UNSD/UNEP Questionnaire on Environment Statistics – water

Environment Statistics Section
United Nations Statistics Division (UNSD)

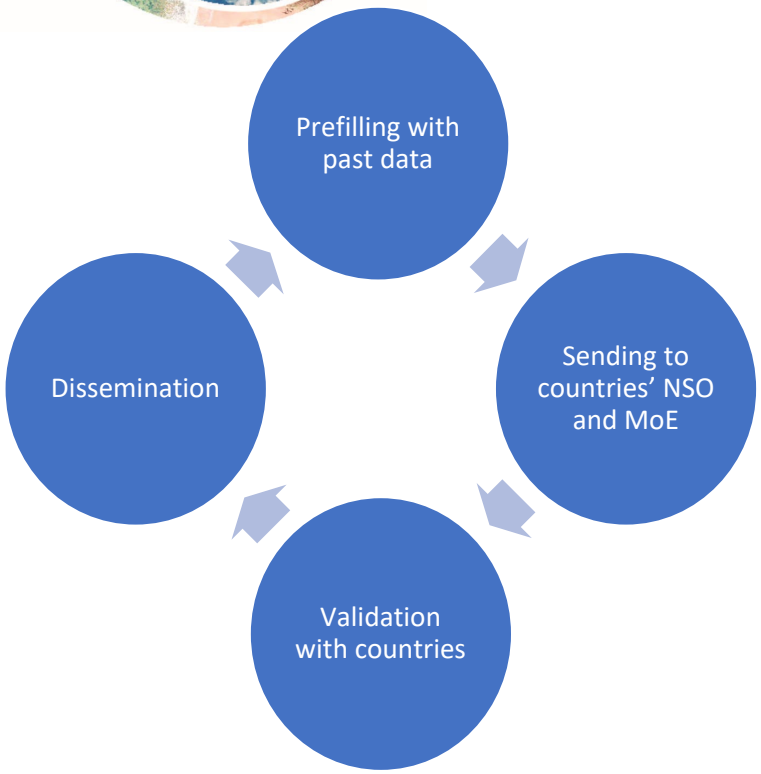
Prepared for ninth meeting of the Expert Group on Environment Statistics (EGES)

25-28 October 2022

Outline

1. History and current context of this Questionnaire
2. "*burden once, use many.*" principle: Water Section and ties to Sustainable Development Goal indicators; Climate Change Statistics, Environment Statistics, the System of Environmental-Economic Accounting (esp. Water Accounts);
3. Consultations with countries and international stakeholders
4. Work to mitigate time lag in dissemination
5. Mix of supply and demand to inform progress
6. 2020 collection cycle ex post remarks and analysis

1. UNSD/UNEP Questionnaire on Environment Statistics



- Since 1999, UNSD has completed 10 data collections on water and waste data (usually biennially) from about 160-170 UN member states. Mandated by UNSC 28th session (1995); reinforced at 34th session (2003).
- Questionnaires are sent to National Statistical Offices and Ministries of Environment.
- Questionnaires are not sent to Eurostat and OECD members and candidate members. 170+ member states in previous years; about 163 member states in the 2022 collection cycle
- Response rate typically hovers around 50% (2018: 52%; 2020: approx.: 46%).
- No imputation, no estimation. No change in variables collected in 2022 compared to 2020. Instead, focus is more on boosting response rates, especially to those variables related to SDG indicators
- The current (2022) data collection is the 11th one. Thank you for your collaboration!

1. UNSD/UNEP Questionnaire on Environment Statistics: disseminated outputs

- **UNSD environmental indicators**: https://unstats.un.org/unsd/envstats/qindicators Time series, or most recently available data for selected variables provided by countries. Disseminated after completion of collection cycle.
- **Country files**: https://unstats.un.org/unsd/envstats/country_files Individual country data on water and waste. Disseminated periodically during collection cycle. Demand from key users to view Country files as soon as possible.
- **Country snapshots**: https://unstats.un.org/unsd/envstats/snapshots/ Individual country data spanning many environmental themes.
- **Tailored queries**: Per solicitation from key users (often World Health Organization, UN Environment Programme, UN-HABITAT, academia).

2. Water section and its many uses…

UNSD

UN environment programme

United Nations Statistics Division (UNSD) and United Nations Environment Programme

QUESTIONNAIRE 2022 ON ENVIRONMENT STATISTICS

Section: WATER

TABLE OF CONTENTS

Table W1: Renewable Freshwater Resources

Line	Category	Unit
1	Precipitation	mio m^3/y
2	Actual evapotranspiration	
3	Internal flow (=1-2)	
4	Inflow of surface and groundwaters from neighbouring countries	
5	**Renewable freshwater resources (=3+4)**	
6	Outflow of surface and groundwaters to neighbouring countries	
7	*of which:* Secured by treaties	
8	Not secured by treaties	
9	Outflow of surface and groundwaters to the sea	

- Variables highlighted in yellow directly feed into Sustainable Development Goal indicator 6.4.2: **Level of water stress: freshwater withdrawal as a proportion of available freshwater resources**
- Custodian agency: FAO. Partner agencies: UNEP, IUCN, UNSD, OECD, Eurostat
- Metadata [link]

Table W2: Freshwater Abstraction and Use

Line	Category	Unit
1	Fresh surface water abstracted	mio m^3/y
2	Fresh groundwater abstracted	
3	**Gross freshwater abstracted (=1+2)**	
4	Water returned without use	
5	**Net freshwater abstracted (=3-4)**	

Table W2: Freshwater Abstraction and Use

Line	Category
22	**Total freshwater use (=20-21)**
	of which used by:
23	Households
24	Agriculture, forestry and fishing (ISIC 01-03)
25	*of which for:* Irrigation in agriculture
26	Mining and quarrying (ISIC 05-09)
27	Manufacturing (ISIC 10-33)
28	Electricity, gas, steam and air conditioning supply (ISIC 35)
29	*of which for:* Electric power generation, transmission and distribution (ISIC 351)
30	Construction (ISIC 41-43)
31	Other economic activities

Notes :

- Variables highlighted in yellow directly feed into Sustainable Development Goal indicator 6.4.1: **Change in water-use efficiency over time**
- Custodian agency: FAO. Partner agencies: UNEP, IUCN, UNSD, OECD, Eurostat
- Metadata [link]

Table W2: Freshwater Abstraction and Use

Line	Category	Unit
1	Fresh surface water abstracted	mio m^3/y
2	Fresh groundwater abstracted	
3	**Gross freshwater abstracted (=1+2)**	
4	Water returned without use	
5	**Net freshwater abstracted (=3-4)**	

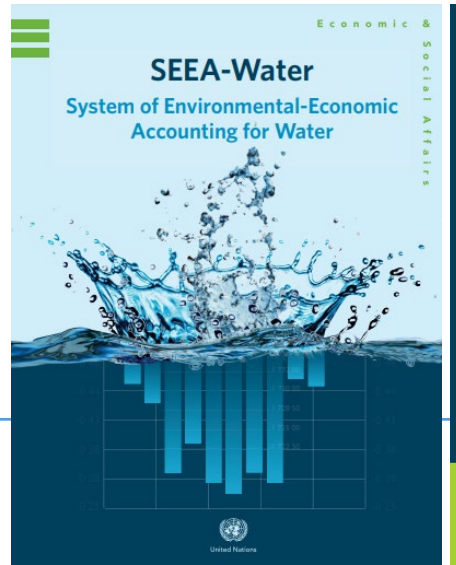
Table W4: Wastewater Generation and Treatment

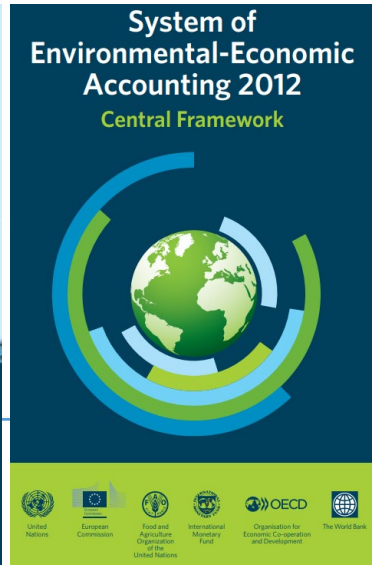
Line	Category	Unit
1	**Total wastewater generated**	
2	*by:* Agriculture, forestry and fishing ISIC (01-03)	
3	Mining and quarrying (ISIC 05-09)	
4	Manufacturing (ISIC 10-33)	
5	Electricity, gas, steam and air conditioning supply (ISIC 35)	
6	*of which by:* Electric power generation, transmission and distribution (ISIC 351)	
7	Construction (ISIC 41-43)	
8	Other economic activities	
9	Households	
10	Wastewater treated in urban wastewater treatment plants	1000 m^3/d
11	*of which:* Primary treatment	
12	Secondary treatment	
13	Tertiary treatment	
14	Wastewater treated in other treatment plants	
15	*of which:* Primary treatment	
16	Secondary treatment	
17	Tertiary treatment	
18	Wastewater treated in independent treatment facilities	
19	Non-treated wastewater	
20	Sewage sludge production (dry matter)	1000 t

- Variables highlighted in yellow directly feed into Sustainable Development Goal indicator 6.3.1: **Proportion of domestic and industrial wastewater safely treated**
- Custodian agencies: WHO, UN-HABITAT, UNSD
- Metadata [link]

Use of Questionnaire data for System of Environmental Economic Accounting (SEEA) Central Framework and SEEA-Water…

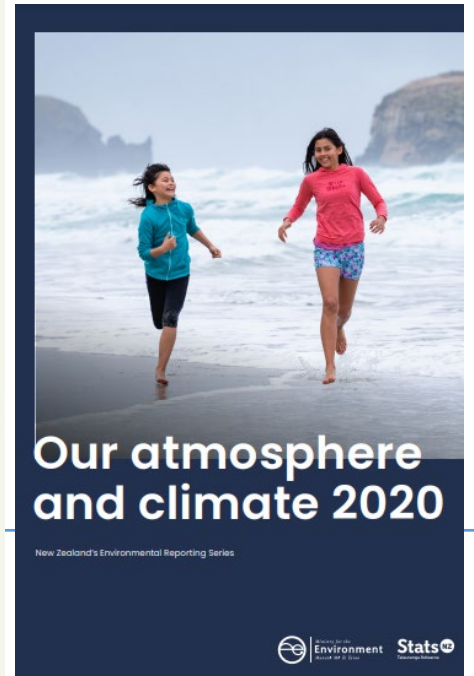
- … (SEEA CF) provides tools for describing **stocks** and **changes in stocks** of environmental assets (water, land, energy, timber, etc.), as well as supporting **environmental activities**
- Tables W1 (Renewable Freshwater Resources) and W2 (Freshwater abstraction and use) of the Questionnaire serve as input to Asset Accounts for Water Resources
- Tables W2, W3 (Water supply industry) and W4 (Wastewater generation and treatment) of the Questionnaire serve as input to physical flow accounts of water.
- Consistent annual time series are key as opening and closing stock and change over time are of interest.
- Asset accounts for water resources also demand for inflow and outflow of water to and from land surface and subsurface, and on the destination of these flows.

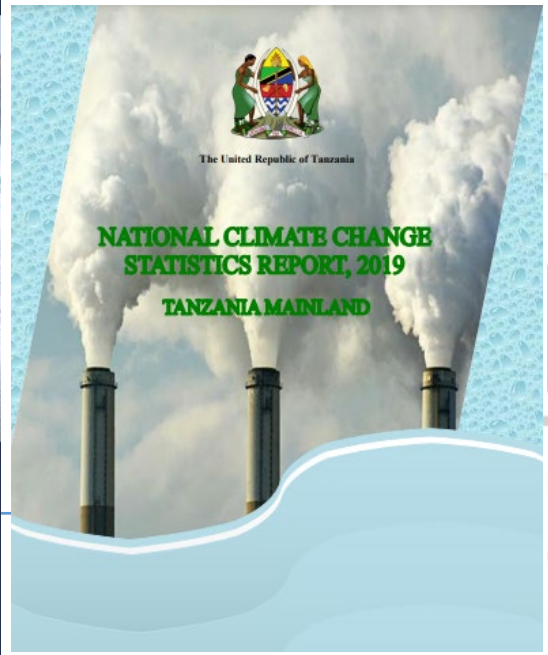




Use of Questionnaire data to apply to the Global Set of Climate Change Statistics and Indicators, and in turn, to a national Compendium on Climate Change Statistics

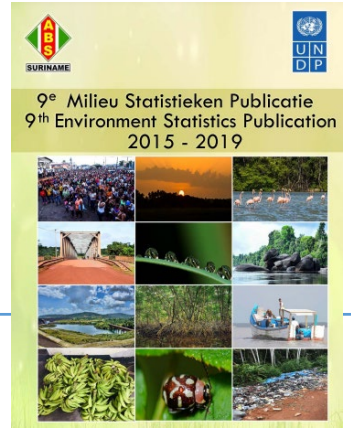
- Indicators such as those below would have underlying data reported in the Questionnaire:
  - Renewable freshwater resources per capita
  - Freshwater abstracted as a proportion of renewable freshwater resources
  - Water use per capita
  - Proportion of domestic and industrial wastewater flows safely treated
- Any effort undertaken in a country to compile a Compendium on Climate Change Statistics can have some data used to report to the Questionnaire. See collection of Compendia here: https://unstats.un.org/unsd/envstats/climatechange_reports.cshtml

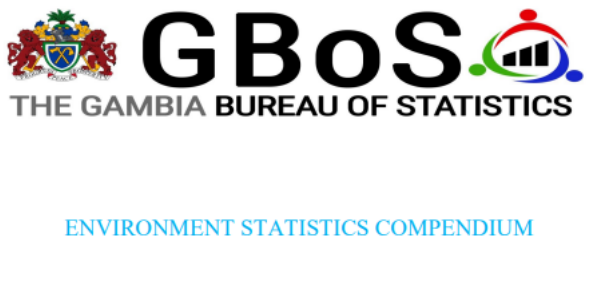


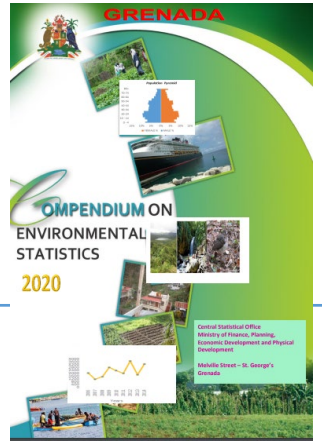


Use of Questionnaire data to apply to the Framework for the Development of Environment Statistics, and in turn, to a national Compendium on Environment Statistics

- Within the Framework for the Development of Environment Statistics, the Basic Set of Environment Statistics contained some 450+ statistics which countries can use as applicable when compiling a Compendium of Environment Statistics. Refer: https://unstats.un.org/unsd/environment/FDES/FDES-2015-supporting-tools/FDES.pdf
- Sub-component 2.6: Water Resources includes statistics such as: precipitation; actual evapotranspiration; water abstraction (from ground/surface water); desalinated water; reused water.
- Sub-component 3.2: Generation and Management of Wastewater includes statistics such as: Volume of wastewater generated and treated; wastewater discharged to the environment;
- Any effort undertaken in a country to compile a Compendium on Environment Statistics can have some data used to report to the Questionnaire. See collection of Environment Statistics Compendia here: https://unstats.un.org/unsd/envstats/fdescompendia.cshtml
- 56 country-compiled Compendia are available here: https://unstats.un.org/unsd/envstats/fdescompendia.cshtml







3. Consultations

with countries…

- Via group information sessions, in August 2021, UNSD first offered an information and discussion session on the Questionnaire. That was late in the 2020 data collection cycle. It helped provoke bilateral conversation with various countries on the call. WHO and UN-HABITAT supported this.

- In September 2022, UNSD offered similar information sessions. The timing was much earlier in the 2022 collection cycle (prior to requested deadline of 7 October). Three sessions were offered (two in English, one in Spanish). Bilateral conversations were provoked again; more detailed technical questions could be discussed and addressed by UNSD. UNEP, WHO, UN-HABITAT, UN-ECLAC supported this.

- Nature of questions asked by countries…
  - Ties to SDG indicators. “We are trying to effectively measure SDG indicators in our country, but are always surprised when we see the results reported at international level. Why?”
  - Overlap with other international data collections. “What are similarities or overlaps between this Questionnaire and the FAO AQUASTAT Questionnaire which our office also receives?”
  - … further technical questions concerning data compilation.

3. Consultations

with international stakeholders…

- Regular teleconferences with OECD, Eurostat, World Health Organisation, UN-HABITAT, FAO.
- Coordinating data collections, preventing duplications in scope of collections (e.g. Colombia, Costa Rica), coordinating capacity development work, complementing one another's capacity development work.
- Commenting on methodological work relevant to water, wastewater, freshwater quality.
- Drawing the attention of other stakeholders (e.g. Inter-American Development Bank).
- The regular teleconferences function similarly to how a stakeholder consultation might be at national level. An office which specialises in statistics is at the same table with offices who specialize in water, health, municipal waste, agriculture, etc.

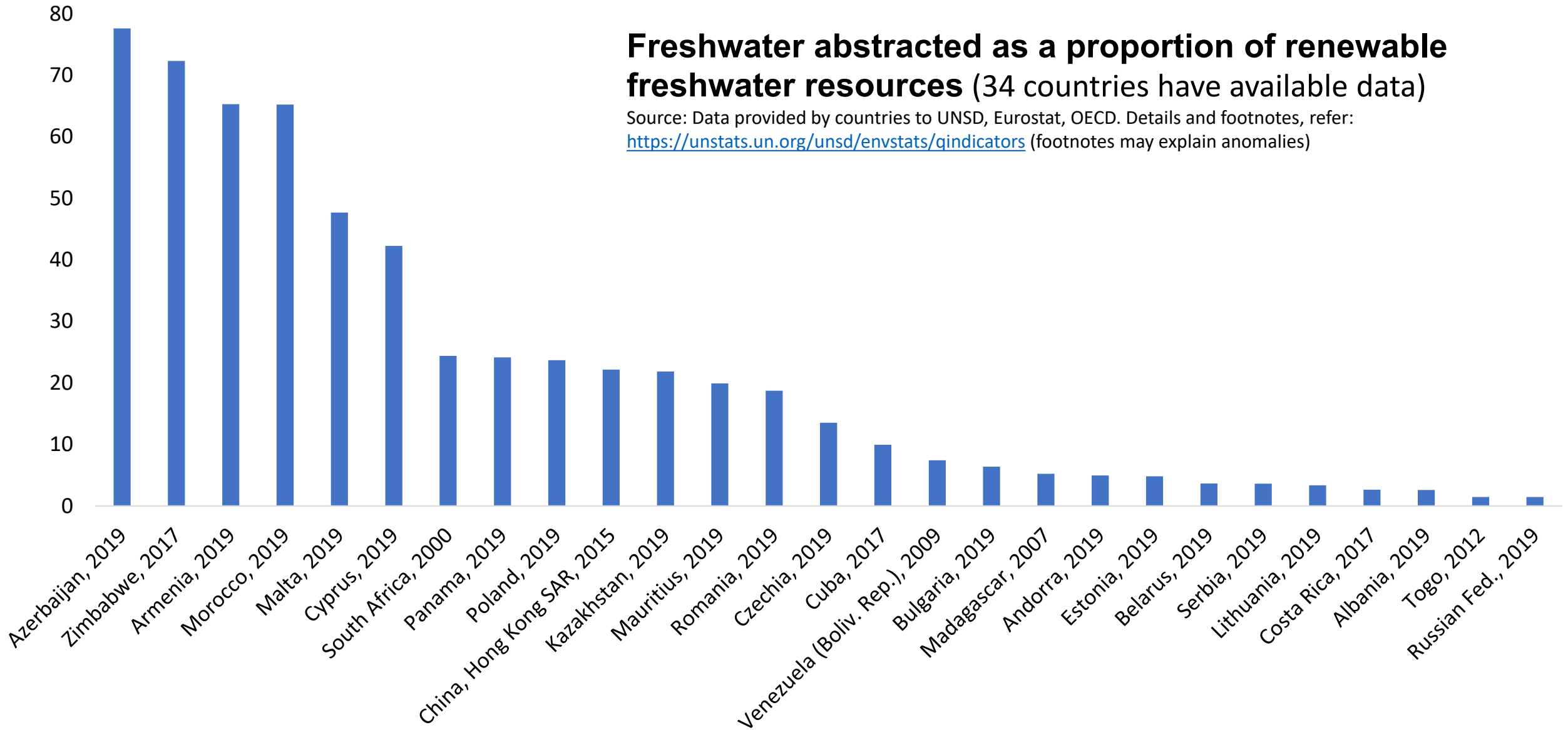
4. Work to mitigate time lag in data dissemination

- Major disseminations (e.g. indicator tables with 20+ year time series for given variables) are still done biennially with a time lag of about two years (e.g. in 2023, we will publish data up to 2021 [this 2021 data will have been collected via the 2022 Questionnaire]). Many users prefer not to wait two years for a comprehensive data set.
- At least via Country Files, data Questionnaire data are disseminated periodically (usually in batches of about five or 10 countries at a time) and made public. Key stakeholders are immediately notified. There is no compromise on data quality; there is compromise on data volume.

5. Mix of supply and demand of data to inform progress

- When there is strong demand and at least moderate supply, that's a good scenario
- Often there is strong demand, and then low or humbling supply of data which improves over a period of several years (wastewater). Consultation with WHO and UN-HABITAT spurs interest and helps improve data quality via close collaboration with countries.
- Often there is strong demand, and then very low or humbling supply of data for several years (electronic waste disaggregated variables (small e-waste; lamps; IT and telecommunications equipment). Consultation with UNEP and UNITAR on data validation are helping in this regard.
- All such scenarios are considered when considering to modify Questionnaire content.

6. 2020 collection cycle ex post remarks and analysis (SDG indicator 6.4.2) UNSD serves as a partner agency. UNSD does not calculate Environmental Flow Requirements.

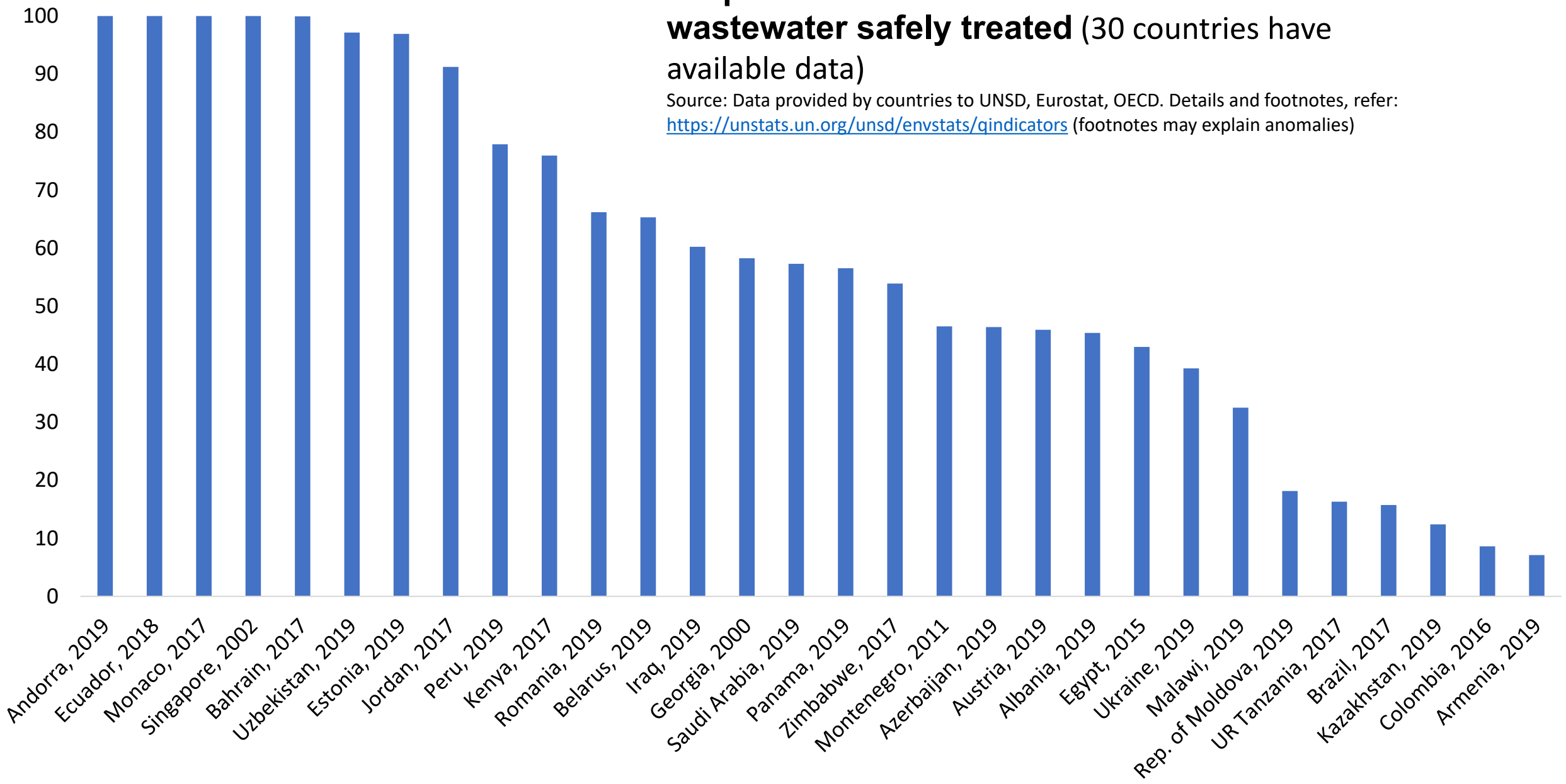


Less than 1%: Brazil, Slovakia, Senegal, Latvia, Croatia, Kuwait, Bangladesh

6. 2020 collection cycle ex post remarks and analysis (SDG indicator 6.3.1) UNSD serves as a co-custodian

Proportion of domestic and industrial wastewater safely treated (30 countries have available data)

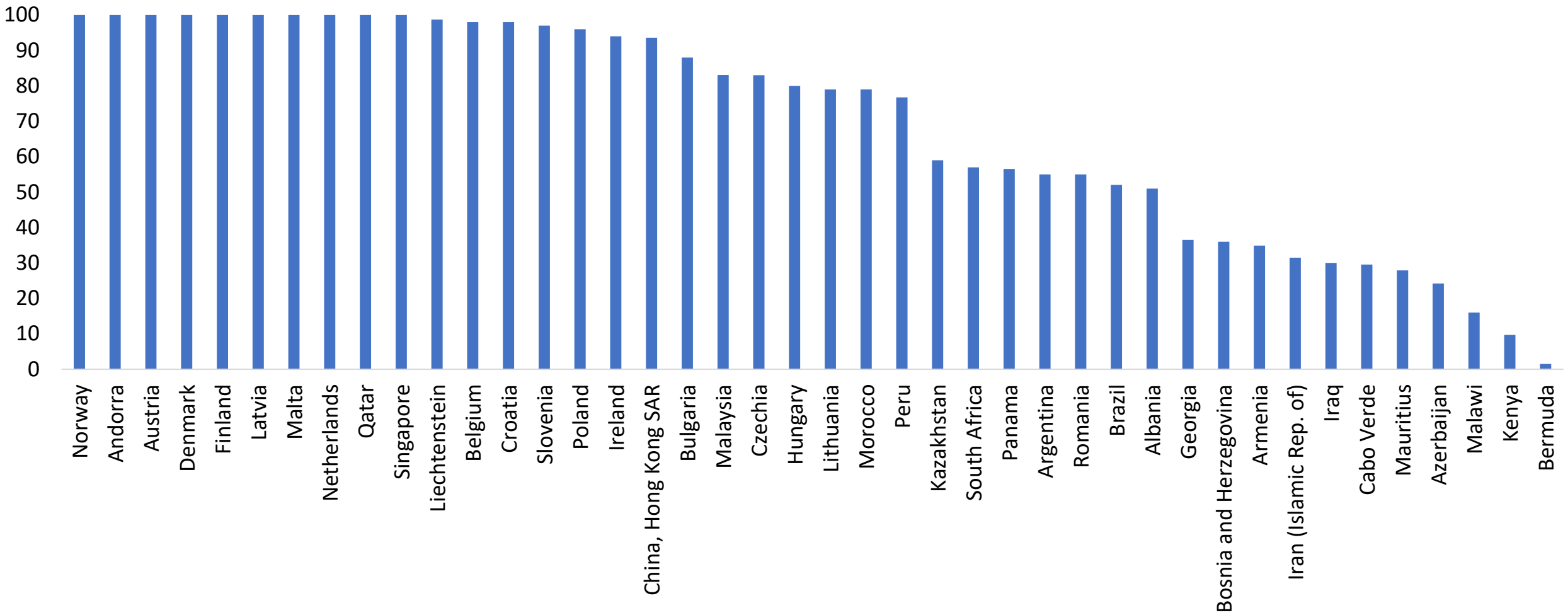
Source: Data provided by countries to UNSD, Eurostat, OECD. Details and footnotes, refer: https://unstats.un.org/unsd/envstats/qindicators (footnotes may explain anomalies)



6. 2020 collection cycle ex post remarks and analysis (Percentage of population connected to wastewater treatment, 2019). Relates to SDG 6.3.1 on wastewater

(42 countries have available data; data available for 71 countries if we consider years 2015-2019)

Source: Data provided by countries to UNSD, Eurostat, OECD. Details and footnotes, refer:
https://unstats.un.org/unsd/envstats/qindicators (footnotes may explain anomalies)



Grateful to countries for their contributions and for continued supply of data (and detailed footnote explanations) for this Questionnaire.

Grateful to international partners who help improve the quality of the data, and its application to policy.

Thank You!

UNSD Environment Statistics Section
Website: unstats.un.org/unsd/envstats
Email: envstats@un.org