



## SDG 6: Ensure availability and sustainable management of water and sanitation for all

Freshwater scarcity is a defining challenge for the region, and is exacerbated by transboundary dependency, occupation and conflict, and climate change, as well as population growth and increased urbanization. Achieving SDG 6 requires the region to adopt a human rights-based approach to water and sanitation, along with robust water governance structures within and between countries, and strategies that link water, energy and food security. Considerable investment is needed in infrastructure, appropriate technologies, and the use of non-conventional water resources to improve productivity, sustainability and access for all.

### Key facts

#### < 1,000 m<sup>3</sup> per capita

The Arab region is among the most freshwater scarce in the world—18 out of 22 Arab States fall below the renewable freshwater resources scarcity annual threshold of 1,000 cubic metres per capita per year.<sup>1</sup>

#### 13 Arab States

fall below the absolute freshwater scarcity threshold of 500 cubic metres per capita per year.<sup>2</sup>



The Arab region is facing additional pressures on its water resources due to climate change, which manifests through increasing temperatures and generally decreasing precipitation trends.

Of the 22 Arab countries, 14 share a surface water basin with one or more riparian States.<sup>3</sup> While there are 27 transboundary surface water basins in the region, there are only a limited number of operational agreements for water cooperation.



Around 60 per cent of water in the region originates outside its borders, amplifying dependency on external water sources.

#### 40 shared aquifers

The number of shared groundwater resources in the Arab region exceeds that of shared surface water basins, with at least 40 shared aquifers present in 21 out of 22 Arab countries.<sup>4</sup>

#### 70.5 million people

It is estimated that 70.5 million people are without access to basic sanitation in the region, and 47.5 million are without access to drinking water services.<sup>5</sup>



Open defecation in the Arab region is practiced by 23.42 per cent of the population in the least developed countries compared to 3.08 per cent in the Maghreb, 0.09 per cent in the Mashreq and 0.01 per cent in the GCC countries.<sup>6</sup> Open defecation in the least developed countries is concentrated in rural areas.<sup>7</sup>



Intermittency of water supply services and variations in the quality of services are major challenges and accentuate inequalities, especially between urban and rural communities.



Access to water and sanitation services is greatly hampered due to the occupation of the State of Palestine and armed conflicts in various countries in the region.



# 80%

Agriculture consumes 80 per cent of water in the region, yet water productivity is low. Inefficient irrigation causes significant losses, estimated at around 60 per cent.<sup>8</sup>



Water pollution, due mainly to industrial waste, wastewater pollution, and unregulated use of pesticides and fertilizers, is threatening water quality and health. For example, in Gaza, the nitrate concentrations in drinking water have risen to around 600–800 mg/litre, while the maximum tolerable limit is 50 mg/litre. In the Ra's Al Jabal region in Tunisia, levels have reached around 800 mg/litre.<sup>10</sup> This poses risks for babies and the unborn fetuses of pregnant women.

## GCC

Despite being some of the most water scarce countries, GCC countries have either already achieved or are on track to achieve targets related to water supply and sanitation services through investments in non-conventional water resources.



Jordan has made significant progress in the reuse of treated wastewater, demonstrating the vast potential in the region.<sup>9</sup>



# 4%

Waterborne disease outbreaks are on the rise. In 2016, in half of the Arab States, at least 4 per cent of under-5 deaths were due to diarrhoea, with a 20 per cent rate in the Syrian Arab Republic.<sup>11</sup>

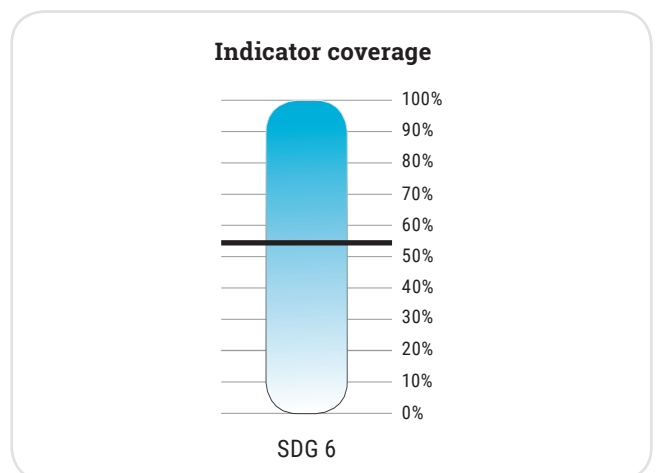
## Measuring SDG 6 in the Arab region according to the global SDG indicator framework

Data are available for 6 out of 11 indicators,<sup>12</sup> covering 6 out of 8 targets under SDG 6.

These six targets do not include two critical ones for the Arab region: access to safe and affordable drinking water (target 6.1); and improving water quality and wastewater treatment and reuse (target 6.3). More countries need to report on all the indicator components of these targets to generate representative regional averages.

The following limitations arise in measuring SDG 6 in the Arab region using the official set of SDG indicators:

- The approved methodology for SDG 6 indicators does not require disaggregation according to rural and urban. While access to water and sanitation services is generally lower in rural areas, unplanned urbanization and slums also pose challenges, given the absence of necessary infrastructure.
- Data are not disaggregated by gender.
- Amid the spread of conflict in the region, disaggregation of data by migratory status to assess the water service needs and vulnerabilities of displaced and refugee communities remains limited.



- Global indicators for SDG 6 do not adequately capture the major challenges or opportunities for progress in the region. There are currently no indicators or globally approved methodologies to measure progress to “substantially reduce the number of people suffering from water scarcity”, as called for in SDG target 6.4. None of the SDG indicators or methodologies meaningfully reflect the importance of non-conventional water resources, such as desalination, or treated wastewater reuse to water-scarce regions or countries, such as those of the GCC.

- The indicator on the level of water stress is misleading for the State of Palestine. Under occupation, Palestinians do not have control over their natural resources, including water. Measurement of “freshwater withdrawal as a proportion of available freshwater resources” therefore cannot be compared

to that of other countries, as access to the water that has been withdrawn depends on what the occupying authority allows. This indicator also does not include a water quality dimension, although quality is addressed in other indicators.

### The human face of SDG 6

Target 6.4 aims to substantially reduce the number of people suffering from water scarcity but has no elaborated methodology. The ability to measure the impact of water scarcity on people—and not just economic sectors—is crucial to guarantee access to water as a human right. Scarcity affects people's ability to access drinking water; stay healthy and practise hygiene; grow and produce food; produce and use energy; and preserve ecosystems critical for human well-being.

One possibility is to determine a “minimum” or “secure” amount of water required by people for basic needs, along with spatial and temporal disaggregation across subnational regions, communities, in periods of drought, etc.

**SDG 6 CONTAINS ONE TARGET TO BE ACHIEVED BY 2020**

**TARGET 6.6** - Protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes

## The main barriers to ensuring the availability and the sustainable management of water and sanitation for all in the Arab region

Achieving SDG 6 in the Arab region is most closely interlinked with efforts to end poverty (SDG 1) and hunger (SDG 2). It is dependent on access to energy (SDG 7), influenced by climate change (SDG 13) and a key factor in determining what constitutes a slum (SDG 11) in a region where the majority of people now live in cities and urban peripheries. Access to sustainable and affordable water and sanitation services is necessary to ensure healthy lives (SDG 3), with links between water and health being particularly acute for people who are vulnerable (children, older persons, pregnant women) and economically disadvantaged in both rural and urban communities.

Given the scarcity of freshwater, there is high dependency on groundwater pumping, desalination as well as wastewater treatment; all of these approaches are energy intensive and expensive, however. The share of official development assistance allocated to the water sector needs to increase to meet the challenges posed by water scarcity and inadequate service delivery, and achieve SDG 6.

Agriculture is the biggest consumer of freshwater resources, yet water for agriculture remains a priority to ensure food security and maintain rural livelihoods in the region's middle- and low-income countries. Arab countries have yet to consolidate an approach that makes the links among water, energy and food security under

changing climate conditions. More work is needed to connect elements of efficiency, productivity, resilience and a rights-based approach in national strategies. This includes improving water productivity to ensure more crop per drop, and making a more strategic choice of crops, including by focusing on indigenous crops and/or those resilient to climate change.<sup>13</sup>

### Progress through non-conventional solutions

GCC countries have made impressive leaps in tackling water scarcity by focusing on non-conventional water resources through desalination and treatment of wastewater, among other measures. These countries produce about 60 per cent of the world's desalinated water. Associated environmental impacts need attention, however. In the coming years, GCC countries need to focus their efforts on knowledge generation and innovation to develop less energy-intensive technologies and ensure a coherent approach to water security as well as sustainable energy use.

Source: UNEP, 2019, p. 35.

## THE FOLLOWING ARE THE KEY BARRIERS TO ACHIEVING SDG 6 IN THE ARAB REGION

### Scarcity

Arab States are among the most water scarce in the world. High population growth rates and changing lifestyles and unsustainable production patterns are among the factors that contribute to reduced freshwater resource availability. The level of water stress, measured as freshwater withdrawal as a proportion of available freshwater resources (SDG indicator 6.4.2)<sup>14</sup> is the highest in the world, compared to other regions, and around six times higher than the world's mean. Water scarcity impacts water quantity as well as quality. This in turn leads to unequal access to water, with varying effects on affordability, quality of services and access.



### Transboundary dependency of water resources

All Arab countries, except the Comoros, share one or more of the region's 40-plus shared aquifers, and many share surface water basins as well.<sup>15</sup> This influences the governance, regulation, distribution and use of water resources, and requires a coherent approach to address scarcity and the effects of climate change. In addition, around 60 per cent of surface water comes from outside the region, with implications for water governance and transboundary water cooperation.



### Climate change

The Arab region is facing additional pressures on its water resources due to increasing temperatures and generally decreasing precipitation stemming from climate change.<sup>16</sup> Average yearly rainfall is projected to decrease by 10 per cent in the next 50 years.<sup>17</sup> Higher temperatures affect evaporation rates, and changing climate patterns are expected to increase the frequency of droughts and flash floods.



### Expanding urbanization

High population growth rates and expanding urbanization are straining service networks in formal and informal settlements. Particularly along coastlines, intensive urbanization is affecting the quantity and quality of groundwater resources through overpumping, leaving coastal populations dependent on water transfers from other river systems and basins to meet basic needs.



### Conflict and crises

Conflict and the influx of refugees have slowed progress on SDG 6 in several countries. Jordan, for example, already suffers from water scarcity. It is among those countries where a large number of refugees have placed additional pressure on the ability to extend water and wastewater services to host communities, many of which were suffering from intermittent water supplies before the refugees arrived.



## At risk of being left behind

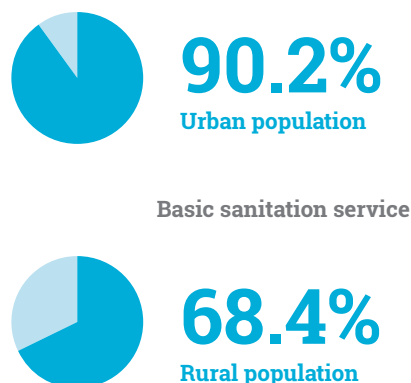
**Inhabitants of rural areas:** There is a clear discrepancy in water and sanitation services between rural and urban areas in the region, with the economically disadvantaged in both areas most likely to be left behind. Even discounting varying levels of quality and considering only access to basic services, the numbers are striking.

In 2015, 94 per cent of urban residents used a basic drinking water service compared to 77.5 per cent of rural dwellers. Further, 90.2 per cent of urban inhabitants used

a basic sanitation service compared to 68.4 per cent of rural people; 0.6 per cent of the urban population practiced open defecation compared to 14.3 per cent of the rural population.<sup>18</sup>

**Refugees and the displaced:** The human right to water and sanitation must not be affected by occupation or conflict. Refugees often lack access to safe water and proper sanitation facilities, increasing their vulnerability to illness and disease.

**Women and girls:** Available data are not sufficiently disaggregated to portray a clear gender divide in relation to SDG 6. This is in part because access to water and sanitation services is determined at the household level by consumers and the use of volumetric measures by utilities on the supply side. Adequate and gender-responsive water and sanitation services, however, directly impact issues such as the rate at which girls drop out of school. A lack of water and sanitation services in health-care facilities can increase rates of maternal morbidity and mortality, especially in rural areas. Women who face restrictions on land tenure and water rights may also encounter obstacles to food security and their ability to sustain their livelihoods through agriculture.



## What the region can do to accelerate progress on SDG 6

### 1. Increase investment and funding:

- Infrastructure: Both foreign and domestic funding must increase for rebuilding, upgrading and scaling up water and sanitation infrastructure, especially in rural areas.
- Technology: The region needs to develop and adapt appropriate technologies for water supply, desalination and wastewater treatment and reuse, and adopt investment strategies and plans that consider the impact of climate change and associated risks.
- Improving capacities for water accounting at different levels would enhance the potential for water savings and foster the more equitable and productive reallocation of resources.

### 2. Strengthen effective and inclusive water governance, and enhance coherence and coordination across related social and economic sectors:

- Increase capacity-building efforts, in part by promoting the framework of integrated water resources management.
- Operationalize a human rights-based approach to water and sanitation to ensure the coherence of policies and actions at the national level, and to improve living conditions and well-being.
- Expand and ensure adequate access to water and sanitation services across subnational regions, in rural areas and in informal settlements.

### 3. Adopt and operationalize an integrated “nexus” approach linking water, energy and food security:

- Strategies, programmes and technologies to tackle SDG 6 need to consider the implications for livelihoods and food security as well as for energy consumption and environmental sustainability. A transformation of food systems and improved agricultural practices could increase water-use productivity in the agricultural sector.

### 4. Enhance intraregional and interregional coordination:

- Promote cooperative policy frameworks and platforms for improving shared water resources management and overcoming water scarcity.
- Improve knowledge exchange, learning and partnerships, and enhance the capacity of Arab States to negotiate shared water agreements.<sup>19</sup>

### 5. Empower stakeholders especially in rural areas:

- Build the capacity of local communities and especially farmers and women in the efficient use and effective management of the water supply. This includes the transfer of knowledge and technology as well as the harvesting of local knowledge and traditional practices for more sustainable management of water and sanitation.

# SDG 6 targets and indicators in the Arab region

## Target

### 6.1

By 2030, achieve universal and equitable access to safe and affordable drinking water for all

### 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

## Indicator

### 6.1.1

Proportion of population using safely managed drinking water services

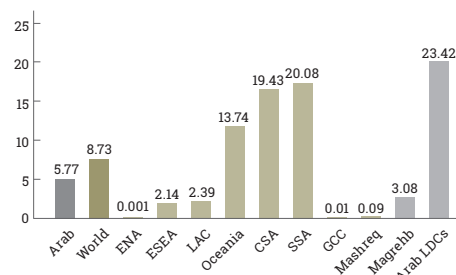
### 6.2.1

Proportion of population using (a)safely managed sanitation services, and (b) a hand-washing facility with soap and water

## Data

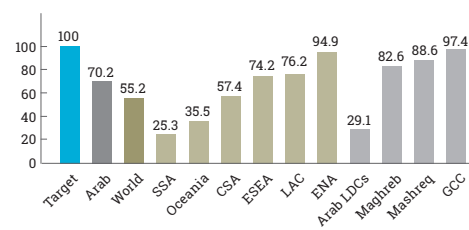
Adopted criteria to obtain a regional average are not met for this indicator.

**Figure 1** Proportion of population practising open defecation (percentage)



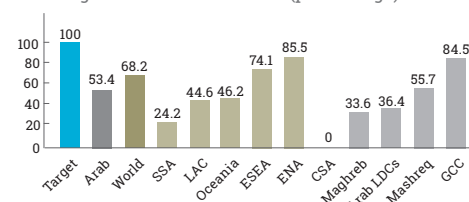
Note: All means are population weighted using the latest (2015) population estimates (United Nations Population Division, 2017; United Nations Statistics Division, 2019b). The calculated Arab regional aggregate includes the data values of all 22 Arab countries in 2017.

**Figure 2** Proportion of population with basic handwashing facilities on premises (percentage)



Note: All means are population weighted using the latest (2015) population estimates (United Nations Population Division, 2017; United Nations Statistics Division, 2019b). The calculated Arab regional aggregate includes the data values of the following Arab countries: Comoros (2016), Algeria, Egypt, Iraq, Mauritania, Oman, Somalia, Sudan, Syrian Arab Republic, Tunisia and Yemen (2017).

**Figure 3** Proportion of population using safely managed sanitation services (percentage)



Note: All means are population weighted using the latest (2015) population estimates (United Nations Population Division, 2017; United Nations Statistics Division, 2019b). The calculated Arab regional aggregate includes the data values of the following Arab countries for 2017: Algeria, Bahrain, Djibouti, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Morocco, Qatar, Saudi Arabia, State of Palestine, Tunisia and United Arab Emirates.

**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

Adopted criteria to obtain a regional average are not met for this indicator.

**6.3.2**

Proportion of bodies of water with good ambient water quality

Adopted criteria to obtain a regional average are not met for this indicator.

**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**

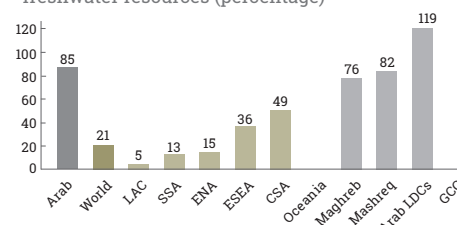
Change in water-use efficiency over time

Adopted criteria to obtain a regional average are not met for this indicator.

**6.4.2**

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

**Figure 4** Level of water stress: freshwater withdrawal as a proportion of available freshwater resources (percentage)



Note: All means are weighted using the difference between the total renewable freshwater resources and the environmental water requirements, which consists of the denominator taken from the Food and Agriculture Organization of the United Nations (FAO, 2016), for the latest year available. The calculated Arab regional aggregate includes the data values of the following Arab countries and years: Morocco and Sudan (2010) Algeria, Egypt, Iraq, Jordan, Lebanon, and Tunisia (2015). SDG indicator 6.4.2 represents the water withdrawal intensity of countries and territories. According to the Global SDG Indicators Database (United Nations Statistics Division, 2019b), the indicator can be higher than 100 per cent when water withdrawal includes secondary freshwater (water withdrawn previously and returned to the system) or non-renewable water (fossil groundwater), or when annual groundwater withdrawal is higher than annual replenishment (overabstraction), or when water withdrawal includes part or all of the water set aside for environmental water requirements.

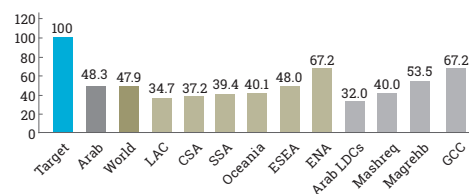
**6.5**

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)

**Figure 5** Degree of integrated water resources management implementation (percentage)



Note: Aggregates are the simple arithmetic means of country values (United Nations Statistics Division, 2019a). The calculated Arab regional aggregate includes the data values of the following Arab countries for 2017: Algeria, Bahrain, Comoros, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Mauritania, Morocco, Qatar, Saudi Arabia, Somalia, Sudan, Tunisia, United Arab Emirates and Yemen. As defined by the Global Water Partnership (2017), integrated water resources management is "a process which promotes the coordinated development and management of water, land and related resources in order to maximize economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems". As per the Global SDG Indicators Database (United Nations Statistics Division, 2019b), this indicator "is measured in per cent (%) from 0 (implementation not yet started) to 100 (fully implemented) and is currently being measured in terms of different stages of development and implementation of Integrated Water Resources Management (IWRM)".

**6.5.2**

Proportion of trans-boundary basin area with an operational arrangement for water cooperation

Adopted criteria to obtain a regional average are not met for this indicator.

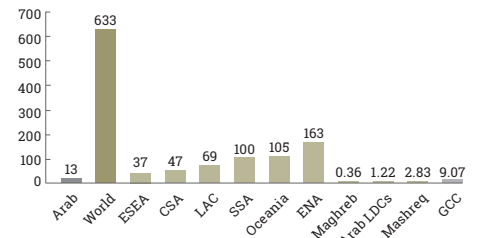
**6.6**

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

**Figure 6** Water body extent (permanent and maybe permanent), as a proportion of total land area (percentage)



Note: Aggregates are the sum of country values (United Nations Statistics Division metadata). The calculated Arab regional aggregate includes the data values of all Arab countries but the State of Palestine in 2016.

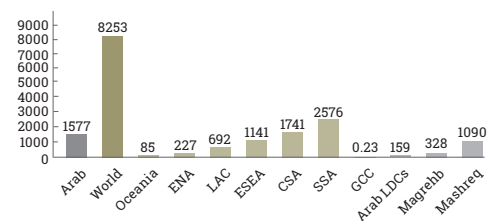
**6.a**

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

**Figure 7** Total official development assistance (gross disbursement) for water supply and sanitation, by recipient countries (millions of constant 2017 United States dollars)



Note: Aggregates are the sum of country values (United Nations Statistics Division, 2019a). The calculated Arab regional aggregate includes the data values of the following Arab countries for 2017: Algeria, Comoros, Djibouti, Egypt, Iraq, Jordan, Lebanon, Libya, Mauritania, Morocco, Somalia, State of Palestine, Sudan, Syrian Arab Republic, Tunisia and Yemen; with 2010 data for Oman. This indicator only covers recipient countries and territories, and excludes the 33 donor countries and territories from different regions that are listed by the Organisation for Economic Co-operation and Development.

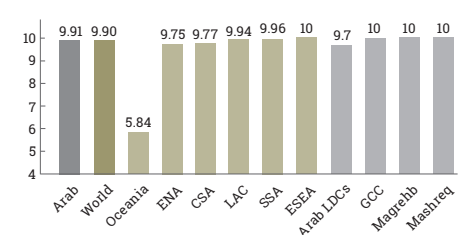
**6.b**

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

**Figure 8** Countries with procedures in law or policy for participation by service users/communities in planning programmes for rural drinking-water supplies, by level of definition in procedures



Note: (10 = clearly defined; 5 = not clearly defined; 0 = NA) All means are population weighted using the latest (2015) population estimates (United Nations Population Division, 2017; United Nations Statistics Division, 2019b). The calculated Arab regional aggregate includes the data values of the following Arab countries and years: Egypt (2012), Jordan, Lebanon, Mauritania, Morocco, Oman, Sudan, Tunisia, Yemen (2014); and State of Palestine (2017). This indicator is only relevant and reported for developing countries and territories.

Note: Central and Southern Asia (CSA); Eastern and South-Eastern Asia (ESEA); Europe and Northern America (ENA); Gulf Cooperation Council (GCC); Latin America and the Caribbean (LAC); Arab Least Developed Countries (Arab LDCs); Oceania (excluding Australia and New Zealand); Sub-Saharan Africa (SSA).

All figures are based on the Global SDG Indicators Database (United Nations Statistics Division, 2018) except for the inclusion of updated data (United Nations Statistics Division, 2019a) in the following indicators: 6.2.1 [Proportion of population practising open defecation (percentage)], 6.4.2 [Level of water stress: freshwater withdrawal as a proportion of available freshwater resources (percentage)], and 6.a.1 [Total official development assistance (gross disbursement) for water supply and sanitation, by recipient countries (millions of constant 2017 United States dollars)].



## ENDNOTES

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1. FAO, 2016. Calculations exclude desalinated water and fossil (non-renewable) groundwater resources.
2. Ibid.
3. ESCWA, 2015a; ESCWA and BGR, 2013; International Groundwater Resources Assessment Centre, 2015.
4. Ibid.
5. WHO and UNICEF, 2017.
6. Calculated by ESCWA, see figure 1.
7. WHO and UNICEF, 2017.
8. ESCWA, 2015a.
9. Ibid.
10. UNDP, 2013, pp. 30, 31.
11. Data calculated by ESCWA from <https://data.unicef.org/topic/child-health/diarrhoeal-disease/>.
12. According to the methodology used in this report.
13. ESCWA, 2015b; ESCWA and FAO, 2017.
14. Calculated by ESCWA, see figure 4.
15. ESCWA, 2015a; ESCWA and BGR, 2013; International Groundwater Resources Assessment Centre, 2015.
16. ESCWA and others, 2017.
17. Ibid.
18. WHO and UNICEF, 2018.
19. ESCWA, 2018, p. 4.

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