UNSD/UNEP Questionnaire on Environment Statistics – water section

Sixth Meeting of the Expert Group on Environment Statistics

New York, United States of America

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Outline

- Introduction to UNSD/UNEP Questionnaire on Environment Statistics

- Water section of the Questionnaire

- Modified ISIC breakdown in 2018 to better agree with the SDG indicator demand and align/harmonize with the OECD/Eurostat collection.

- Data comparison with FAO… AQUASTAT etc.

- Country case studies

- Selected SDG indicators related to the water section of the Questionnaire

Introduction

- n = 66 (typically expect to get to 80-85 responses... fight a continual battle to keep resp. rate at about 50% as more developed countries within our collection graduate to OECD or Eurostat membership.

- Modified ISIC breakdown within three of our tables to better agree with SDG indicator demand and align/harmonize with the OECD/Eurostat collection.

- A very thorough analysis of terminology used this round in light of the presence of the FAO Water questionnaire being sent to countries in parallel.

- Country cases: Jordan (desalination and its influence on abstractions/withdrawals) and Zimbabwe (newly provided time series with very detailed information on methodologies used)

- Questionnaire content remains somewhat flexible, and is able to be modified per the need of the day.
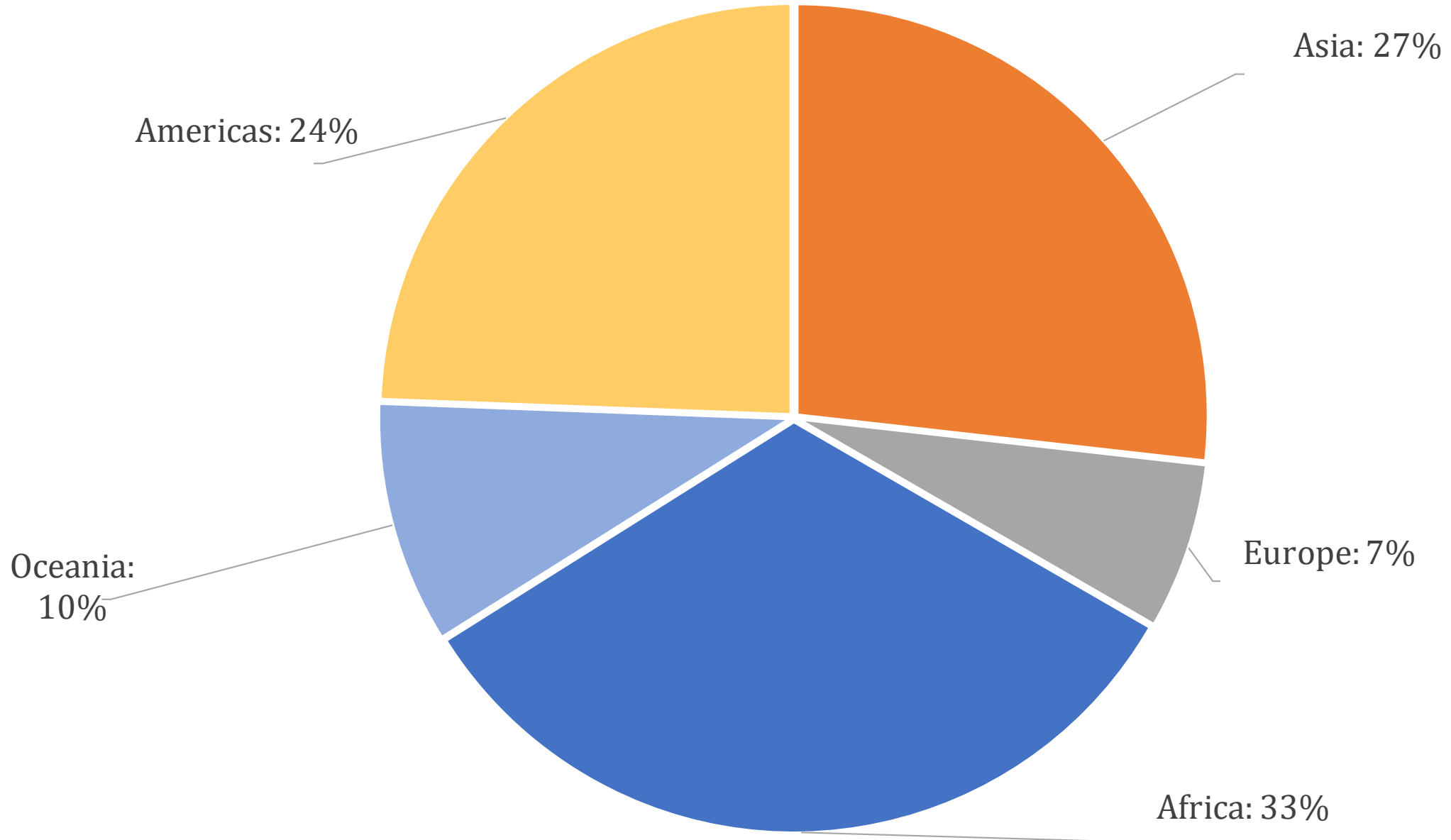
2018 UNSD/UNEP Questionnaire Timeline

July 2018: Questionnaire announced to countries
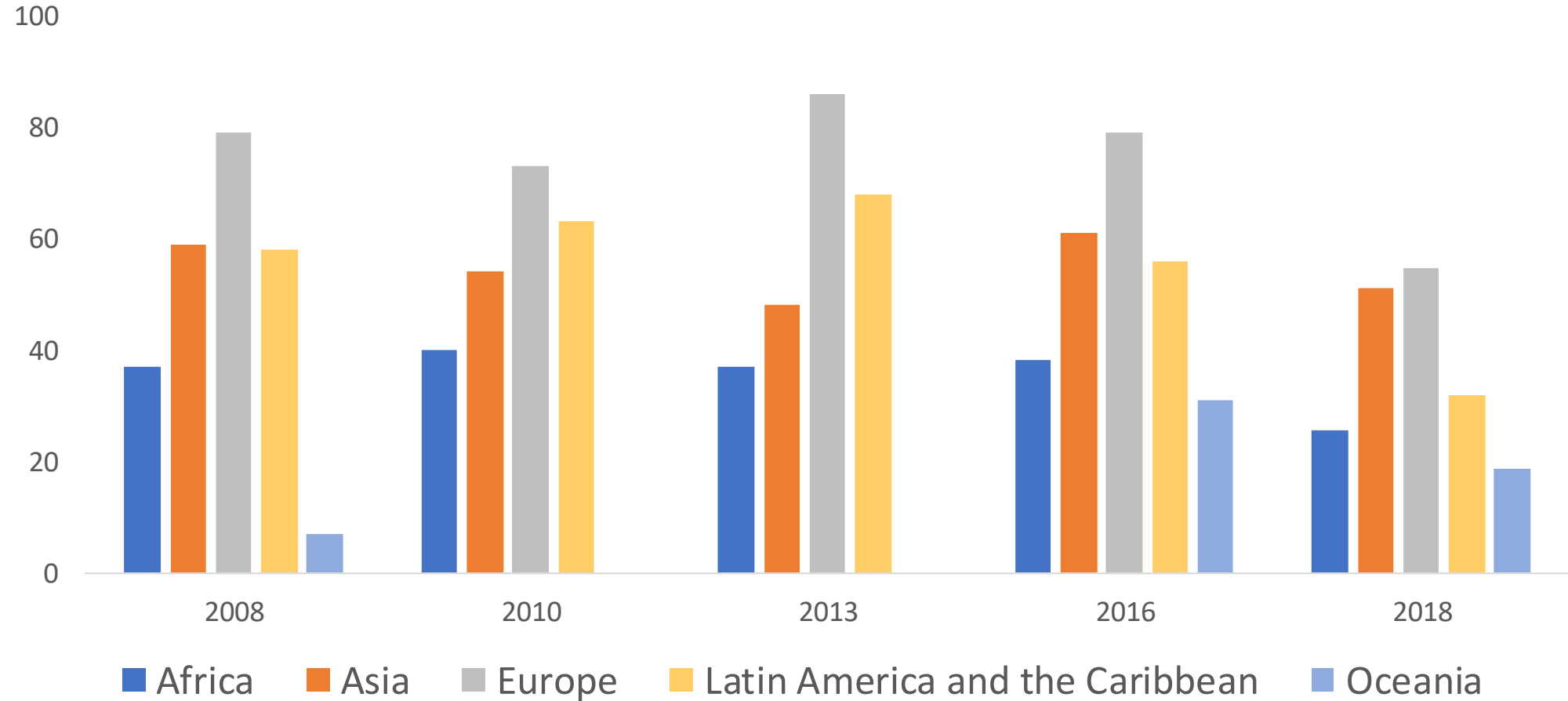
September 2018: Questionnaire sent to countries

October 2018: Responses commence arriving

Q4, 2018 to Q3, 2019: Validate responses and disseminate data
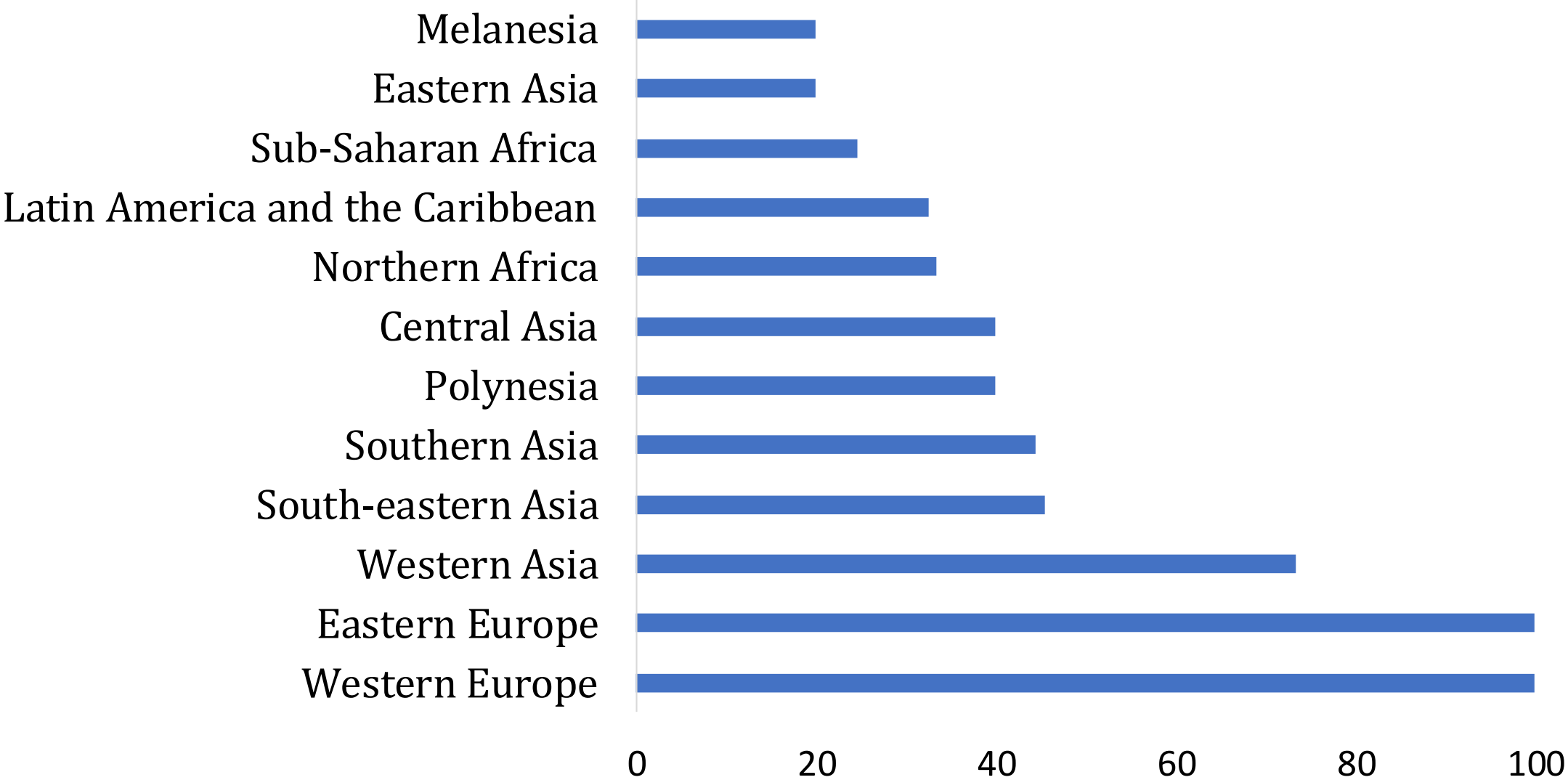
From which regions does UNSD collect data?

Asia: 27%

Europe: 7%

Africa: 33%

Oceania: 10%

Americas: 24%

% response rate by region from 2008 collection round and onward

2018 collection round % response rates by M49 sub-region

Scope

- 2016: N = 171

- 2018: N = 168 (... and now within Eurostat's scope)

- "Candidate countries" and "potential candidates" to the European Union typically move into Eurostat's collection

- Countries who ratify the convention of the OECD move into OECD's scope.

- Such countries have typically been responding to the UNSD/UNEP Questionnaire for several years which adds to UNSD's challenge to maintain response rates as high as possible. To date, we received 61 responses and we should expect a minimum of 80-85 responses upon completion.

UNSD/UNEP Questionnaire on Environment Statistics - water section

Table W1: Renewable Freshwater Resources

Table W2: Freshwater Abstraction and Use

Table W3: Water Supply Industry (ISIC 36)

Table W4: Wastewater Generation and Treatment

Table W5: Population Connected to Wastewater Treatment

Table W6: Supplementary Information Sheet

Modified breakdown of ISIC per SDG indicators
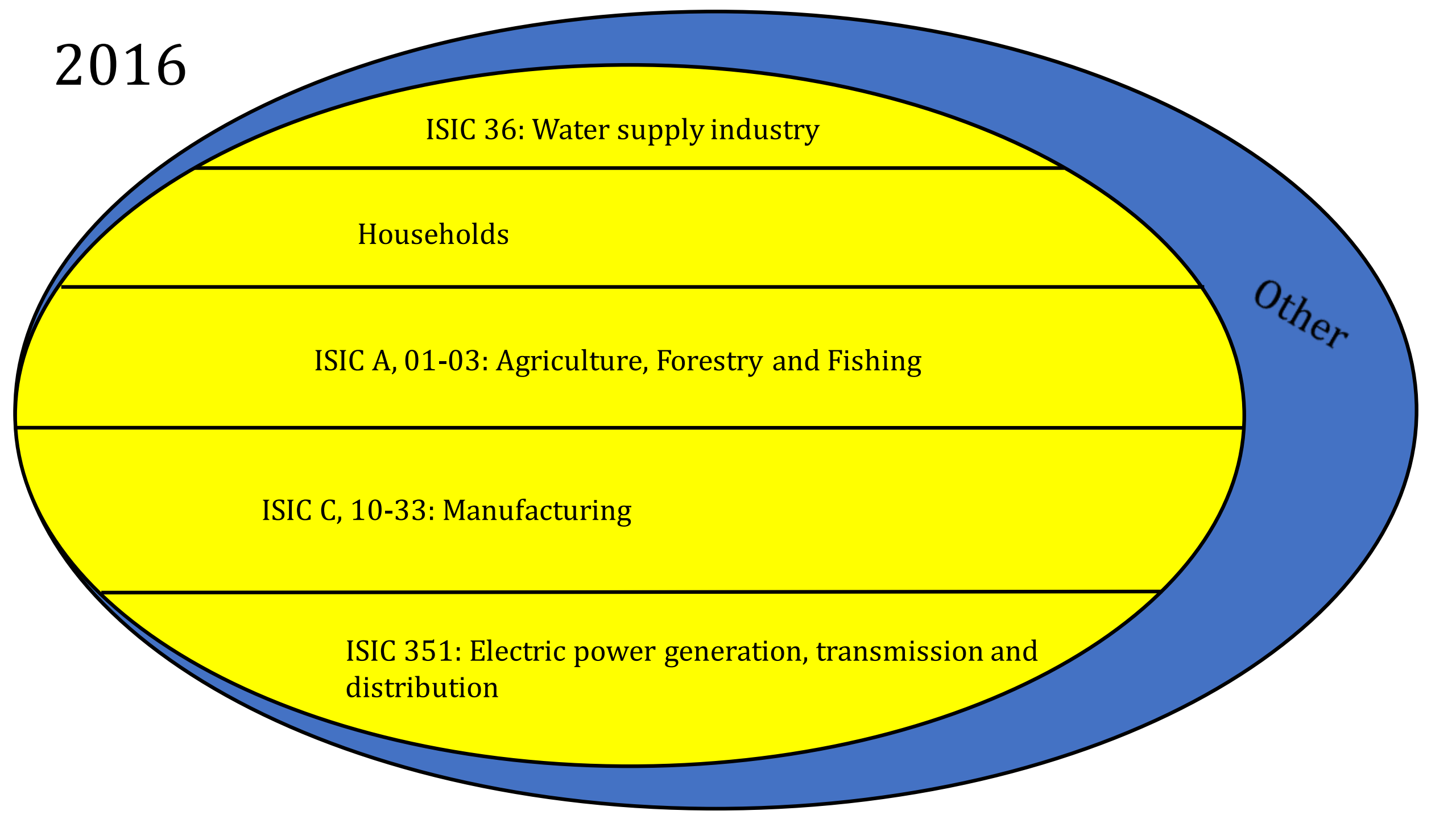
2016

ISIC 36: Water supply industry

Households

ISIC A, 01-03: Agriculture, Forestry and Fishing

ISIC C, 10-33: Manufacturing

ISIC 351: Electric power generation, transmission and distribution

Other

2018

ISIC 36: Water supply industry

Households

ISIC A, 01-03: Agriculture, Forestry and Fishing

of which for: Irrigation in Agriculture NEW!

ISIC C, 05-09: Mining and Quarrying NEW!

ISIC C, 10-33: Manufacturing

ISIC 35: Electricity, gas, steam and air conditioning supply NEW!

of which: ISIC 351: Electric power generation, transmission and distribution

ISIC 41-43: Construction NEW!

The new "Other" NEW!

The previous "Other"

Data comparison between FAO and UNSD

- UNSD/UNEP Water Questionnaire requests data for 77 variables; OECD/Eurostat Water questionnaire is more extensive; both Questionnaires are harmonized with one another and have a history of several decades.

- FAO AQUASTAT questionnaire, launched in 2018, collects data from all member states for about 34 variables.

- Depending on how one cross-compares the questionnaires, the definitions of about 13 of the FAO AQUASTAT variables compare relatively well to about 16 of the UNSD/UNEP Water Questionnaire variables (13 ≠ 16 since there are some aggregations made when comparing), and similarly to the OECD/Eurostat Questionnaire.

- UNSD, FAO, Eurostat and the OECD have held many teleconferences about how to minimize or make null any duplications in data collections.

- Multiple mandates exist for these organizations to collect data for different purposes.

- International organizations collectively engaging in conversation with countries was agreed as a good forward step... examples of Jordan, Botswana and Zimbabwe follow (with varied observations)...

Country case #1: Jordan

- Provided data to UNSD/UNEP Questionnaire in 2018 (and in all nine collection rounds since 1999), and to the FAO, Water and Agriculture Questionnaire 2018. Same focal point in both cases.
- UNSD has had recent interactions and EGES attendance with colleagues from Department of Statistics, Jordan for capacity development work
- Comparison between UNSD/UNEP Q. data and FAO data revealed"
  - ➢ FAO's term, *"total water withdrawal"* not necessarily equal to or comparable to UNSD/UNEP's term, *"Freshwater abstracted"*. The two are the sum of two different constituent parts.
  - ➢ Jordan included direct use of treated municipal wastewater and desalinated water within "*Total water withdrawal*".

FAO term	UNSD/UNEP term
Total water withdrawal (=1111 + 1112 + 1113)	Freshwater abstracted (=W2,2 + W2,1)
1111=Agricultural water withdrawal: total	W2,2=Fresh surface water abstracted
1112=Municipal water withdrawal	W2,3=Fresh groundwater abstracted
1113=Industrial water withdrawal (incl. water for cooling of thermoelectric plants)	

FAO term	UNSD/UNEP term
Total surface water and groundwater withdrawal (freshwater) (=1211 + 1212)	Freshwater abstracted (=W2,2 + W2,1)
1211=Surface water withdrawal	W2,2=Fresh surface water abstracted
1212=Groundwater withdrawal	W2,3=Fresh groundwater abstracted

Country case #1: Jordan

➢ Different applications of the International Standard Industrial Classification of All Economic Activities (ISIC) led to substantial differences in industry breakdowns.

FAO term	UNSD/UNEP term
Industrial water withdrawal (incl. water for cooling of thermoelectric plants)	W2,8: Freshwater abstracted by mining and quarrying (ISIC **B**); + W2,9: Manufacturing (ISIC **C**), + W2,10: Electricity, gas, steam and air conditioning supply (ISIC **D**) + W2,12: Construction (**F**)

➢ Per the FAO questionnaire: "Industry" includes mining and quarrying, manufacturing, constructions and energy (ISIC B, C, D and F)

➢ FAO's definition excludes hydropower (which sits within ISIC D, 3510).

➢ Different purposes of data collection has been an impediment to cross-comparisons.

Country case #2: Botswana

- Provided data to UNSD/UNEP Questionnaire in 2018 (and in six of the eight collection rounds since 1999), and to the FAO, Water and Agriculture Questionnaire 2018. Different focal points in each case.
- Statistics Botswana has attended the EGES for several years; UNSD worked closely with Statistics Botswana and even the Zimbabwe National Statistics Agency on data aggregation in the 2016 round of data collection.
- Focal point for data collection with UNSD is within Statistics Botswana, but for FAO it is in the Department of Water Affairs. However, data are reported the same to both data collections...

FAO term	UNSD/UNEP term
Total surface water and groundwater withdrawal (freshwater)	Freshwater abstracted (=W2,2 + W2,1)
Surface water withdrawal	W2,2=Fresh surface water abstracted
Groundwater withdrawal	W2,3=Fresh groundwater abstracted
Total water withdrawal	Freshwater abstracted (=W2,2 + W2,1)
Agricultural water withdrawal: total	Agriculture, forestry and fishing (ISIC 01-03) water withdrawal
Municipal water withdrawal	Freshwater abstracted by water supply industry (ISIC 36)
Desalinated water produced	Desalinated water

Country case #3: Zimbabwe

- Provided data to UNSD/UNEP Questionnaire in 2018 (and in all eight collection rounds since 1999, and to the FAO, Water and Agriculture Questionnaire 2018. Same focal point in both cases.

- Zimbabwe National Statistics Agency (ZIMSTAT) has had attendance at EGES; UNSD worked with ZIMSTAT closely on data aggregation in the 2016 round of data collection.

- Data discrepancies exist between data provided to UNSD and FAO

- … so UNSD currently in dialogue with Zimbabwe and FAO as to methodologies used and validation of data.

Country case #3: Zimbabwe

- Extensive provision of data in 2018 with detailed footnotes of methodologies used (which are highly valued by UNSD and used in dissemination). E.g.: *"Source: Meteorological Service Department (MSD)… total number of precipitation monitoring stations is between 500 to 600 across the country."*

- *"Water supply industry (ISIC 36) was calculated as 14% of the total water use. A study done as a background paper to the Water Policy revealed that Agriculture contributes 82% of water use in the country, water supply and industry(14% further broken down as 12% water supply, 1% households and 1 % manufacturing), mining 3% and other uses 1%."*

Observations on country case studies and data comparisons between UNSD/UNEP and FAO data collections

- Different countries have vastly different issues

- Jordan: Freshwater used contains relatively high proportions of desalinated water and reused water.
  - Analysis needed on how the International Standard Industrial Classification of All Economic Activities (ISIC) is applied to each questionnaire.

- Botswana: Data matching very well across both data collections but are using different focal points.

- Zimbabwe: Discrepancies observed in data provided to both data collections.

Selected SDG indicators related to the UNSD/UNEP Questionnaire on Environment Statistics (water section) – indicators 6.3.1, 6.4.1, 6.4.2

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

QUESTIONNAIRE 2018 ON ENVIRONMENT STATISTICS

Section: WATER

TABLE OF CONTENTS

Guidance	Introduction, Steps to Follow, Description of Tables and Conversion Table
Definitions	List of Definitions
Table W1	Renewable Freshwater Resources
Table W2	Freshwater Abstraction and Use
Table W3	Water Supply Industry (ISIC 36)
Table W4	Wastewater Generation and Treatment
Table W5	Population Connected to Wastewater Treatment
Table W6	Supplementary Information Sheet

IAEG-SDGs tier classification for global SDG indicators (updated 4 April 2019):
https://unstats.un.org/sdgs/iaeg-sdgs/tier-classification/

Indicator 6.3.1: Proportion of wastewater safely treated (tier II)

- Custodian Agencies: WHO, UN-Habitat, UNSD; partner agencies: UN Environment, OECD and Eurostat

- Endeavouring to use the UNSD/UNEP Questionnaire to the extent possible.
  - Response rates remain a challenge

- Available metadata are here: https://unstats.un.org/sdgs/metadata/files/Metadata-06-03-01.pdf

Table W4, Line:	Category	Unit
1	**Total wastewater generated**	
7	Wastewater treated in urban wastewater treatment plants	$1000 \text{ m}^3/\text{d}$
11	Wastewater treated in other treatment plants	
15	Wastewater treated in independent treatment facilities	

Indicator = (Lines 7 + 11 + 15)/Line 1

Indicator 6.4.1: Change in water-use efficiency over time (tier II)

- Custodian Agency: FAO; partner agencies: UNSD, UN Environment, IUCN, OECD and Eurostat
- Using the seven variables, a contribution to a prospective estimate of the indicator can be derived.
- Application of International Standard Industrial Classification of All Economic Activities (ISIC) rev. 4.
- Ensuring data provided by countries can inform for SDG indicator compilation, but also for environment statistics, and environment-economic accounting... considering modifying ISIC breakdown.
- Issues raised in discussions include definition of "abstraction" as opposed to "use". Per the Questionnaire, "Total freshwater available for use" is equal to "Freshwater abstracted" + "Desalinated water" + "Reused water" + "Imports of water" – "Exports of water".
- Available metadata are here: https://unstats.un.org/sdgs/metadata/files/Metadata-06-04-01.pdf

Tables W2 and W3, line:	Category	Unit
W2, 4	Freshwater abstracted by water supply industry (ISIC 36)	millions m^3/y
W2, 5	Freshwater abstracted by households	
W2, 6	Freshwater abstracted by agriculture, forestry and fishing (ISIC 01-03)	
W2, 7	Freshwater abstracted by manufacturing (ISIC 10-33)	
W2, 8	Freshwater abstracted by electricity industry (ISIC 351)	
W2, 9	Freshwater abstracted by other economic activities	
W3,1	Gross freshwater supplied by water supply industry (ISIC 36)	

Indicator 6.4.2: Level of water stress: freshwater withdrawal as a proportion of available freshwater resources (tier I)

- Custodian Agency: FAO; partner agencies: UNSD, UN Environment, IUCN, OECD and Eurostat

- Using the two variables below, a contribution to a prospective estimate of the indicator can be derived.

- Metadata are available here: https://unstats.un.org/sdgs/metadata/files/Metadata-06-04-02.pdf

Tables W1, W2, line:	Category	Unit
W1,5	Renewable freshwater resources	millions m^3/y
W2,3	Freshwater abstracted	

Indicator = Line W2,3/Line W1,5

Questions…

- How are countries addressing multiple data requests (national, regional, international)?

- What, if any, are the reasons for data discrepancies between different reporting institutions?

- How can countries ensure a common focal point if the two data collections continue in parallel?

- What is the best approach for UNSD to take when it modifies ISIC breakdowns in the questionnaire, bearing in mind the influence this has on "other" industries?

- How can UNSD better communicate to countries issues concerning measurement of precipitation in terms of volume rather than height?