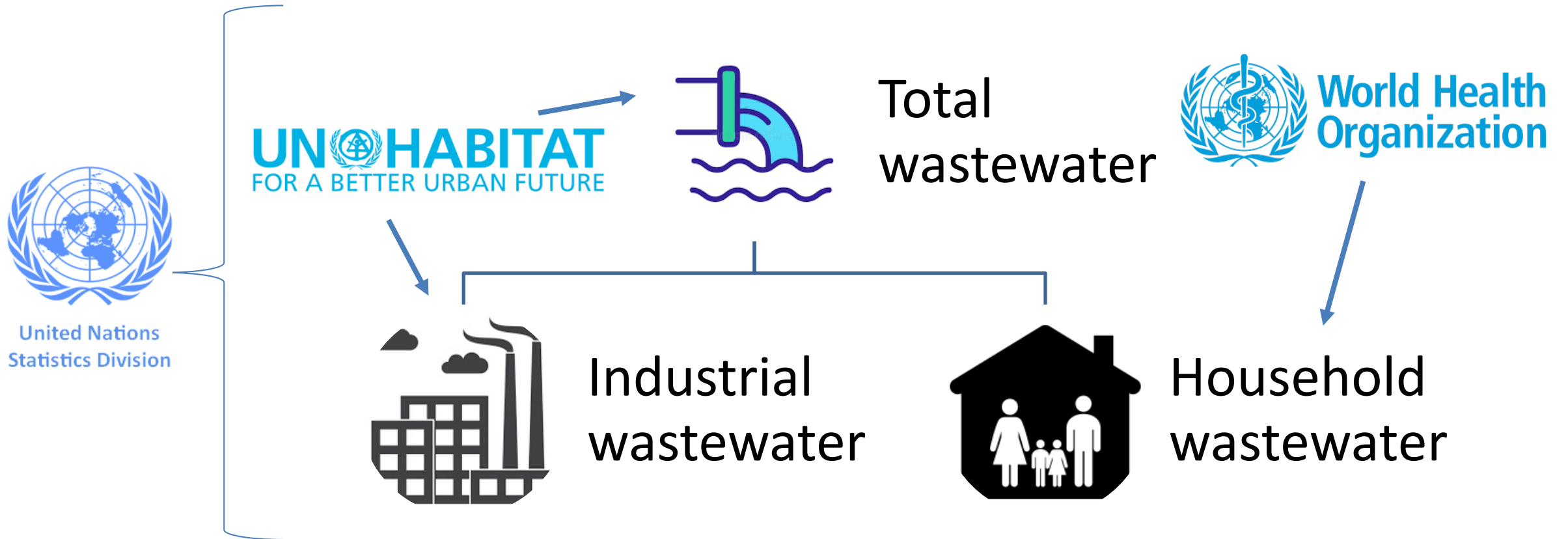# Advancements in wastewater data for informing SDG Indicator 6.3.1

Custodian Agencies responsible for global SDG 6.3.1 monitoring

Total & Industrial Wastewater

Example UNSD Water Questionnaire (Table W4) for Costa Rica

- Utilizes existing officially reported <u>volumetric</u> country data in three databanks:
  1. UNSD/UNEP Environmental Questionnaire
  2. Eurostat / 3. OECD Joint Inland Waters Questionnaire
- Most recent year with the most official reporting was 2015

Cuadro W4: Generación y tratamiento de aguas residuales

Línea	Categoría	Unidad	2015	2016		2017	
1	Total de aguas residuales generadas	1000 m³/d	1164.27	1609.69	A	1646.41	A
2	por Agricultura, ganadería, silvicultura y pesca (CIIU 01-03)	1000 m³/d	243.40	796.78	A	815.17	
3	Explotación de minas y canteras (CIIU 05-09)	1000 m³/d					
4	Industrias manufactureras (CIIU 10-33)	1000 m³/d	304.00	220.91	A	224.07	A
5	Suministro de electricidad, gas, vapor y aire acondicionado (CIIU 35)	1000 m³/d					
6	de la cual suministrada a: Industria de la energía eléctrica (CIIU 351)	1000 m³/d					
7	Construcción	1000 m³/d					
8	Otras actividades económicas	1000 m³/d		131.22	A	141.15	A
9	Hogares	1000 m³/d	444.51	460.79	A	466.02	A
10	Tratamiento de aguas residuales urbanas	1000 m³/d	66.57	73.24	B		
11	del cual: Tratamiento primario	1000 m³/d	38.30	31.54	C		
12	Tratamiento secundario	1000 m³/d	28.27	41.70	D		
13	Tratamiento terciario	1000 m³/d					
14	Aguas residuales tratadas en otras plantas de tratamiento	1000 m³/d	688.73	104.59	E		
15	del cual: Tratamiento primario	1000 m³/d					
16	Tratamiento secundario	1000 m³/d		104.59	F		
17	Tratamiento terciario	1000 m³/d					
18	Tratamiento independiente de aguas residuales	1000 m³/d	215.00	1341.97	G		
19	Aguas residuales no tratadas	1000 m³/d	193.97	89.89	H		
20	Producción total de lodo de aguas residuales (material seco)	1000 t					

World Health Organization

Table W4: Data for SDG calculations (total wastewater)

Volumes generated

Line	Category
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

Volumes treated

Line	Category
10	Wastewater treated in urban wastewater treatment plants
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)

Table W4: Data for SDG calculations (industrial wastewater)

Volumes generated

Line	Category
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

Volumes treated

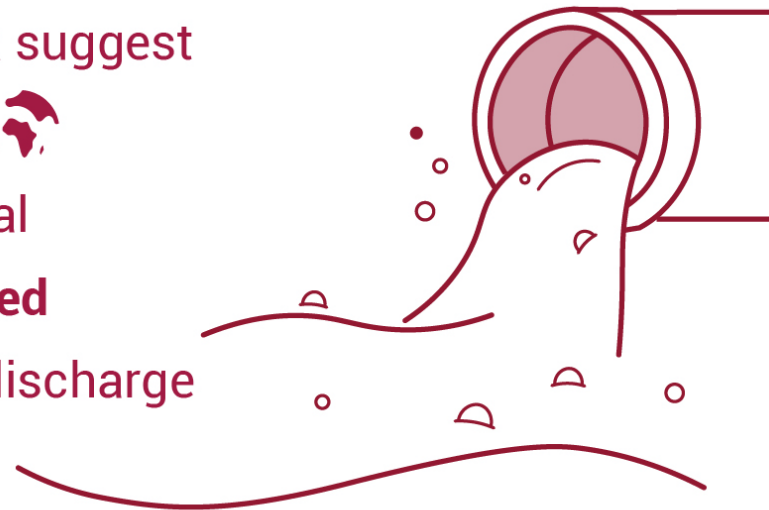| Line	Category
10	Wastewater treated in urban wastewater treatment plants
11	Of which: Primary treatment
12	Secondary treatment
13	Tertiary treatment
14	Wastewater treated in other treatment plants
15	Of which: Primary treatment
16	Secondary treatment
17	Tertiary treatment
18	Wastewater treated in independent treatment facilities
19	Non-treated wastewater
20	Sewage sludge production (dry matter)

SDG 6.3.1 WASTEWATER

Only **42** countries | **reported statistics** on wastewater generation and treatment in **2015**

These **limited data** suggest that about a ⅓ of total or industrial wastewater **received treatment** before discharge

Reporting issues: total and industrial wastewater...

Line	Category
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

Reported total volume of wastewater generated often does not include some sectors of the economy

Does not include irrigation water

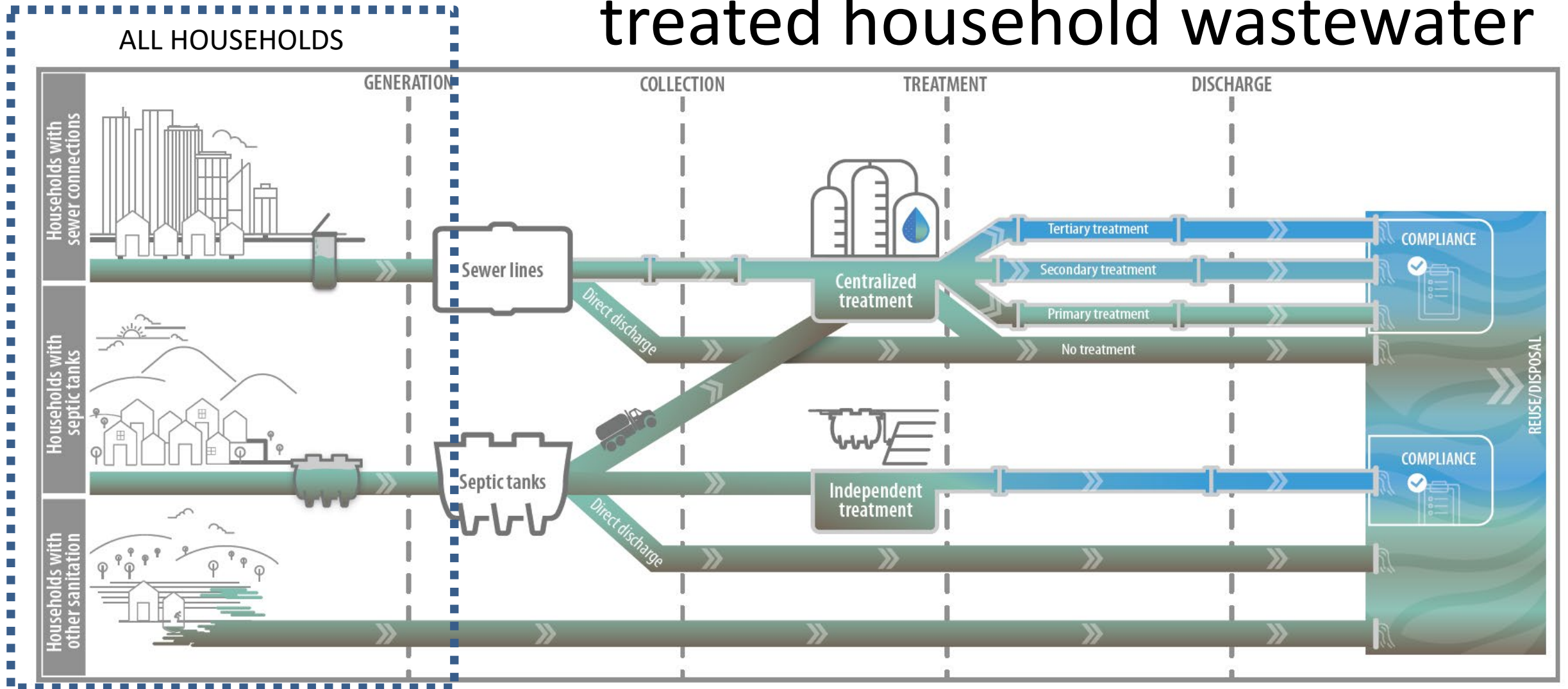Industrial components often incompletely reported

Household Wastewater

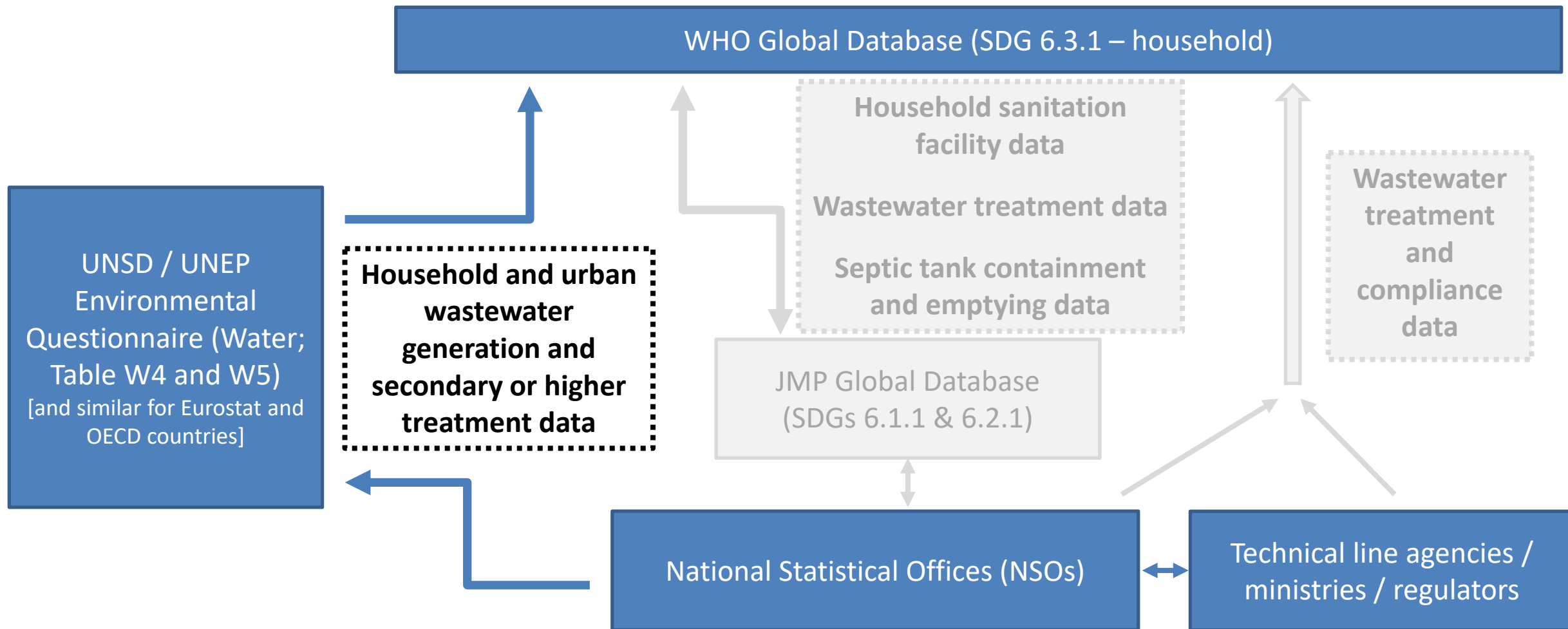Same calculation as total/industrial (safely treated $\div$ generated)…

…but more complex methodology

- WHO maintains an internal database for household wastewater
  - Any official data sources can be used (UNSD/UNEP Env Questionnaire is one source)
- Close linkages to the JMP database for SDG 6.2.1 (safely managed sanitation)
- Volumetric data prioritised (but population-based data used as a proxy)
- Default assumptions can be used where nationally representative data are missing, with limitations
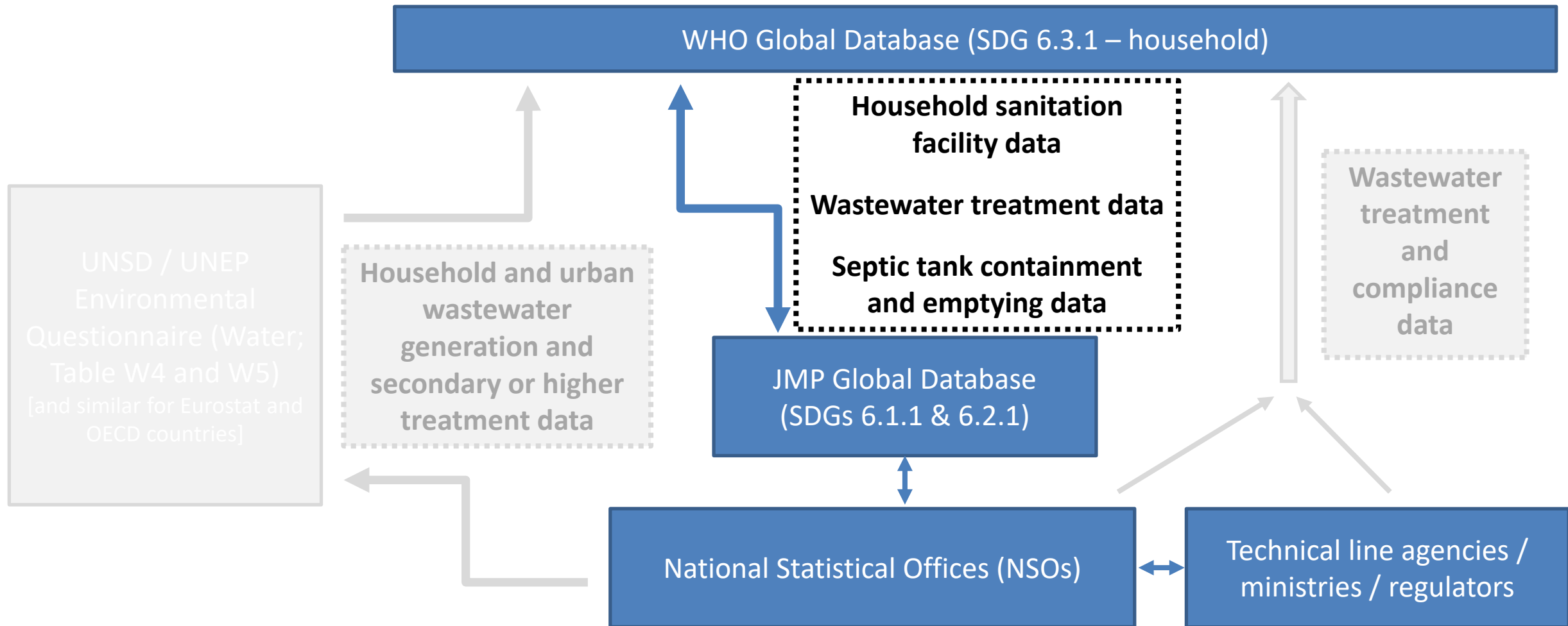 - i.e. 80% of domestic water supply is returned as wastewater

Conceptual framework for estimating safely treated household wastewater

Data collection for household wastewater

Data collection for household wastewater

WHO Global Database (SDG 6.3.1 – household)

Household sanitation facility data

Wastewater treatment data

Septic tank containment and emptying data

UNSD / UNEP Environmental Questionnaire (Water; Table W4 and W5) [and similar for Eurostat and OECD countries]

Household and urban wastewater generation and secondary or higher treatment data

JMP Global Database (SDGs 6.1.1 & 6.2.1)

Wastewater treatment and compliance data

National Statistical Offices (NSOs)

Technical line agencies / ministries / regulators

World Health Organization

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Data collection for household wastewater

WHO Global Database (SDG 6.3.1 – household)

Household sanitation facility data

Wastewater treatment data

Septic tank containment and emptying data

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Household and urban wastewater generation and secondary or higher treatment data

JMP Global Database (SDGs 6.1.1 & 6.2.1)

National Statistical Offices (NSOs)

Technical line agencies / ministries / regulators

Table W4: Reporting applicable to household wastewater

Volumes generated

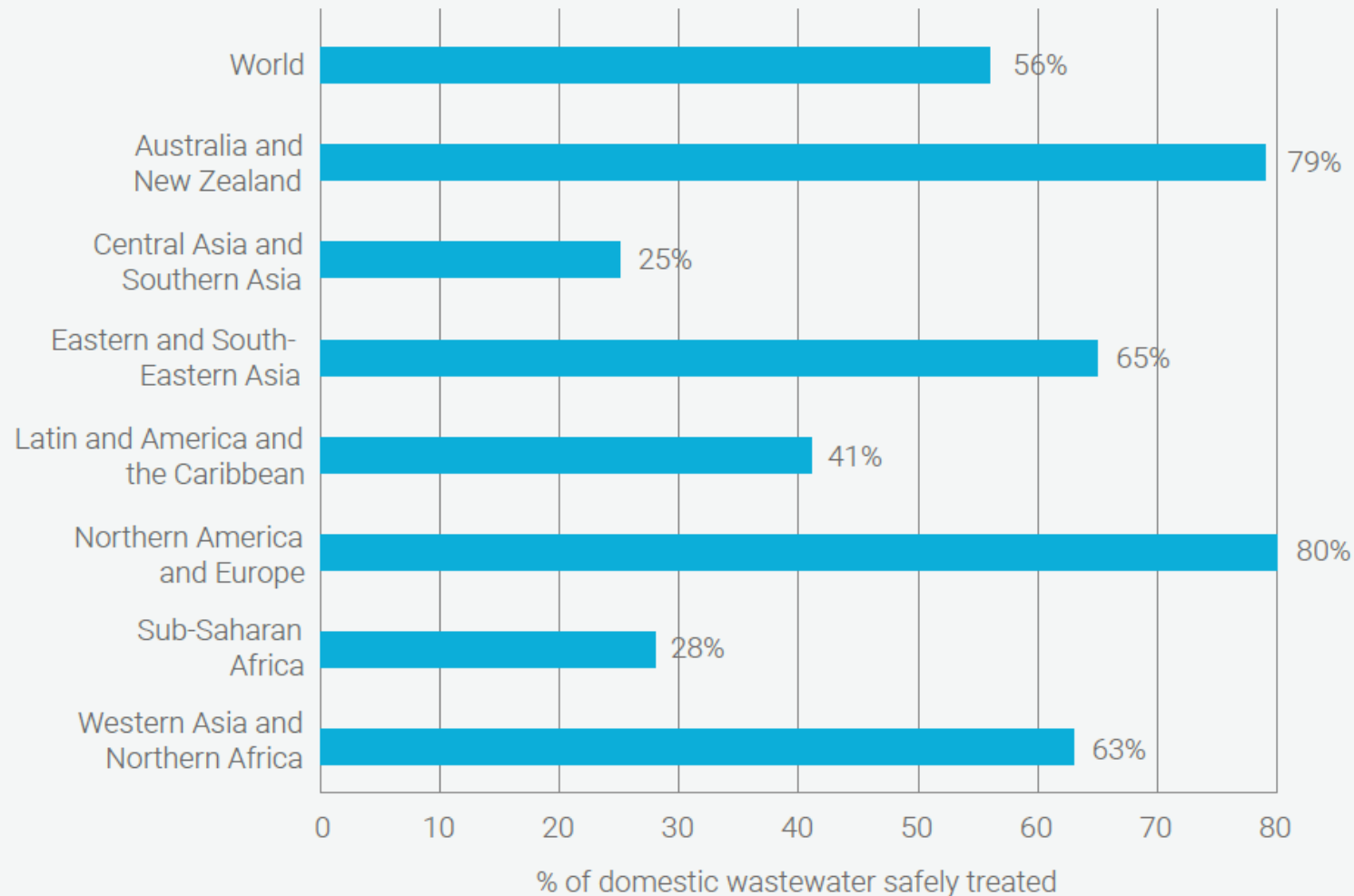| Line	Category
1	Total wastewater generated
2	by: Agriculture, forestry and fishing ISIC (01-03)
3	Mining and quarrying (ISIC 05-09)
4	Manufacturing (ISIC 10-33)
5	Electricity, gas, steam and air conditioning supply (ISIC 35)
6	of which by: Electric power generation, transmission and distribution (ISIC 351)
7	Construction (ISIC 41-43)
8	Other economic activities
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Volumes treated

Line	Category
10	Wastewater treated in urban wastewater treatment plants
11	Of which: Primary treatment
12	Secondary treatment
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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)

Table W5: Reporting applicable to household wastewater

Line	Category
1	Population connected to wastewater collecting system
2	Population connected to wastewater treatment
3	of which at least secondary treatment
4	Population with independent wastewater treatment (e.g., septic tanks)
5	Population not connected to wastewater treatment (100% - (2) - (4))

# Results – Safely Treated Household Wastewater

Data coverage:
- **128** of 234 SDG countries and territories
- **80%** of the global population
- **87%** of all households wastewater flows

Reporting issues: household wastewater…

Line	Category
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

Table W4: Sometimes representative of urban wastewater / public water supply only, rather than all households in the country/territory

UN HABITAT
FOR A BETTER URBAN FUTURE
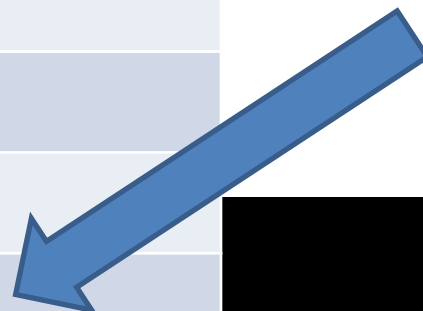
Reporting issues: household wastewater…

Line	Category	Units
1	Population connected to wastewater collecting system	%
2	Population connected to wastewater treatment	%
3	of which at least secondary treatment	%
4	Population with independent wastewater treatment (e.g., septic tanks)	%
5	Population not connected to wastewater treatment (100% - (2) - (4))	%

Table W5: Denominator should be Total Population for all three variables

- Significant differences between proportion treated to secondary or higher for population (W5) vs. volumes (W4)
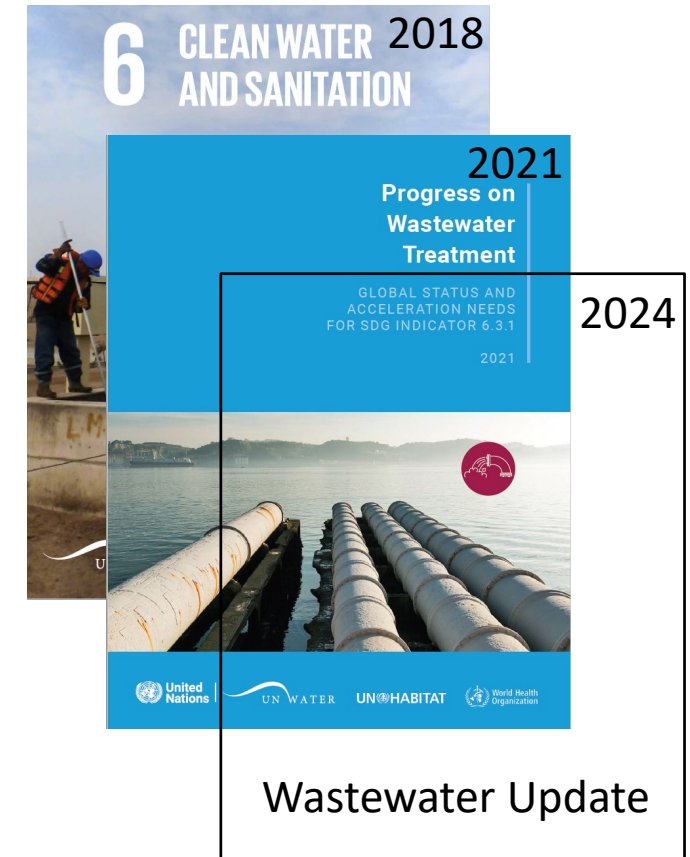
Reporting on SDG Indicator 6.3.1

- First progress report was published in 2018
  - Subsequent reports every 3 years

Priorities and next steps…

- Total/industrial
  - Ongoing country dialogue and data collection
  - Increase data coverage by encouraging official reporting to UNSD/OECD/Eurostat questionnaires

- Household wastewater

2018

2021

2024

Wastewater Update

Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23
Data drive	Country consultation			Finalize and submit country estimates	

Thank you for your attention!

– 6.3.1 indicator report

- https://www.unwater.org/publications/progress-on-wastewater-treatment-631-2021-update/

– 6.3.1 data portal

- https://www.sdg6data.org/indicator/6.3.1

– SDG 6.3.1 household wastewater country files

- Country-specific data
- Assumptions used in place of missing data
- Raw calculations
- Data summaries and breakdowns
- https://www.who.int/teams/environment-climate-change-and-health/water-sanitation-and-health/monitoring-and-evidence/water-supply-sanitation-and-hygiene-monitoring/2021-country-files-for-sdg-6.3.1-proportion-of-water-safely-treated