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SUSTAINABLE  
DEVELOPMENT  
GOALS



**APCAS/24/10.3**

# ASIA AND PACIFIC COMMISSION ON AGRICULTURAL STATISTICS

FAO's global information system on  
water and agriculture

30<sup>TH</sup> SESSION. 19–24 May 2024  
Kathmandu (Nepal)



# FAO's global information system on water and agriculture

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# AQUASTAT – FAO’s global information system on water and agriculture

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- FAO statistical program. Since 1994.
- Areas of work
  - Data release - water and agriculture statistics
  - Methods and Standards – Glossary, methodological guidelines
  - Capacity development and technical support
- AQUASTAT monitors **SDG target 6.4** – Progress on water use efficiency (SDG 6.4.1) and level of water stress (SDG 6.4.2).

# SDG 6.4 target



## 6.4.1 Progress in water use efficiency

Value added in US dollars per volume of water used in cubic meters.

Data on water use by all economic activities (agriculture, industry and the service sector)

### ECONOMIC INDICATOR

To what extent economic growth depends on the use of their water resources.



## 6.4.2 Level of Water stress

Freshwater withdrawal as a proportion of available freshwater resources.

Data on freshwater withdrawals and total renewable water resources.

### ENVIRONMENTAL INDICATOR

Pressure by all sectors on the country's renewable freshwater resources.

# AQUASTAT – Main products

- **STATISTICAL DATABASE :**  
water and agriculture statistics (SDG 6.4 indicators)
- **AQUAMAPS – GEOSPATIAL INFORMATION**
- **COUNTRY PROFILES**



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## AQUASTAT - FAO's Global Information System on Water and Agriculture

Overview | Databases | Geospatial Information | Profiles | Data Analysis | Activities | Publications

AQUASTAT is the FAO global information system on water resources and agricultural water management. It collects, analyses and provides free access to over 180 variables and indicators by country from 1960. AQUASTAT draws on national capacities and expertise with an emphasis on Africa, the Near East, countries of the former Soviet Union, Asia, and Latin America and the Caribbean. AQUASTAT plays a key role in the monitoring of the Sustainable Development Goal 6 that sets out to "ensure availability and sustainable management of water and sanitation for all", and in particular indicators of target 6.4 on water stress and water use efficiency.

Did you know?

- **79 countries compiled the 2018 AQUASTAT questionnaire on water and agriculture.** The data collected through this questionnaire and validated are now available in the AQUASTAT core database. The 2019 questionnaire has also been sent out to over 180 countries.
- **WaPOR version 2 database and the WaPOR 1.0 quality assessment report were launched at the 2nd International seminar on Drought and Agriculture 2019.** The technical report describes the quality assessment of the FAO's data portal to monitor water productivity through open access of remotely sensed derived data. [Read the report].


Highlights

Country Statistics | Water Scarcity Maps | Country Profiles

# AQUASTAT – Statistical data base

<b>Spatial coverage</b>	<b>193 countries and territories</b>
<b>Temporal coverage</b>	<b>1961 -2019 (annual updates)</b>
<b>Thematic</b>	<b>Total Renewable Water Resources</b> <b>Water uses (by sector and source)</b> <b>Use of non-conventional waters (wastewater and</b> <b>Irrigated surface</b> <b>SDG 6.4.1 and SDG 6.4.2.</b>

# AQUASTAT dissemination system



🏠 AQUASTAT Dissemination System

Country, Variable by Year Change

📄 Table    🔗 Share / Download    👤 Login    🌐 English    📄 About

🔍 AQUASTAT Dissemination System

**Variables**

SDG 6.4.2. Water Stress x

SDG 6.4.1. Water Use Efficiency x

Select Variables ▼

**Area**

World x

Select Area ▼

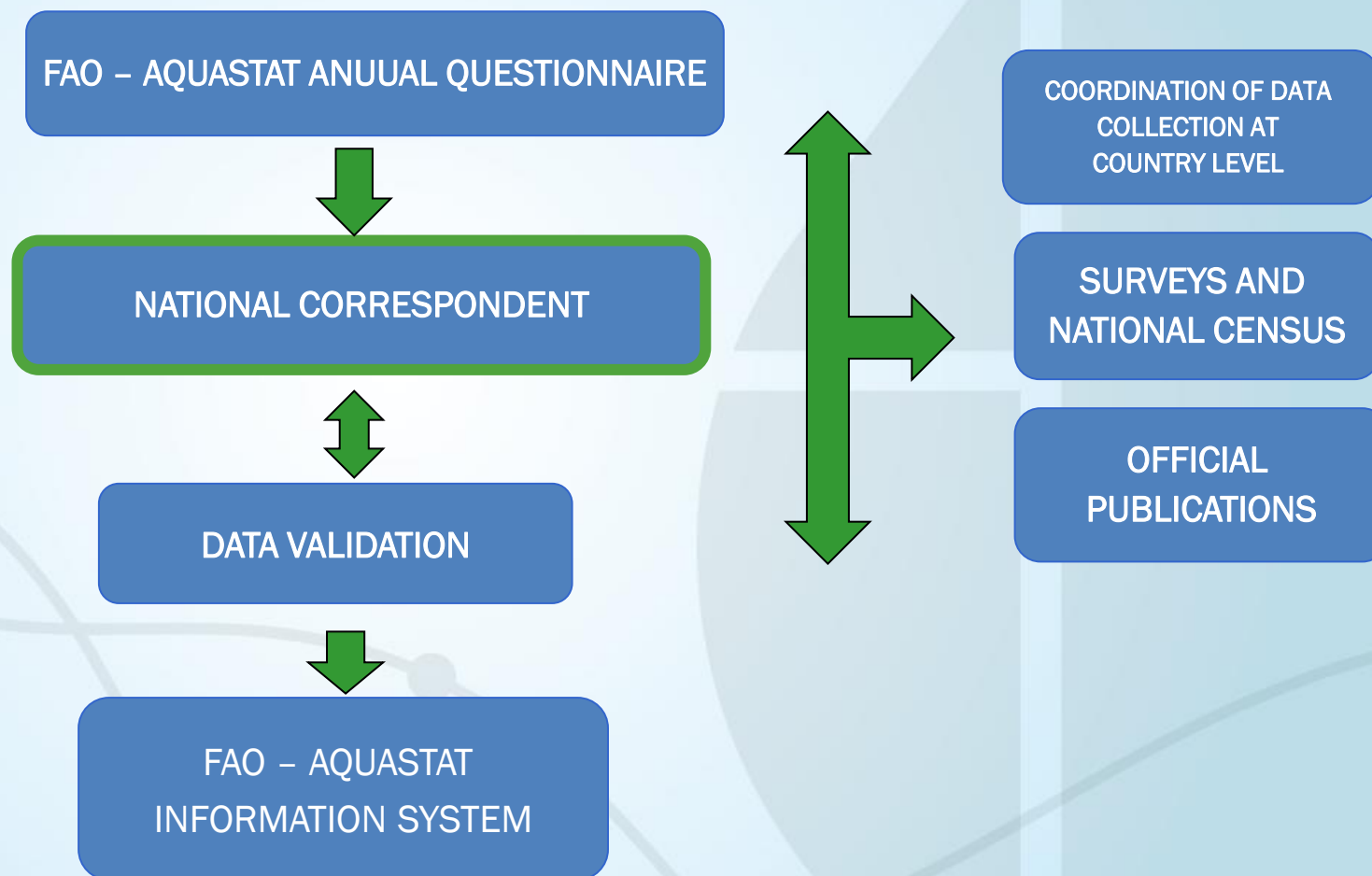
**Year**

2020 x   2019 x   2018 x   x ▼

2017 x

Country	Variable	Unit	Symbol	Year			
				2017	2018	2019	2020
Algeria	SDG 6.4.1. Water Use Efficiency	US\$/m3	E	14.55	14.75	14.74	13.81
	SDG 6.4.2. Water Stress	%	E	137.92	137.92	137.92	137.92
Angola	SDG 6.4.1. Water Use Efficiency	US\$/m3	I	142.49	143.09	138.59	129.00
	SDG 6.4.2. Water Stress	%	E	1.87	1.87	1.87	1.87
Benin	SDG 6.4.1. Water Use Efficiency	US\$/m3	I	33.88	36.11	39.12	39.55
	SDG 6.4.2. Water Stress	%	E	0.98	0.98	0.98	0.98
Botswana	SDG 6.4.1. Water Use Efficiency	US\$/m3	E	71.37	70.48	73.38	61.35
	SDG 6.4.2. Water Stress	%	E	2.02	2.13	2.11	2.31
Burkina Faso	SDG 6.4.1. Water Use Efficiency	US\$/m3	I	11.27	11.85	12.90	13.36
	SDG 6.4.2. Water Stress	%	E	7.82	7.82	7.82	7.82
Burundi	SDG 6.4.1. Water Use Efficiency	US\$/m3	I	6.13	6.71	7.11	7.18
	SDG 6.4.2. Water Stress	%	E	10.19	10.19	10.19	10.19
Cabo Verde	SDG 6.4.1. Water Use Efficiency	US\$/m3	I	51.30	54.05	57.66	49.72
	SDG 6.4.2. Water Stress	%	E	8.43	8.43	8.43	8.43
Cameroon	SDG 6.4.1. Water Use Efficiency	US\$/m3	I	23.86	24.82	25.78	25.05
	SDG 6.4.2. Water Stress	%	E	1.56	1.56	1.56	1.56
Central African Republic	SDG 6.4.1. Water Use Efficiency	US\$/m3	E	16.30	16.88	17.47	17.59
	SDG 6.4.2. Water Stress	%	E	0.34	0.34	0.34	0.34
Chad	SDG 6.4.1. Water Use Efficiency	US\$/m3	I	8.05	9.11	10.05	10.47
	SDG 6.4.2. Water Stress	%	E	4.29	4.29	4.29	4.29
Comoros	SDG 6.4.1. Water Use Efficiency	US\$/m3	I	67.03	67.73	68.83	70.04
	SDG 6.4.2. Water Stress	%	I	0.83	0.83	0.83	0.83

# AQUASTAT – Data collection process



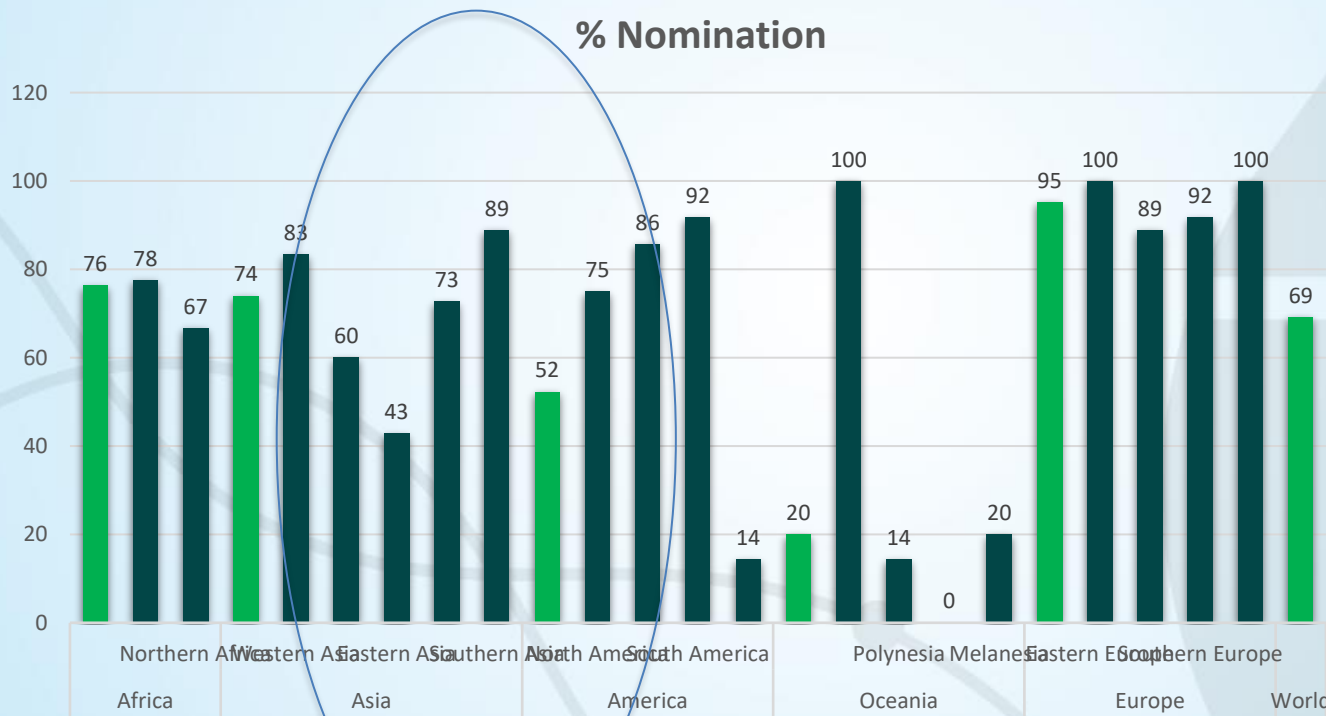
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**AQUASTAT**

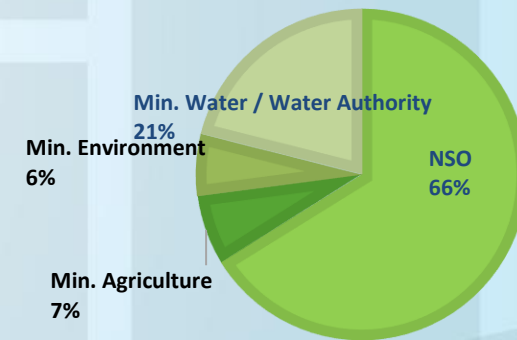


# AQUASTAT – National correspondents

## 150 National Correspondents Nominated



### Organization of the National Correspondents



# AQUASTAT – QUESTIONNAIRE

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

Total Renewable Water Resources

Water withdrawals by sector

Water withdrawals by source

Wastewater

Area under irrigation

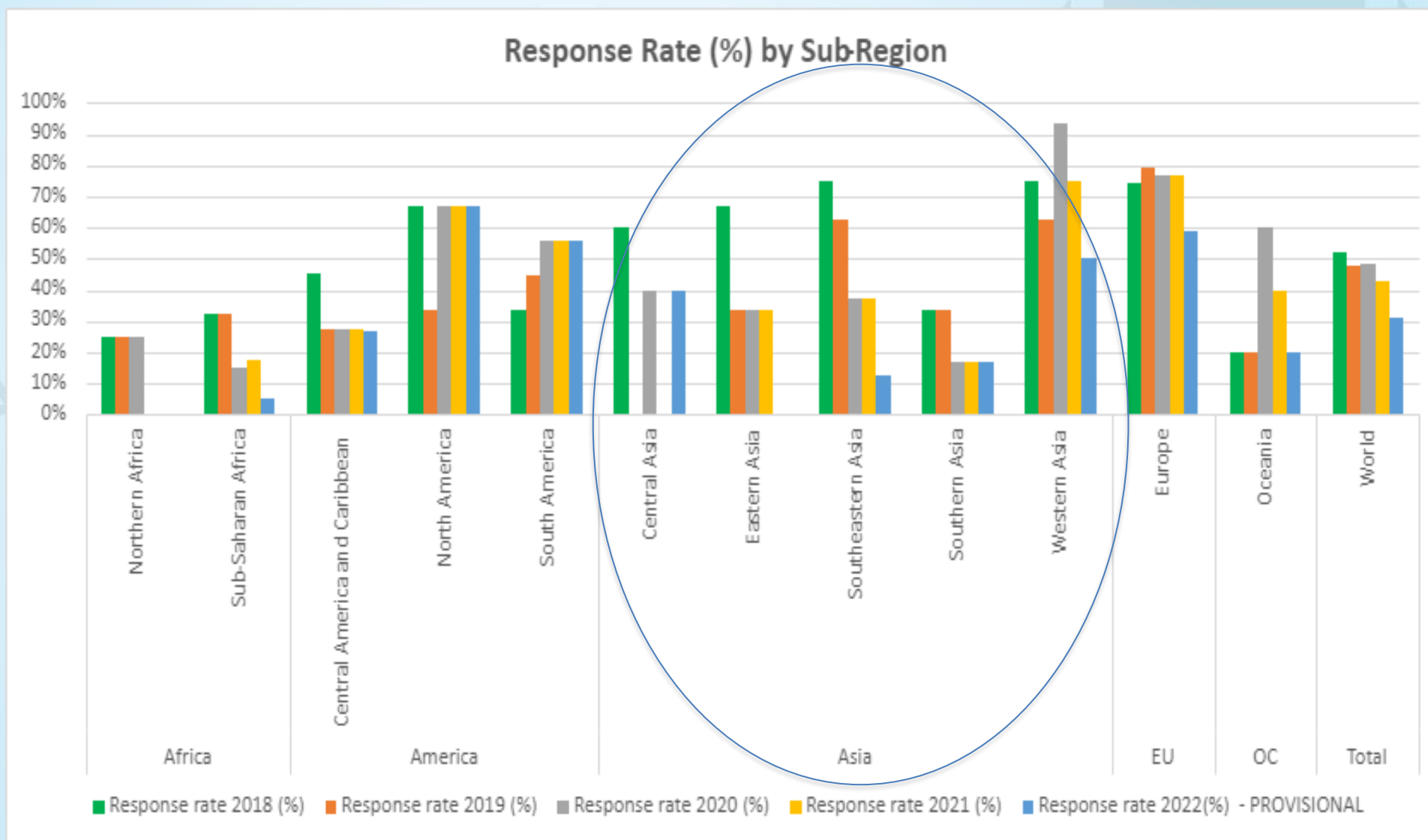
0 Water Resources		Unit	2015	2016	2017
0.1.					
011	Total Renewable Water Resources (Long-term average)	10 <sup>9</sup> m <sup>3</sup> /year			
<b>I Water withdrawals</b>					
<b>I.1. Water withdrawals by sector</b>		Unit	2015	2016	2017
111	Total water withdrawal (1111 + 1112 + 1113)				
1111	Agricultural water withdrawal: total (11111 + 11112 + 11113)				
11111	Water withdrawal for irrigation				
11112	Water withdrawal for livestock (watering and cleaning)				
11113	Water withdrawal for aquaculture	10 <sup>9</sup> m <sup>3</sup> /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)				
<b>I.2. Water withdrawals by source</b>		Unit	2015	2016	2017
121	Total surface water and groundwater withdrawal (freshwater) (1211 + 1212)				
1211	Surface water withdrawal				
1212	Groundwater withdrawal	10 <sup>9</sup> m <sup>3</sup> /year			
122	Desalinated water produced				
123	Direct use of treated municipal wastewater				
124	Direct use of agricultural drainage water				
<b>II Municipal wastewater</b>					
		Unit	2015	2016	2017
21	Produced municipal wastewater				
22	Collected municipal wastewater	10 <sup>9</sup> m <sup>3</sup> /year			
23	Treated municipal wastewater				
<b>III Irrigation and drainage</b>					
		Unit	2015	2016	2017
<b>III.1. Area under agricultural water management</b>					
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				
311123	Area equipped for full control irrigation: sprinkler irrigation				
311124	Area equipped for full control irrigation: localized irrigation	1000 ha			
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				
<b>III.2. Irrigated production</b>					
321	Total harvested irrigated crop area (full control irrigation only)	1000 ha			
<b>III.3. Drainage</b>					
331	Area equipped for irrigation drained	1000 ha			
<b>IV Environment</b>					
		Unit	2015	2016	2017
41	Area salinized by irrigation	1000 ha			

# AQUASTAT – QUESTIONNAIRE SDG calculators

IRRIGATED AGRICULTURE WATER USE EFFICIENCY (Awe)		UNIT	CALCULATION RULES
Ratio between rainfed and irrigated yields	[1] <input type="text" value="0.461"/>	decimals	AQUASTAT data (below) used if no data is entered
Proportion of irrigated land on the total arable land (Ai)	[2] <input type="text" value="0.125"/>	decimals	= [3]/[4]
Irrigated land	[3] <input type="text" value="5800"/>	1000 ha	
Cultivated land	[4] <input type="text" value="46378"/>	1000 ha	
Proportion of agricultural GVA produced by rainfed agriculture (Cr)	[5] <input type="text" value="0.763"/>	decimals	= (1/(1+([2]/((1-[2]) <sup>[1]</sup> ))))
Gross value added by agriculture (excluding river and marine fisheries and forestry)	[7] <input type="text" value="30304481325"/>	USD (2015 price)	
Volume of water used by the agricultural sector (including irrigation, livestock and aquaculture)	[6] <input type="text" value="3.500"/>	km <sup>3</sup>	
<b>Irrigated Agriculture Water Use Efficiency</b>	[8] <input type="text" value="2.049"/>	USD/m <sup>3</sup>	= ([7]*[1-[5]])/[6]*1000000000
MIMEC WATER USE EFFICIENCY (Mwe)			
Gross value added by MIMEC sector (including energy)	[9] <input type="text" value="278000000000"/>	USD (2015 price)	
Volume of water used by the MIMEC sector (including energy)	[10] <input type="text" value="0.500"/>	km <sup>3</sup>	
<b>MIMEC sector Water Use Efficiency</b>	[11] <input type="text" value="556.000"/>	USD/m <sup>3</sup>	= [9]/[10]*1000000000

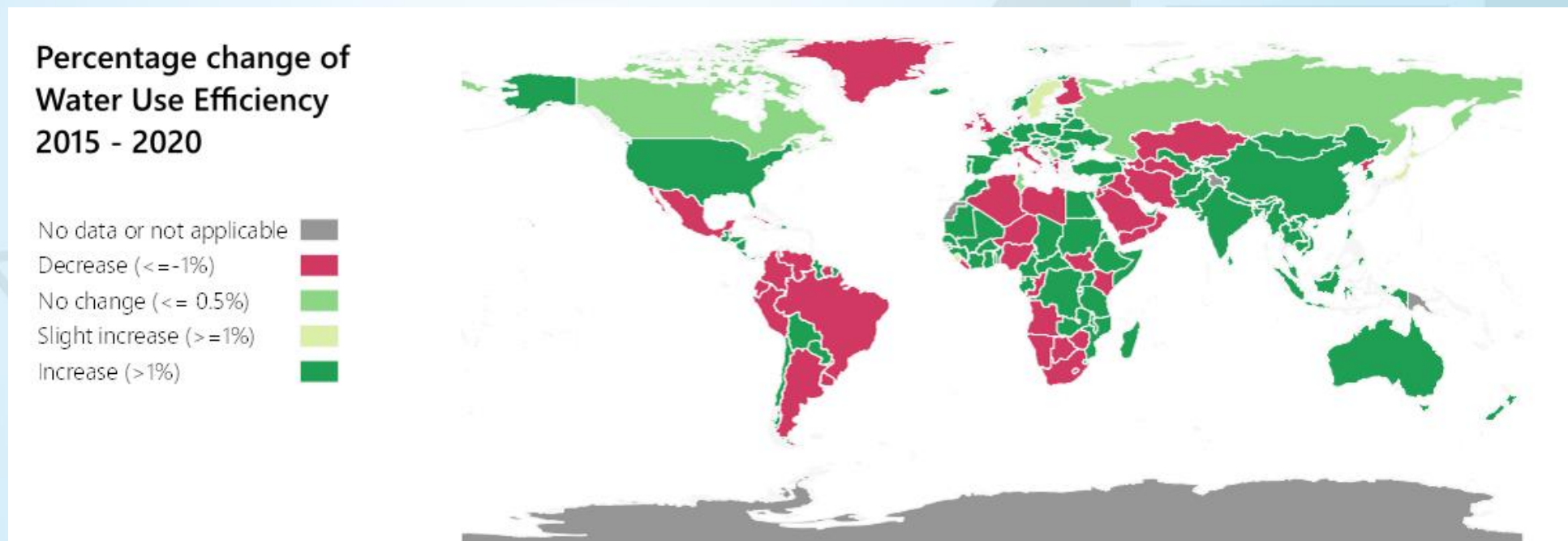
Automatically filled in from data compiled in “National data” worksheet

# Response rate (%) by Sub-region and year



# Change in the water use efficiency 2015 - 2020

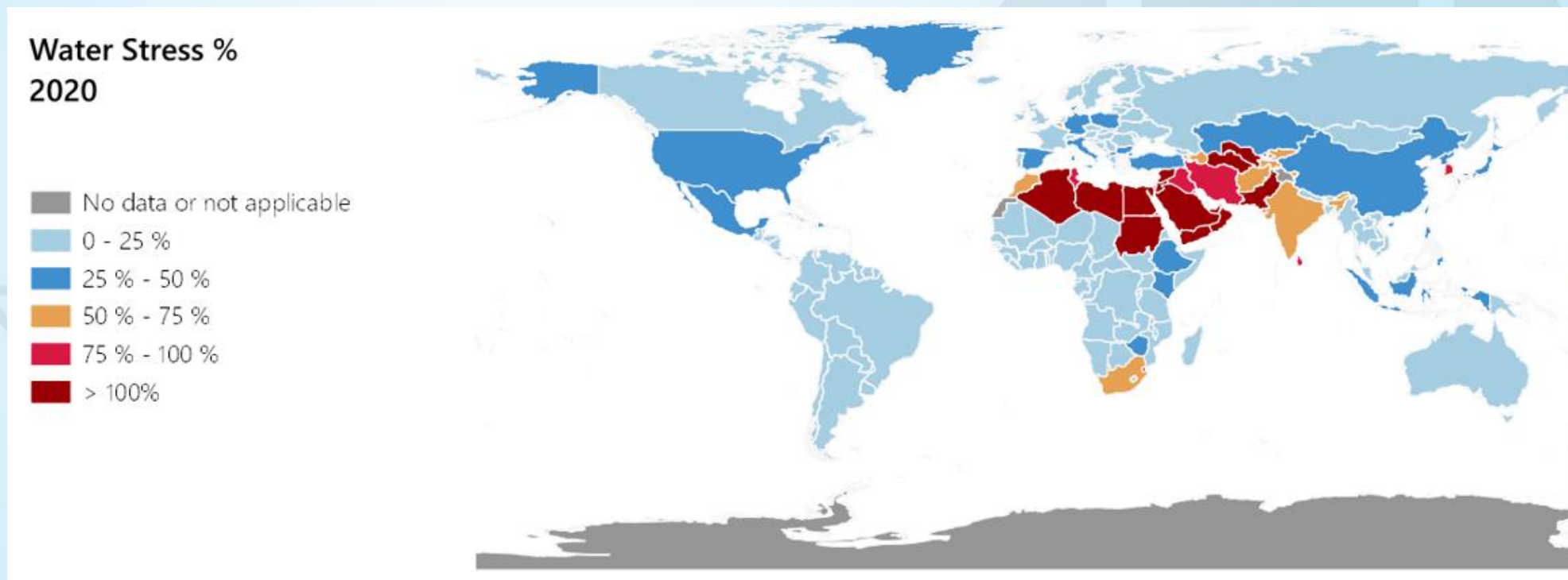
## SDG 6.4.1.



Author's own elaboration. FAO. 2024.

The boundaries used on this map do not imply the expression of any opinion whatsoever on the part of FAO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers and boundaries.

# Water stress level (%) – SDG 6.4.2.



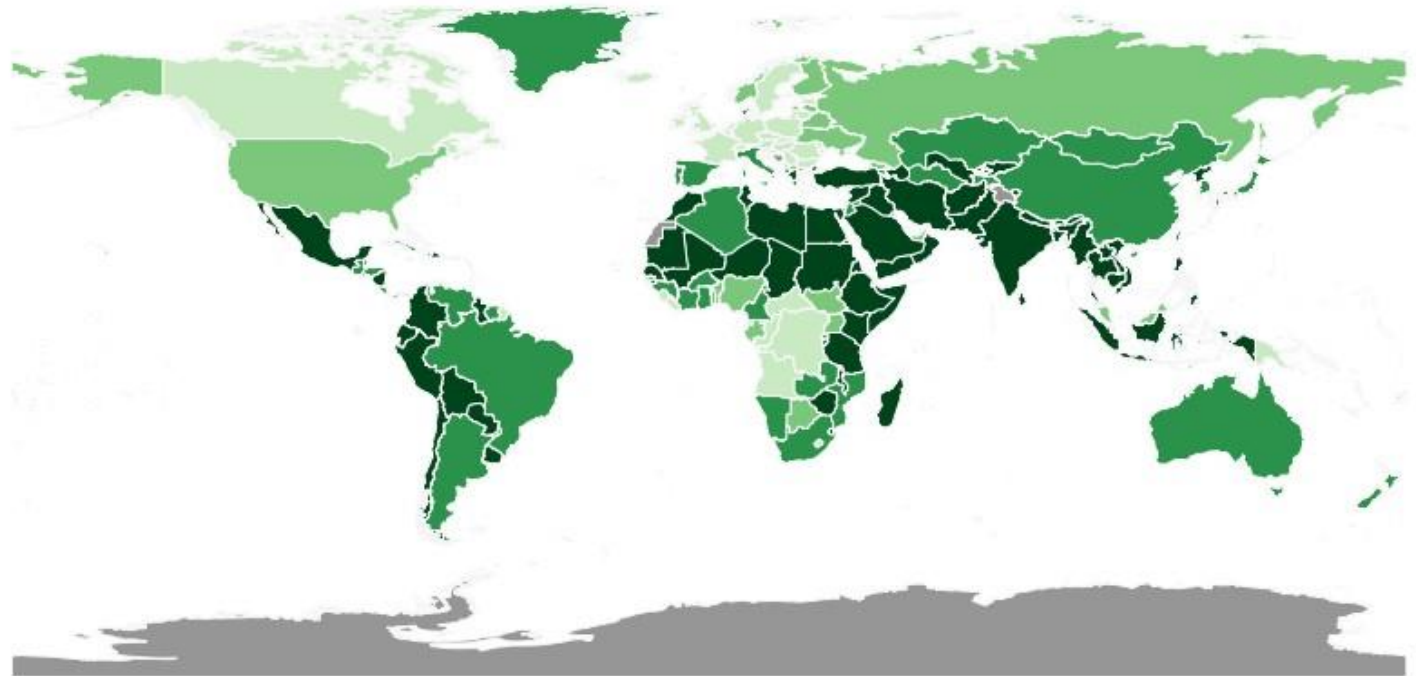
Author's own elaboration. FAO. 2024.

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# Agricultural water withdrawal as share of total water withdrawals (%)

Percentage of agricultural water withdrawal of total water withdrawal 2020

No data or not applicable   
0 - 25 %   
25 % - 50 %   
50 % - 75 %   
75 % - 100 % 



Author's own elaboration. FAO. 2024.

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# Opportunities to improve SDG 6.4 monitoring process in the Region

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- Increase the response rate – imputed data to calculate SDG 6.4.
- Improve quality of data: Incomplete questionnaires
- Improve institutional coordination at national level
- Harmonization of methodologies for the calculation of SDG 6.4. indicators at national level





**Thank you**

**For more detailed information on AQUASTAT**

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**[WWW.FAO.ORG/AQUASTAT](http://WWW.FAO.ORG/AQUASTAT)**