

Annex to chapter 6

1. Data for SDG 6

SDG 6 comprises 8 targets and a total of 11 indicators (six of which contain multiple subindicators). Four of the 11 indicators are tier I and seven are tier II. There are no tier III indicators for SDG 6.

The United Nations Statistics Division provides data sets for a total of nine indicators: 6.1.1 - Proportion of population using safely managed drinking water services; 6.2.1 - Proportion of population using (a) safely managed sanitation services and (b) a hand-washing facility with soap and water; 6.3.2 - Proportion of bodies of water with good ambient water quality; 6.4.2 - Level of water stress: freshwater withdrawal as a proportion of available freshwater resources; 6.5.1 - Degree of integrated water resources management implementation (0–100); 6.5.2 - Proportion of transboundary basin area with an operational arrangement for water cooperation; 6.6.1 - Change in the extent of water-related ecosystems over time; 6.a.1 - Amount of water- and sanitation-related official development assistance that is part of a government-coordinated spending plan; and 6.b.1 - Proportion of local administrative units with established and operational policies and procedures for participation of local communities in water and sanitation management.

None of the provided data sets include sex disaggregated data.

The data used in the analysis of SDG 6 was downloaded on 20 September 2018. After a country level data check following a major update of the Global SDG Indicators Database of the United Nations Statistics Division on 8 July 2019, the data series of 6.4.2 (Level of water stress: freshwater withdrawal as a proportion of available freshwater resources), 6.a.1 (Amount of water- and sanitation-related official development assistance that is part of a government-coordinated spending plan) and each of the three subindicators of 6.2.1 (Proportion of population using (a) safely managed sanitation services and (b) a hand-washing facility with soap and water) are replaced with amended data.

We examine data availability in the Arab region and implement data substitution, when needed, based on the criterion of having to cover half or more of the total population of the Arab region and at least one third of the Arab countries for an indicator/subindicator to be kept in the analysis. This leads us to drop 6.1.1, 6.3.2 and 6.5.2, one of the two series of indicator 6.5.1, 12 of the 16 series of indicator 6.6.1 and seven of the eight series of indicator 6.b.1. Additionally, when there are many subindicators that mean the same (or are similar) but are expressed differently (as in the case of the four remaining subindicators under 6.6.1), we choose the subindicator that is more representative and easier to interpret, and has more data availability. Therefore, we drop three of the remaining four subindicators of 6.6.1 and we only keep “Water body extent (permanent and maybe permanent) (percentage of total land area)”.

Indicator 6.5.1 has two series: “Degree of integrated water resources management implementation (0–100)”, and “Proportion of countries by IWRM implementation category (percentage)”, where the second series is only calculated for predetermined geographical groups and not on the country or territory level. Therefore, we only keep the first series, and we drop the second one. We note again that 6.6.1 has four series with sufficiently available data for Arab countries: “Water body extent (permanent) (square kilometres)”, “Water body extent (permanent and maybe permanent) (square kilometres)”, “Water body extent (permanent and maybe permanent) (percentage of total land area)”, and “Water body extent (permanent) (percentage of total land area)”, where the latter two mean the same as the former two but are expressed differently, in percentage. Since the values of the “permanent and maybe permanent” category are slightly higher than those of the “permanent” category, the broader category (i.e. the former) and, particularly, the version of it that is expressed as a proportion of total land area is selected for comparison purposes. In other terms, we only keep the third series, which is also the most meaningful and representative of the indicator, and we drop the other three series.

Concerning the remaining series of 6.5.1 “Degree of integrated water resources management implementation (0–100)” and the third series of 6.4.2 (Proportion of population using safely managed sanitation services, by urban/rural (percentage)), since data availability is nearly complete for our base year (2017) and thus no substitution was possible within the considered time interval (2009–2017).

The rest of the indicators or subindicators are subject to our data substitution scheme for the year 2017, considering data spanning 2009–2017. Table 6.1 shows the number of substituted data points for each year, including those from Arab countries.

Table 6.1 Data substitution scheme for selected indicators and subindicators

Indicator or subindicator	Number of substituted data points (Arab)	Year
	10 (1)	2016
	3 (0)	2015
6.2.1 (Proportion of population practicing open defecation, by urban/rural (percentage))	2 (0)	2014
	1 (0)	2013
	1 (0)	2012
	6 (1)	2016
6.2.1 (Proportion of population with basic handwashing facilities on premises, by urban/rural (percentage))	6 (0)	2015
	4 (0)	2014
	1 (0)	2010
6.4.2 (Level of water stress: freshwater withdrawal as a proportion of available freshwater resources (percentage))	57 (8)	2015
	40 (3)	2010
6.6.1 (Water body extent (permanent and maybe permanent) (percentage of total land area))	230 (21)	2016
	1 (0)	2014
6.a.1 (Total official development assistance (gross disbursement) for water supply and sanitation, by recipient countries (millions of constant 2017 United States dollars))	1 (0)	2013
	2 (0)	2011
	5 (1)	2010
6.b.1 (Countries with procedures in law or policy for participation by service users/communities in planning programme in rural drinking-water supply, by level of definition in procedures (10 = Clearly defined; 5 = Not clearly defined; 0 = NA))	28 (8)	2014
	4 (1)	2012

For 6.a.1 (Total official development assistance (gross disbursement) for water supply and sanitation, by recipient countries), the data set provided by the United Nations Statistics Division only includes recipient countries/territories and omits the donor countries/territories, which are considered as zeros when the series' regional and global aggregates are calculated using a total sum. Hence, we consider that 22 instead of 17 Arab countries are covered by data for this indicator, knowing that the six members of the Gulf Cooperation Council are donor countries whose missing data values in the original data set are equivalent to zeros.

As for 6.b.1, we note that we replace all the "NA" values (i.e. the zeros) in the corresponding original data set provided by the United Nations Statistics Division with missing points. We do this before data substitution which leads to only keeping one series (Countries with procedures in law or policy for participation by service users/communities in planning programme in rural drinking-water supply, by level of definition in procedures (10 = Clearly defined; 5 = Not clearly defined; 0 = NA)), as mentioned above. The preserved series addresses rural areas only.

This leaves us with eight integral indicators/subindicators with which we can assess the position of the region, as noted in box 6.1.

Box 6.1	Summary list of preserved and examined indicators/subindicators
	<ul style="list-style-type: none"> • Indicator 6.2.1 – 3 series out of 3 – Proportion of population using (a) safely managed sanitation services and (b) a hand-washing facility with soap and water • Indicator 6.4.2 – Level of water stress: freshwater withdrawal as a proportion of available freshwater resources • Indicator 6.5.1 – 1 series out of 2 – Degree of integrated water resources management implementation (0–100) • Indicator 6.6.1 – 1 series out of 16 – Change in the extent of water-related ecosystems over time • Indicator 6.a.1 – Amount of water- and sanitation-related official development assistance that is part of a government-coordinated spending plan • Indicator 6.b.1 – 1 series out of 8 – Proportion of local administrative units with established and operational policies and procedures for participation of local communities in water and sanitation management

Accordingly, six targets are evaluated, however, we lose the ability to determine the region’s position on the rest of the targets and indicators as noted in box 6.2.

Box 6.2	Summary list of omitted targets
	<ul style="list-style-type: none"> • 6.1 By 2030, achieve universal and equitable access to safe and affordable drinking water for all • 6.3 By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally

The non-featured indicators, which were not included in the global SDG database, are also shown in table 6.2 on targets, indicators, tiers and data availability in Arab countries for SDG 6.

Annex 6.2 for a graph for each of the evaluated series/indicators, showing the country level data values of the series/indicator for the years whose data points were used for every included country.

The global, regional and subregional aggregates of 6.a.1 and the preserved series of 6.6.1 are calculated using a total sum, whereas the aggregates of the preserved series of 6.5.1 are calculated using a simple arithmetic mean. The aggregates of all the other series and indicators are calculated using a weighted average. The method of aggregation, in general, as well as the weighting variables to be used for the weighted averages and the properties of the weighting variables are all chosen based on what is advised by the corresponding SDG Indicators Metadata Repository of the United Nations Statistics Division or by the original source of the corresponding data that is referred to by this metadata. If none of these two references advise on the aggregation methods or weights, the decisions are made based on the most common scientific logic fitting the case and its feasibility (e.g. the availability of the needed data for the weighting variables). The year of the weighting variable data is the most commonly used year for the data of the respective series/indicator. The following weights were actually used for the series/indicator whose global, regional, and subregional aggregates are weighted averages: Total population in 2015 (from the World Population Prospects), and the difference between the total renewable freshwater resources and the environmental water requirements (Env.) which consists the denominator of the corresponding indicator (from the United Nations Statistics Division-Aquastat, using data from the latest available year). The chapter includes more details about the weighting variables, including which weight was used for which series or indicator.

We note that, when a certain series or indicator (namely 6.2.1 and 6.b.1) needs a population-related weighting variable in 2016 or 2017, we use the latest available data for the variable, i.e. data for 2015 from the World Population Prospects. The data for 6.4.2 covers the years 2010 and 2015 only, and since the Aquastat database provides data for the two variables used to create the weight inconsistently in terms of the year

coverage, we use the latest data provided by Aquastat for these two variables, noting that the years to which this latest data belong fall within the 2010–2015 period.

Finally, we note that the weighting variables sometimes prevent us from evaluating the series/indicator using the full data that are available or provided to us. As such, our final data coverage is sometimes undermined by the data availability of the weighting variable. This applies for 6.4.2 where 8 out of 11 Arab countries are covered after weighting. While this affects the global, regional and/or subregional aggregates, the country-year graphs include all the Arab countries that have data for the evaluated series/indicator, regardless of the data availability of the weighting variable.

We calculate the world, regional and subregional aggregates for each indicator and include the target value – when available – to facilitate comparability. For target 6.2, which is to “achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations” by 2030, we consider the target value as 0 per cent of the series on the proportion of population practicing open defecation (percentage) and as 100 per cent for each of the two other series on the proportion of population with basic hand-washing facilities on premises (percentage) and the proportion of population using safely managed sanitation services (percentage). As for the selected series of 6.5.1 on “degree of integrated water resources management implementation (0–100)”, we set the target value as 100 since this number represents the full implementation stage on the adopted scale. However, for the other targets/indicators, it is not possible to infer the official desired target values from the official target definitions and thus they are not shown.

Table 6.2 Targets, indicators, tiers and data availability for Arab countries – SDG 6 (Ensure availability and sustainable management of water and sanitation for all)

Target	Indicator	Number of subindicators	Tier	Data availability*
6.1 By 2030, achieve universal and equitable access to safe and affordable drinking water for all	6.1.1 Proportion of population using safely managed drinking water services	(Dropped) 1	Tier II	x
6.2 By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations	6.2.1 Proportion of population using (a) safely managed sanitation services and (b) a hand-washing facility with soap and water	3 chosen out of 3	Tier II	22, 11, 15
6.3 By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally	6.3.1 Proportion of wastewater safely treated	(No data)	Tier II	x
	6.3.2 Proportion of bodies of water with good ambient water quality	(Dropped) 4	Tier II	x
6.4 By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity	6.4.1 Change in water-use efficiency over time	(No data)	Tier II	x
	6.4.2 Level of water stress: freshwater withdrawal as a proportion of available freshwater resources	1 chosen out of 1	Tier I	11

6.5 By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate	6.5.1 Degree of integrated water resources management implementation (0–100)	1 chosen out of 2	Tier I	18
	6.5.2 Proportion of transboundary basin area with an operational arrangement for water cooperation	(Dropped) 3	Tier II	x
6.6 By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes	6.6.1 Change in the extent of water-related ecosystems over time	1 chosen out of 16	Tier II	21
6.a By 2030, expand international cooperation and capacity-building support to developing countries in water- and sanitation-related activities and programmes, including water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies	6.a.1 Amount of water- and sanitation-related official development assistance that is part of a government-coordinated spending plan	1 chosen out of 1	Tier I	22
6.b Support and strengthen the participation of local communities in improving water and sanitation management	6.b.1 Proportion of local administrative units with established and operational policies and procedures for participation of local communities in water and sanitation management	1 chosen out of 8	Tier I	10

Notes: * Figures refer to the number of Arab countries with data for the indicator, while x means there are no data or the indicator was dropped.

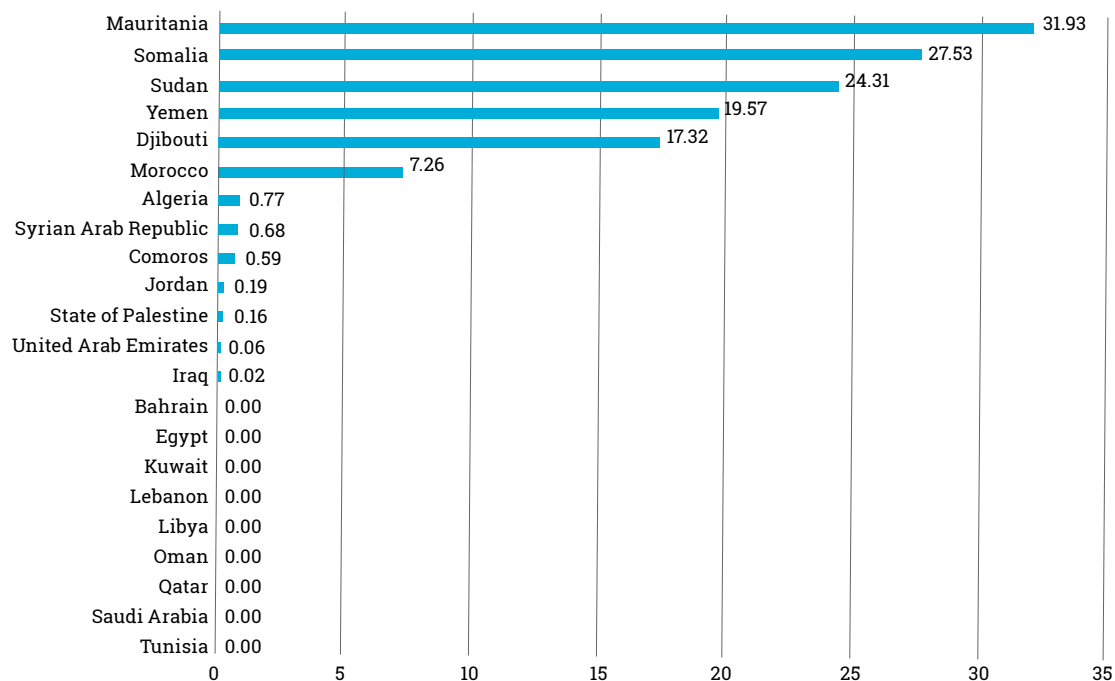
We note that the weighting variables sometimes prevents us from evaluating the series/indicator using the full data that are available or provided to us. As such, our final data coverage for the series/indicators is sometimes slightly undermined by the data availability of the weighting variable. While this affects the global, regional and/or subregional aggregates, the country-year graphs include all the Arab countries for the evaluated series/indicator that have data, regardless of the data availability of the weighting variable.

Source: <https://unstats.un.org/sdgs/indicators/indicators-list/> and author's calculations.

2. Country graphs

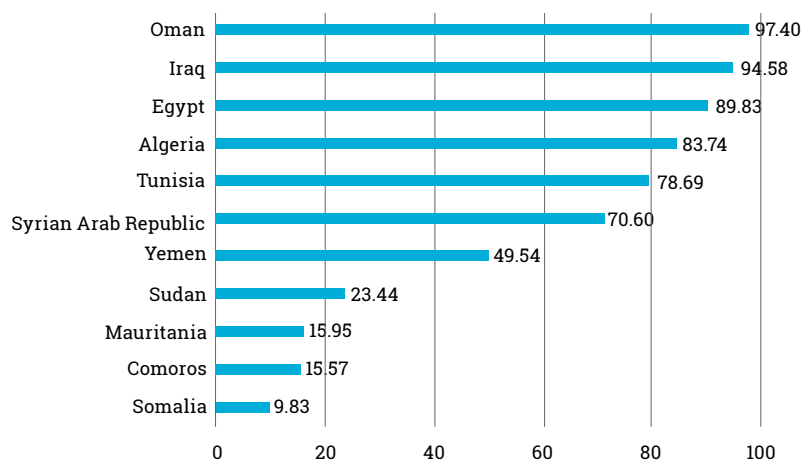
Figure 6.1 Three series of indicator 6.2.1 - Proportion of population using (a) safely managed sanitation services and (b) a hand-washing facility with soap and water

Proportion of population practicing open defecation(percentage)



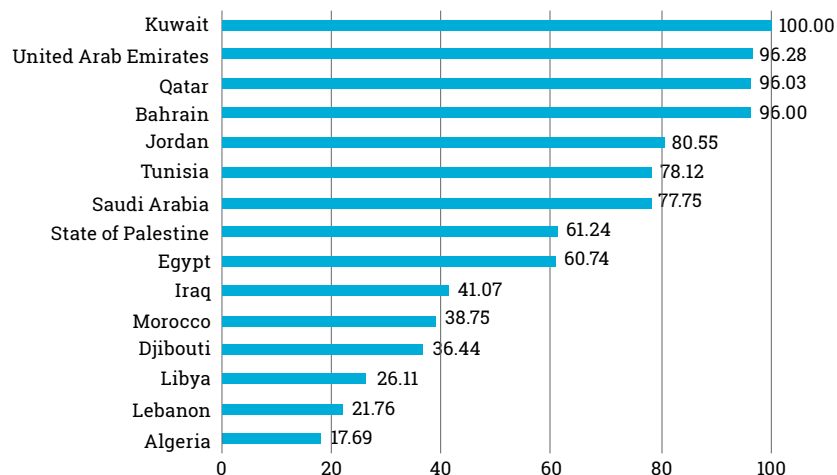
Note: All data are from 2017 apart from Syrian Arab Republic (2016).

Proportion of population with basic hand-washing facilities on premises (percentage)



Note: All data are from 2017 apart from Comoros (2016).

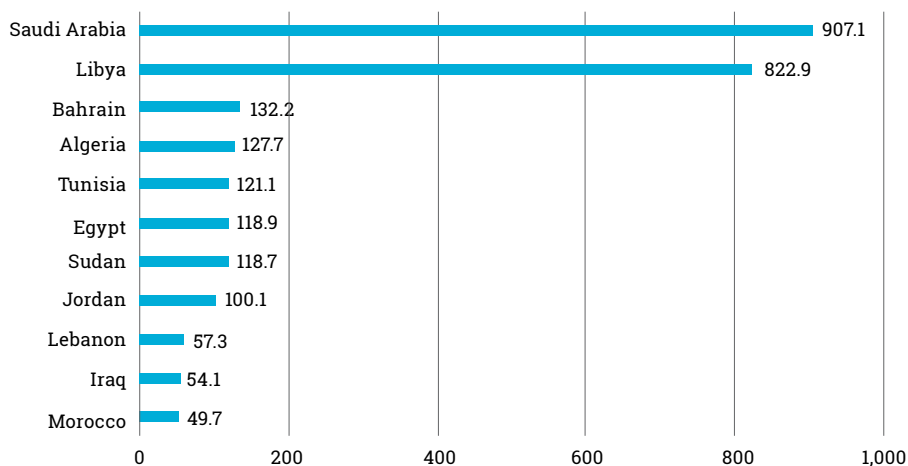
Proportion of population using safely managed sanitation services (percentage)



Note: All data are from 2017.

Figure 6.2 Indicator 6.4.2 - Level of water stress: freshwater withdrawal as a proportion of available freshwater resources (percentage)

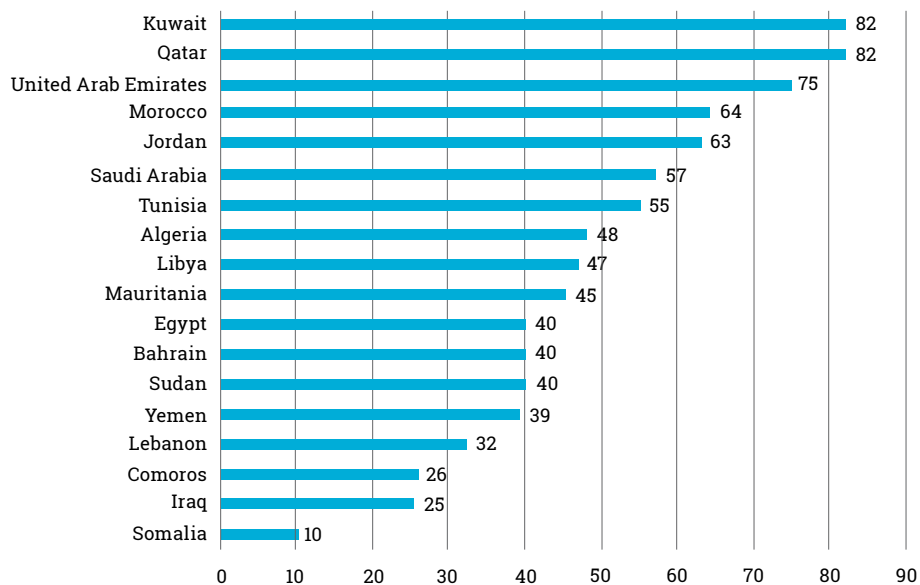
Level of water stress: freshwater withdrawal as a proportion of available freshwater resources (percentage)



Note: All data are from 2015 apart from Libya, Morocco and the Sudan (2010).

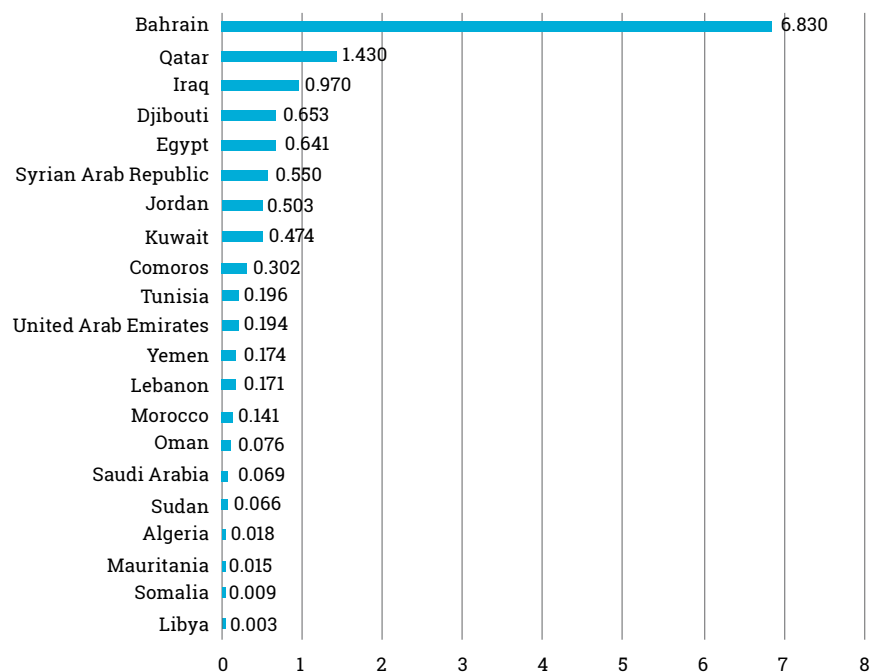
Figure 6.3 Indicator 6.5.1 - Degree of integrated water resources management implementation (0-100)

Degree of integrated water resources management implementation (0-100)



Note: All data are from 2017.

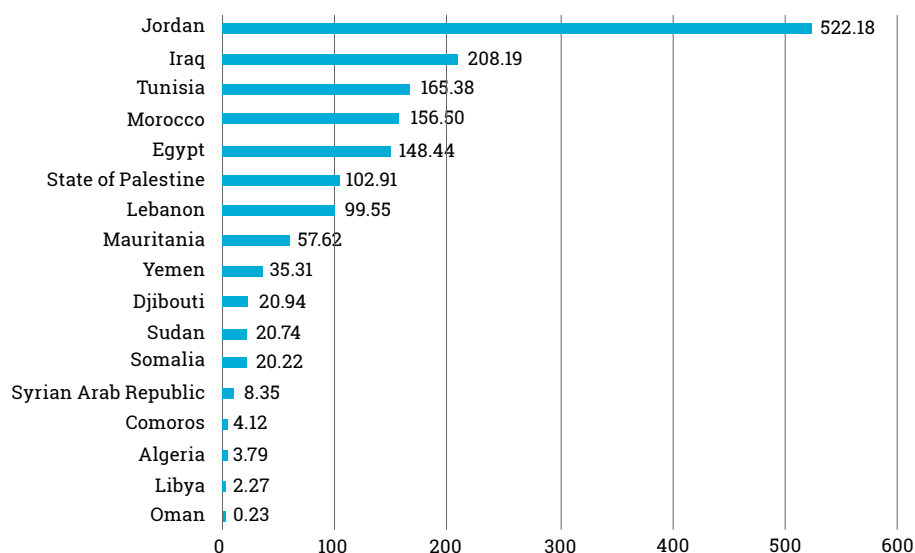
Figure 6.4 One series of indicator 6.6.1 - Change in the extent of water-related ecosystems over time
Water body extent (permanent and maybe permanent), (percentage of total land area)



Note: All data are from 2016.

Figure 6.5 One series of indicator 6.a.1 - Amount of water- and sanitation-related official development assistance that is part of a government-coordinated spending plan

Total official development assistance (gross disbursement) for water supply and sanitation, by recipient countries (millions of constant 2017 United States dollars)



Note: All data are from 2017 apart from Oman (2010).

Figure 6.6 One series of indicator 6.b.1 - Proportion of local administrative units with established and operational policies and procedures for participation of local communities in water and sanitation management

Countries with procedures in law or policy for participation by service users/communities in planning programme in rural drinking-water supply, by level of definition in procedures



Note: 10 = Clearly defined; 5 = Not clearly defined; 0 = NA
Data are for 2014 apart from Egypt (2012) and State of Palestine (2017).