Collection and dissemination of water data FAO

- Article 1 of FAO's Constitution:

"Collect, analyze, interpret and disseminate information related to nutrition, food and agriculture"

- FAO is the custodian agency for SDG 6.4. indicators. AQUASTAT collects data and monitors target 6.4 water stress and water use efficiency.

SDG 6.4 indicators

6.4.1 Change in water use efficiency over time

Tracks the value added in US dollars per volume of water withdrawn in cubic metres, by a given economic activity over time.

Economic indicator, to assess to what extent the economic growth depends on the use of their water resources.

6.4.2 Level of water stress

How much freshwater that is being withdrawn by all economic activities, compared to the total renewable freshwater resources available taking into account the Environmental Flow Requirements.

Environmental indicator, assess the availability of water resources and the impact of water uses.

- **AQUASTAT - FAO water flagship program. Since 1994.**

Spatial coverage	193 countries and territories
Temporal coverage	1961 -2019
Thematic	**Water resources**: internal, transboundary, total **Water uses**: by sector, by source, wastewater **Irrigation**: location, area, typology, technology, crops **Dams**: location, height, capacity, surface area **Water-related institutions, policies and legislation.**

New AQUASTAT dissemination system

New AQUASTAT dissemination system

Food and Agriculture Organization of the United Nations

AQUASTAT

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Country	Variable	2017	2018	2019
Afghanistan	Agricultural water withdrawal (10^9 m3/year)	20.00 I	20.00 I	20.00 I
Albania	Agricultural water withdrawal (10^9 m3/year)	0.70	0.65	0.69
Algeria	Agricultural water withdrawal (10^9 m3/year)	6.67	6.67 I	6.67 I
Angola	Agricultural water withdrawal (10^9 m3/year)	0.15 I	0.15 I	0.15 I
Antigua and Barbuda	Agricultural water withdrawal (10^9 m3/year)	0.00 I	0.00 I	0.00 I
Argentina	Agricultural water withdrawal (10^9 m3/year)	27.93 I	27.93 I	27.93 I
Armenia	Agricultural water withdrawal (10^9 m3/year)	2.10	1.88	2.13
Australia	Agricultural water withdrawal (10^9 m3/year)	12.09	12.53	8.74
Austria	Agricultural water withdrawal (10^9 m3/year)	0.08 I	0.08 I	0.08 I
Azerbaijan	Agricultural water withdrawal (10^9 m3/year)	11.16	11.24	11.61
Bahrain	Agricultural water withdrawal (10^9 m3/year)	0.14 I	0.14 I	0.14 I
Bangladesh	Agricultural water withdrawal (10^9 m3/year)	31.50 I	31.50 I	31.50 I
Barbados	Agricultural water withdrawal (10^9 m3/year)	0.05 I	0.05 I	0.05 I
Belarus	Agricultural water withdrawal (10^9 m3/year)	0.43	0.42	0.37
Belgium	Agricultural water withdrawal (10^9 m3/year)	0.05	0.05	0.05 I
Belize	Agricultural water withdrawal (10^9 m3/year)	0.07 I	0.07 I	0.07 I
Benin	Agricultural water withdrawal (10^9 m3/year)	0.06 I	0.06 I	0.06 I
Bhutan	Agricultural water withdrawal (10^9 m3/year)	0.32 I	0.32 I	0.32 I
Bolivia (Plurinational State of)	Agricultural water withdrawal (10^9 m3/year)	1.92 I	1.92 I	1.92 I
Botswana	Agricultural water withdrawal (10^9 m3/year)	0.07	0.08	0.07
Brazil	Agricultural water withdrawal (10^9 m3/year)	39.43	37.55	43.03

METHODOLOGY – Data collection process (since 2018)

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┌─────────────────────────────────────────────┐          ┌──────────────────────────┐
│ FAO – AQUASTAT ANNUAL QUESTIONNAIRE          │          │ COORDINATION OF DATA     │
└─────────────────────────────────────────────┘          │ COLLECTION AT            │
                      ↓                                    │ COUNTRY LEVEL            │
┌─────────────────────────────────────────────┐          └──────────────────────────┘
│ NATIONAL CORRESPONDENT                       │          ┌──────────────────────────┐
└─────────────────────────────────────────────┘          │ SURVEYS AND              │
                      ↕                                    │ NATIONAL CENSUS          │
┌─────────────────────────────────────────────┐          └──────────────────────────┘
│ DATA VALIDATION                              │          ┌──────────────────────────┐
└─────────────────────────────────────────────┘          │ OFFICIAL                 │
                      ↓                                    │ PUBLICATIONS             │
                                                           └──────────────────────────┘
┌──────────────────────┐  ┌──────────────────────┐  ┌──────────────────────┐
│ UNSD – STATISTICS     │← │ FAO – AQUASTAT        │→ │ UN-WATER             │
│ DIVISION SDG Data Hub │  │ INFORMATION SYSTEM    │  │ SDG 6 Portal         │
└──────────────────────┘  └──────────────────────┘  └──────────────────────┘
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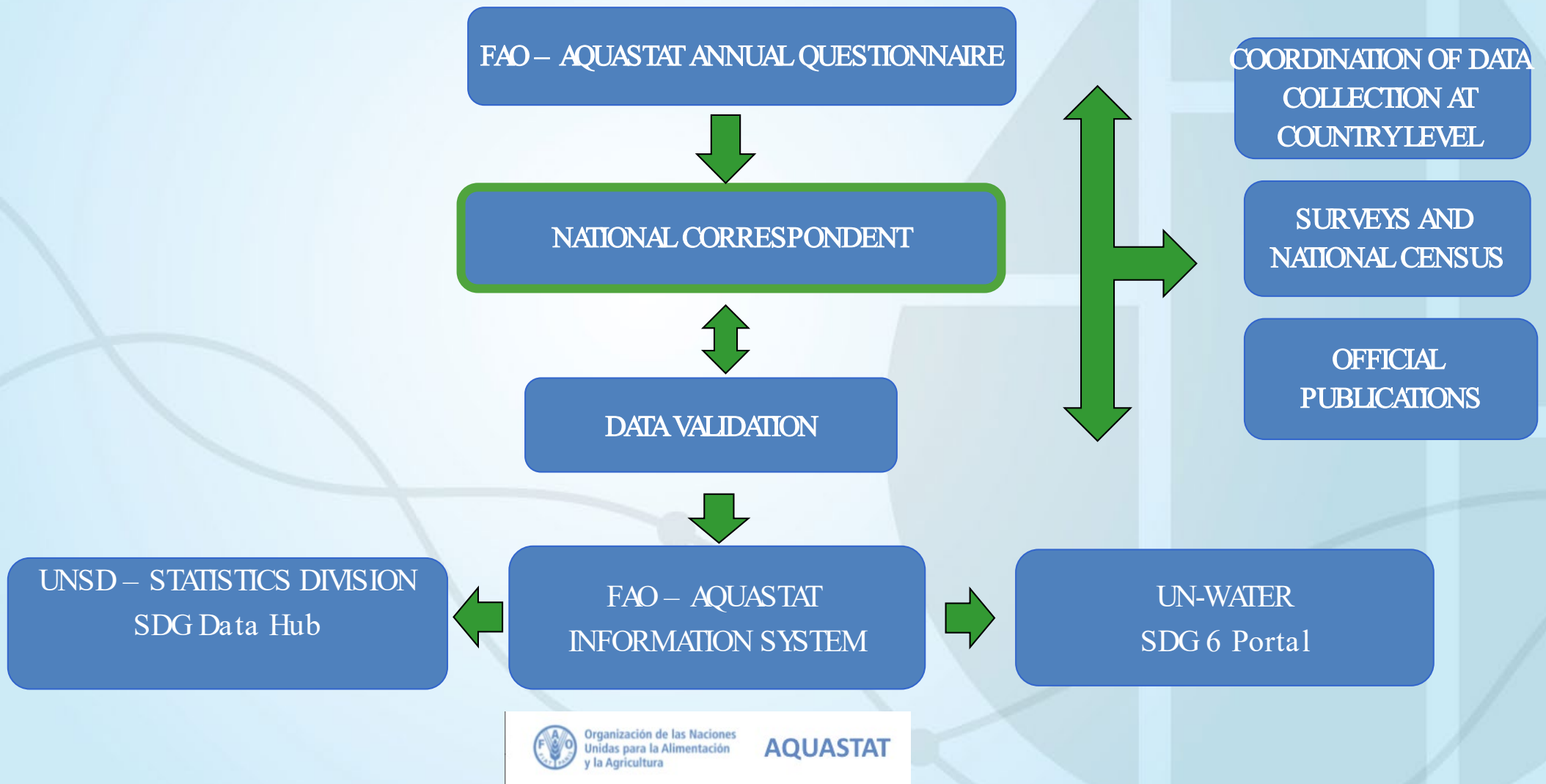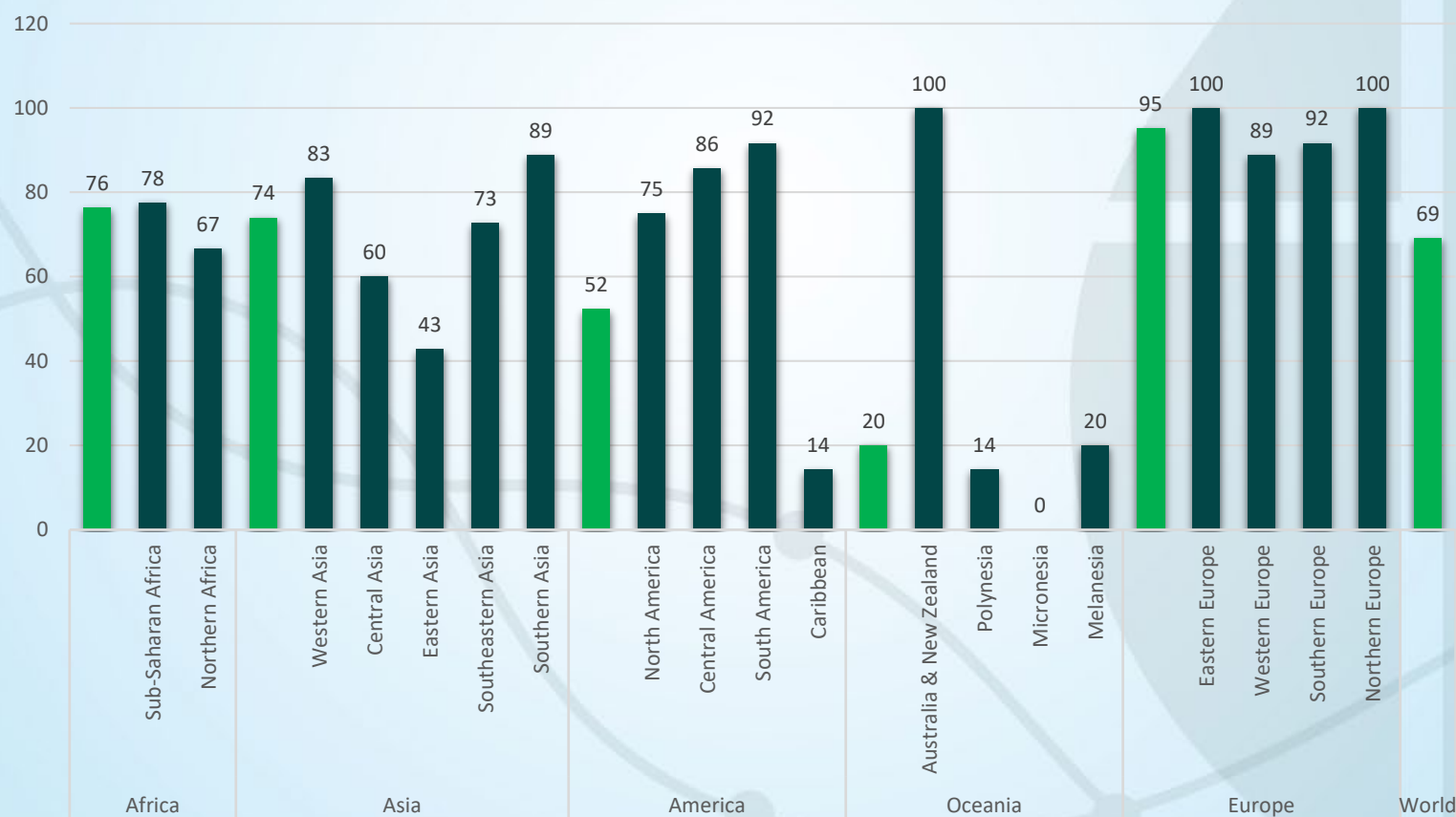
Organización de las Naciones Unidas para la Alimentación y la Agricultura   AQUASTAT

AQUASTAT – National correspondents
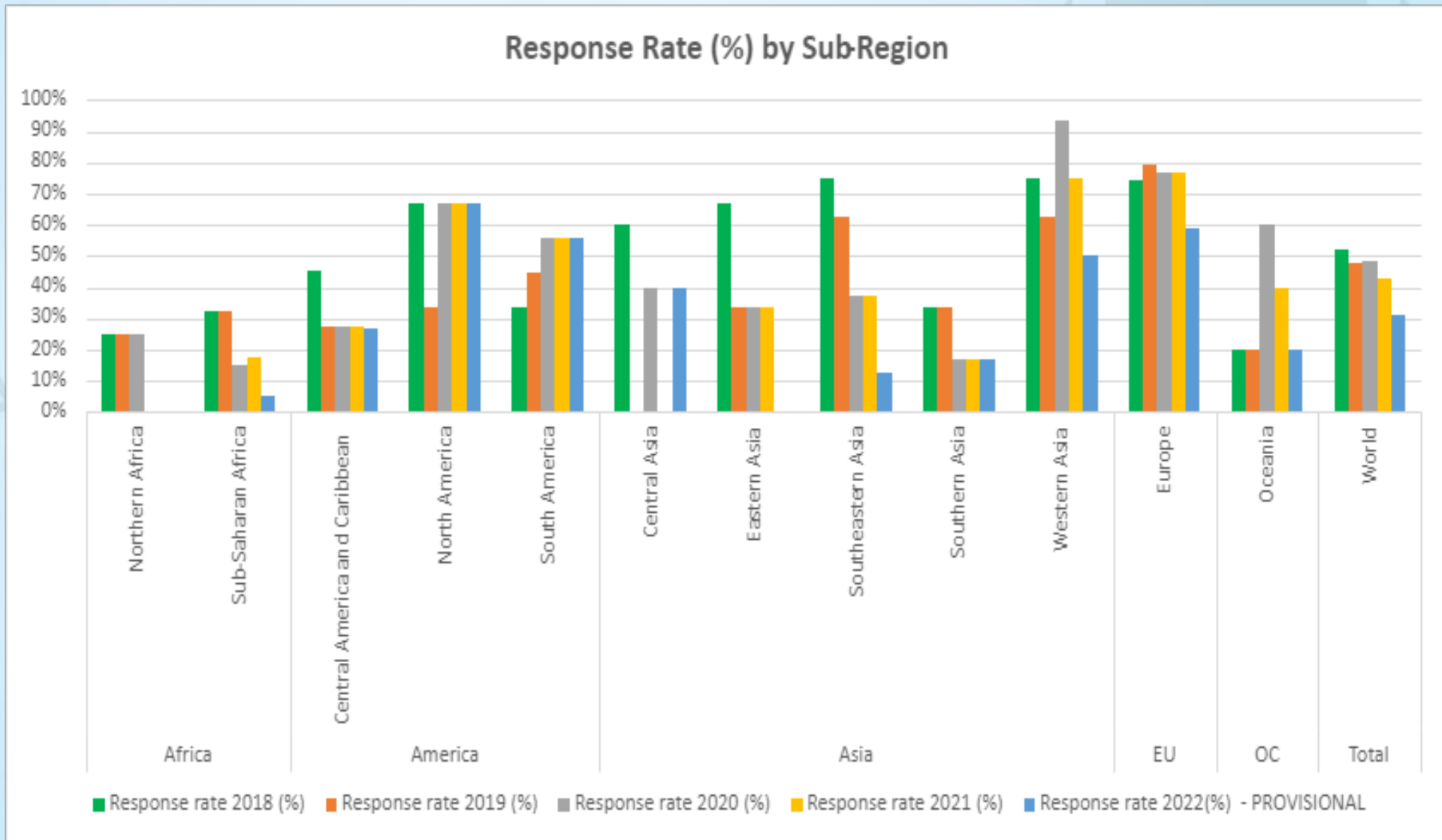
146 National Correspondents Nominated

% Nomination

Africa: Sub-Saharan Africa 78, Northern Africa 67 (76)

Asia: Western Asia 83, Central Asia 60, Eastern Asia 43, Southeastern Asia 73, Southern Asia 89 (74)

America: North America 75, Central America 86, South America 92, Caribbean 14 (52)

Oceania: Australia & New Zealand 100, Polynesia 14, Micronesia 0, Melanesia 20 (20)

Europe: Eastern Europe 100, Western Europe 89, Southern Europe 92, Northern Europe 100 (95)

World: 69

Organization of the National Correspondents

- NSO 66%
- Min. Water / Water Authority 21%
- Min. Environment 6%
- Min. Agriculture 7%

Response rate (%) by Sub-region and year

Response Rate (%) by Sub-Region

AQUASTAT – QUESTIONNAIRE

0	Water Resources				
0.1.		Unit	2015	2016	2017
011	Total Renewable Water Resources (Long-term average)	10^9 m³/year			

I	Water withdrawals				
I.1.	Water withdrawals by sector	Unit	2015	2016	2017
111	Total water withdrawal (1111 + 1112 + 1113)				
1111	Agricultural water withdrawal: total (11111 + 11112 + 11113)				
11111	Water withdrawal for irrigation				
11112	Water withdrawal for livestock (watering and cleaning)				
11113	Water withdrawal for aquacutlure	10^9 m³/year			
1112	Municipal water withdrawal				
1113	Industrial water withdrawal (incl. water for cooling of thermoelectric plants)				
11131	Water withdrawal for cooling of thermoelectric plants				
112	Environmental flow requirements (stable over time)				
I.2.	Water withdrawals by source	Unit	2015	2016	2017
121	Total surface water and groundwater withdrawal (freshwater) (1211 + 1212)				
1211	Surface water withdrawal				
1212	Groundwater withdrawal	10^9 m³/year			
122	Desalinated water produced				
123	Direct use of treated municipal wastewater				
124	Direct use of agricultural drainage water				

II	Municipal wastewater				
21	Produced municpal wastewater	Unit	2015	2016	2017
22	Collected municipal wastewater	10^9 m³/year			
23	Treated municipal wastewater				

III	Irrigation and drainage				
III.1.	Area under agricultural water management	Unit	2015	2016	2017
311	Total agricultural water managed area (3111 + 3112 + 3113)				
3111	Area equipped for irrigation: total (31112 + 31113 + 31114)				
31111	Area equipped for irrigation: part actually irrigated				
31112	Area equipped for full control irrigation: total (311122 + 3111232 + 311124)				
311121	Area equipped for full control irrigation: part actually irrigated				
311122	Area equipped for full control irrigation: surface irrigation	1000 ha			
311123	Area equipped for full control irrigation: sprinkler irrigation				
311124	Area equipped for full control irrigation: localized irrigation				
31113	Area equipped for irrigation: equipped lowland areas				
31114	Area equipped for irrigation: spate irrigation				
3112	Cultivated wetlands and inland valley bottoms non-equipped				
3113	Flood recession cropping area non-equipped				
III.2.	Irrigated production				
321	Total harvested irrigated crop area (full control irrigation only)	1000 ha			

III.3.	Drainage				
331	Area equipped for irrigation drained	1000 ha			

IV	Environment				
		Unit	2015	2016	2017
41	Area salinized by irrigation	1000 ha			

- **Annual questionnaire (12 SDG variables out of 34 variables)**

Data quality

Percentage of Official Data Points

Legend: 2014, 2015, 2016, 2017, 2018, 2019

Y-axis: Percentage (%)

X-axis (SDG 6.4 variables): Agricultural water withdrawal, Municipal water withdrawal, Industrial water withdrawal, Total water withdrawal, Total freshwater withdrawal, Area equipped for irrigation: actually irrigated, Total harvested irrigated crop area
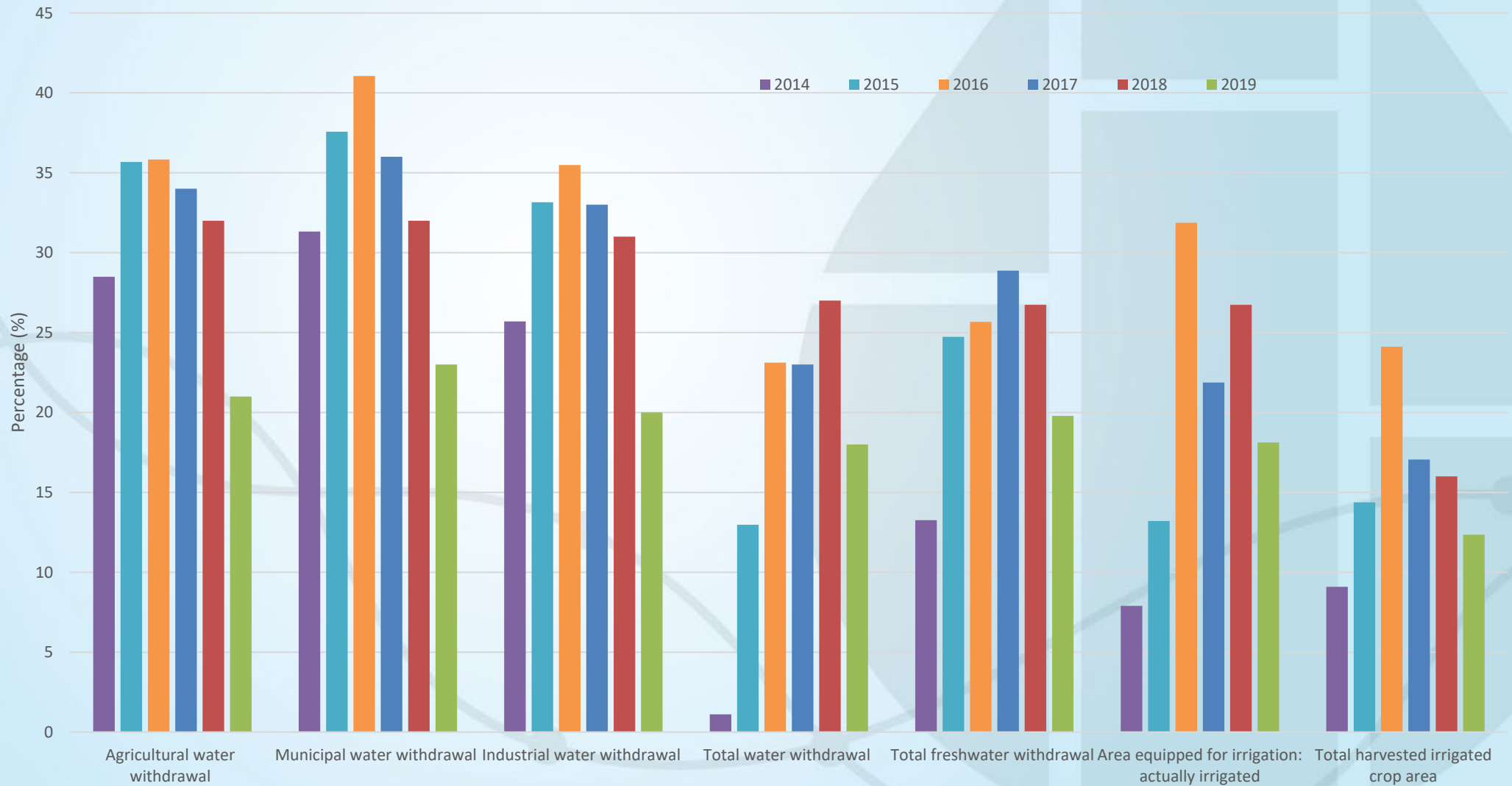
Results: Change in water use efficiency (2015 – 2018)
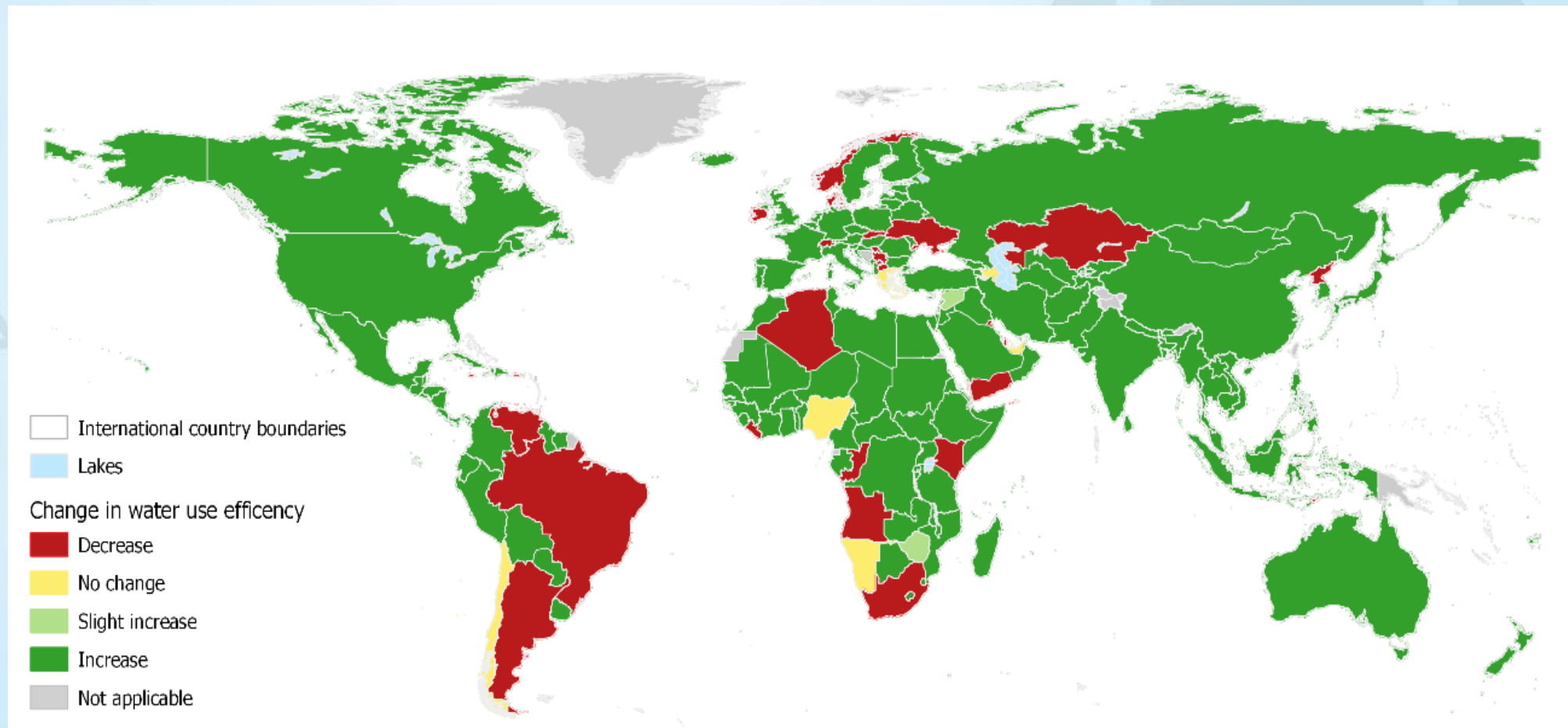
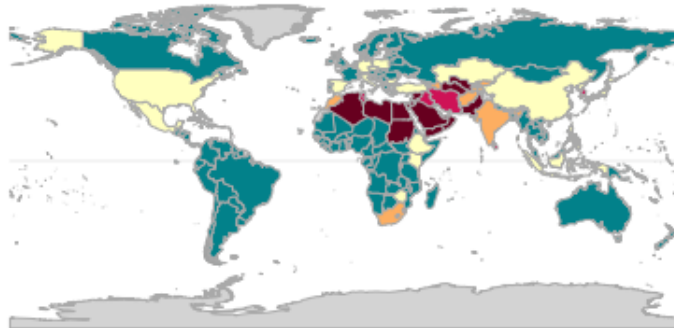SDG 6.4.2 Water Stress 2000
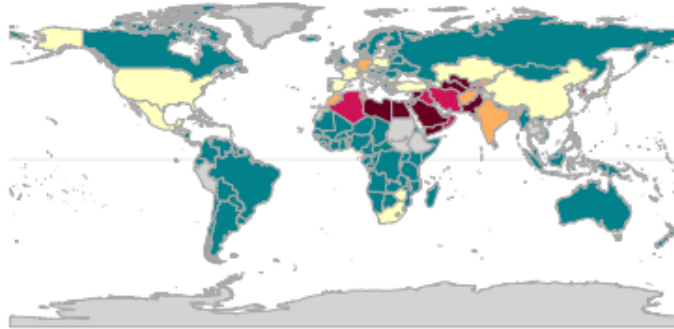
SDG 6.4.2 Water Stress 2010

SDG 6.4.2 Water Stress 2019
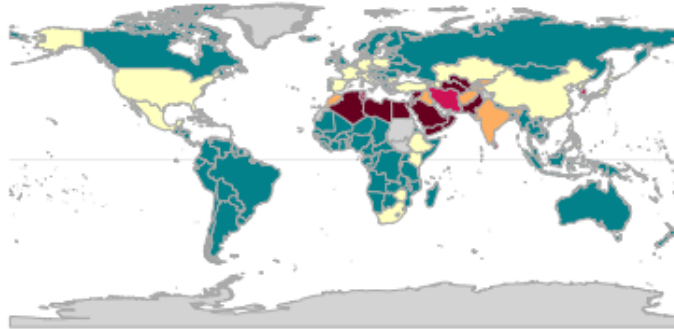
Water Stress (%):
- NO Stress (0 – 25%)
- LOW (25% – 50%)
- MEDIUM (50% – 75%)
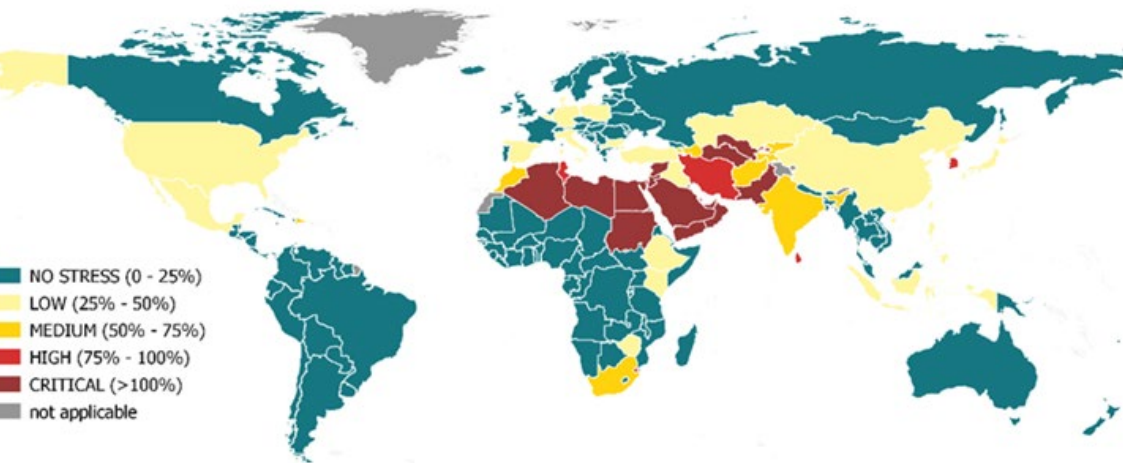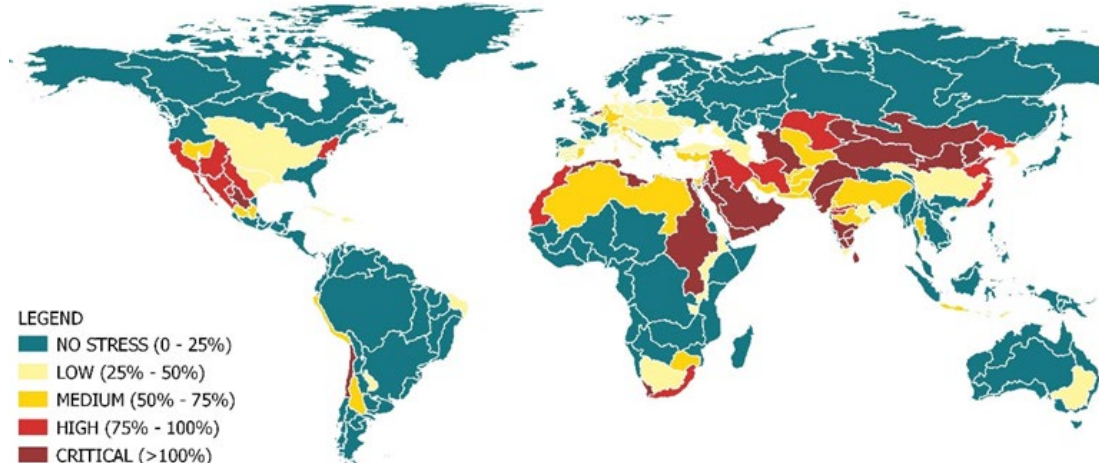- HIGH (75% – 100%)
- CRITICAL (>100%)
- Not applicable

Source: UN, 2020. Map of the World, United Nations.

Results

Water stress level by water basin. 2018

Water stress at national level

Water stress by water basin

LEGEND
- NO STRESS (0 - 25%)
- LOW (25% - 50%)
- MEDIUM (50% - 75%)
- HIGH (75% - 100%)
- CRITICAL (>100%)

- NO STRESS (0 - 25%)
- LOW (25% - 50%)
- MEDIUM (50% - 75%)
- HIGH (75% - 100%)
- CRITICAL (>100%)
- not applicable

The disaggregation by hydrographic basin shows that countries that show low water stress levels at the national level can include much more stressed basins, such as Peru and Chile, but also Mexico, the United States and China, which is not so evident in the map of the indicator at the country level.

Main challenges in SDG 6.4 monitoring process

- Improve response rate– imputed data to calculate SDG 6.4
- Incomplete questionnaires and data inconsistencies, different definitions
- Institutional coordination at national level
- Lack of metadata (methodology, sources)
- Harmonization of methodologies for the calculation of SDG 6.4. indicators at national level – Ex. Environmental Flow Requirements

Key opportunities – FAO actions

- **Engage :** strengthen national correspondents network – capacity development to improve response rate.

- **Disaggregate:** Disaggregation of indicators (sectoral, water basin)

- **Upscale:** synergies between SDG agenda and Climate Change Action.

- **Innovate:** Continue the integration of GIS and Remote sensing tools to complement statistical data.

- **Integrate:** Water quality, gender contextualization, food security.

Thank you!

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