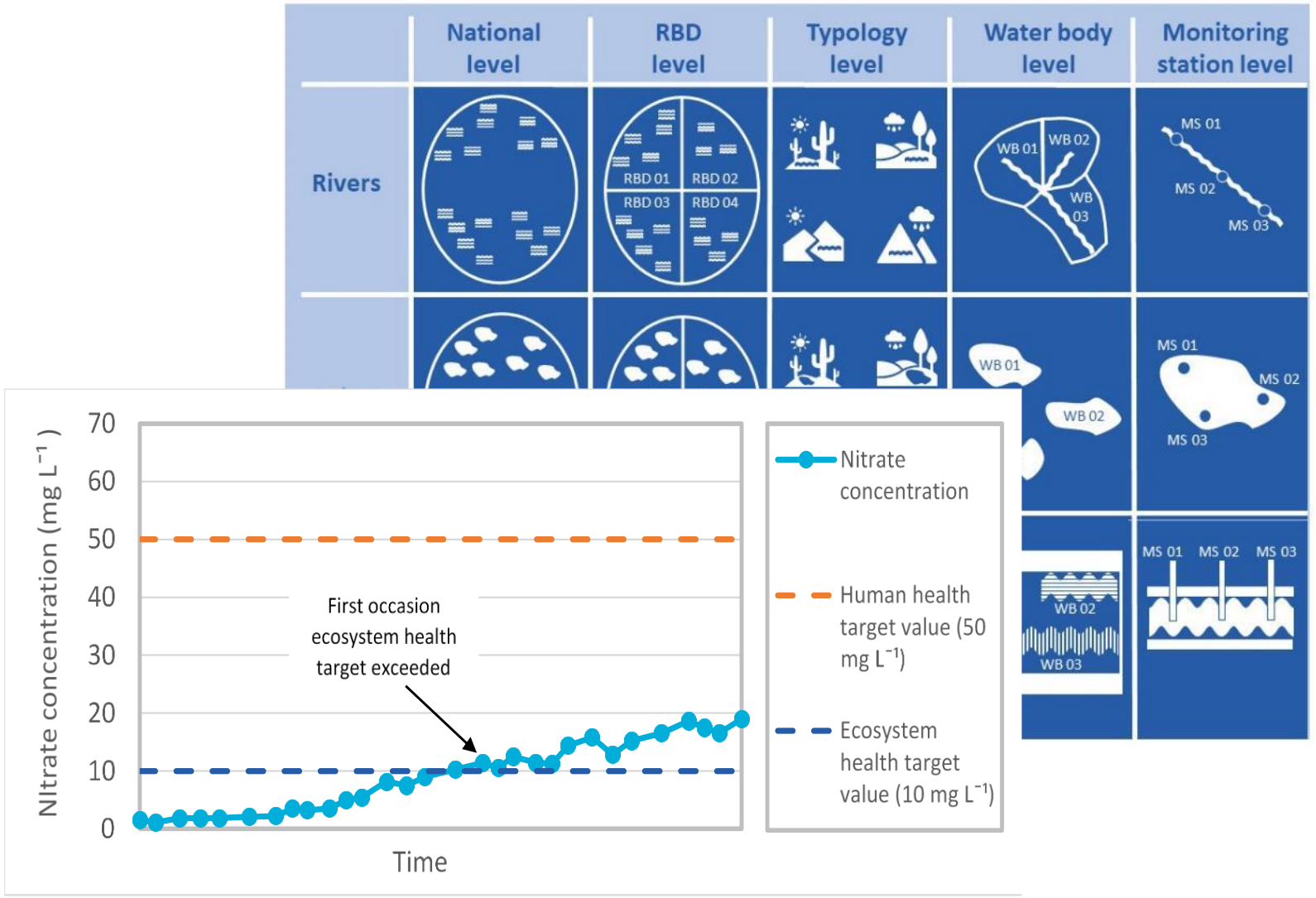
* Countries should include the fractions of N and P which are most relevant in the national context

** Nitrate is suggested for groundwater due to associated human health risks

Target-based approach

Measured values are compared to numerical target values that represent “good ambient water quality”

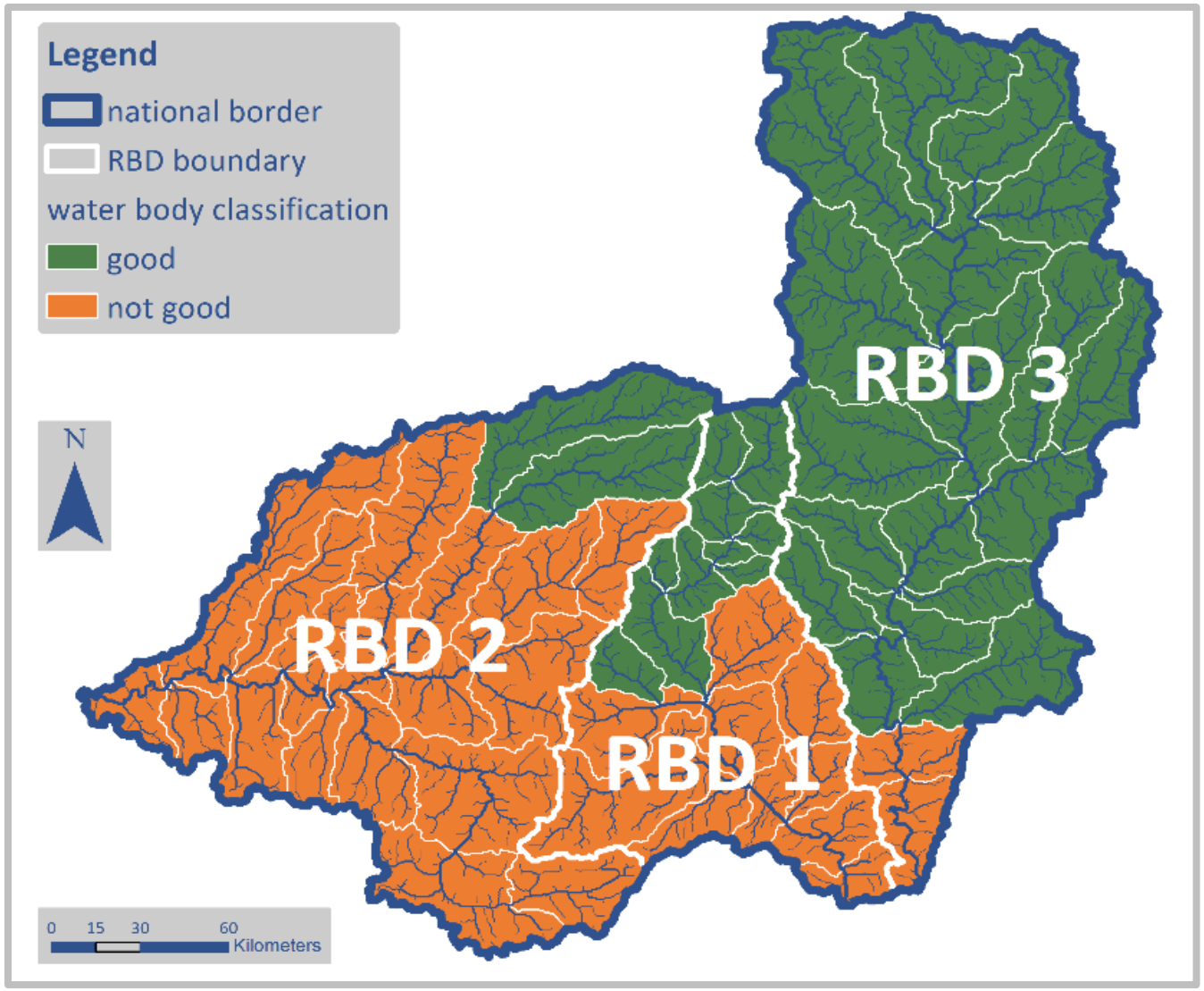
These targets can be national, or more specific.



Reporting Basin Districts and Water bodies

The indicator is the "Proportion of bodies of water…", these can be sections of a river, a lake or an aquifer.

These water bodies are grouped into Reporting Basin Districts



Identifying Aquifers and Defining Groundwater Bodies

In response to feedback received following the 2017 data drive, arid and semi-arid countries that have extensive groundwater but little or no surface water can choose to report by **aquifer-based units** in place of RBDs if they prefer.

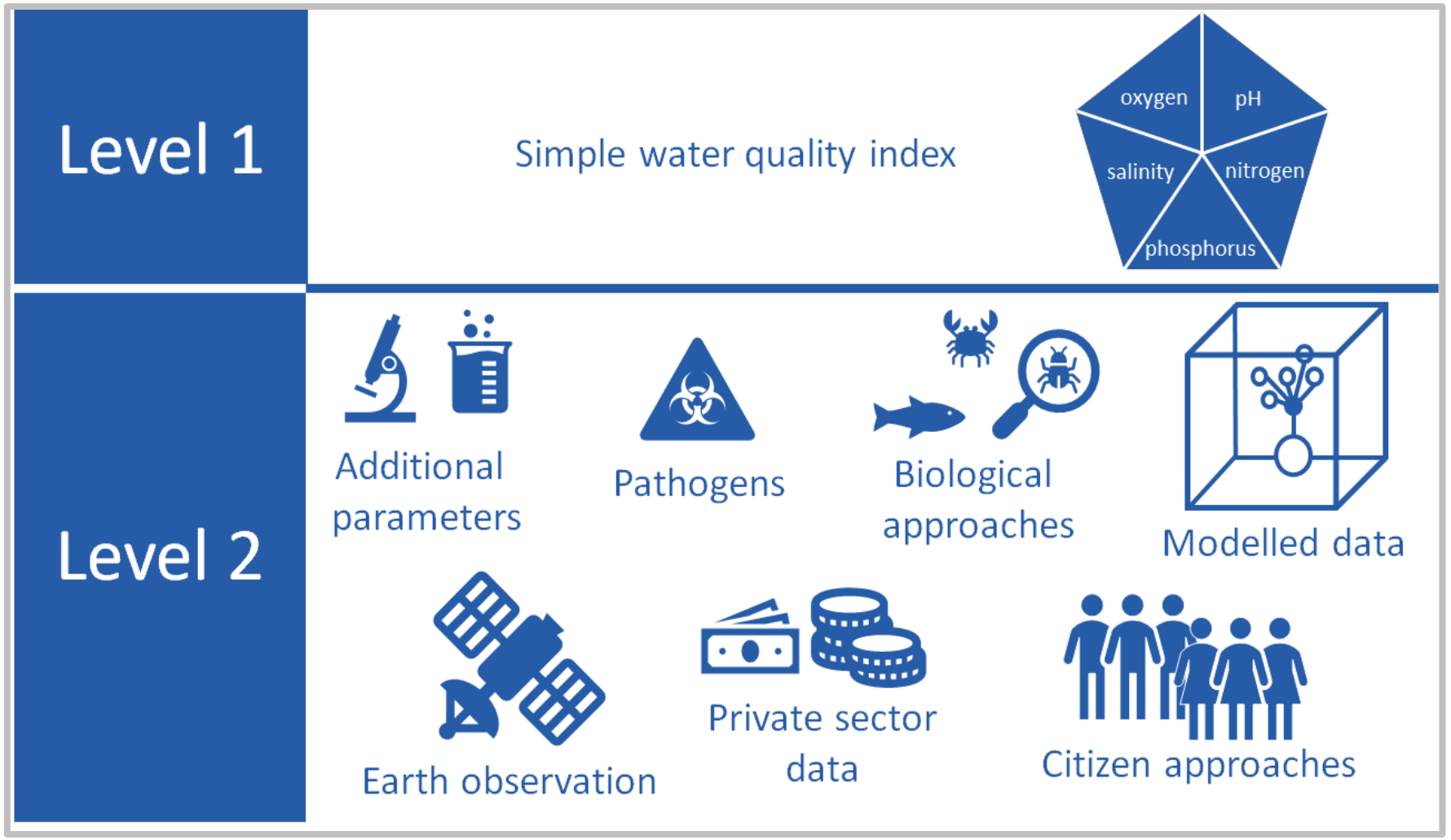
These aquifers are often:

- deep, thick, flat-lying with low groundwater gradients,
- groundwater residence times measured in centuries rather than decades
- do not receive significant groundwater recharge under current climatic conditions.
- are often heavily exploited, with water quantity management challenges
- well protected against possible quality impacts from land activities
- examples of bodies of groundwater which can be characterised by a small number of sampling points.

Level 1 and Level 2

Reporting is done initially at Level 1

There is the option to report at Level 2



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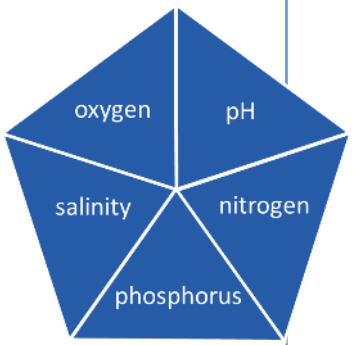
Indicator calculation workflow and data requirements

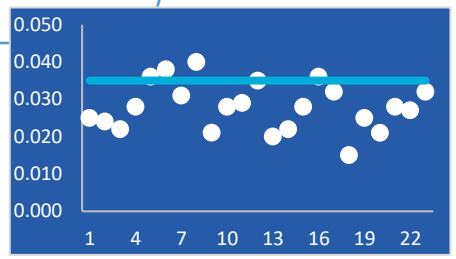
Compile input data

- Reporting basin districts
- Water bodies
- Monitoring locations
- Monitoring data
- Target values

Classify water quality

- Good quality if 80% or more of monitoring values comply with their targets

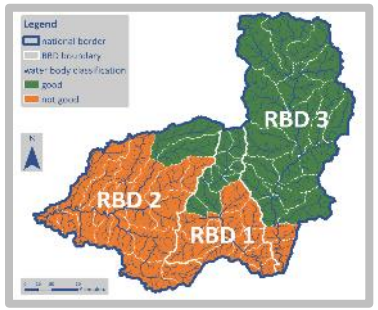




Aggregate classification results

- Indicator score calculated as ratio of “good” quality water bodies to all assessed water bodies in reporting basin district/country

Indicator Calculation Example



Score Level	Count	Aggregation of Indicator Score	Notes
National Indicator Score	1	50 %	The **national score** is calculated from the RBD scores (this can be separated by water body type)
RBD scores	3	RBD 1: 50 % / RBD 2: 10 % / RBD 3: 90 %	Each **RBD** score is calculated from the water body scores
Water body scores	60		Each **water body** is classified as good if 80 per cent or more **monitoring locations** within it are classified as good
Monitoring location scores	240		Each water body has four **monitoring locations** and each location is classified as good or not
Monitoring event scores	960		Data for the core parameters for four **monitoring events** are collected at each **monitoring location**

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GEMS Water

Groundwater Sampling Locations

The choice of sampling location type also influences the reliability and representivity.

Samples of groundwater can be taken from existing wells supplying water for **domestic**, **municipal**, **irrigation** or **industrial** uses, from **springs** or from **purpose-built monitoring wells**.

Each has advantages and disadvantages with respect to practicality, cost and technical aspects.

Photo credit: Bruce Misstear

Sampling Frequency for Groundwaters

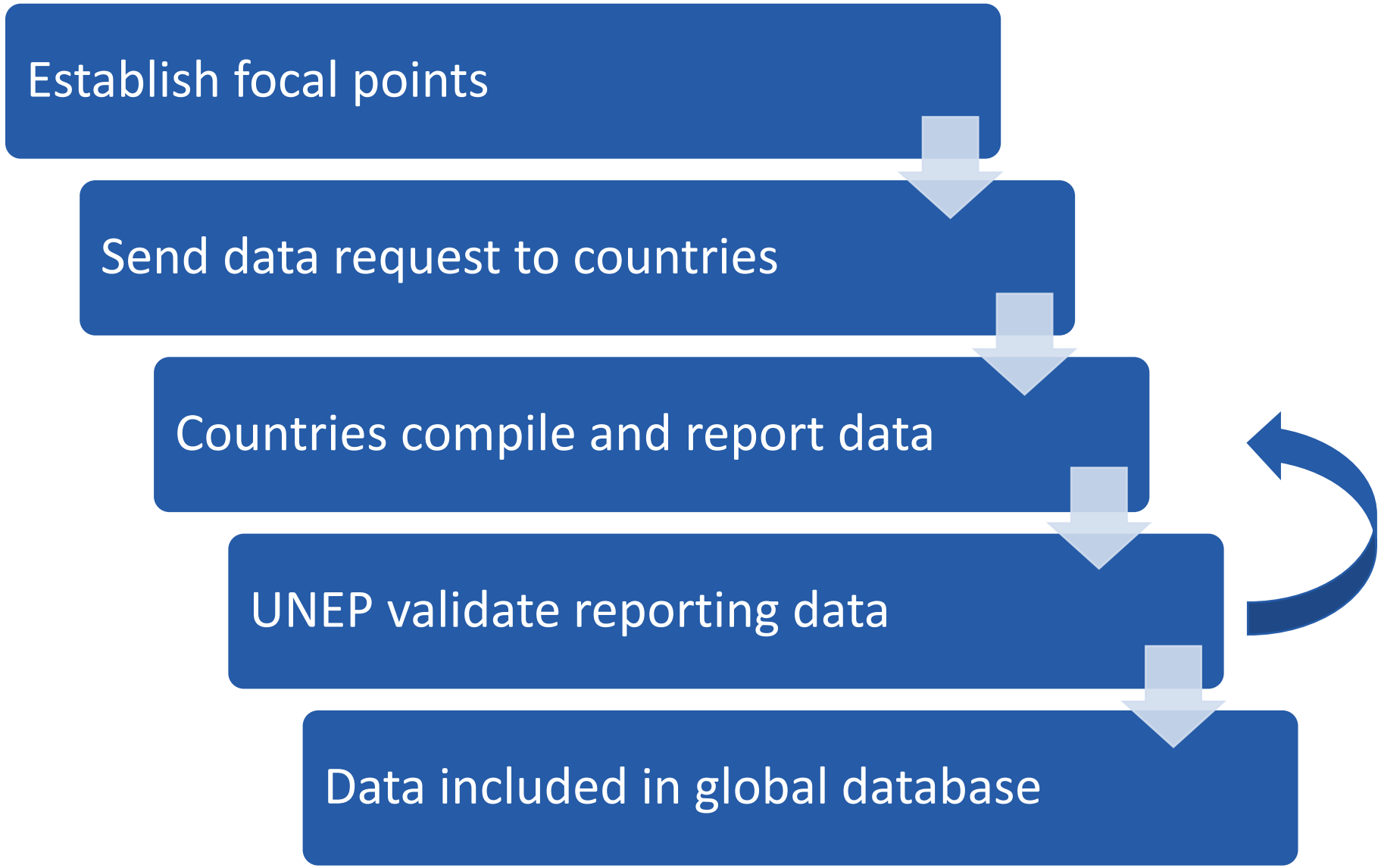
The absolute minimum for groundwater sampling should be **once** per year.

Higher frequencies of at least **twice** per year are needed for shallow groundwaters which are sensitive to seasonal influences from rainfall, recharge, pumping and from irrigation, and also those susceptible to urban impacts.

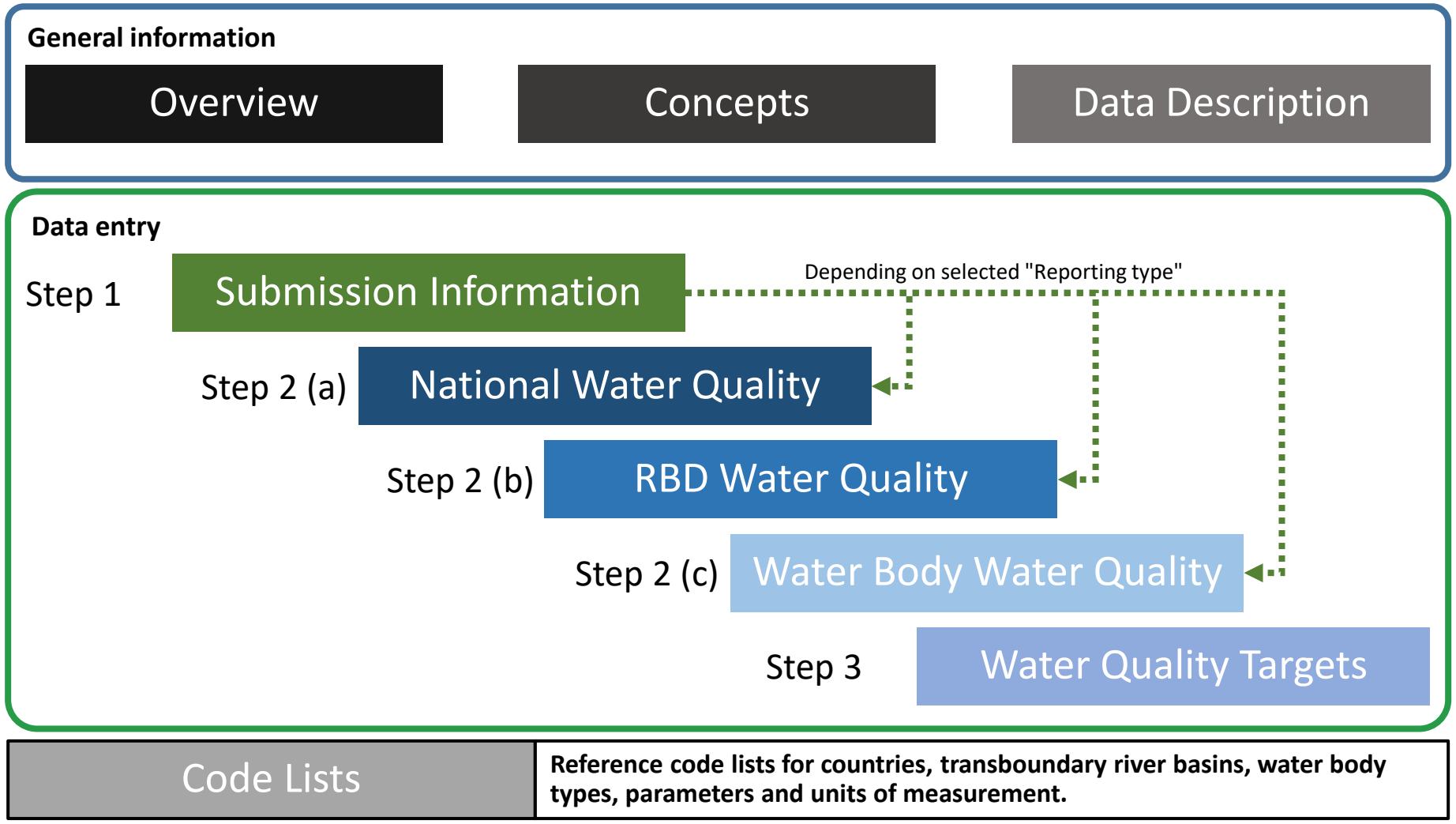
Samples should be taken before and after the rainy season and/or at the times of high and low groundwater levels.

Higher frequencies of at least four times per year are needed for karstic limestones.

Reporting Workflow

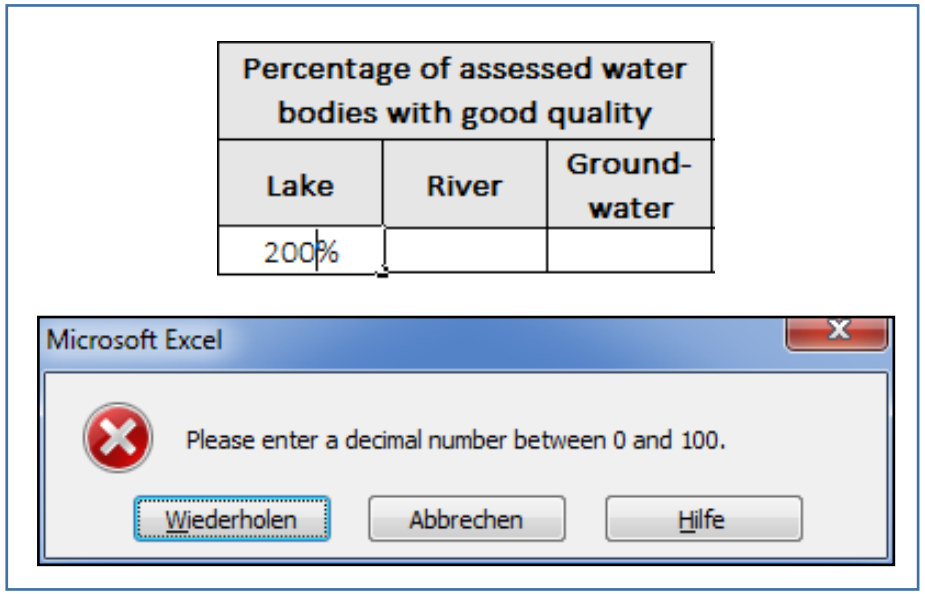


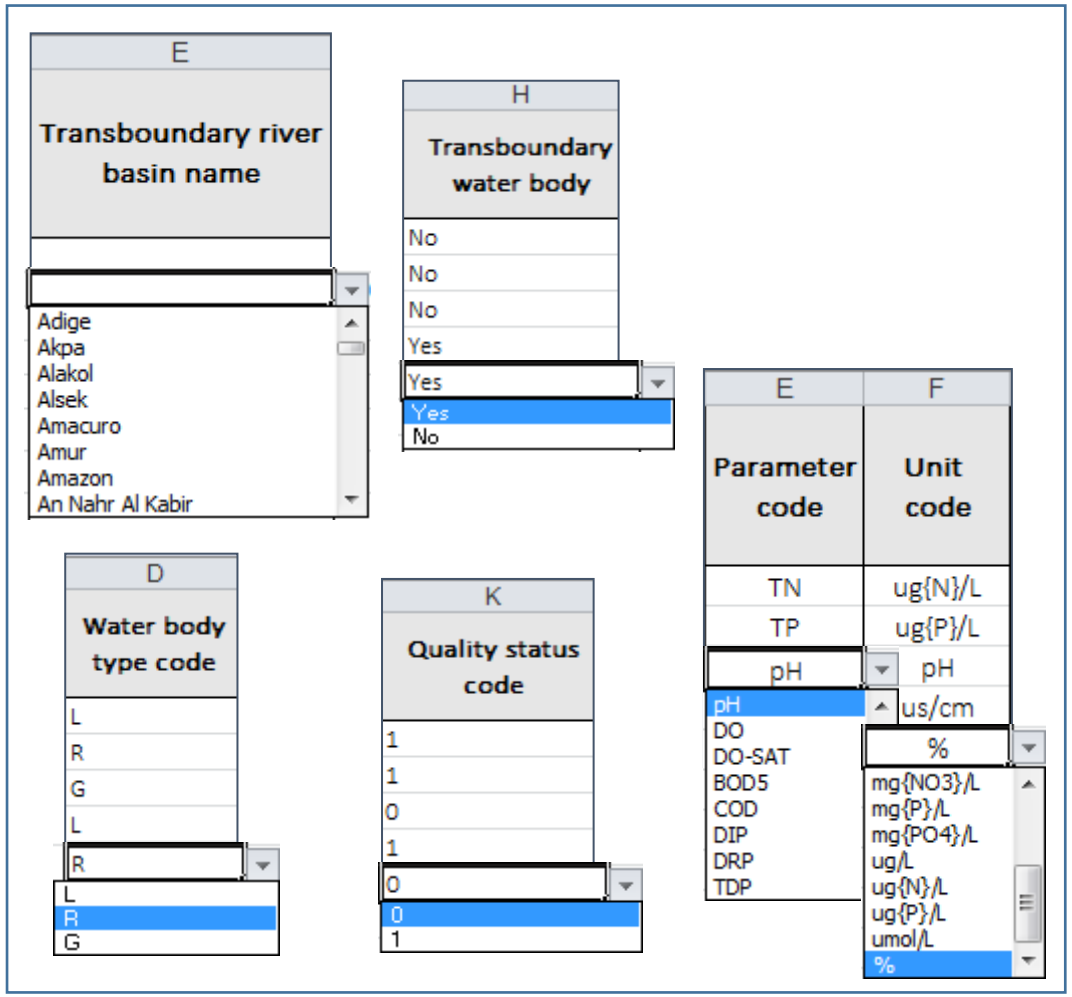
Reporting template content



Reporting template content - Data validation

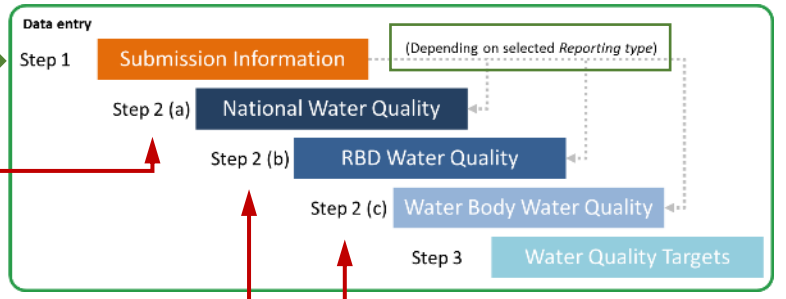
- Data format
- Referential integrity
- Code lists





Step 1 - Submission Information

Submission Form	
Country	Ireland
Organization	University College Cork
Name	Stuart Warner
E-Mail	stuarts@email.ie
Reporting year	2020
Reporting type	National



Enter your **Country, *Organization, Name*** and your contact ***E-Mail*** address.

Select the appropriate ***Reporting year*** of the SDG 6.3.2 Data Drive that your indicator submission is relevant – either 2017 or 2020!

OR

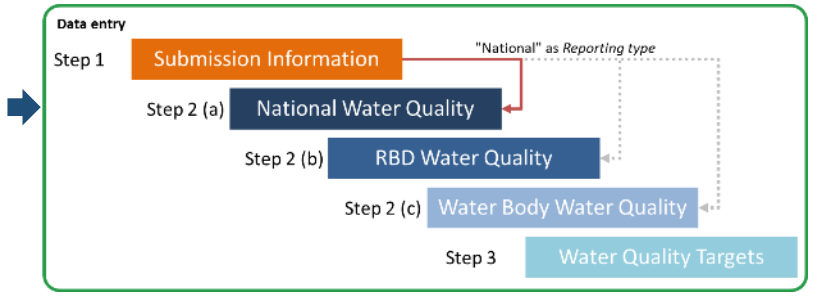
Submission Form	
Country	Ireland
Organization	University College Cork
Name	Stuart Warner
E-Mail	stuarts@email.ie
Reporting year	2020
Reporting type	Reporting basin district

OR

Submission Form	
Country	Ireland
Organization	University College Cork
Name	Stuart Warner
E-Mail	stuarts@email.ie
Reporting year	2020
Reporting type	Water body

The selected ***Reporting type*** determines, which additional information is required and which of the reporting template tables needs to be filled out.

Step 2 (a) – National Water Quality



The "National" ***Reporting type*** asks for the proportion of bodies of water with good ambient water quality on a country level, together with additional information on the data that the indicator is based on, for each of the three water body types.

Country code	Assessment period begin	Assessment period end	Number of assessed water bodies			Percentage of assessed water bodies with good quality			Number of monitoring locations			Number of monitoring values			Number of core parameter groups		
			Lake	River	Ground-water	Lake	River	Ground-water	Lake	River	Ground-water	Lake	River	Ground-water	Lake	River	Ground-water
ISO 3166-1 alpha-2 country code, as automatically derived from the country name.	Start year of the data used to assess the quality of water bodies in the country.	End year of the data used to assess the quality of water bodies in the country.	Number of open river, lake and groundwater bodies in the whole country that have been classified during the assessment.			Percentage of river, lake and groundwater bodies in the country, classified as having good water quality according to the indicator methodology.			Number of monitoring locations in rivers, lakes and groundwater bodies used to calculate the indicator in the country.			Number of monitoring values for river, lake and groundwater bodies used to calculate the indicator in the country.			Number of core parameter groups used to assess the river, lake and groundwater bodies in the country.		
IE	2017					50,00%										5	3

Country code	Country name
104 HM	Heard Island and McDonald Islands
105 VA	Holy See
106 HN	Honduras
107 HU	Hungary
108 IS	Iceland
109 IN	India
110 ID	Indonesia
111 IR	Iran (Islamic Republic of)
112 IQ	Iraq
113 IE	Ireland
114 IM	Isle of Man
115 IL	Israel
116 IT	Italy

CL_Country CL_R

Submission Form	
Country	Ireland
Organization	University College Cork
Name	Stuart Warner
E-Mail	stuarts@email.ie
Reporting year	2020
Reporting type	National

The ***Country code*** will be filled in automatically, depending on the ***Country*** name that you have entered in the Submission Form of Step 1.

Step 3 - Water Quality Targets

Water body or RBD specific target?	Reporting basin district code	Water body code	Water body type code	Parameter code	Unit code	Target type	Lower target value	Upper target value	Remarks
Indicate whether this particular target value is valid for a specific water body or reporting basin district.	If the target value is valid for all water bodies of a given type in a specific reporting basin district, please identify the RBD with a unique code.	If the target value is valid for a specific water body only, please identify the water body with a unique code.	Type of water body, that the target value is valid for.	Parameter code of the water quality parameter that the target value applies to, as defined in the Code List CL_Parameter.	Unit code of the selected parameter as defined in Code List CL_Unit.	Type of the reported target value. Typically 'Lower limit' for dissolved oxygen, 'Upper limit' for nutrients and 'Range' for pH.	Lower target value of current water quality parameter, applicable to 'Lower limit' and 'Range' Target types.	Upper target value of current water quality parameter, applicable to 'Upper limit' and 'Range' Target types.	Additional remarks, e.g. for clarifying special circumstances for the applicability of individual target values and the like.
No			R	TN	ug{N}/L	Upper Limit		500	
No			R	TP	ug{P}/L	Upper Limit		50	
No			R	pH	pH	Range	6.5	8.0	
No			R	EC	us/cm	Range	125	2200	
No			R	DO-SAT	%	Range	85	110	
No			L	TN	mg{N}/L	Upper Limit		350	
No			L	TP	mg{P}/L	Upper Limit		10	
No			L	pH	pH	Range	7	8.5	
No			L	EC	us/cm	Range	20	30	
No			L	DO-SAT	%	Range	80	110	
Yes		XXRBDBR1	R	TN	mg{N}/L	Upper Limit		250	Upland River portion
Yes		XXRBDBR1	R	TP	mg{P}/L	Upper Limit		20	Upland River portion
Yes		XXRBDBR1	R	pH	pH	Range	6.5	7.5	Upland River portion
Yes		XXRBDBR1	R		s/cm	Range	30	350	Upland River portion
Yes		XXRBDBR1	R		%	Range	90	110	Upland River portion

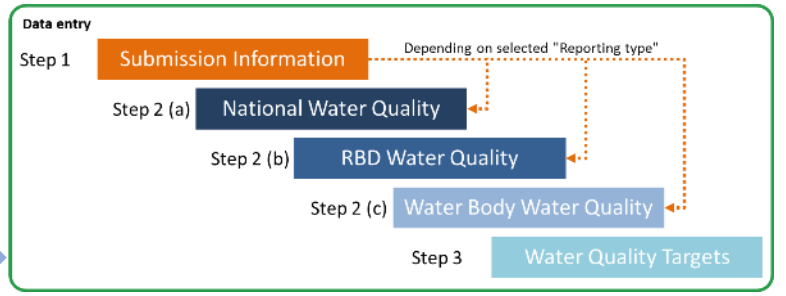
Yes
No

L
R
G

pH
DO
DO-SAT
BOD5
COD
DIP
DRP
TDP

mg{NO3}/L
mg{P}/L
mg{PO4}/L
ug/L
ug{N}/L
ug{P}/L
umol/L

Lower Limit
Upper Limit
Range



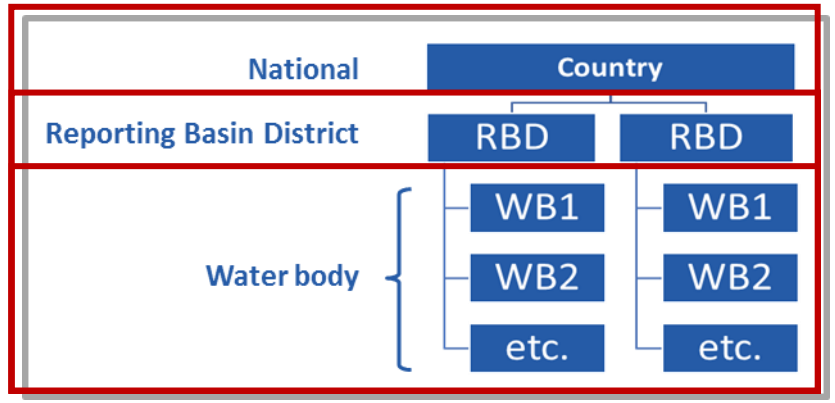
The last step consists of providing information on the ***Water Quality Targets***.

The default assumes that the water quality targets are relevant at a national level.

However, targets can be specified for single RBDs, water bodies, or even portions of water bodies.

Aggregation of Final Indicator Score after Submission

Reporting basin district code	Water body code	Water body name	Water body type code	...	Quality status code	...
XXRBDA	XXRBDAR1	River water body 1	R	...	1	...
XXRBDB	XXRBDBR2	River water body 2 (Channel)	R	...	0	...
XXRBDB	XXRBDBR3	River water body 3	R	...	0	...
XXRBDB	XXRBDBR4	River water body 4	R	...	1	...
XXRBDB	XXRBDBL1	Lake water body 1	L	...	1	...
XXRBDB	XXRBDBL2	Lake water body 2	L	...	0	...
XXRBDB	XXRBDBG1	Groundwater body 1	G	...	0	...
XXRBDB	XXRBDBG2	Groundwater body 2	G	...	1	...



Reporting basin district code	Reporting basin district name	...	Number of assessed water bodies			Percentage of assessed water bodies with good quality			...
			Lake	River	Ground-water	Lake	River	Ground-water	...
XXRBDA	Reporting Basin District A	...	0	1	0		100.00%		...
XXRBDB	Reporting Basin District B	...	2	3	2	50.00%	33.33%	50.00%	...

Country code	...	Number of assessed water bodies			Percentage of assessed water bodies with good quality			...
		Lake	River	Ground-water	Lake	River	Ground-water	...
IE	...	2	4	2	50.00%	50.00%	50.00%	...

Country code	Final Indicator 6.3.2 Score
IE	50.00%

Workshop outline

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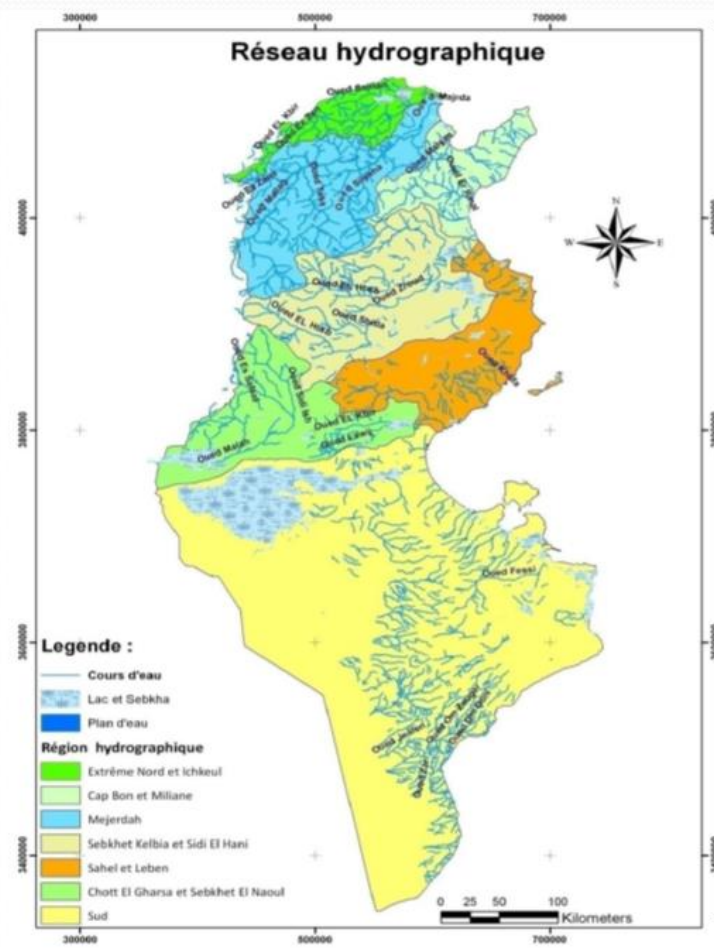
6 CLEAN WATER AND SANITATION

Tunisia experience in 6.3.2 Indicator submission

Olfa Sebai
Principal Engineer
National Agency for
Environment Protection

Interagency and Experts Collaboration to Improve the Production and Dissemination of SDG Indicators from Official National Sources
25-27 May

Water Resources in Tunisia : surface water resources



Secteurs	Apport moyen Mm^3/an	Pourcentage %
Extrême Nord et Ichkeul (Bassin 3)	960	36
Cap Bon, 0. Miliane et Sahel Nord (Bassin 4)	250	9
Méjerdah-Ghar el Melh (Bassin 5)	1000	37
Sebkhat Kelbia – Sidi el Hani (Bassin 6)	212	8
Sahel de Sousse et Sfax et l'oued Lebben (Bassin 7)	63	2
Chott el Gharsa et Sebkhats Naouel – Sidi Mansour (bassin 8)	95	4
Sud (bassin 9)	120	4
Total	2700	100

- Semi-arid region, growing population and economy, erratic rainfall, overexploited underground resources : Tunisia's big challenge in next years is Water scarcity.
- Maximum rate of mobilization : 90%
  - ✓ 35 dams
  - ✓ 234 hill dams
- The per capita endowment is at about **450 cm** per capita per year. This ratio will reach **315 cm** per capita per year in 2030, (<1000 cm).

Water Quality Legislation and Standards in Tunisia
first challenge in 6.3.2 reporting

- **Drinking water**

✓ N.T 09.14 (1983) – quality of potable water.

✓ N.T 09.13 (1983) – quality of surface water that can be used as potable water source.

- **Effluents**

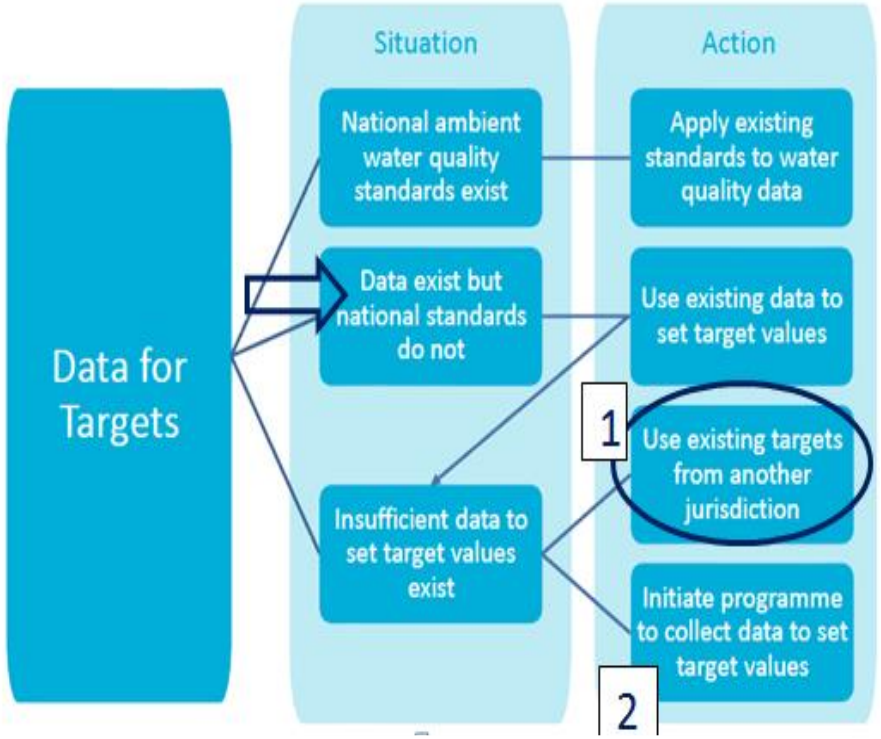
✓ Decree 2018-315 du 26 mars 2018 – regulating the discharge of treated wastewater in Public water domain, Public maritime domain and public sewer system

✓ Decree No. 94-1885 (1994) regulating the discharge of wastewater (other than domestic water) into the environment.

✓ NT 106.03 identifying conditions for the reutilization of treated wastewater for irrigation.

- **Ambient waters or ecosystem quality**

There is no legislation regarding ambient water quality.



To evaluate surface water bodies, we referred to DCE standards (Good quality)
To evaluate ground water bodies, we referred to NT 09.14 for drinking water standards

Cooperation betwen stakeholders is very important regarding this point, a bigger database would help determining reference conditions and setting targets.

UN environment programme
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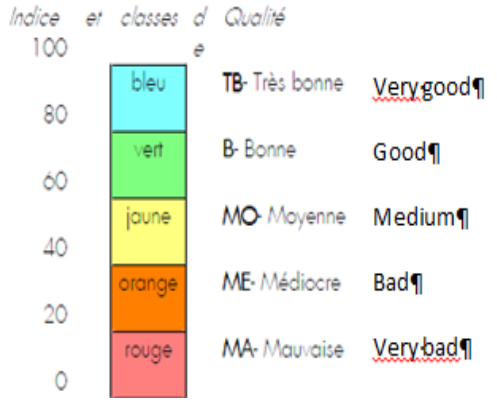
Surface water bodies targets :
European evaluation system for rivers water quality



Grilles d'évaluation SEQ-Eau

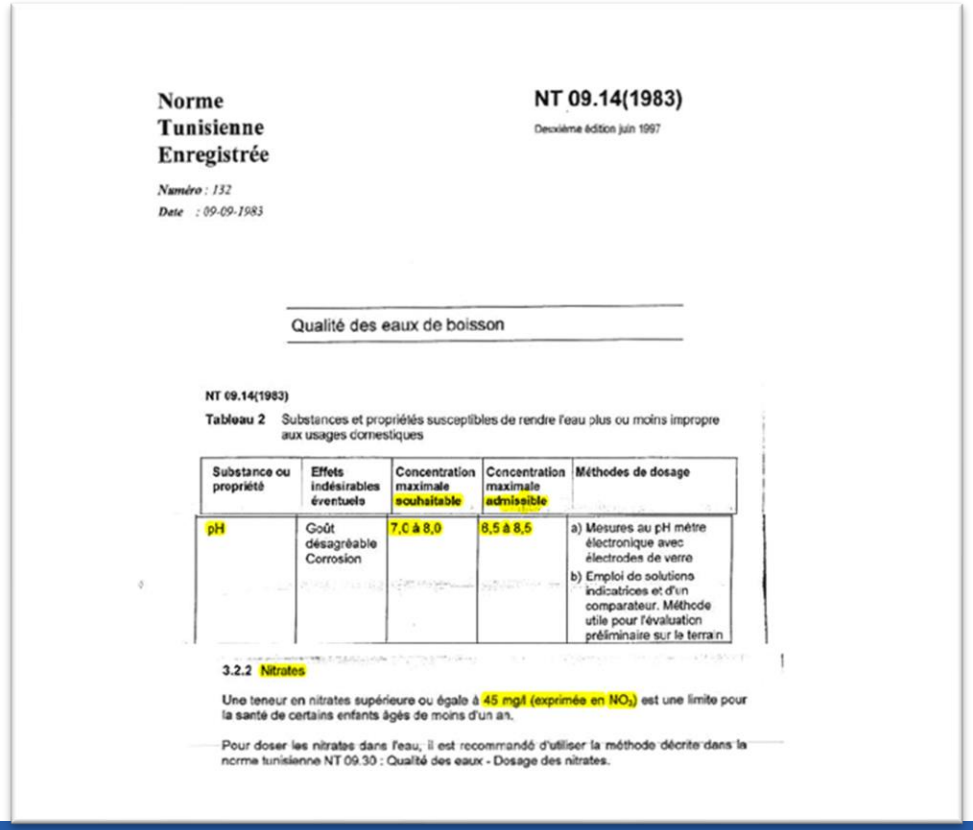
- Parameters are clustered in 16 alterations

- The system allows to define:
  - Water ability to ensure biology
  - Water ability to ensure uses
  - **Water Quality Index**

Classe de qualité →	*Bleu*	*Vert*	*Jaune*	*Orange*	*Rouge*
Indice de qualité →	*80*	*60*	*40*	*20*	
3 - NITR – NITRATES					
NO_3^- (mg/l NO_3)	2	10	25	50	
4 - PHOS - MATIERES PHOSPHOREES					
PO_4^{3-} (mg/l PO_4)	0,1	0,5	1	2	
8 – ACID - ACIDIFICATION					
pH min	6,5	6,0	5,5	4,5	
MAX	8.2	9	9,5	10	
9 – MINE - MINERALISATION					
Conductivité (µS/cm) min	180	120	60	0	
MAX	2500	3000	3500	4000	

Ground water aquifers targets:
NT 09.14 for drinking water standards

Ground water is supposed to be used either as tap water, or for irrigation. We referred to Tap water standards in setting targets for aquifers.



Norme Tunisienne Enregistrée

Numéro : 132
Date : 09-09-1983

NT 09.14(1983)
Deuxième édition juin 1997

Qualité des eaux de boisson

NT 09.14(1983)

Tableau 2 Substances et propriétés susceptibles de rendre l'eau plus ou moins impropre aux usages domestiques

Substance ou propriété	Effets indésirables éventuels	Concentration maximale souhaitable	Concentration maximale admissible	Méthodes de dosage
pH	Goût désagréable Corrosion	7,0 à 8,0	8,5 à 8,5	a) Mesures au pH mètre électronique avec électrodes de verre b) Emploi de solutions indicatrices et d'un comparateur. Méthode utile pour l'évaluation préliminaire sur le terrain

3.2.2 Nitrates

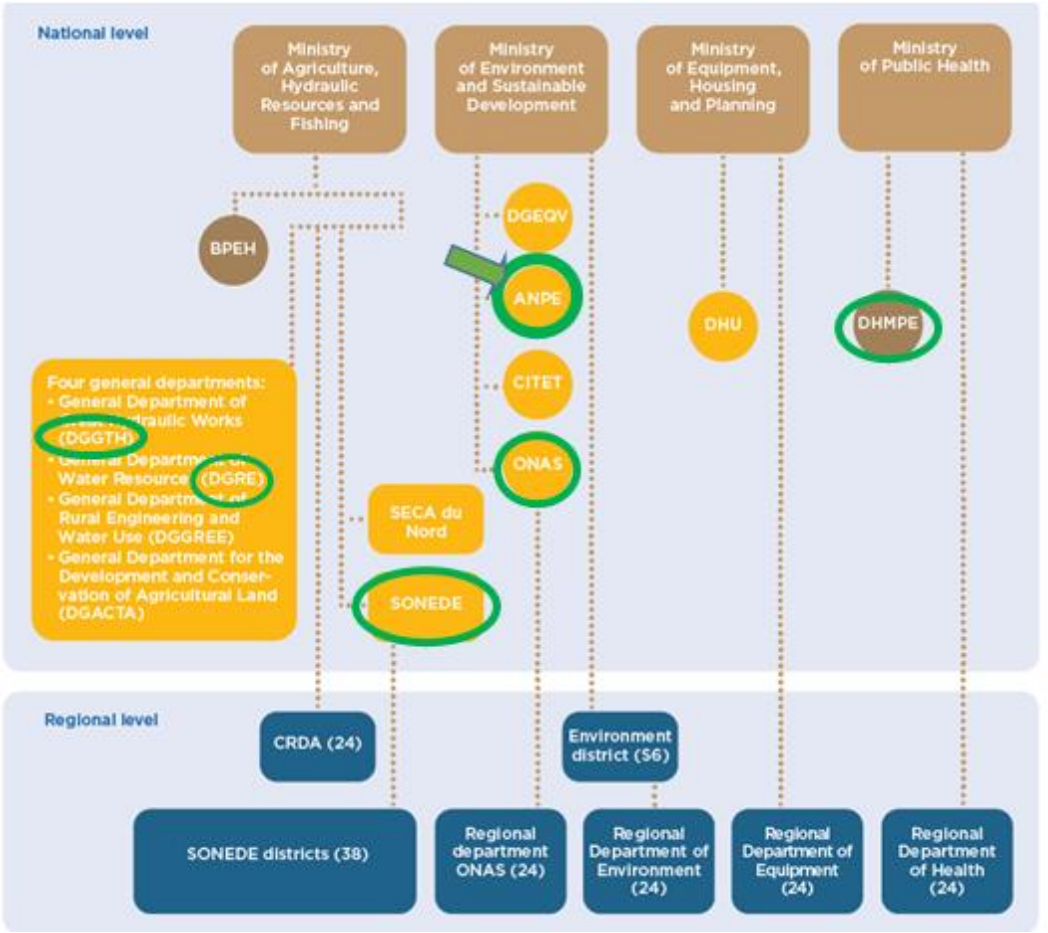
Une teneur en nitrates supérieure ou égale à 45 mg/l (exprimée en NO_3) est une limite pour la santé de certains enfants âgés de moins d'un an.

Pour doser les nitrates dans l'eau, il est recommandé d'utiliser la méthode décrite dans la norme tunisienne NT 09.30 : Qualité des eaux - Dosage des nitrates.

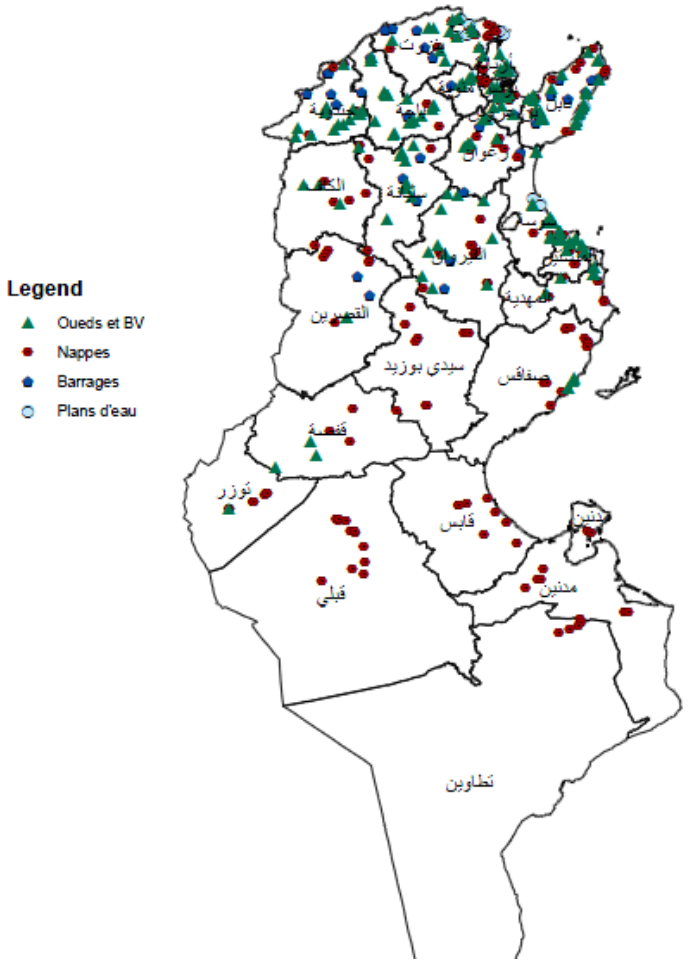
Water Quality Monitoring networks : Diversity that makes indicator calculation more difficult

- **Agriculture Ministry** :
  - Surface and ground water monitoring at national level, two parameters are measured (salinity and nitrates),
  - Dams water quality monitoring.
  - Drinking water monitoring,
- **Public Health Ministry** :
  - Also monitoring drinking water
- **Environment Ministry** :
  - Treated waste water monitoring (released by water treatment plants)
  - Copeau : National Network for water quality monitoring at national level, different types of water

Even if having several water quality is a major asset in water management system, this split makes computing 6.3.2 indicator much more challenging



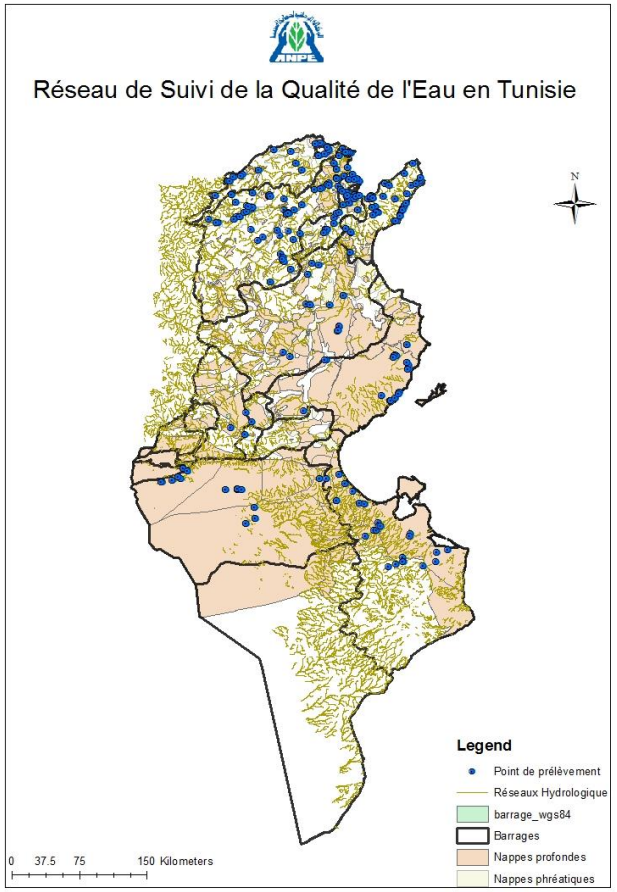
Ambient Water Quality Monitoring network
Copeau Network



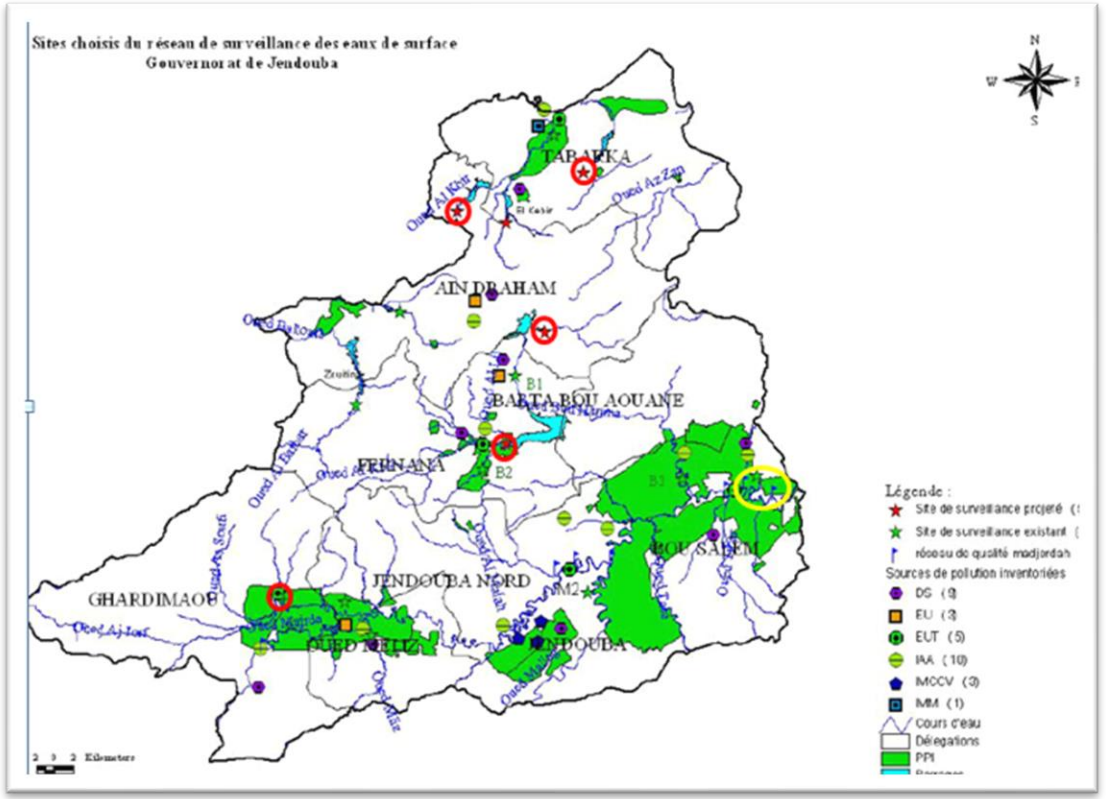
More than 400 monitoring points distributed as follows:

- 110 MP located in rivers
- 35 MP located in dams and 27 MP located in wetlands.
- 170 MP to monitor groundwater
- 88 MP for releases (treated and untreated).

Monitoring locations reflect pressures observed in the water body. MP are much more frequent in waterbodies where potential pollution sources exist, than waterbodies located in unaffected areas.



Monitoring Program Design



Monitoring Points identification based on:

- Water vulnerability, rivers which flow in dam or wetland are considered more vulnerable
- Existant monitoring points (cooperation and complementarity between stakeholders is considered)
- Inventory and classification of pollution sources,

Targets

- Water quality status determination (or estimation) at a certain time and location,
- Spatial and temporal trends Analysis regarding water quality
- Helping in establishing cause/effect relations : at least giving basic elements in estimating :
  - impacts of pollution on water quality degradation in short and long terms,
  - impacts and effectiveness of mesurements taken by authority to fight water quality pollution

Administrative units were taken into consideration, and not water masses, same thing for underground waters, we didn't consider aquifers.
- No MP found for many surface water bodies and aquifers (absence of significant contamination source)
- Difficulties in identifying MP located in sufficiently mixed waters

Monitoring Programme Operation

- Commonly monitored parameters
  - Physicochemical analysis
    - In situ measurements : **pH**, Temperature, **Conductivity**, Turbidity, **Dissolved Oxygen (intermittent measuring)**, Total Dissolved Solids, salinity,
    - Lab measurements
      - **Nitrates** and **Ortho Phosphates** (frequent measurements)
      - Sulfates
      - COD (frequent but not for all MP) and BOD (intermittent)
      - Hardness (intermittent)
      - Heavy metals : Cr IV, Zn, Fe, Pb, Ni, …
- Additional parameters
    - Bacteriological : E.Coli, TC, FC
    - Hydrocarbons

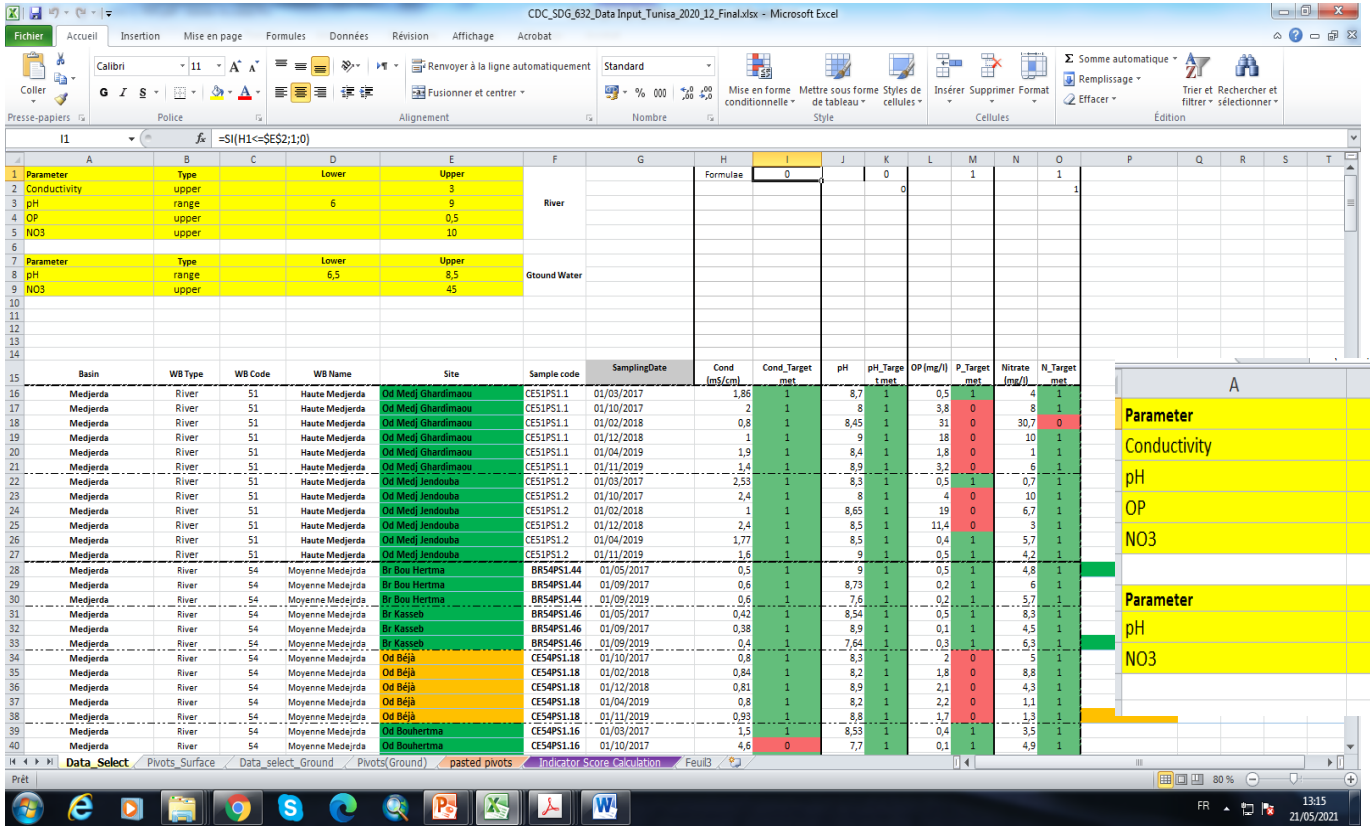
  Only In some special cases
- **Frequence of sampling : twice a year**
- **We considered only nitrates in stead of Total Oxidised Nitrogen (Nitrate + Nitrite) because we don't measure Nitrite**

- Copeau Network operates in Tunisia since 2004, it was extended in 2010 : Project with Aquapole/Liège.
- Copeau Network operates sampling and analysis in one Central laboratory and one regional laboratory.

الشبكة الوطنية لمراقبة تلوث المياه
COPEAU
Réseau National de Contrôle de la Pollution de l'Eau

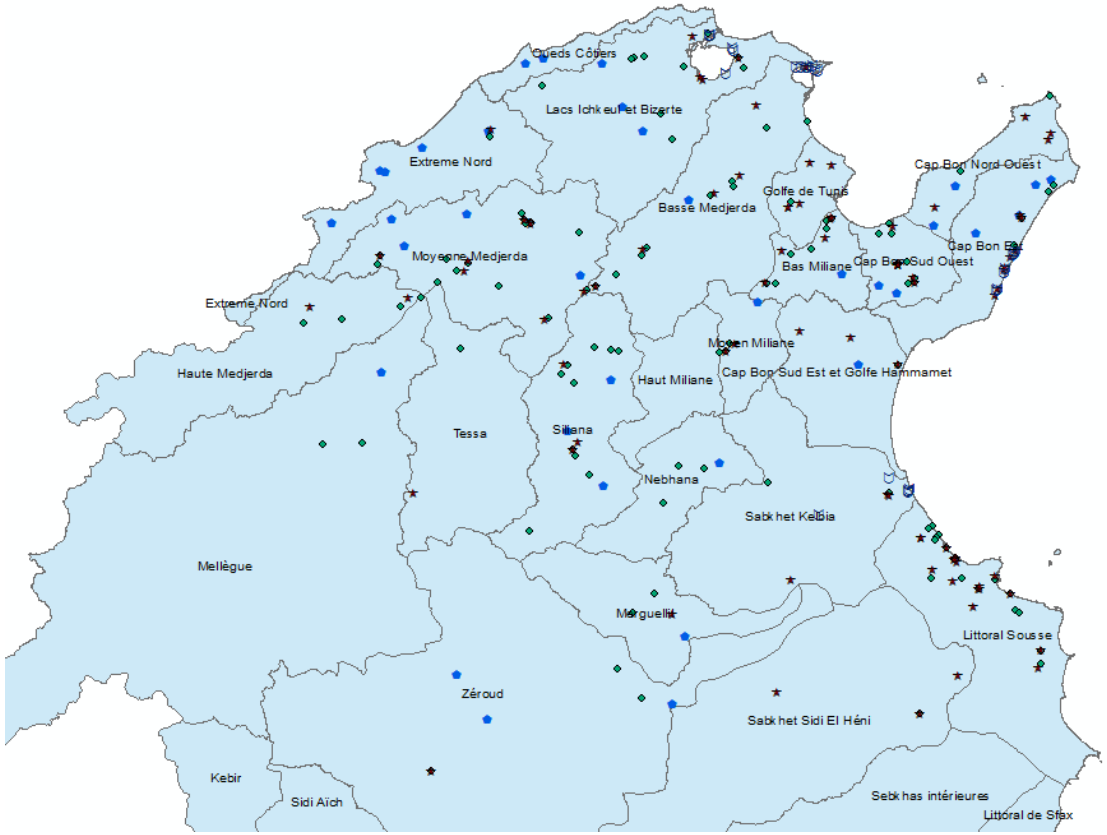
UN environment programme
GEMS Water

Finally : how we computed 6.3.2 indicator 2017-2019



Parameter	Type	Lower	Upper	
Conductivity	upper		3	River
pH	range	6	9	
OP	upper		0,5	
NO3	upper		10	
Parameter	**Type**	**Lower**	**Upper**	
pH	range	6,5	8,5	Gtound Water
NO3	upper		45	

85 : National Indicator score



Monitoring Station Indicator Score

Basin	WB	WB Type	Score/MP	Score/WB	"good water quality"	Monitoring Value
	Oueds côtiers	R	81,3	81,3	1	32
	Br Gamgoum		81,3			16
	Br Ziatine		81,3			16
	Bas Miliane	R	72,9	73	0	48
	Br Bir Mcherga		68,8			16
	Br El Hma		81,3			16
	Od Meliane		68,8			16
	Basse Medjerda	R	81,9	82	1	72
	Br Laâroussia		75,0			24
	Od Medj Slouguia		87,5			24
	Od Medj Testour		83,3			24
	Cap Bon Est	R	86,7	87	1	60
	Br Chiba		95,0			20
	Br Elmlaâba		80,0			20
	Br Lebna		85,0			20
	Cap Bon Nord Ouest	R	75,0	75	0	40
	Br Bezirkh		80,0			20
	Br Laabid		70,0			20
	Cap Bon Sud Est et Golfe Hammamet	R	91,7	92	1	24
	Br Rmel		91,7			24
	Cap Bon Sud Ouest	R	87,5	88	1	48
	Br Masri		85,0			20
	Br Tahouna		91,7			12
	Od Jdida		87,5			16
	Extreme Nord	R	90,4	91	1	52
	Br Kebir		91,7			12
	Br Moula		87,5			16
	Br Sidi Barrak		91,7			12
	Br zarga		91,7			12
	Haute Medjerda	R	81,3	81	1	48
	Od Medj Ghardimaou		75,0			24
	Od Medj Jendouba		87,5			24
	Lac Ichkeul et Bizerte	R	82,7	82	1	52
	Br Ghezela		75,0			16

Data_Select | Pivots_Surface | Data_select_Ground | Pivots(Ground)

E41 =(D42+D43+D44+D45)/4

	P2/NABV/A		62,5			8
	Berkoukech Ouechteta	G	100,0	100	1	6
	P1/NBO/O		100,0			6
	Cote Orientale	G	87,5	87	1	40
	P1/NCO/BK		75,0			12
	P2/NCO/DC		83,3			6
	P3/NCO/BK		100,0			12
	P4/NCO/K		90,0			10
	Djebenyana	G	100,0	100	1	14
	P1/NJ/1		100,0			8
	P2/NJ/2		100,0			6
	Fahs	G	91,7	92	1	12
	P1/NF/F		91,66667			12
	Gabès Nord	G	100,0	100	1	10
	P1/NGN/		100			10
	Gabès Sud	G	95,5	95	1	44
	P1/NGS/K		100			10
	P2/NGS/M		100			10
	P3/NGS/M1		83,33333			6
	P4/NGS/M2		90			10
	P5/NGS/T		100			8
	Gromballia	G	87,5	88	1	24
	P1/NG/G		100			12
	P2/NG/S		75			12
	Hencha	G	94,4	95	1	18
	P1/NH/1		90			10
	P2/NH/4		100			8
	Manouba	G	100,0	100	1	14
	P1/NM/EV		100			8
	P2/NM/L		100			6
	MV Medjerda	G	100,0	100	1	6
	P1/NMVM/B		100			6
	Nappe Basse Vallée	G	96,7	97	1	30
	P1/NBV/EV		100			12
	P2/NBV/BT		90			10
	P3/NBV/Ut		100			8
	Nefzaoua Septontrionale	G	84,2	88	1	38
	P1/NFS/OS		100			8
	P2/NFS/TAK		87,5			8
	P3/NFS/SLZ		77,27273			22
	Oasis du Djrid	G	92,3	92	1	42
	P1/NOJ/N1		100			6
	P2/NOJ/N2		100			6
	P3/NOJ/T3		100			10

Data_Select | Pivots_Surface | Data_select_Ground | Pivots(Ground) | pasted p

- **12** surface water masses among 27 were considered to compute surface indicator score : 83
- **22** ground water masses among 37 (that are monitored by Copeau Network) were considered to compute ground indicator score : 86
- **1030** monitoring values were used to generate a national water quality index : (600 in rivers and 430 in aquifers)

environment programme

GEMS Water

Thank you for your attention

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Question and Answer Session

Clarification on:

- aspects of the methodology;
- data requirements;
- Indicator calculation; or,
- the reporting workflow.

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Implementation Challenges

- Availability of data
  - Data do not exist and are not routinely collected
- Access to data
  - Data access and sharing between organisations within a country
- Appropriate target values to classify water quality
  - Many countries do not have existing ambient water quality standards
- Spatial reporting units
  - Delineating water bodies is often a problem
- Indicator calculation
  - The calculation of the indicator using existing data can be a challenge

Why is monitoring groundwater more difficult?

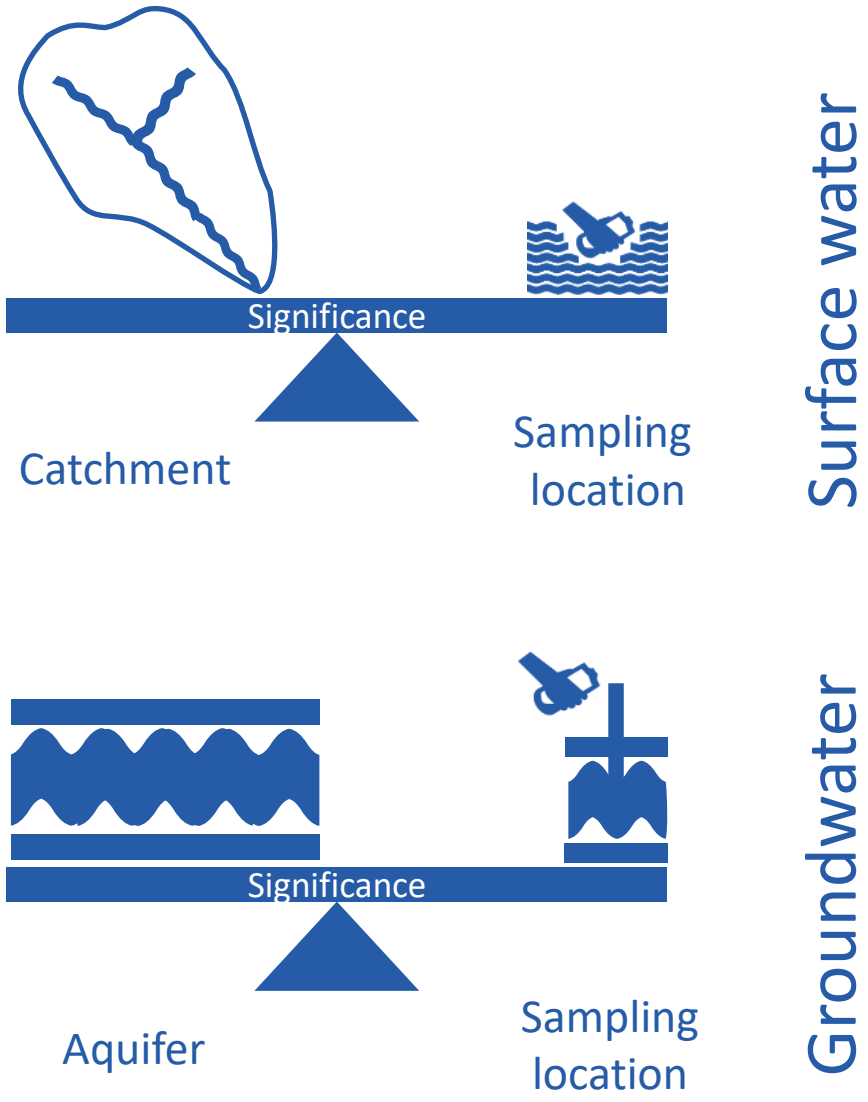
The challenge of groundwater quality monitoring is fundamentally different from that for surface waters.

River monitoring provides a composite picture for an extensive catchment, buffering-out the effect of factors local to the sampling location.

The reverse is generally true for groundwater! The influence of very local factors, such as:

- wellhead contamination,
- well depths,
- pumping rates,
- the immediate catchment and
- sampling protocols, can dominate.

This can distort the broader picture for the aquifer, and needs to be understood and taken into account.



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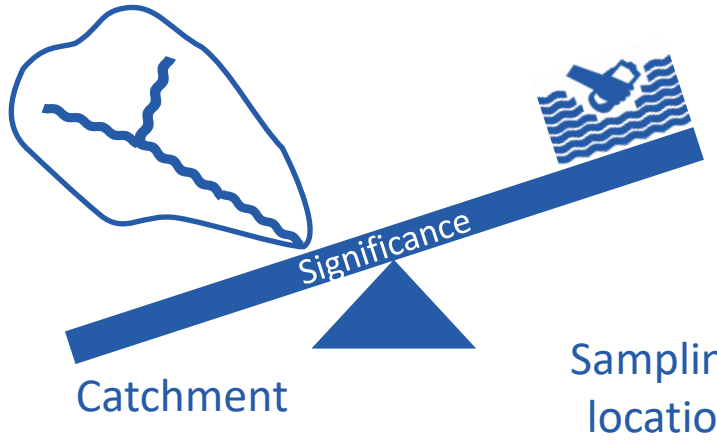
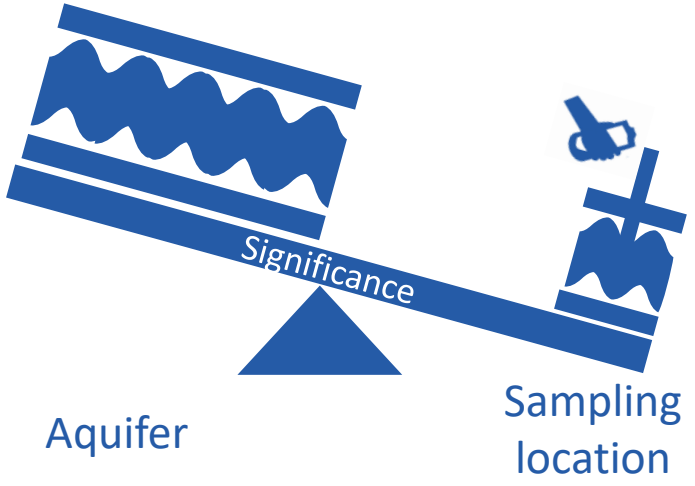


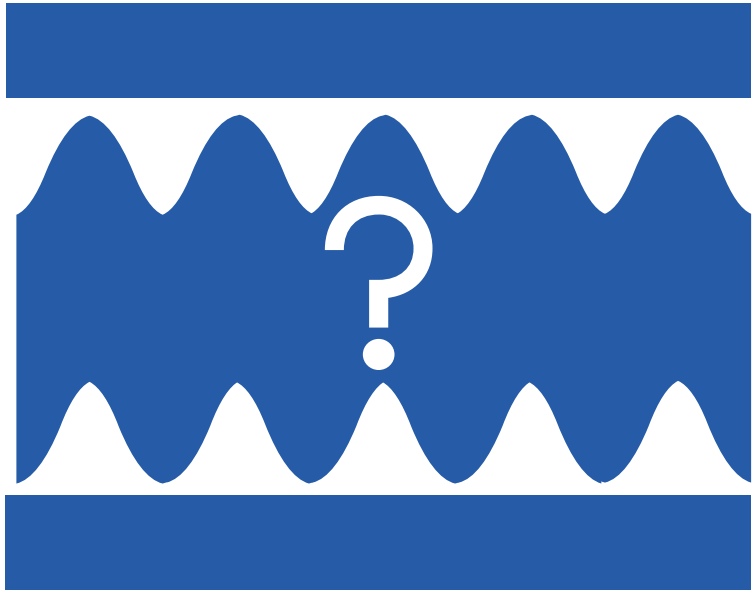
Surface water



Groundwater

Why is monitoring groundwater more difficult?

For groundwater, the general constraints outlined above are often supplemented by a **lack of hydrogeological knowledge.**



This can weaken

- the **design of the monitoring network** and
- **interpretation** of the results.

This is important because aquifers, and the groundwater bodies they contain, are **usually more complex** than surface waters and much less **accessible** for sampling.

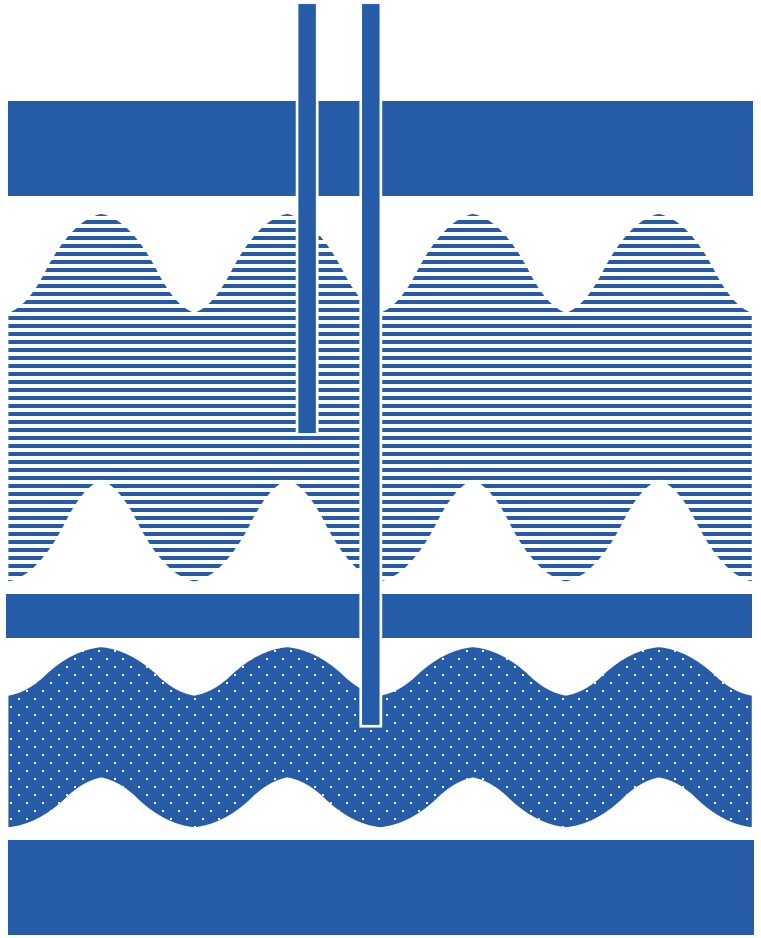
Why is monitoring groundwater more difficult?

Most groundwaters have much longer residence times than surface waters.

This means that groundwaters need to be sampled less frequently than surface waters, but obtaining a representative picture of groundwater quality may require a greater density of sampling.

The depth and subsurface complexity of aquifers has a major bearing on the choice of sampling point.

Samples taken from wells in close proximity can produce very different results, especially if they draw water from different depths in the aquifer or even from different aquifers.



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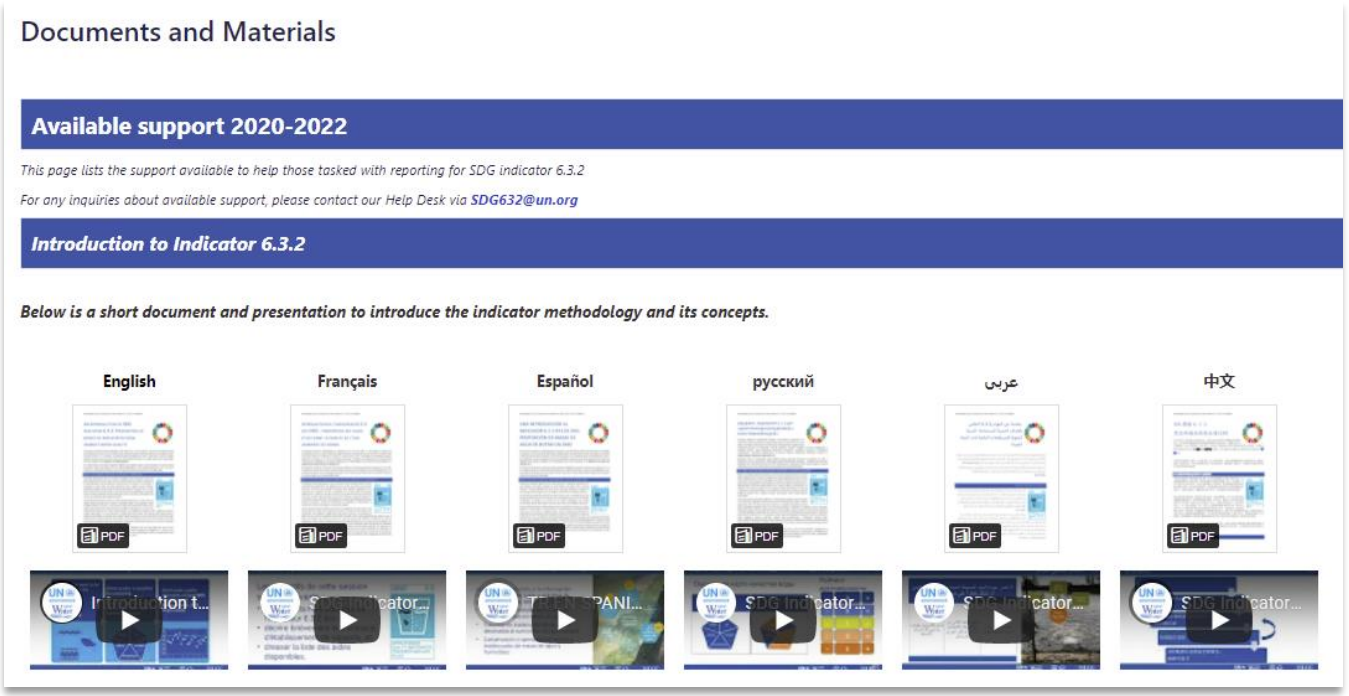
Available Support Options: Indicator Support Platform

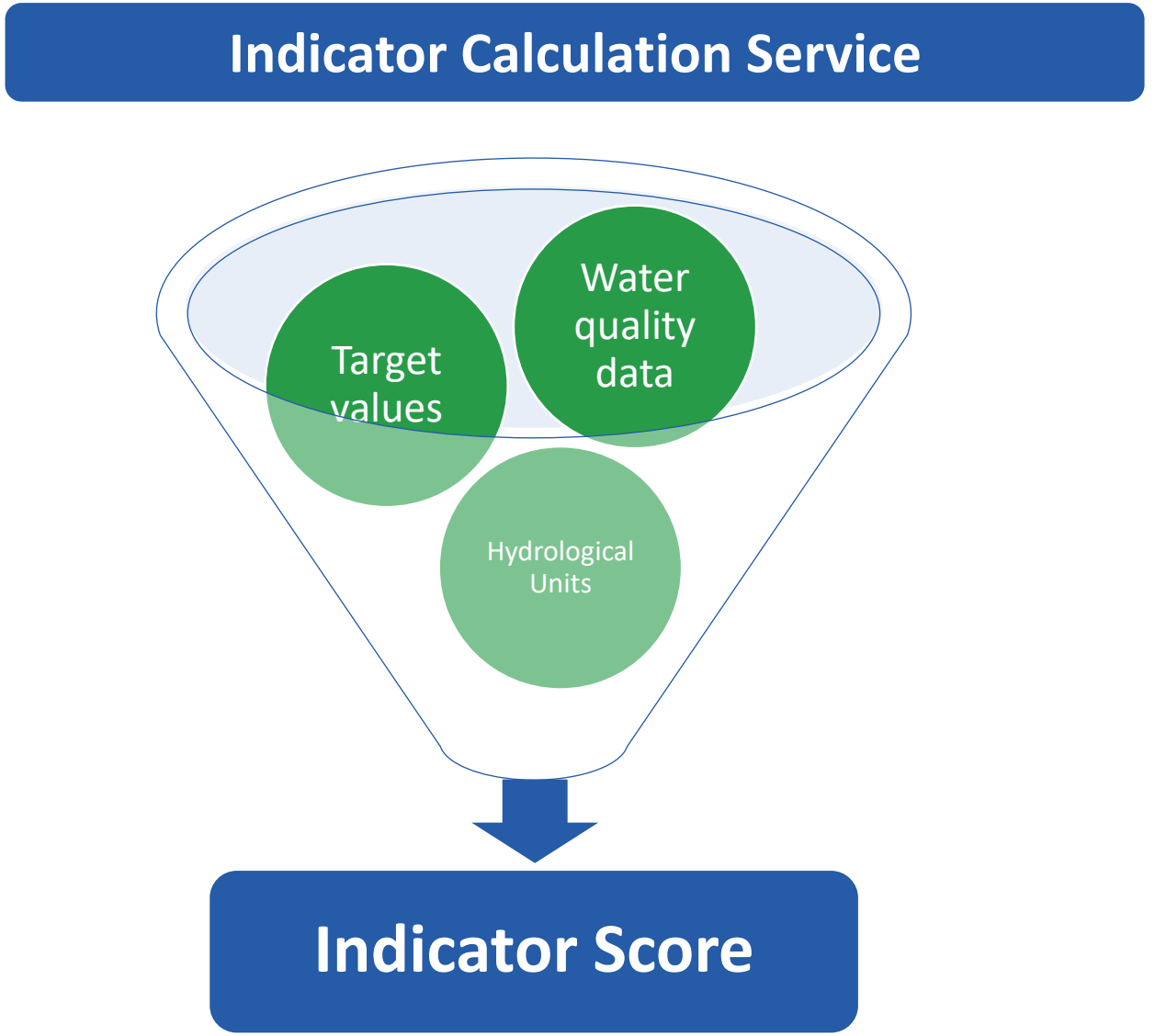
Documents and Material at the SDG 6 support portal
https://communities.unep.org/display/sdg632/Documents+and+Materials

- Introduction to Indicator 6.3.2
- Technical Guidance Documents
- Detailed Level 1 Reporting Workflow Description
- Helpdesk function at sdg632@un.org
- Bilateral teleconferences



Available Support Options: Indicator Calculation Service

Countries can also choose to have their indicator score calculated on their behalf by the GEMS/Water



Available Support Options: Optional Target values

Parameter Group	Parameter	Target type	Rivers	Lakes	Groundwaters
Acidification	pH	range	6 – 9	6 – 9	6 – 9
Salinity	Electrical conductivity*	upper	500 µS cm^{-1}	500 µS cm^{-1}	500 µS cm^{-1}
Oxygenation	Dissolved oxygen	range	80 – 120 (% sat)	80 – 120 (% sat)	-
Nitrogen	Total Nitrogen	upper	700 µg N l^{-1}	500 µg N l^{-1}	-
	Oxidised nitrogen	upper	250 µg N l^{-1}	250 µg N l^{-1}	250 µg N l^{-1}
Phosphorus	Total phosphorus	upper	20 µg P l^{-1}	10 µg P l^{-1}	-
	Orthophosphate	upper	10 µg P l^{-1}	5 µg P l^{-1}	-

* For EC a better approach is to use a deviation from normal rather than specific numerical value

Workshop outline

Time	Description
10.20	Brief introduction to GEMS/Water and SDG Indicator 6.3.2
10.35	Overview of methodology
10.50	Overview of indicator calculation and how to report
11.05	Tunisia – a country perspective on the 2020 data drive
11.15	Question and answer session for clarification
11.25	Comfort break
11.35	Implementation challenges faced by countries globally – Arab region focus
11.45	Summary of capacity development resources available
11.50	Discussion – challenges faced by country focal points to report on indicator 6.3.2
12.05	Discussion – how the implementation of the reporting process can be improved
12.20	Outlook and future
12.25	Session summary and close

Discussion Session

Challenges faced by country focal points to report on indicator 6.3.2?

1. For countries that have reported – please describe any challenges experienced
2. For countries that have not yet reported – please list those challenges that you can predict

Ideas for discussion:

- Data access and or availability?
- Language limitations of UNEP staff?
- Availability of trained hydrogeologists nationally?
- Surface water focus of the methodology?

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Discussion Session

How to improve the implementation and/or reporting process?

Any ideas to:

1. help improve reporting workflow; or,
2. to increase the number of countries reporting from the region.

Ideas for discussion:

- Align with *State of the Water Report for the Arab Region* organised by Arab Water Council and CEDARE (link at bottom)
- Are there any new supports needed?
- Would an Arab Region support network be useful?

http://www.arabwatercouncil.org/images/Arab-Water-Report/3rd-Arab-SOW-Report-E.pdf

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Outlook and Way Forward

2021:

- In-depth review and feedback process for all
- Publish Indicator Progress Report in August
- Continue to collect Level 1 indicator data
- Start to collect Level 2 indicator data

2022:

- Incorporate feedback into indicator implementation
- Prepare for next data drive
- Continue to collect Level 1 indicator data
- Continue to collect Level 2 indicator data

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Session close

Summary points

- Establish new and confirm existing focal points
- Ensure ongoing engagement
- Reduce reporting burden for busy staff
- Increase number of countries reporting from Arab Region
- Indicator calculation service available
- Ensure indicator is nationally and regionally relevant and successfully tracks changes in water quality over time

Thank you

Contact: SDG632@un.org

Indicator 632 Support Platform:
https://communities.unep.org/display/sdg632/Documents+and+Materials

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