H2020/NAP indicator assessment

Sanitation and Wastewater management

Jordan

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Version History

Version	Date	Author	Status and description	Distribution
V1	10/07/2020	C. Briere Spiteri	Sanitation and wastewater management indicators factsheets	SEIS NFPs
	10/7/2020	Sabah	comments	Claudette
V2	17/7/2020	C. Briere Spiteri	Final	

Indicator Assessment

Indicator Set Indicator 3: Access to Sanitation	**Date** [17/07/2020] **Authors:** [Ali Almashni (NFP); Enas Arabyat (NFP); Majed Aladwan (team member); Sayyed Saleh (team member); Faraj Altaleb (ex- NFP); Claudette Briere Spiteri (consultant)]
Indicators Title Indicator 3.2: Proportion of population using safely managed sanitation services (SMSS)	

Key policy question *What is the progress in access to sanitation?*
Key messages • Access to safely managed sanitation in Jordan has almost doubled between 2004 and 2015 (from 4.7 to 8 Million inhabitants) • However, in terms of %, the access to safely managed sanitation stayed around 84 %, in part the result of the sudden displacement of refugees due to the civil war in Syria. During 2004-2015, the population increased by a factor of 1.7 (from 5.6 to 9.5 Million), with an annual growth rate of 5.3 %. This is places a huge burden and pressure on the country`s natural resources, public services and infrastructure, including access to sanitation

Key figure

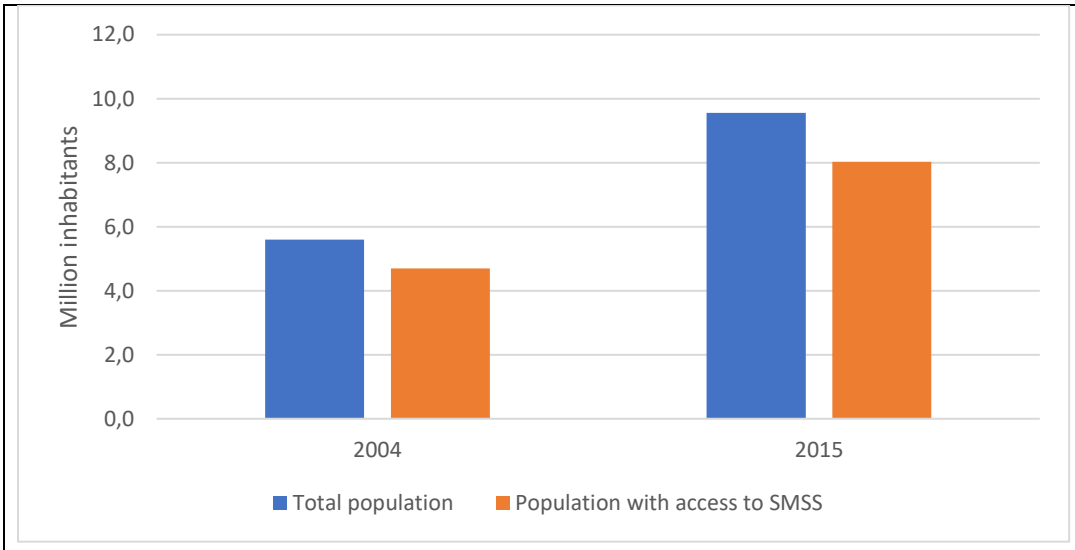

Figure 1 Population with access to safely managed sanitation system (SMSS) relative to toal population

Table 1 Access to safely managed sanitation systems (SMSS). 2004 & 2015 (%)

Year	**% SMSS**
2004	84.0
2015	84.0

Key assessment text
The access to safely managed sanitation in Jordan has increased from 4.7 to 8 Million inhabitants between 2004 and 2015 (Figure 1). However, in terms of %, the access to safely managed sanitation stayed around 84 % (Table 1). During the same time period, the population increased by a factor of 1.7 (from 5.6 to 9.5 Million inhabitants), with an annual growth rate of 5.3 %. The largest increase has taken place during the last decade and especially since 2011 following the Syrian crisis. The Jordanian population of 6 613 587 makes up 69.4 % of the kingdom's total population (DOS, 2015), while non-Jordanians form 30 % of the population, half of whom are from Syria. The average population density increased from 56 person/km^2 in 2001 to 107.7 person/km^2 in 2015. Over the past years the kingdom had to accomodate 1.3 million Syrian refugees (DOS, 2015). Approximately 80 % of the Syrian refugees live in urban areas in the north of Jordan, while the remaining 20% live in the Za`Atari, Mrajeeb alfhood, Cyber City, and Al-Azraq camps. This rapid population growth places a huge burden on the country`s natural resources, public services and

infrastructure, including access to sanitation.

Apart from the impacts of the region's geopolitical environment, Jordan faces a complex set of development challenges, aggravated by climatic conditions and geography. As the forth poorest country in water terms, water shortage is a key driver of environmental pressure in Jordan. The per capita share of renewable water resources is among the lowest in the world, and is declining over time. It is projected to fall from 145 m^3/capita/year (at present), to 90 m^3/capita/year by 2025.

The National Water Strategy 2016-2025 defines the steps to ensure a sustainable future for the water sector in Jordan. It uses the distinct opportunity to reinforce and strengthen integrated water resources planning and management that is aligned with the SDGs, revising the scope, context and relevance of the strategy for the sustainable future of water resource management in the coming decades.

References in key assessment text

Jordan country profile: H2020 National report on Water (2019).

Specific policy question *What is the progress to access to anitation in the 12 governorates?*

Specific figures

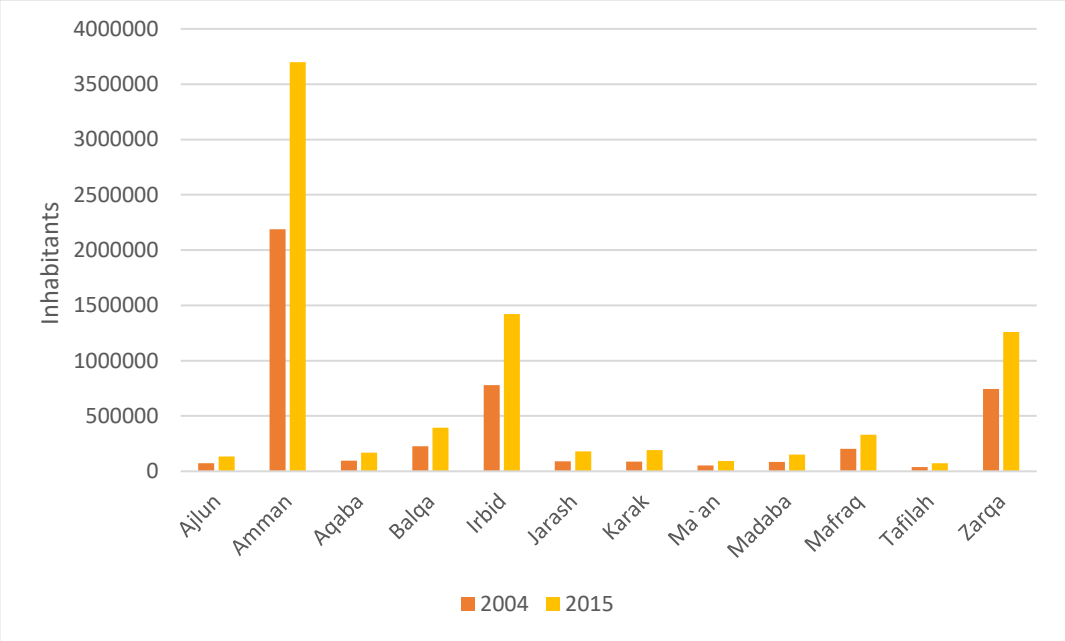

Figure 2 Population with access to SMSS per governorate

Table 2 Access to safely managed sanitation systems (SMSS) per governorate. 2004 & 2015 (%)

Governorate	Access to SMSS (% of population)	Access to SMSS (% of population)	Change (%)
	2004	2015	2004-2015
Ajlun	70	76	6
Amman	93	92	-1
Aqaba	88	90	2
Balqa	78	80	2
Irbid	75	80	5
Jarash	64	76	12
Karak	47	60	13
Ma`an	64	65	1
Madaba	75	79	4
Mafraq	63	60	-3
Tafilah	68	75	7
Zarqa	93	92	-1

Specific assessment text
In terms of population, the number of inhabitants with access to SMSS between 2004 and 2015 has increased in all 12 governorates of Jordan. In total, more than 3.4 million inhabitants gained access during this time period. However, in terms of % access, some governerates have reported a relative increase (e.g Jarash and Karak with an increase of 12 and 13 %, respectively), while others, including Amman (-1 %), Mafraq (-3 %) and Zarqa (-1 %) have reported a slight relative decrease. This is attributed to the concurrent drastic increase in total population (e.g. population in Amman increased from 2 353 300 in 2004 to 4 019 100 inhabitants in 2015), indicating that investments in sanitation infrastructure strive to keep up with the absolute increase in population.
References in specific assessment text • Jordan country profile: H2020 National report on Water (2019).

Methodology for indicator calculation
The national methodology for the calculation of this indicator assumes that «safely managed sanitation systems» are «improved unshared sanitation». According to the SDG 6.2.1 definition, safely manged sanitation systems refer to the «use of improved facilities that are not shared with other households and where excreta are safely disposed of in situ or transported and treated offsite». Improved facilities include: flush/pour-flushed to piped sewer system, septic tanks or pit latrines, ventilated improved pit latrines, pit latrines with a slab, and composting toilets (GEMI, 2016). Based on this definition, the % SMSS in Jordan is 76.2 % in 2004 and 80.4 % in 2015 (UNSTAT, 2020). Discrepancies between national data and values in the global database most likely stem from not considering septic tanks as safely managed sanitation systems.
References • GEMI (2016) • UNSTAT, 2020: https://unstats.un.org/sdgs/indicators/database/

Data issues
The data available is limited to only two years (2004 & 2015). In order to assess the evolution of the sanitation sector in detail, time-series data is required. The National Statistical Strategy 2017-2022 aims to increase the frequency of household field surveys and improve household data collection, and to maintain centralized data through the national information system (water information system) with full collaboration and coordination between different stakeholders.

Indicator Set Indicator 4: Wastewater management	**Date** [17/07/2020] **Authors:** [Ali Almashni (NFP); Enas Arabyat (NFP); Majed Aladwan (team member); Sayyed Saleh (team member); Faraj Altaleb (ex- NFP); Claudette Briere Spiteri (consultant)]

Indicators Title

Indicator 4.1: Municipal wastewater collected and wastewater treated

Indicator 4.2: Direct use of treated municipal wastewater

Key policy question: *What is the progress in wastewater management in Jordan? What is the potential of collected and treated the municipal wastewater?*

Key messages

- A steady increase in the volume of wastewater collected and treated is observed between 2004 and 2018, following the concurrent increase in wastewater generated. On average, 60 % of the wastewater generated is collected, and around 95 % of the wastewater collected was treated between 2004 and 2018
- The volume of wastewater collected and treated per capita showed a slight decline between 2009 and 2016, following the significant increase in population in Jordan (from 5.6 Million inhabitants in 2004 to 10.3 Million inhabitants in 2018) exacerbated by the refugee crisis in 2011. This implies that investments in wastewater management strive to keep up with the increasing population driven by the geopolitical situation
- Direct wastewater reused for agriculture irrigation has increased slightly from 25 Mm^3/yr in 2015 to 30 Mm^3/yr in 2018, accounting for 18 % of the volume of treated wastewater.
- Jordan faces challenges to sustain efforts and strengthen institutional capacities, cooperation and joint work with various partners and provide the necessary funding for maintenance and rehabilitation of wastewater treatment plants

Key figures

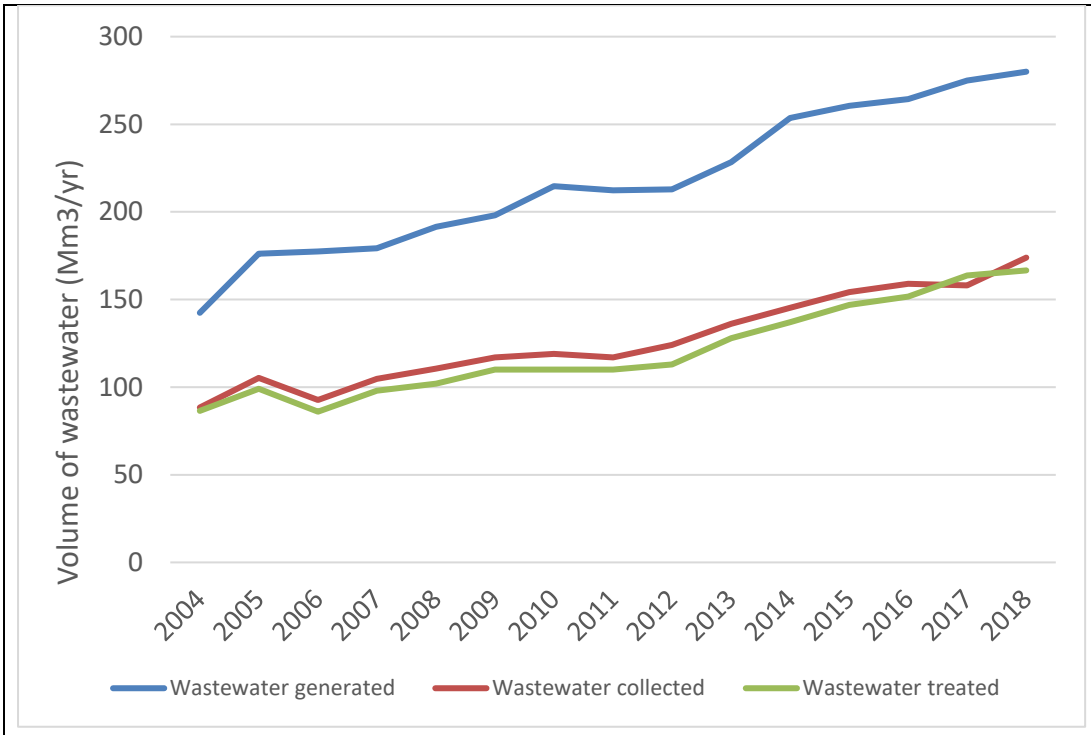

Figure 3 Volume of wastewater generated, collected and treated. 2004-2018 (Mm3/year)

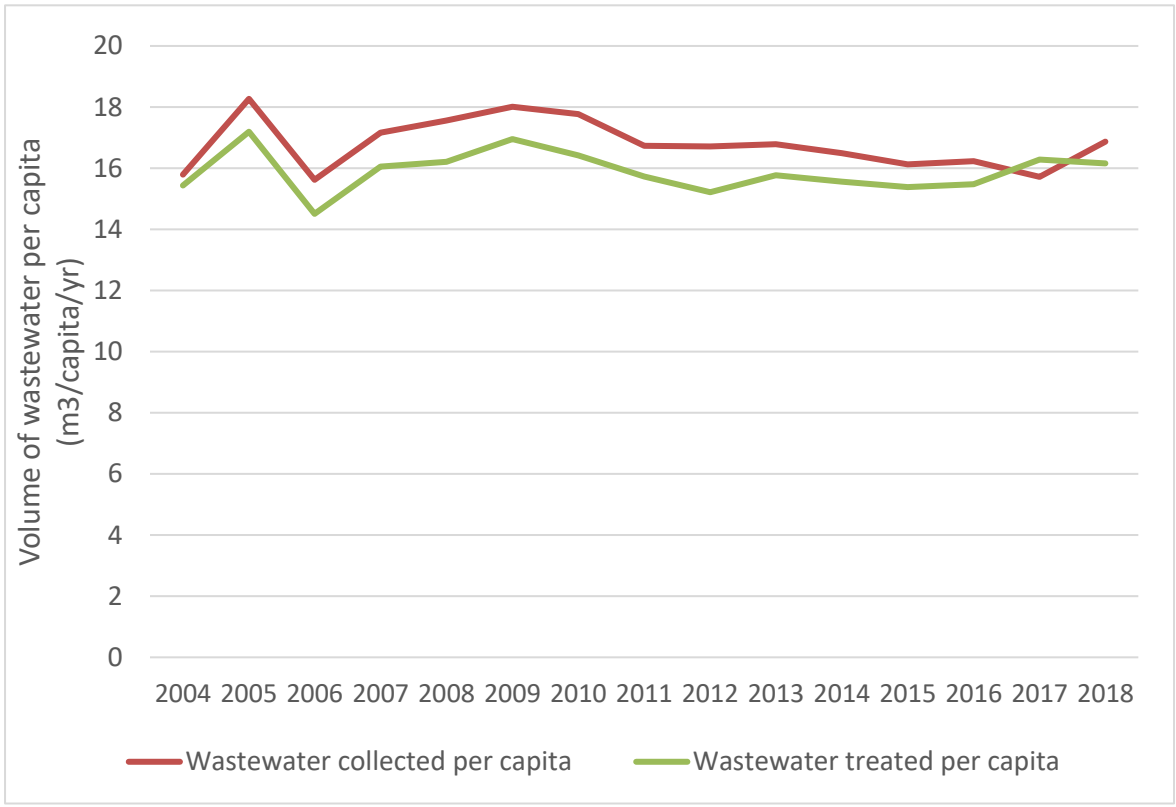

Figure 4 Volume of wastewater collected and treated per capita. 2004-2018 (m^3/capita/year)

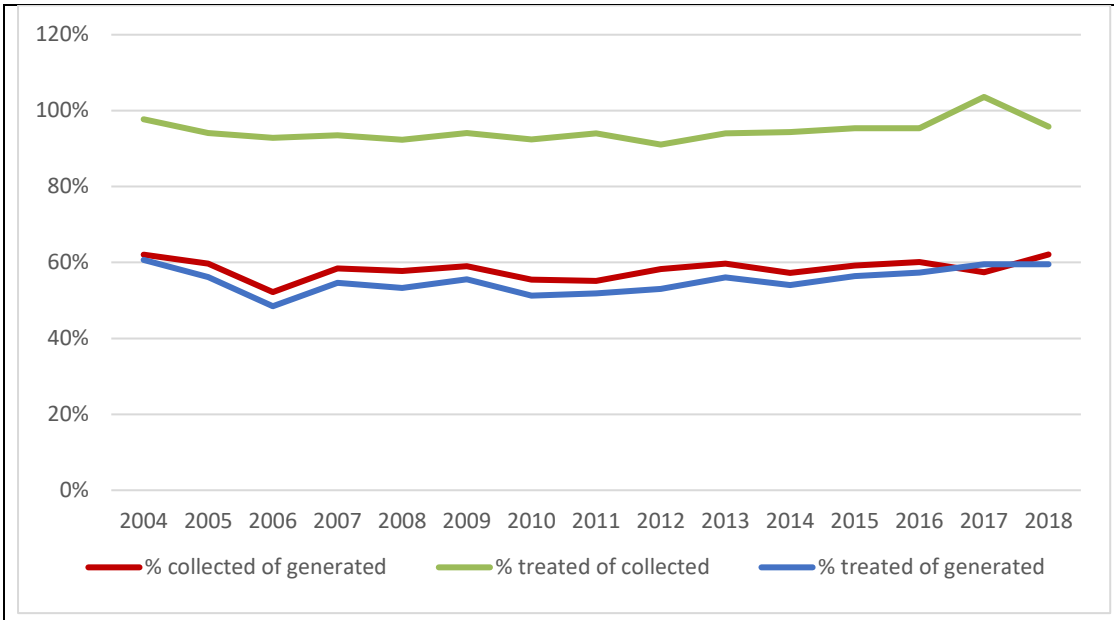

Figure 5 Percentage volume of wastewater. 2004-2018 (%)

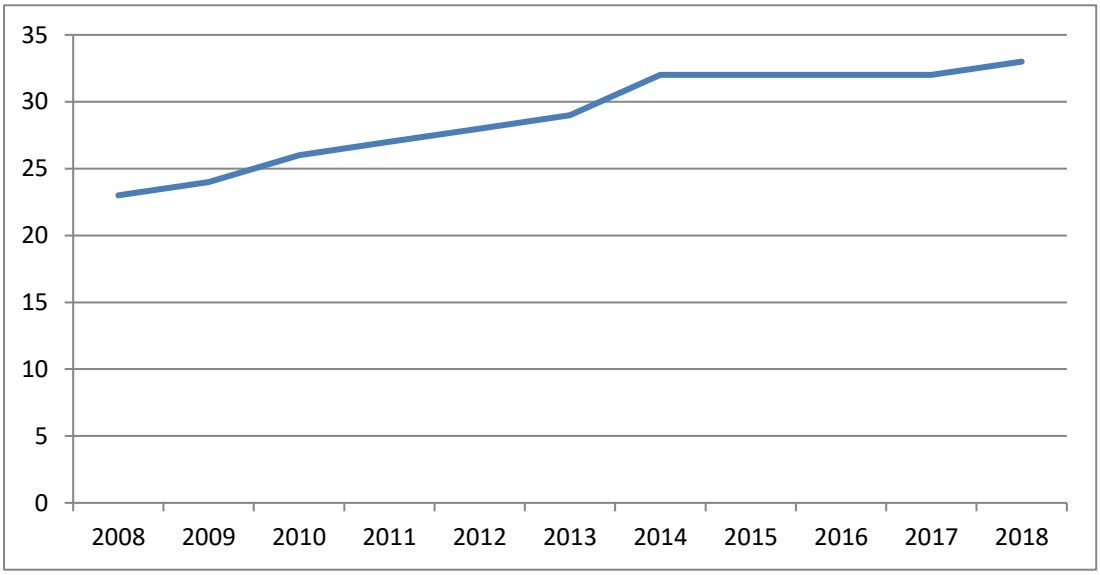

Figure 6 Number of wastewater treatment plants. 2008-2018

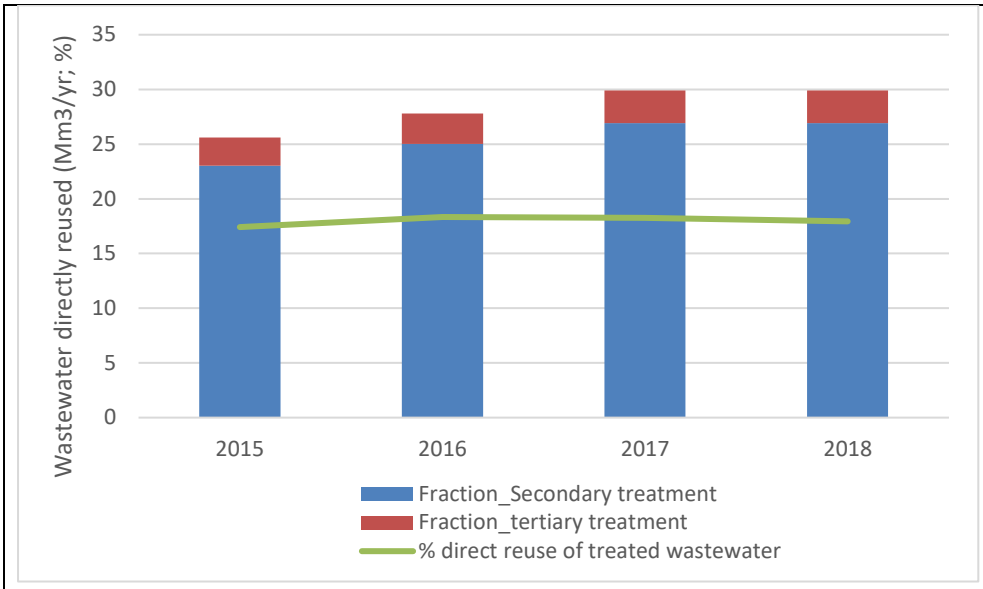

Figure 7 Wastewater directly reused. 2015-2018

Key assessment text

A steady increase in the volume of wastewater collected (from ~88 to 174 Mm^3/year between 2004 and 2018) and treated (from ~ 86 to 167 Mm^3/year in the same time period) is observed, following the trend in the volume of wastewater generated (Figure 3). On average around 60 % of the generated wastewater is collected. The increase in the volume of wastewater generated is driven by a staggering population increase over the same time period, from 5.6 Million inhabitants in 2004 to 10.3 Million inhabitants in 2018. However, when normalized per capita (Figure 4), the volumes of wastewater collected and treated stay roughly stable over time, with a slight decline between 2009 and 2016. This indicates that efforts and investments in wastewater management are barely sufficient to keep up with the increasing population.

Most of the collected wastewater is treated (average 95 %; Figure 5). The number of wastewater treatment plants (WWTPs) has increased from 23 in 2008 to 33 in 2018 (Figure 6) serving most cities and localities and reflecting the efforts of Jordan to improve the infrastructure of wastewater managment, to rehabilitate WWTPs their monitoring and evaluation. These efforts have resulted in improving public health and protecting the surface and groundwater against pollution. Nevertheless, Jordan faces challenges to sustain efforts and strengthen institutional capacities, cooperation and joint work with various partners and provide the necessary funding for maintenance and rehabilitation of WWTPs. Other challenges concern the introduction of the latest technologies, construction and modernization of monitoring, control and information systems.

In the past years, Jordan has moved towards more advanced levels of treatment, and now only has secondary and tertiary treatment levels. Jordan relies heavily on wastewater reuse as a non-conventional source of water and promotes wastewater treatment and reuse as an integral part of its national water strategy. The proportion direct reuse is around 17-18 % of the wastewater treated, amounting to 25 Mm^3/yr in 2015 and 30 Mm^3/yr in 2018. 90 % of the direct wastewater reused is subject to secondary treatment, the rest to tertiary treatment (Figure 7).

The Ministry of Water and Irrigation has updated the national water strategy for Jordan to manage and better control the use of all water resources according to environmental and public health regulations. There is an emphasis on encouraging the reuse of treated wastewater, both direct and indirect, particularly in the Jordan valley as a major resource for agriculture. This is the largest consumer in Jordan, where ~ 51 % of the total water budget is being allocated for irrigation.

As one of the most arid countries, the reuse of reclaimed wastewater, particularly domestic wastewater is of great importance to Jordan. The per capita share of renewable water resources is among the lowest in the world, and is declining over time. It is projected to drop from 145 m^3/capita/year (at present) to 90 m^3/capita/year by 2025. For this reason, an emphasis is put on the importance of the reuse of reclaimed water to alleviate pressures on the limited water resources and the environment, in response to an increasing demand for water.

References in key assessment text

- Jordan country profile: H2020 National report on Water (2019)

- Ministry of Water and Irrigation, Department of Statistics

Methodology for indicator calculation
The methodology followed for indicator calculation is described in the H2020 indicator specification sheets: https://eni-seis.eionet.europa.eu/south/areas-of-work/indicators-and-assessment

Data issues
Data is based on administrative records. Technical capacities are required to improve the quality of the data, to ensure compatibility in reporting units between all agencies submitting data, and to strengthen data collection and exchange between different stakeholders.