Economic and Social Commission for Western Asia

Use of Geospatial Information in Compilation of SDGs Environment Indicators and Disaster Risk Management

SDG 6.6.1: Change in the extent of water-related ecosystems over time

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Regional Workshop Integration of Big Data and Geospatial Information for the Compilation of SDG Indicators in Arab Countries

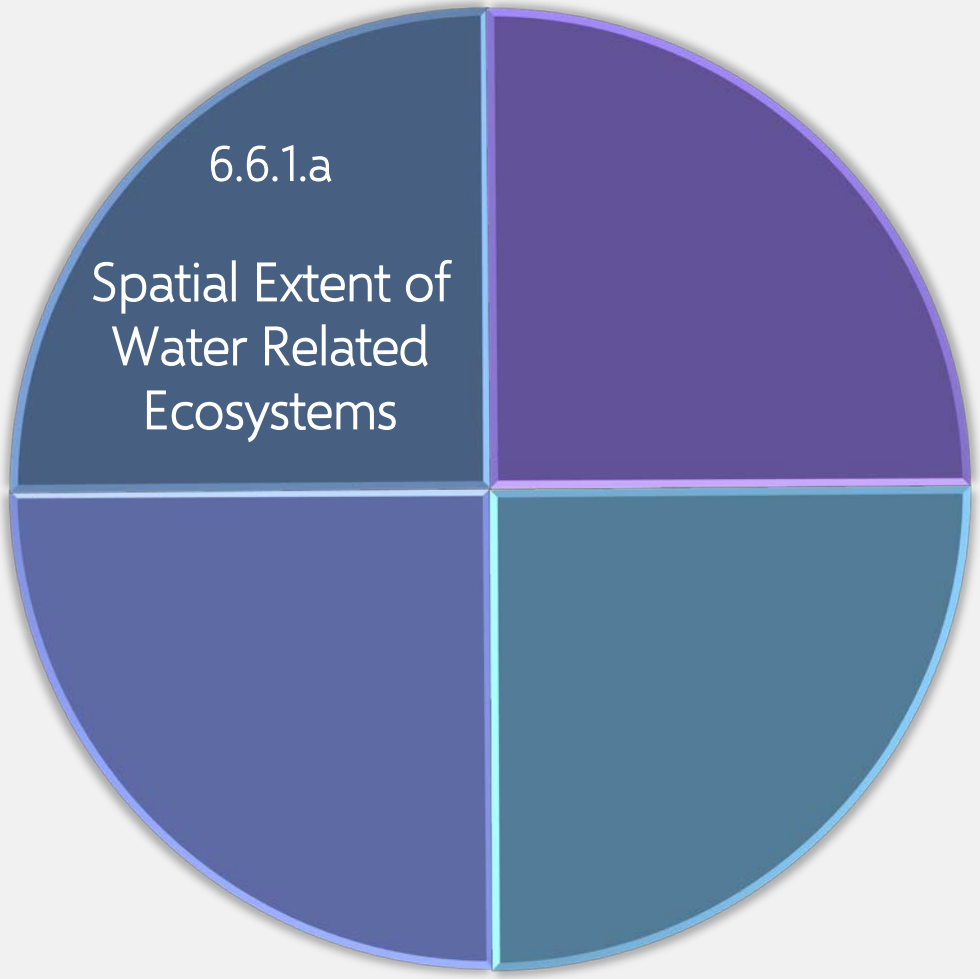
13 - 15 October 2020

Target 6.6 Aims to Protect and Restore Water-Related Ecosystems

Why protect water-related ecosystems

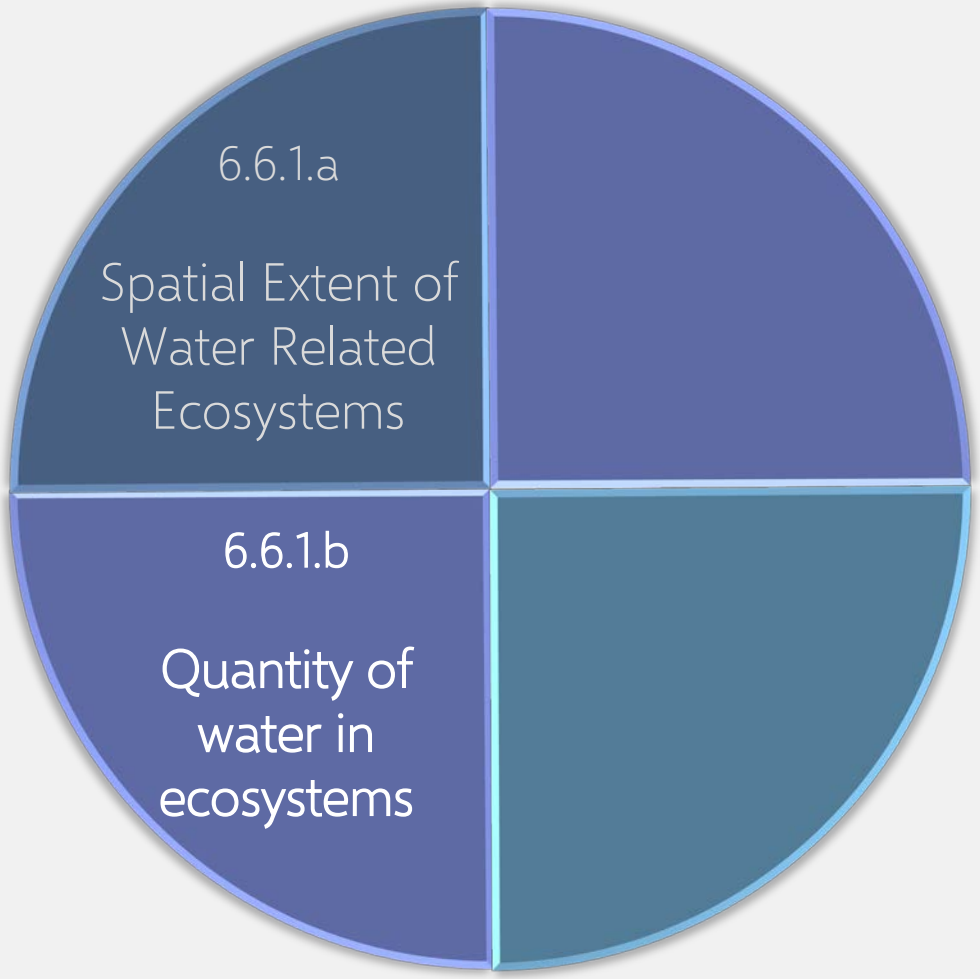
- Essential resource for food and water
- Plant and animal habitat
- Drought and flood protection
- Sustain global hydrological, carbon, and nutrient cycles
- Support agricultural, employment, energy, navigational, recreational, and tourism development
- Help mitigate climate change

6.6.1 Sub-indicators



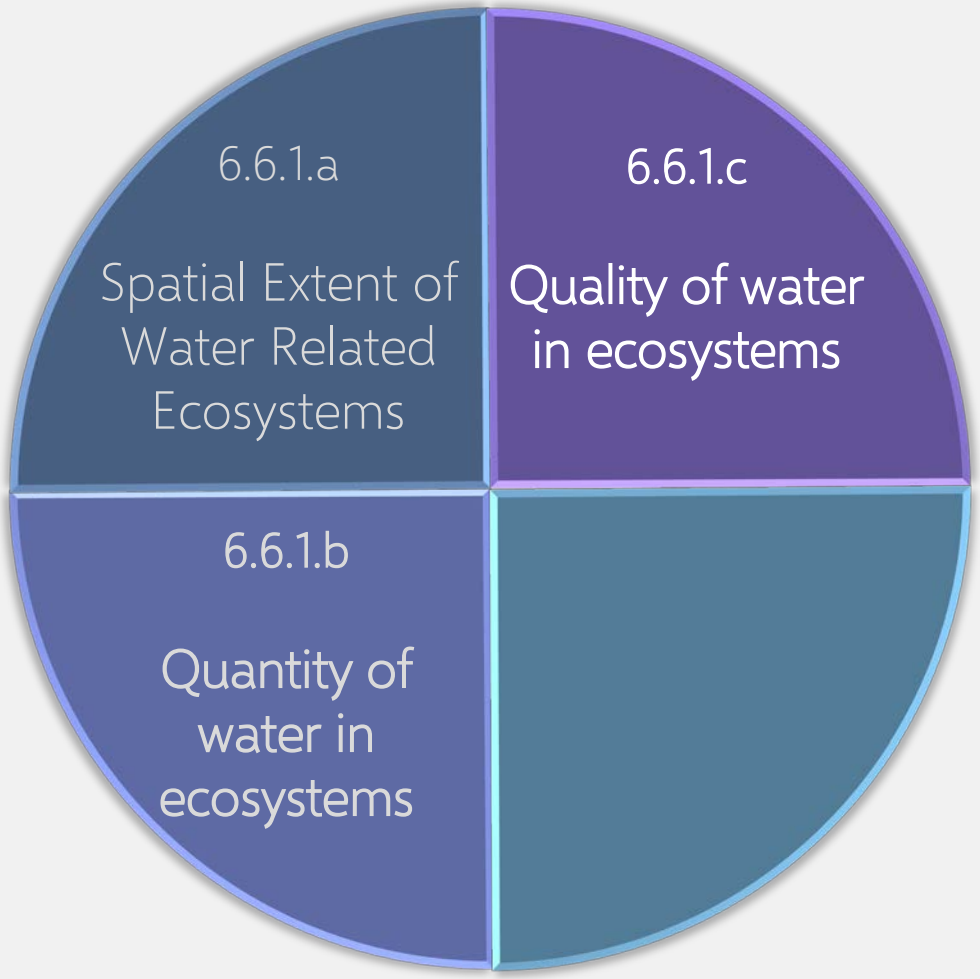
- Measures the geographic or spatial extent of wetlands and inland open water bodies
- Measurement provides indication of the availability of these ecosystems and the potential to provide services

6.6.1 Sub-indicators



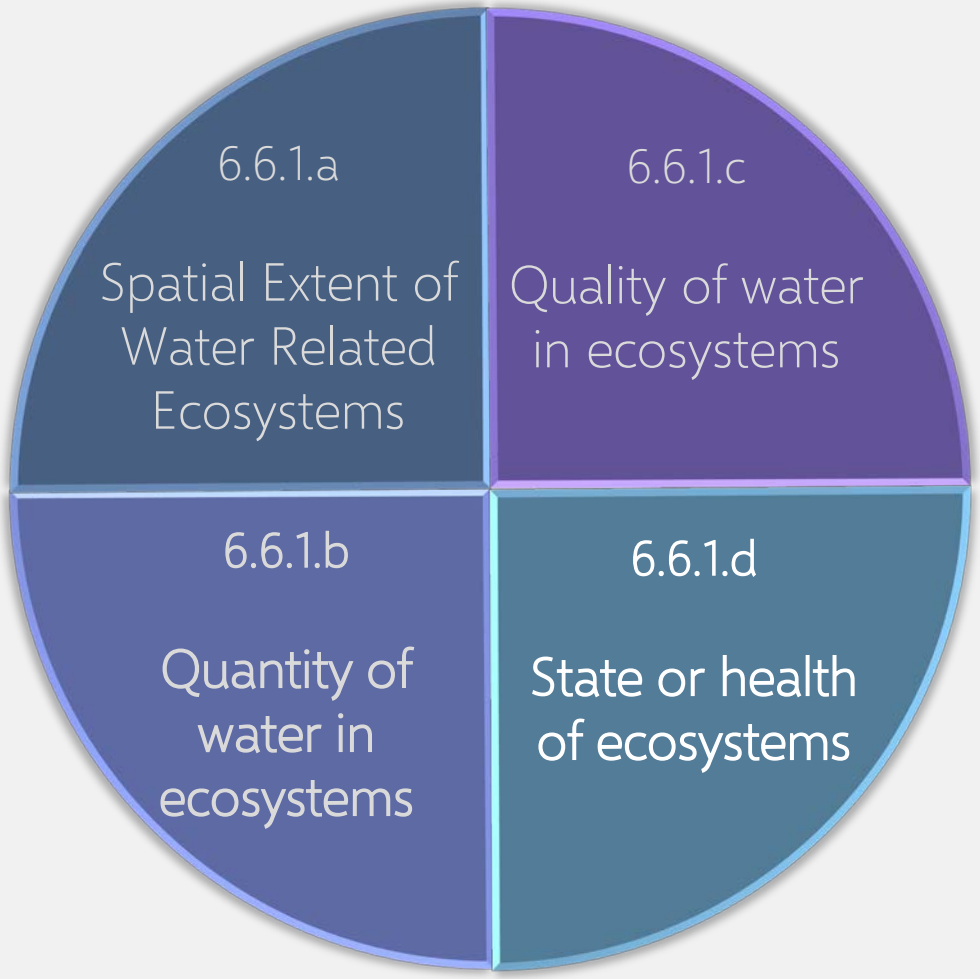
- Measure the quantity of water (streamflow, lake and reservoir volume, and groundwater)
- Water withdrawals can have dramatic impact on ecosystem

6.6.1 Sub-indicators



- Data from 6.3.2 – Percentage of water bodies with good ambient water quality
- Limited to few surface water variables

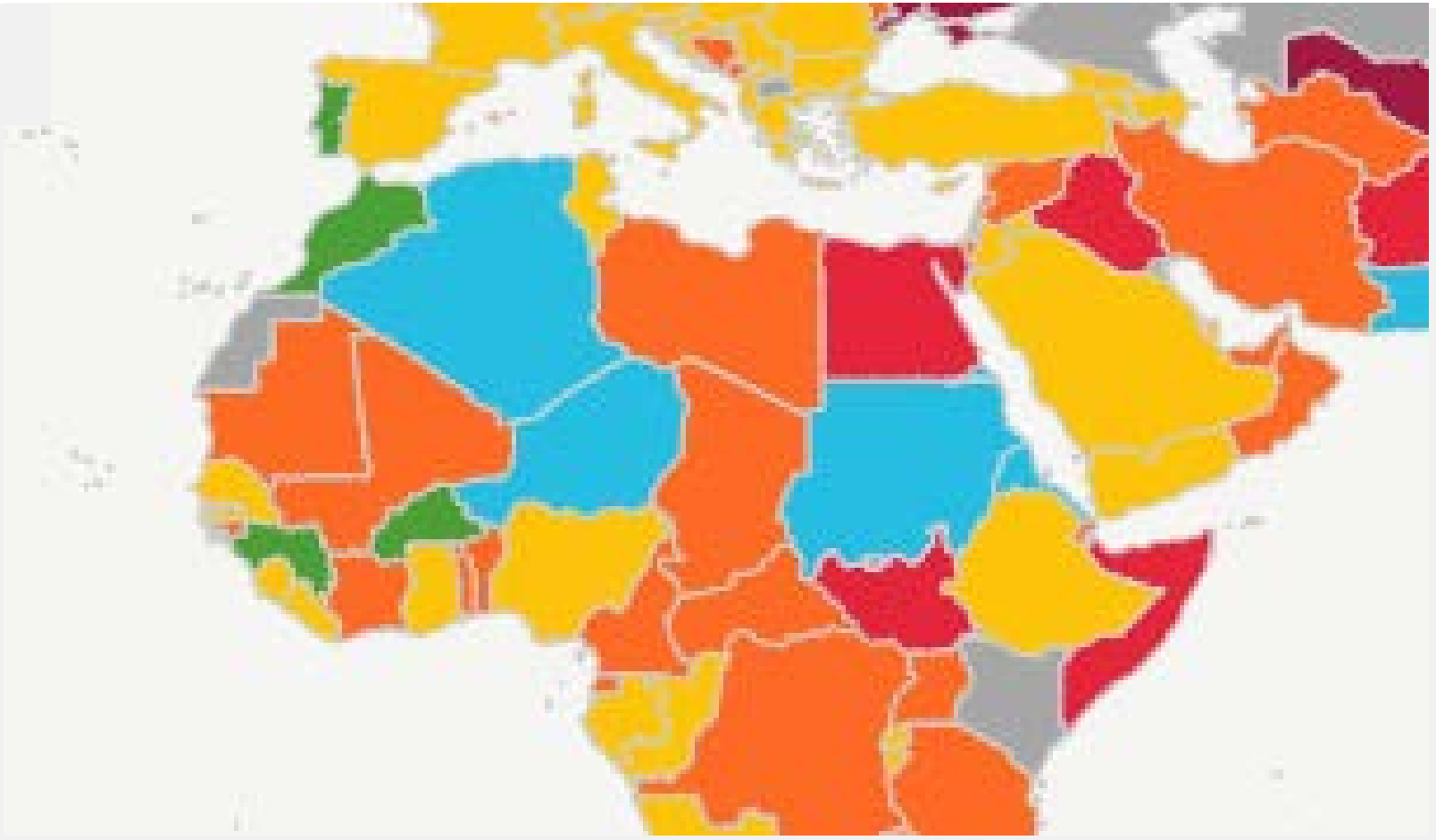
6.6.1 Sub-indicators



- National indicator (not part of aggregated 6.6.1 index)

6.6.1 Status (2016)

Percentage change from baseline reference 2001-2005 (%)



Geo-spatial data can help with SDG reporting

- Geospatial data (i.e. GIS) describes the location and relationship of features (i.e. land cover, water bodies) on the Earth’s surface
- ~ 20% of SDG indicators can be interpreted or measured using GIS data (alone or combined with statistical data)

The Freshwater Ecosystems Explorer is a free and easy to use data platform. It provides accurate, up-to-date, high-resolution geospatial data depicting the extent freshwater ecosystems change over time.

By helping decision-makers understand dynamic ecosystem changes, the data presented on this open access platform is intended to drive action to protect and restore freshwater ecosystems and enable countries to track progress towards the achievement of Sustainable Development Goal Target 6.6. Data can be visualized and downloaded at national, sub-national and basin levels. Data is available for the following:

Permanent & Seasonal Surface Waters | Reservoirs | Wetlands | Mangroves | Water Quality

https://www.sdg661.app/home

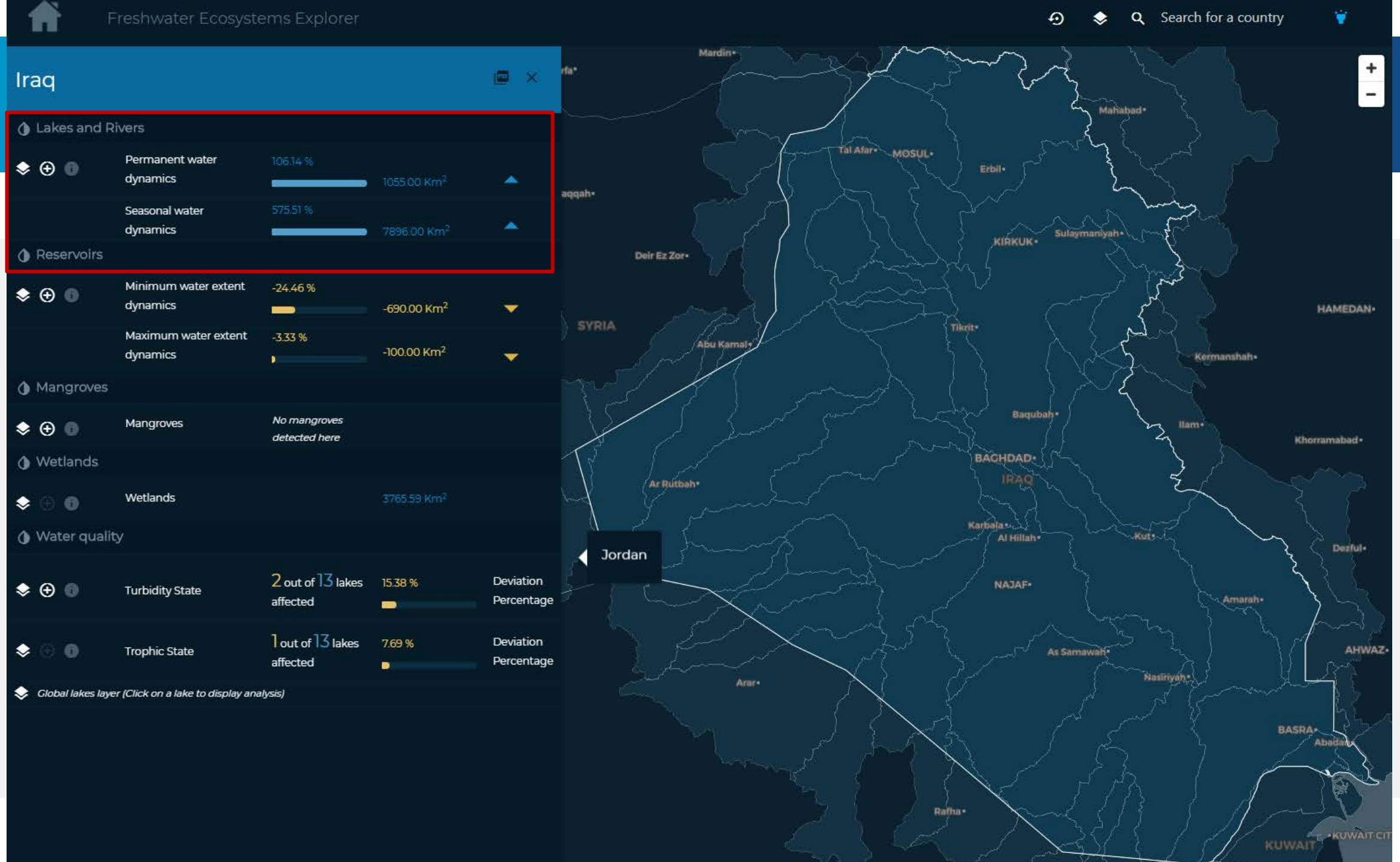
All data on the site is updated annually and produced to align with the SDG indicator 6.6.1 methodology.

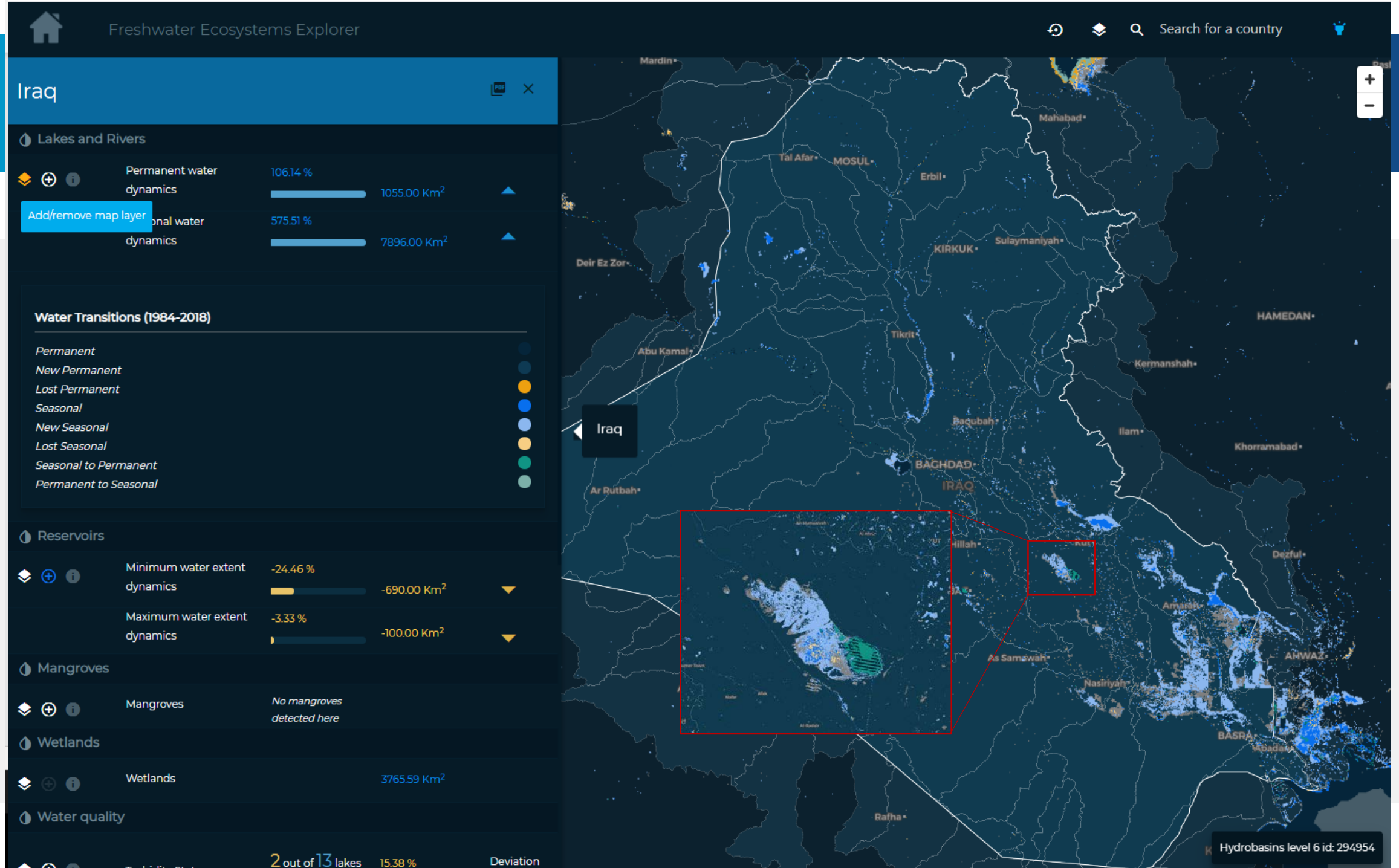
The United Nations Environment Programme is the custodian agency for SDG indicator 6.6.1.

Freshwater Ecosystems Interactive Map

Explore the interactive map showing statistics on the change in extent of freshwater ecosystems for national, sub-national, and basin levels boundaries.

ACCESS MAP HERE


Freshwater Ecosystems Explorer
Search for a country
Iraq
Lakes and Rivers
Permanent water dynamics
106.14 %
1055.00 Km²
Seasonal water dynamics
575.51 %
7896.00 Km²
Reservoirs
Minimum water extent dynamics
-24.46 %
-690.00 Km²
Maximum water extent dynamics
-3.33 %
-100.00 Km²
Mangroves
Mangroves
No mangroves detected here
Wetlands
Wetlands
3765.59 Km²
Water quality
Turbidity State
2 out of 13 lakes affected
15.38 %
Deviation Percentage
Trophic State
1 out of 13 lakes affected
7.69 %
Deviation Percentage
Global lakes layer (Click on a lake to display analysis)
Jordan
SYRIA
IRAQ
KUWAIT
Mardin
Mahabad
Tal Afar
MOSUL
Erbil
aqqah
KIRKUK
Sulaymaniyah
Deir Ez Zor
HAMEDAN
Tikrit
Abu Kamal
Kermanshah
Baqubah
Ilam
Khorramabad
BAGHDAD
Ar Rutbah
Karbala
Al Hillah
Kut
Dezful
NAJAF
Amarah
As Samawah
AHWAZ
Nasiriyah
Arar
BASRA
Abadan
Rafha
KUWAIT CIT


Freshwater Ecosystems Explorer
Search for a country
Iraq
Lakes and Rivers
Permanent water dynamics
106.14 %
1055.00 Km²
Add/remove map layer
575.51 %
7896.00 Km²
Water Transitions (1984-2018)
Permanent
New Permanent
Lost Permanent
Seasonal
New Seasonal
Lost Seasonal
Seasonal to Permanent
Permanent to Seasonal
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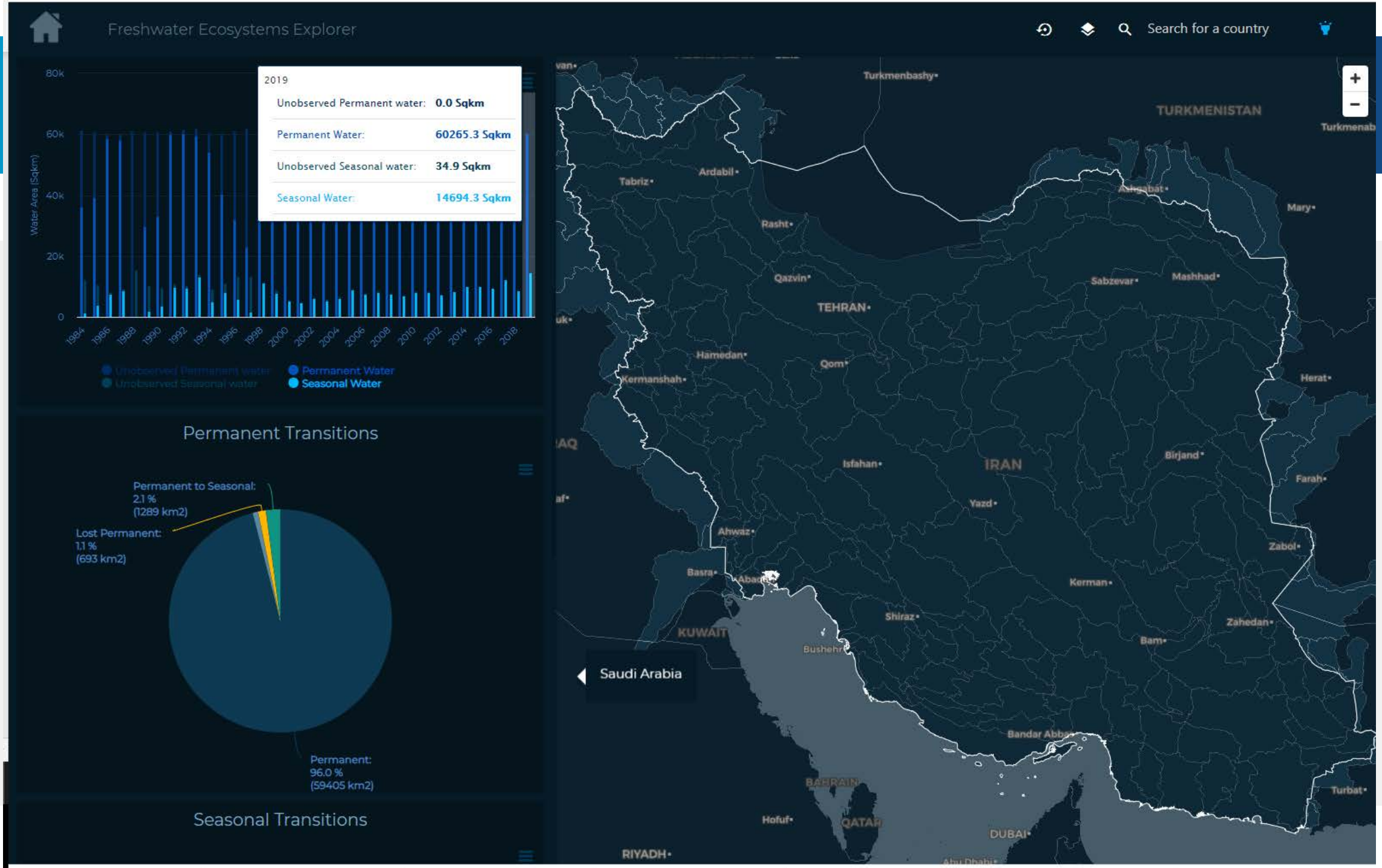
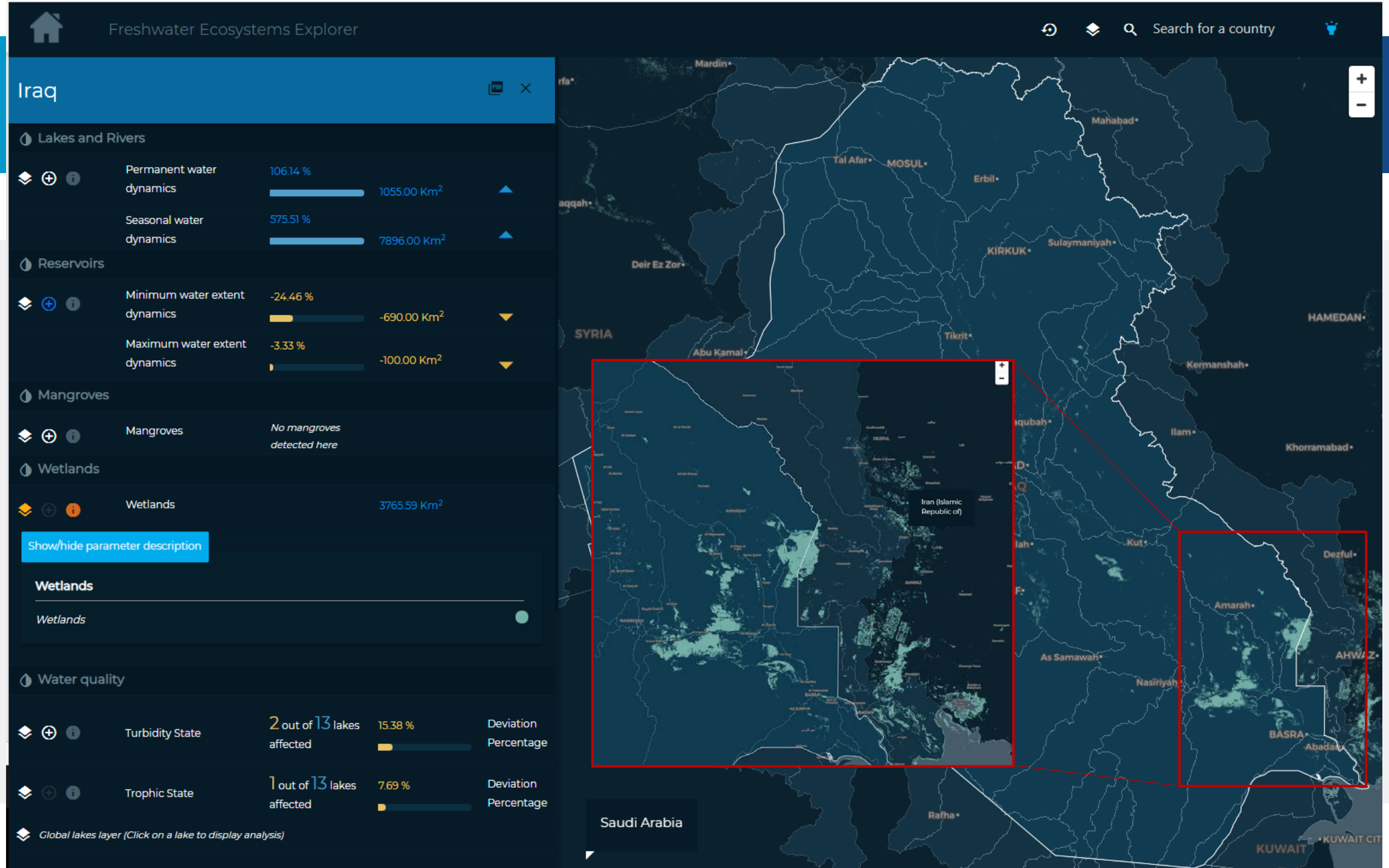
Abu Kamal
HAMEDAN
Kermanshah
Baqubah
Ilam
Khorramabad
BAGHDAD
IRAQ
Ar Rutbah
Dezful
Amarah
As Samawah
AHWAZ
Nasiriyah
BASRA
Rafha
Hydrobasins level 6 id: 294954


Freshwater Ecosystems Explorer
Search for a country
2019
Unobserved Permanent water: 0.0 Sqkm
Permanent Water: 60265.3 Sqkm
Unobserved Seasonal water: 34.9 Sqkm
Seasonal Water: 14694.3 Sqkm
Water Area (Sqkm)
80k
60k
40k
20k
0
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012
2014
2016
2018
Unobserved Permanent water
Unobserved Seasonal water
Permanent Water
Seasonal Water
Permanent Transitions
Permanent to Seasonal:
2.1 %
(1289 km2)
Lost Permanent:
1.1 %
(693 km2)
Permanent:
96.0 %
(59405 km2)
Seasonal Transitions
Turkmenbashy
TURKMENISTAN
Ardabil
Tabriz
Rasht
Qazvin
TEHRAN
Sabzevar
Mashhad
Mary
Hamedan
Qom
Kermanshah
Herat
Isfahan
IRAN
Birjand
Farah
Yazd
Ahwaz
Zabol
Basra
Kerman
Shiraz
Zahedan
KUWAIT
Bushehr
Bam
Saudi Arabia
Bandar Abbas
BAHRAIN
Turbat
Hofuf
QATAR
DUBAI
RIYADH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Show/hide parameter description
Wetlands
Wetlands
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Ilam
Khorramabad
Iran (Islamic Republic of)
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Dezful
Amarah
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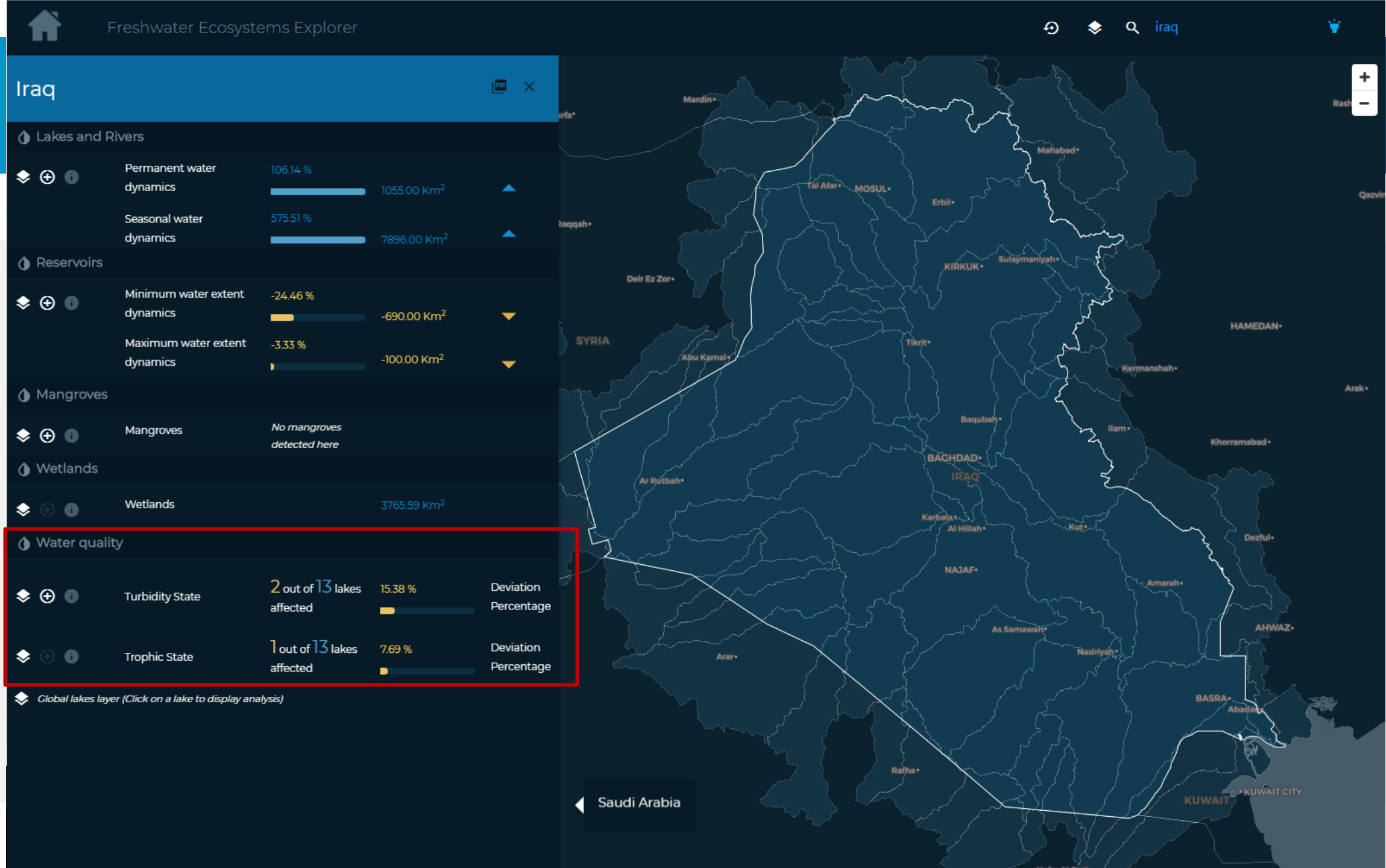
Abadan
Rafha
Saudi Arabia
KUWAIT


Freshwater Ecosystems Explorer
iraq
Iraq
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KUWAIT
KUWAIT CITY
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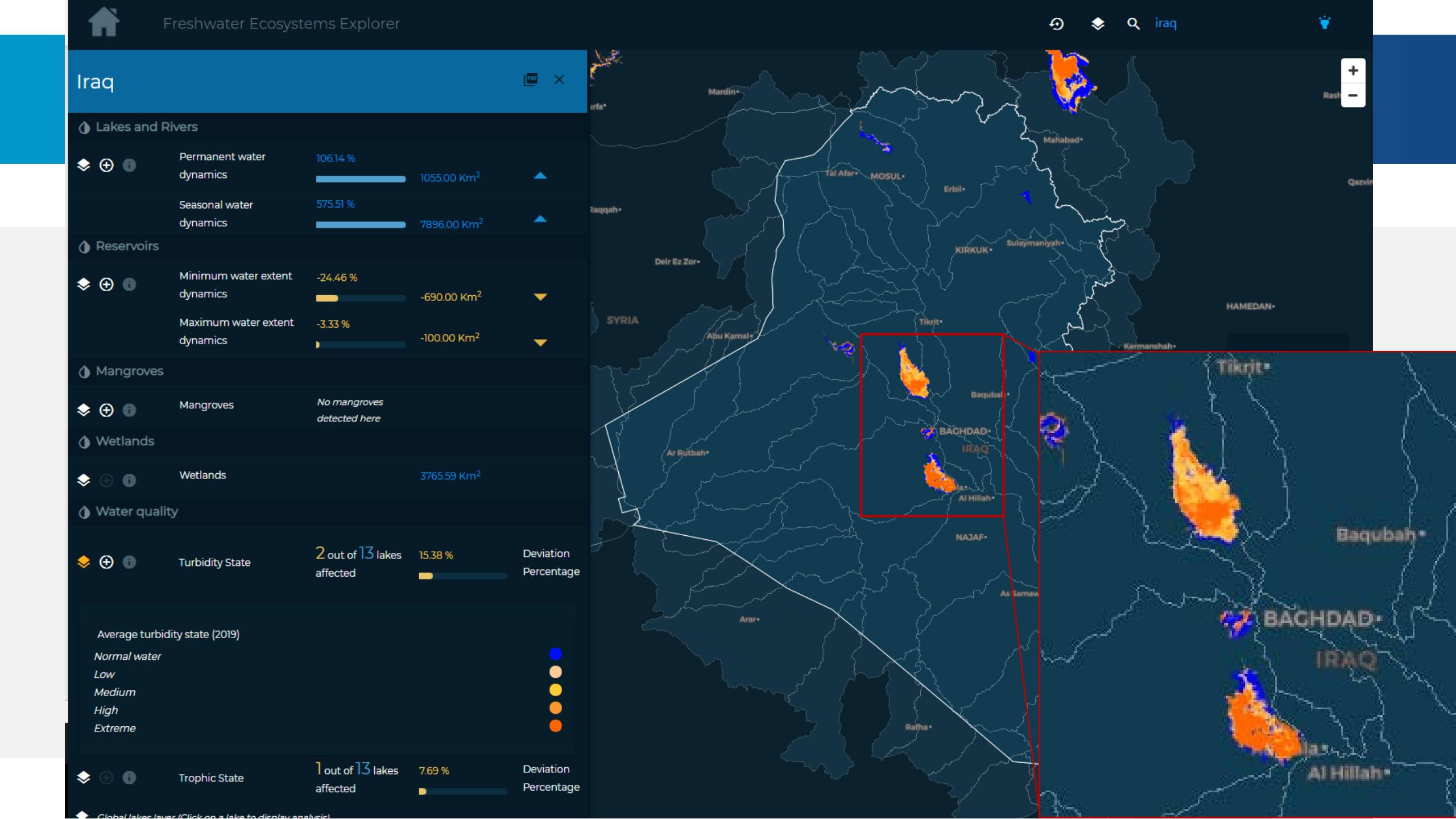
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Deviation Percentage
Average turbidity state (2019)
Normal water
Low
Medium
High
Extreme
Trophic State
1 out of 13 lakes affected
7.69 %
Deviation Percentage
Global lakes layer (Click on a lake to display analysis)
Mardin
Mahabad
Tal Afar
MOSUL
Erbil
Raqqah
Deir Ez Zor
KIRKUK
Sulaymaniyah
SYRIA
Abu Kamal
Tikrit
HAMEDAN
Kermanshah
Baqubah
BAGHDAD
IRAQ
Ar Rutbah
Al Hillah
NAJAF
Arar
Rafha
Qazvin

Water Body Extent – Permanent

(square km)

	UN Stats 2018	SDG 6.6.1 site				UN Stats 2018	SDG 6.6.1 site		
		Perm	Seas	Total			Perm	Seas	Total
Algeria	386	89.1			Morocco	590	113		
Bahrain	52.6	5.1	-90%		Oman	242	33.9		
Comoros	5.15	3.7			State of Palestine	NA	178		
Djibouti	143	126			Qatar	176	19.2		
Egypt	6,519	2,093			Saudi Arabia	1,529	164	-89%	
Iraq	4,338	1,143			Somalia	57.0	24.4		
Jordan	445	436			Sudan	1,878	1,154		
Kuwait	89.8	29.8			Syrian Arab Republic	981	299		
Lebanon	17.3	1.2			Tunisia	298	73.9		
Libya	60.5	50.6			United Arab Emirates	170	30.6		
Mauritania	159	30.2			Yemen	915	53.5	-94%	

Water Body Extent – Permanent

(square km)

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Algeria	386	89.1	2,225	2,314	Morocco	590	113	299	411
Bahrain -68%	52.6	5.1	11.8	16.9	Oman	242	33.9	291	324.8
Comoros	5.15	3.7	5.6	9.3	State of Palestine	NA	178	3.7	182
Djibouti	143	126	292	418	Qatar -46%	176	19.2	76.1	95.3
Egypt	6,519	2,093	2,086	4,179	Saudi Arabia	1,529	164	1,004	1,167
Iraq	4,338	1,143	4,245	5,389	Somalia	57.0	24.4	671	695
Jordan	445	436	58.9	495	Sudan	1,878	1,154	1,680	2,834
Kuwait	89.8	29.8	194	223	Syrian Arab Republic	981	299	608	908
Lebanon -71%	17.3	1.2	3.9	5.1	Tunisia	298	73.9	1,113	1,187
Libya	60.5	50.6	463	514	United Arab Emirates	170	30.6	177	208
Mauritania	159	30.2	1,462	1,492	Yemen	915	53.5	271	325

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(square km)

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Final Remarks

- Use of remotely-sensed GIS data can assist with SDG reporting
- Remotely-sensed data can also help obtain data that may be difficult to measure (i.e. water quality)
- However, remotely-sensed GIS data does not replace monitoring data and local information

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