6 CLEAN WATER AND SANITATION

UNSD/UNEP Questionnaire on Environment Statistics and SDG indicator 6.3.1 (Proportion of domestic and industrial wastewater safely treated)

Prepared by the United Nations Statistics Division (UNSD) for: Series of SDG Webinars for the Arab Region: UN-Habitat, WHO, and UNSD

SDG 6.3.1, 11.1.1, 11.2.1, 11.3.1, 11.3.2, 11.6.1 and 11.7.1

An Interagency and Experts Collaboration to Improve the Production and Dissemination of SDG Indicators from Official National Sources

19 April 2022

Outline

1. **The United Nations Statistics Division (UNSD)/ United Nations Environment Programme (UNEP) Questionnaire on Environment Statistics**
2. **… and how it relates to SDG indicator 6.3.1: Proportion of domestic and industrial wastewater safely treated**
3. **ESCWA member states' responses**
4. **Collaboration in water statistics at international level**

UNSD/UNEP Questionnaire on Environment Statistics

- Since 1999, UNS**D** has collected waste data 10 times biennially, from about 160-170 UN member states. Mandated by UN Statistical Commission (UNS**C**) 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 Organisation for Economic Cooperation and Development (OECD) members and candidate members as OECD and Eurostat services those UN member states.
- Response rate typically hovers around 50% (2018: 52%; 2020: approaching 50%).
- No imputation, no estimation.

UNSD/UNEP Questionnaire on Environment Statistics
Water

- W1: Renewable freshwater resources
- W2: Freshwater abstraction and use
- W3: Water supply industry (ISIC 36)
- W4: Wastewater generation and treatment
- W5: Population connected to wastewater treatment

UNSD

UN environment programme

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

QUESTIONNAIRE 2020 ON ENVIRONMENT STATISTICS

Section: WATER

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Table W4: Wastewater generation and treatment

Those variables in yellow are a direct source for:
SDG indicator 6.3.1 (Proportion of domestic and industrial wastewater safely treated)

Unit	Category	الوحدة	الفئة	الخط
			الجدول م4: إنتاج المياه العادمة ومعالجتها	
1000 m3/d	Total wastewater generated	ألف متر مكعب يومياً	إجمالي المياه العادمة المنتجة	1
1000 m3/d	by: Agriculture, forestry and fishing ISIC (01-03)	ألف متر مكعب يومياً	بواسطة: الزراعة والحراجة وصيد الأسماك (ISIC 01-03)	2
1000 m3/d	Mining and quarrying (ISIC 05-09)	ألف متر مكعب يومياً	التعدين واستغلال المحاجر (ISIC 05-09)	3
1000 m3/d	Manufacturing (ISIC 10-33)	ألف متر مكعب يومياً	الصناعة التحويلية (ISIC 10-33)	4
1000 m3/d	Electricity, gas, steam and air conditioning supply (ISIC 35)	ألف متر مكعب يومياً	إمدادات الكهرباء والغاز والبخار وتكييف الهواء (ISIC 35)	5
1000 m3/d	of which by: Electric power generation, transmission and distribution (ISIC 351)	ألف متر مكعب يومياً	توليد الطاقة الكهربائية ونقلها وتوزيعه (ISIC 351)	6
1000 m3/d	Construction (ISIC 41-43)	ألف متر مكعب يومياً	التشييد (ISIC 41-43)	7
1000 m3/d	Other economic activities	ألف متر مكعب يومياً	الأنشطة الاقتصادية الأخرى	8
1000 m3/d	Households	ألف متر مكعب يومياً	الأسر المعيشية	9
1000 m3/d	Wastewater treated in urban wastewater treatment plants	ألف متر مكعب يومياً	المياه العادمة المعالجة في محطات معالجة المياه العادمة في الحضر	10
1000 m3/d	Of which: Primary treatment	ألف متر مكعب يومياً	ومنها: معالجة أولية	11
1000 m3/d	Secondary treatment	ألف متر مكعب يومياً	معالجة ثانوية	12
1000 m3/d	Tertiary treatment	ألف متر مكعب يومياً	معالجة ثالثية	13
1000 m3/d	Wastewater treated in other treatment plants	ألف متر مكعب يومياً	المياه العادمة المعالجة في محطات معالجة أخرى	14
1000 m3/d	Of which: Primary treatment	ألف متر مكعب يومياً	ومنها: معالجة أولية	15
1000 m3/d	Secondary treatment	ألف متر مكعب يومياً	معالجة ثانوية	16
1000 m3/d	Tertiary treatment	ألف متر مكعب يومياً	معالجة ثالثية	17
1000 m3/d	Wastewater treated in independent treatment facilities	ألف متر مكعب يومياً	المياه العادمة المعالجة في مرافق معالجة مستقلة	18
1000 m3/d	Non-treated wastewater	ألف متر مكعب يومياً	مياه عادمة غير معالجة	19
1000 t	Sewage sludge production (dry matter)	ألف طن	إنتاج حمأة الغائط (المادة الجافة)	20

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. E.g. all nine countries here who provided data to UNSD for the 2020 Questionnaire all have their data in the public domain here.
- **Country snapshots**: https://unstats.un.org/unsd/envstats/snapshots/ Individual country data spanning many environmental themes.
- **Tailored queries**: Per solicitation from key users (e.g. World Health Organisation, UN-HABITAT, UNEP).

UNSD Environmental Indicators

United Nations Statistics Division

Population connected to wastewater collecting system

Date of release:	28-Feb-2022
Coverage:	113 Countries
Series Type:	Time series
Series Start:	1990
Series End:	2019
Unit:	Percentage

Definitions & Technical notes:

Wastewater refers to water which is of no further value to the purpose for which it was used because of its quality,
Wastewater collecting system may deliver wastewater to treatment plants or may discharge it without treatment to
Population connected to wastewater collecting system is the percentage of the resident population connected to th
systems may deliver wastewater to treatment plants or may discharge it without treatment to the environment.

For more information on the definitions, please see the UNSD/UNEP Questionnaire 2020 on Environment Statistics.
... denotes no data available.

UNSD Environmental Indicators

CountryID	Country	Source	2013	2014	2015	2016	2017	2018	2019		Footnotes 2013	Footnotes 2014	Footnotes 2015	Footnotes 2016	Footnotes 2017	Footnotes 2018	Footnotes 2019
8	Albania	E	...	48	50	51	50	52	51			E3	E3	E3	E3		
12	**Algeria**	U	90	90	90	93	93	...	...								
20	Andorra	U	100	100	100	100	100	100	100								
32	Argentina	U	...	...	...	...	...	...	65								
51	Armenia	U	69.699997	68.5	69.900002	69.699997	69.800003	71.900002	74.699997								
36	Australia	O	94	93	92	92	93	93	93					D2			
40	Austria	E	...	95	...	95	...	96	96								
31	Azerbaijan	U	32.200001	32.299999	32.400002	32.5	32.700001	35.900002	37.200001								
48	**Bahrain**	U	87	90	88	85	81	...	...								
50	Bangladesh	U	...	...	21.74	...	...	...	...				1				
112	Belarus	U	87.800003	88.5	91.099998	91.900002	93.400002	93.900002	94.800003		2	2	2	2	2	2	2
56	Belgium	E	87	87	88	88	88	87	87								
84	Belize	U	...	15.3	18.200001	5.9000001	12.8	15.2	11.7								
60	Bermuda	U	5	5	5	5	5	5	5		3	3	3	3	3	3	3
68	Bolivia (Plurinational Stat	U	54.81	56.12	57.06	58.58	59.85	60.900002	61.200001		6	6	6	6	6	6	6
70	Bosnia and Herzegovina	E	31	32	34	35	36	36	36								
76	Brazil	U	61.2	61.53	63.33	...	...	...	66.29		7	7	7				7
92	British Virgin Islands	U	...	...	...	...	...	...	...								
96	Brunei Darussalam	U	...	...	...	...	...	...	...								
100	Bulgaria	E	75	75	76	76	76	76	76		E3	E3	E3	E3	E3	E3	E3
132	Cabo Verde	U	71.800003	73.900002	77.199997	80.300003	80.699997	82.900002	85.300003		8	8	8	8	8	8	8
124	Canada	O	86	86	86	86	86	...	...								
156	China	U	...	...	...	...	...	...	...								
344	China, Hong Kong Special	U	93.400002	93.099998	93.5	...	...	...	...								
446	China, Macao Special Adn	U	100	100	100	...	...	...	...								
170	Colombia	U	86.199997	86.50	87.47	88.27	88.03	...	...								
188	Costa Rica	U	26.59	26.59	21.12	21.26	23.29	...	...			9	9	9	9		
191	Croatia	E	55	55	55	55	55	55	55								
192	Cuba	U	35.900002	35.900002	36.299999	36.299999	36.400002	...	...								
196	Cyprus	E	...	...	...	...	...	...	...								
203	Czechia	E	85	84	84	85	86	86	86								
208	Denmark	E	91	91	91	91	92	92	92			E3					

UNSD

UNSD Country Files

DATA VALIDATION

ation is provided in footnotes.

dation alerts can be ignored.

e not within expected ranges.

Category	Line
Total wastewater generated	**1**
by: Agriculture, forestry and fishing ISIC (01-03)	2
Mining and quarrying (ISIC 05-09)	3
Manufacturing (ISIC 10-33)	4
Electricity, gas, steam and air conditioning supply (ISIC 35)	5
of which by: Electric power generation, transmission and distribution (ISIC 351)	6
Construction (ISIC 41-43)	7
Other economic activities	8
Households	9
Wastewater treated in urban wastewater treatment plants	10
Of which: Primary treatment	11
Secondary treatment	12
Tertiary treatment	13
Wastewater treated in other treatment plants	14

البلد: **Egypt**

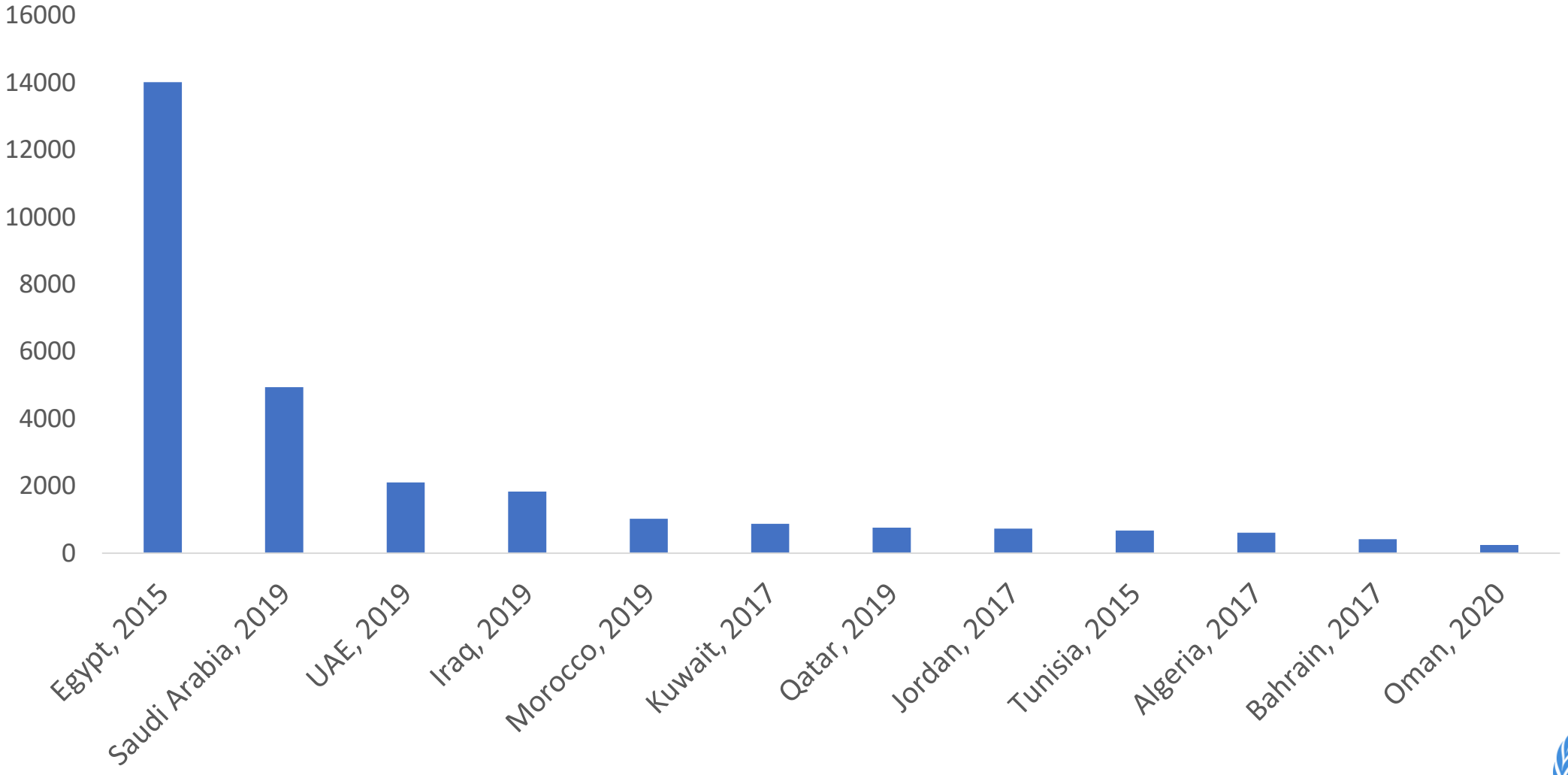
لجدول م4: إنتاج المياه العادمة ومعالجتها

الخط	القنة	الوحدة	2015		2019
1	**إجمالي المياه العادمة المنتجة**	ألف متر مكعب يومياً	32600		
2	بواسطة: الزراعة والحراجة وصيد الأسماك (ISIC 01-03)	ألف متر مكعب يومياً	24300		
3	التعدين واستغلال المحاجر (ISIC 05-09)	ألف متر مكعب يومياً			
4	الصناعة التحويلية (ISIC 10-33)	ألف متر مكعب يومياً	2500		
5	إمدادات الكهرباء والغاز والبخار وتكييف الهواء (ISIC 35)	ألف متر مكعب يومياً			
6	توليد الطاقة الكهربائية ونقلها وتوزيعه (ISIC 351)	ألف متر مكعب يومياً			
7	التشييد (ISIC 41-43)	ألف متر مكعب يومياً			
8	الأنشطة الاقتصادية الأخرى	ألف متر مكعب يومياً			
9	الأسر المعيشية	ألف متر مكعب يومياً			
10	المياه العادمة المعالجة في محطات معالجة المياه العادمة في الحضر	ألف متر مكعب يومياً	10470		14013.2
11	ومنها: معالجة أولية	ألف متر مكعب يومياً			2178.36
12	معالجة ثانوية	ألف متر مكعب يومياً			10304.7
13	معالجة ثالثية	ألف متر مكعب يومياً			1530.14
14	المياه العادمة المعالجة في محطات معالجة أخرى	ألف متر مكعب يومياً			

ESCWA member states' responses to the 2020 UNSD/UNEP Questionnaire on Environment Statistics:

- 9 out of 20 member states (45%) offered a response: Algeria, **Bahrain**, **Egypt**, **Iraq**, **Jordan**, Kuwait, Lebanon, Libya, **Morocco**, Mauritania, **Oman**, State of Palestine, **Qatar**, **Saudi Arabia**, Somalia, Sudan, Syrian Arab Republic, Tunisia, **United Arab Emirates**, Yemen.
- Response rates for individual variables are generally much less than 45% (for ESCWA and the globe).
- UNSD held bilateral phone calls with two ESCWA member states to help with provision of data.

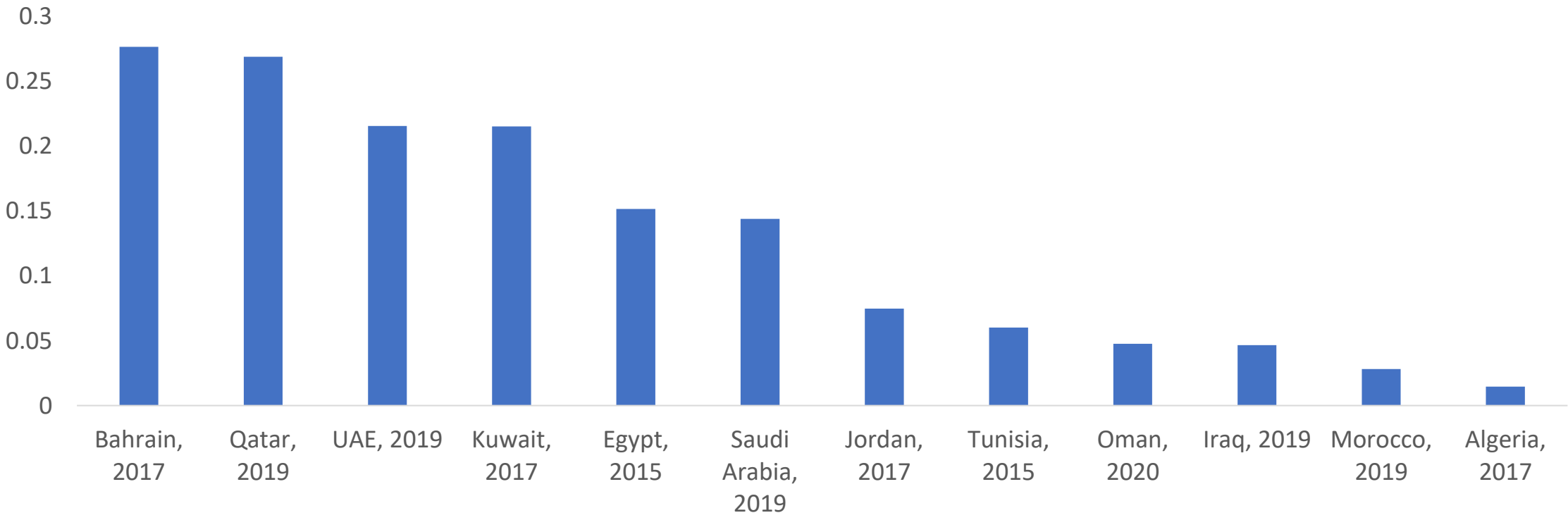
ESCWA member states' responses to the 2020 UNSD/UNEP Questionnaire on Environment Statistics: Wastewater treated in urban wastewater treatment plants (1000 cubic metres per day)



UNSD

Source: UNSD/UNEP Questionnaire, Indicator tables. https://unstats.un.org/unsd/envstats/qindicators

ESCWA member states' responses to the 2020 UNSD/UNEP Questionnaire on Environment Statistics: Wastewater treated in urban wastewater treatment plants (cubic metres per day per capita)



Sources: UNSD/UNEP Questionnaire, Indicator tables. https://unstats.un.org/unsd/envstats/qindicators
United Nations, World Population Prospects 2019.
https://population.un.org/wpp/Download/Standard/Population/

How can data collected via this Questionnaire inform key policy questions?

- **Indicator 6.3.1 (Tier II): Proportion of domestic and industrial wastewater safely treated**
  - **Custodian agencies: WHO, UN-HABITAT, UNSD**
  - **Metadata [link]**
- Indicator 6.4.1 (Tier I): Change in water-use efficiency over time
  - Custodian agencies: FAO. Partners: UNEP, IUCN, UNSD, OECD, Eurostat
  - Metadata [link]
- Indicator 6.4.2 (Tier I): Level of water stress: freshwater withdrawal as a proportion of available freshwater resources
  - Custodian agencies: FAO. Partners: UNEP, IUCN, UNSD, OECD, Eurostat
  - Metadata [link]

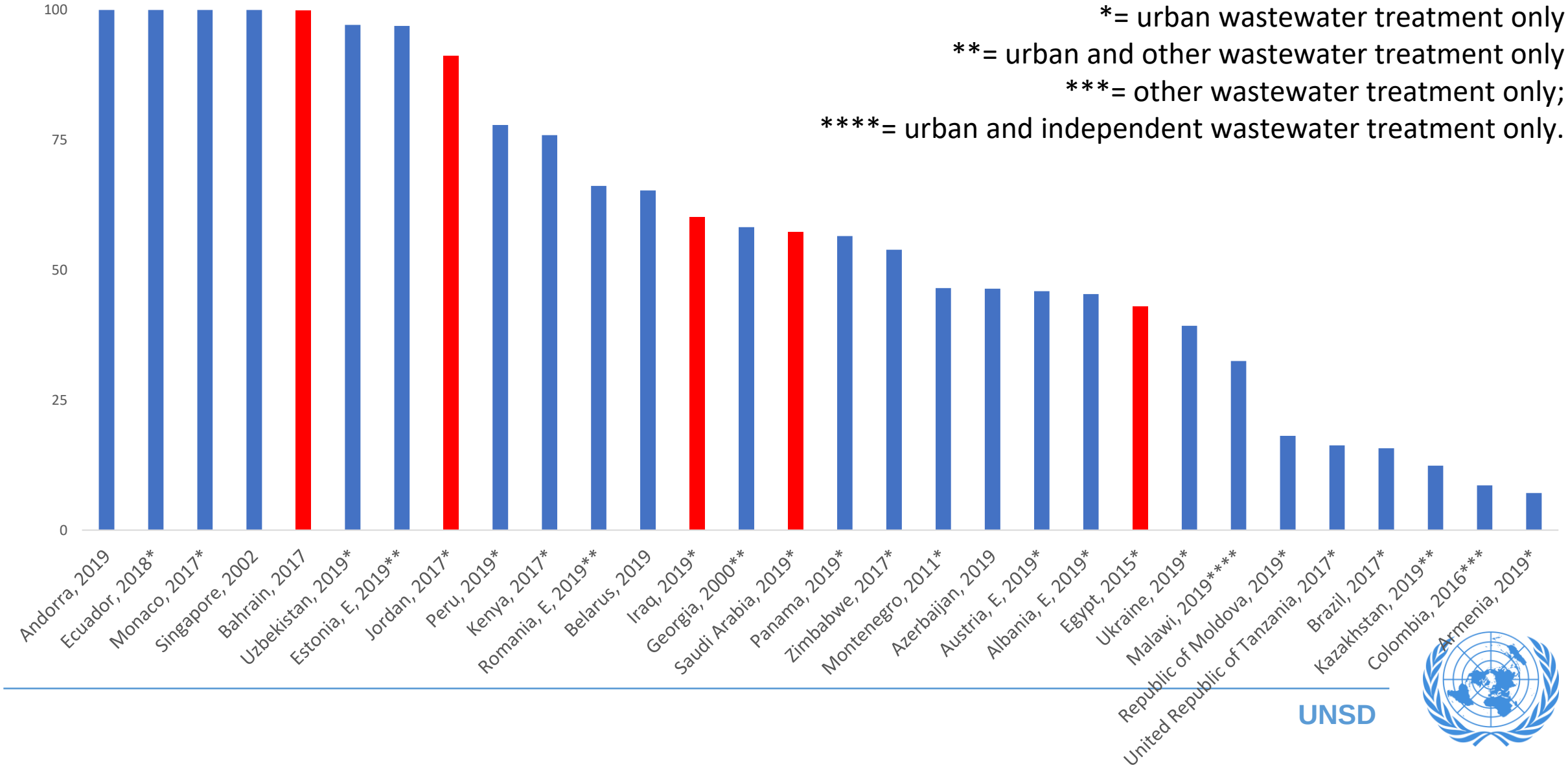
SDG indicator 6.3.1: What proportion of domestic wastewater is safely treated?

- 81 countries have provided data on one of these four variables since they were first collected in 2013.
- But only five countries provided data for all four variables needed to answer the policy question.
- All countries' data were validated with UNSD. Often the country is encouraged to clarify data with key partner source within country (e.g. Ministry of Water, Water Municipality Treatment Plant, etc.).

Table W4: Wastewater Generation and Treatment

Line	Category	Unit	2018
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 su		
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	

How can data collected via this Questionnaire inform key policy questions? What proportion of domestic wastewater is safely treated?



UNSD

How can data collected via this Questionnaire inform key policy questions?

- Prior to 2013, data for SDG indicator 6.3.1 and Draft Global Set indicator 134 was not collected via the Questionnaire
- All data shown were provided by countries to the Questionnaire
- A delicate balance between prioritizing SUPPLY of statistics and DEMAND of mandates, policy makers, researchers, etc.
- Every time we wish to refine or disaggregate to a finer level, we tend to reduce data availability
- Often, due to demand, new variables are added. The Questionnaire strives to be RELEVANT and to meet demand… however, experience shows when collecting new variables, the wastewater example shows it can take years to build up a dataset fit for purpose/demand.

Table W6: Wastewater Treatment Facilities

Line	Category	Unit
URBAN WASTEWATER TREATMENT		
	Primary wastewater treatment	
1	Number of plants	Number
2	Design capacity (Volume)	1000 m^3/d
3	Design capacity (BOD)	1000 kg O_2/d
4	Actual occupation (Volume)	1000 m^3/d
5	Actual occupation (BOD)	1000 kg O_2/d
	Secondary wastewater treatment	
6	Number of plants	Number
7	Design capacity (Volume)	1000 m^3/d
8	Design capacity (BOD)	1000 kg O_2/d
9	Actual occupation (Volume)	1000 m^3/d
10	Actual occupation (BOD)	1000 kg O_2/d
	Tertiary wastewater treatment	
11	Number of plants	Number
12	Design capacity (Volume)	1000 m^3/d
13	Design capacity (BOD)	1000 kg O_2/d
14	Actual occupation (Volume)	1000 m^3/d
15	Actual occupation (BOD)	1000 kg O_2/d
INDEPENDENT WASTEWATER TREATMENT		
16	Number of plants	Number
17	Design capacity (Volume)	1000 m^3/d
18	Design capacity (BOD)	1000 kg O_2/d
19	Actual occupation (Volume)	1000 m^3/d
20	Actual occupation (BOD)	1000 kg O_2/d
OTHER WASTEWATER TREATMENT		
	Primary wastewater treatment	
21	Number of plants	Number

Observations on water data available via the UNSD/UNEP Questionnaire on Environment Statistics

- The situation has gradually improved since the 1995 UN Statistical Commission mandate, and it's been a collaborative effort spanning institutions at international level, and many country NSOs, Ministries of Environment and other stakeholders at federal, state/provincial and local government levels.
- UNSD maintaining open relationships with key stakeholders (countries, regional commissions, international organisations, etc.) is vital to continued improvement.
- Data remains spotty for many variables collected whether they be demanded by key mandates (SDG indicators, draft Global Set of Climate Change Statistics and Indicators, Framework for the Development of Environment Statistics(FDES)) or otherwise.
- Maintaining **relevance** is key, hence considerations to edit variables per demand (e.g. concerning wastewater treatment for SDG 6.3.1; municipal solid waste for SDG 11 and SDG 12).
- UNSD remains cognizant of respondent burden upon countries. Supply v Demand is considered when modifying content. Caveats and footnotes are used to improve data availability and comparisons among countries.
- Imputations or estimates are not made. Only country-reported data are shown to the public.

Collaboration in water statistics

- Country consultation on UNSD/UNEP Questionnaire on Environment Statistics: Video call where UNSD made itself available for any questions or concerns countries who had not yet responded to the Questionnaire may have. About 15 countries attended together with key user stakeholders (World Health Organization, UN-HABITAT).
- Bilateral calls between a country NSO and UNSD on technical issues pertaining to the UNSD/UNEP Questionnaire on Environment Statistics (bound by language constraints)
- At international level, regular teleconferences continue among UNSD, OECD, Eurostat, FAO, UN-HABITAT and WHO.
- As data improves, more citations from key users are expected, both in terms of data collected and the methodology advocated within the Questionnaire.
- United Nations, UN Water, UN-HABITAT, World Health Organization: **Progress on Wastewater Treatment – 2021 Update** Progress on Wastewater Treatment – 2021 Update | UN-Water (unwater.org)
- United Nations, Manual on the Basic Set of Environment Statistics – Wastewater Statistics https://unstats.un.org/unsd/envstats/fdes/MS3.2_Wastewater.pdf

Grateful to countries for their contributions (all data referenced in this presentation are country-owned and sourced from the Questionnaire).

Thank You!

From your position in a National Statistical Office, Ministry of Environment, or otherwise, how are you able to provide data on water and wastewater? What are the major obstacles to providing data?

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