EEA/NSV/13/002 – ETC/ICM

European Environment Agency
European Topic Centre on Inland,
Coastal and Marine Waters

D3.3: Country level assessment approach

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1.0	19/11/2018	Joana Veiga, Sophie Vergouwen, Claudette Spiteri	First draft for EEA	EEA
2.0	11/12/2018	Joana Veiga, Sophie Vergouwen, Claudette Spiteri	Final version, after incorporation of feedback received from EEA	EEA, SEIS Team, countries

About this document

This document compiles the templates and guidance for countries on how to develop assessments for the WATER thematic areas and its cluster of indicators (Ind 3, Ind 4 and Ind 5). It was based on the EEA's assessment factsheets.

Thematic Assessment
WATER

Supported by the H2020 / NAPs Indicators:

3.1 Share of total, urban and rural population with access to an improved sanitation system
3.1 Proportion of population using safely managed sanitation services
4.1 Municipal wastewater collected and wastewater treated
4.2 Direct use of treated municipal wastewater
4.3 Release of nutrients from municipal effluents
5.1 Nutrient concentrations in transitional, coastal and marine waters
6.1 Release of nutrients from industrial sectors
5.2 Bathing water quality

Period: year - year

Version: x.0
Date: xx.xx.xx

Guidance Template for Thematic Assessment

H2020 / NAPs Indicators	
Thematic area **WATER**	**Date** DD.MM.YYYY **Author(s): Text** If you are filling up this template, affiliate your name as author. There may be more than one name as co-author (s)
Based on the following Indicators: You can list here the key indicators used for this thematic assessment, including H2020 indicators but also other indicators as appropriate. E.g. ***3.1*** *Share of total, urban and rural population with access to an improved sanitation system* ***3.1*** *Proportion of population using safely managed sanitation services* ***4.1*** *Municipal wastewater collected and wastewater treated* ***4.2*** *Direct use of treated municipal wastewater* ***4.3*** *Release of nutrients from municipal effluents* ***5.1*** *Nutrient concentrations in transitional, coastal and marine waters* ***6.1*** *Release of nutrients from industrial sectors* ***5.2*** *Bathing water quality*	

General note: The thematic assessment template builds on the separate indicator assessments for «3. Access to sanitation»; «4. Municipal Wastewater Management»; «5. Coastal and Marine Water Quality». It aims to provide a more holistic and integrated assessment of the WATER thematic, structured along the DPSIR analytical framework. In general, coastal and marine water quality can be considered as "state" indicators and it can be affected by "pressures" such as the discharge of insufficiently treated wastewater and agricultural runoff. In order to have a more holistic assessment and in view of informing policy, trends in the water quality coastal and marine waters can be interpreted in light of the trends in other «pressure» and «response» indicators, to reflect potential effectiveness of improvements in pollution prevention. Furthermore, additional data and information on levels of chlorophyll-a can further help to map and monitor eutrophication. Therefore, this thematic assessment should extend beyond the H2020 indicators and include other initiatives related to water such as SDGs, national policies and programmes, in the context of national characteristics. Where relevant, case studies should be used to illustrate progress and challenges related to the thematic WATER.

Note that in the following guidance, the order of the DPSIR has been modified (Drivers, **Responses,** Pressures, State and Impacts) in order to put more emphasis on the effectiveness of RESPONSES put in place and how these contributed towards reducing PRESSURES, improving STATE and mitigating IMPACTS. This modified « DRPSI » is also in line with the regional H2020 assessment framework on depolluting the Mediterranean. Moreover, the discussion on Pressures-Status-Impacts has been merged in order to avoid a fragmented assessment of the 3 components which are intrinsically linked.

A number of **keywords** are also included in each section to help in the elaboration of a more holistic assessment.

Text in blue provides guidance on how to fill in the different sections.

Key policy question: *E.g. Why is water a priority pollution issue in my country? What is the progress in preventing land-based sources of pollution related to wastewater and what is the improvement in coastal and marine water quality? What is the progress in using treated wastewater as a non-conventional source of water? How effective were project investments in alleviating water pollution issues in your country? How has H2020 initiative and UfM/Barcelona Convention overall policy process improved the level of engagement of national stakeholders in your country with respect to water pollution?*

The Key Policy Question may be reformulated to fit the national context (within the regional frame), as required.

Key messages

Based on all your analyses and assessments, the key messages on the thematic WATER should be developed. This is the most important section of the indicator assessment. The key messages should be short (usually 2-3 bullet points (or short paragraphs), simple, easily understandable but strong and explicit.

Keywords: Improving, progress, depolluting, deteriorating, challenges, success story, sustainable, national capacities, new legislation, environment/sustanability awareness, expected future developments, core issues at stake from the national perspective

Key DRIVERS

Here you can address the drivers that affect or lead to the need of improving sanitation and wastewater management, and deterioriting coastal and marine water quality. These can be best illustrated using fact & figures, and indicator data on e.g. population growth, rapid development, changes in climate, increase in coastal tourism, urban sprawl, changes in water consumption etc. Other drivers such as socio-political situation, (lack of) governance and infrastructure can be discussed.

Keywords: Population growth, urbanisation, land use, climate change, tourism, (lack of) governance, economic development, water consumption, (lack of) infrastructure, socio-economic drivers, regional policy, regional cooperation/integration.

Key RESPONSES

You can complement this section by refering to key policies, projects, investments, incentives and initiatives that have been implemented to improve public sanitation systems, wastewater management, coastal and marine water quality, and water in general.

Examples:

- Investment projects on improving waste water collection and treatment, planning and construction of

WWTPs;

- Water accounting, water reuse for irrigation, sludge recovery for agronomic benefits (fertilization, limitation of additional chemicals, reduction of soil erosion, etc.), increased treatment capacities, increased plant efficiency;

- Actions towards integrated water resources management (IWRM), including management of coastal and marine water.

You can also builds on the key assessment messages and figures of relevant indicators. E.g.:

- Ind 5.1 and 5.2 - Access to sanitation / SDG 6.2.1- access to safely managed sanitation systems
- Ind 4.1 - Municipal wastewater collected and treated;
- Ind 4.2 - Direct use of treated municipal wastewater

Keywords: Policy measures, regulations, national strategies, investments, access to finance, climate change adaptation, innovation, technology, pricing incentives, public awareness, SDGs, available infrastructure, water information system, monitoring, circular/green economy, non-conventional water use, post-2020 priorities

Key PRESSURES – STATUS - IMPACT

In this section, the most important pollution pressures (stresses that human activities place on the environment, more specifically on inland, freshwater, coastal and marine waters), the resulting environmental status and their impacts (on the natural environment, human health and socio-economics) should be discussed.

Facts and figures showing the trends in terms of PRESSURE sources, location and load quantities should be presented. This section can also build on the key assessment messages and figures for e.g.:

- Ind 4.3 – Nutrients from municipal effluents;
- Ind 6.1 – Release of nutrients from industrial sectors

The analysis of pressures can be linked to the evalaution of the environmental STATUS, building on the key assessment of Ind 5.1 Nutrient concentrations in transitional, coastal and marine waters.

When it comes to IMPACTS, one could distinguish between direct and indirect impacts on the environment, human health and socio-economics. Here you can also build on the key assessment messages and figures for e.g.:

- Ind 5.1- Nutrient concentrations in transitional, coastal and marine waters and IMAP indicators related to eutrophication (e.g. Common Indicator 14: Chlorophyll-a concentration in water column (EO5))
- Ind 5.2 - Bathing water quality

This analysis can be complemented by other studies or case studies related to the impact of land-based pressures on marine and coastal water quality, e.g. nutrient discharges from untreated wastewater, leading to eutrophication in coastal embayments and to deteriorating water quality, ecological impacts

but also impacts on tourism, livelihoods and human health.

Keywords: land-based sources of pollution, emerging pressures, pressures linked to migration, health, tourism, monitoring, good environmental status, deteriorating status, ecosystems, human health, economic development, spatial distribution of economic units, nature of industrial production, natural constraints, increase, decrease, trend

References in key assessment text

If you refer to information, assessments etc. from other publications and reports, the respective references should be listed here.

Guidance for Indicator Assessment

3. Access to Sanitation

H2020 / NAPs Indicators

3.1 Share of total, urban and rural population with access to an improved sanitation system (ISS)

3.2 Proportion of population using safely managed sanitation services (SMSS)

Period: year - year

Version: x.0
Date: xx.xx.xx

Guidance Template for Indicator Assessment

H2020 / NAPs Indicators	
Thematic area **WATER**	**Date** DD.MM.YYYY **Author(s): Text** If you are filling up this template, affiliate your name as author. There may be more than one name as co-author (s)
Policy theme **3. Access to Sanitation**	
Indicators: **3.1 Share of total, urban and rural population with access to an improved sanitation system (ISS)** **3.2 Proportion of population using safely managed sanitation services (SMSS)**	

General note:
This template for the indicator assessment sheet provides guidance, assistance and directions towards the elaboration of the H2020 indicator assessment at the national level. It follows the structure of the assessment templates used for the development of the Mediterranean Quality Status Report 2017 and the EEA Indicator Assessment sheets. It complements the corresponding Indicator Specification sheet, in which the « Rationale », « Indicator Definition », « Policy Context and Targets », « Methodology », « Uncertainties » are specified. Together, the Indicator Specification sheet and the Indicator Assessment sheet make up the Indicator Factsheet. This template should be filled in taking into account the policy scope of the Horizon 2020 Initiative and the progress in national implementation thereof.

The generic indicator assessment template has been modified to accommodate the two indictors (3.1 and 3.2) under the Policy Theme « 3. Access to Sanitation ». The following sections can be identified:

1. Key policy question
2. Specific policy question/specific figures/specific assessment text/references: one for each indicator 3.1 & 3.2
3. Key assessment text /references and key messages: based on the specific sections and pertaining to the overall policy theme « 3. Access to Sanitation »

Text in blue provides guidance on how to fill in the different sections; text in *green* provides example text.

Key policy question: *Are sanitation services improving in the Mediterranean?*

The Key Policy Question may be reformulated to fit the national context (within the regional frame), as required.

Specific policy questions:

3.1 What is the progress in access to improved sanitation systems in urban, rural and coastal areas?

Specific figure(s)

A copy of the figures (graphs or maps) should be inserted here, together with the link to the respective data package files containing the drill-down data, underpinning data and metadata. In case of maps, the metadata should be in a separate file.

Note that if no data at the requested scale is available, case studies can also be included.

A number of example illustations are provided below.

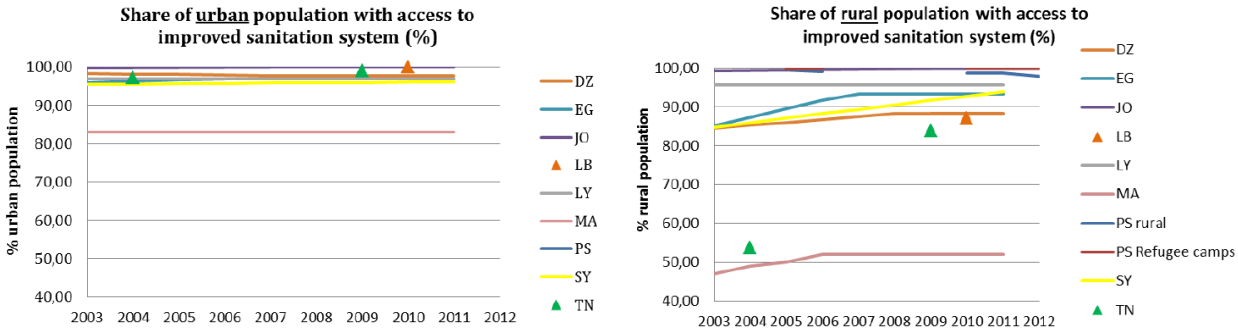

Figure 1 *– Share of urban (left) and rural (right) population with access to improved sanitation system 2003-2012.*
Source: Horizon 2020 Mediterranean report, 2014

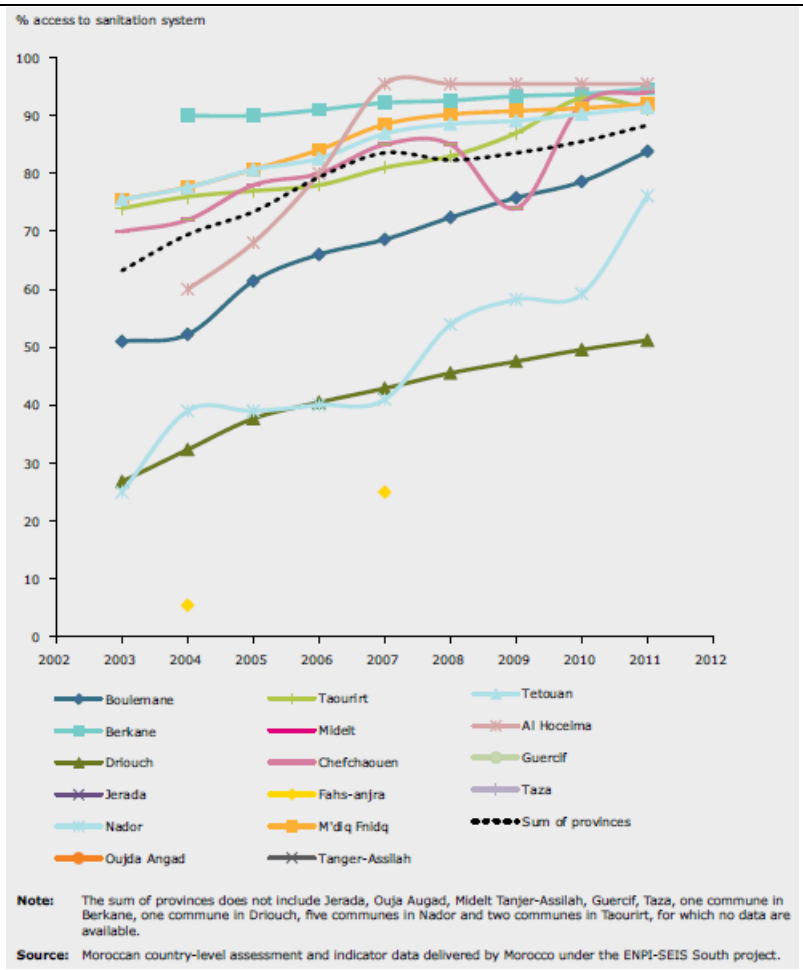

***Figure 2**– Percentage access to sanitation systems in 16 Moroccan provinces based on available data*

Source: H2020 Mediterranean report, 2014

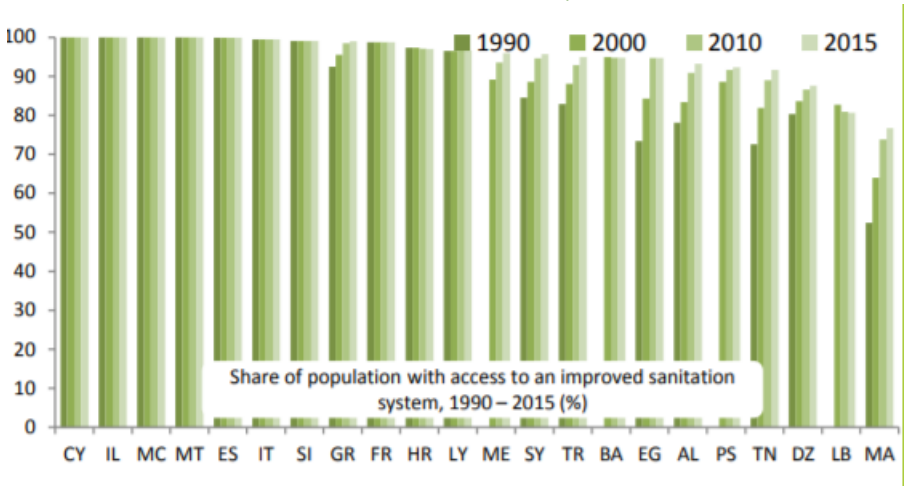

***Figure 3** – Share of the population with access to improved sanitation in the Mediterranean, 1990-2015.*

Source: Plan Blue 2016, based on UN database

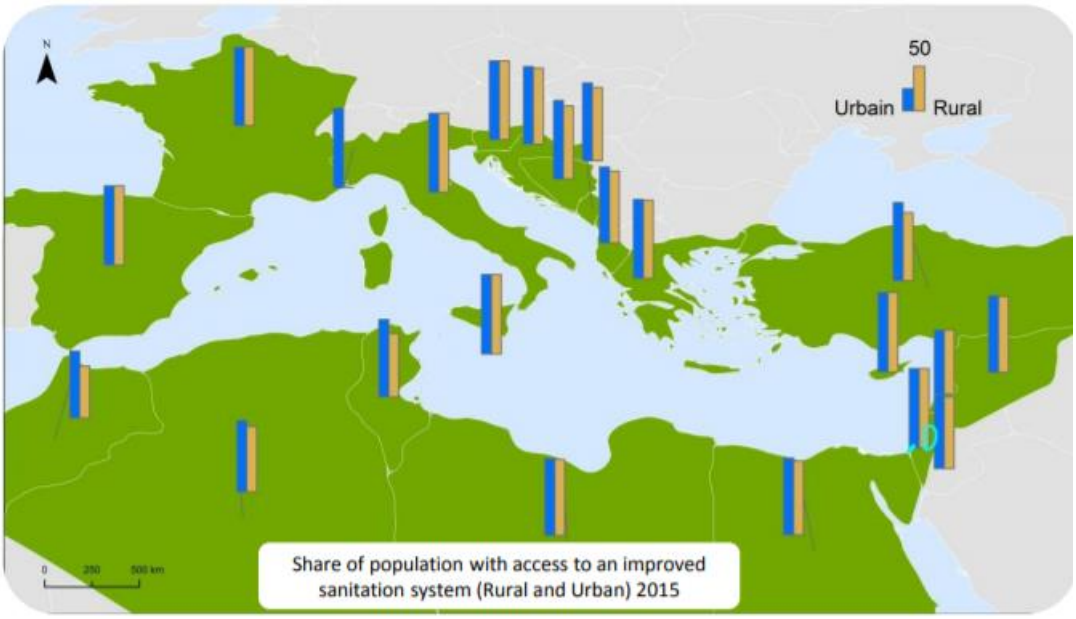

***Figure 4**– Share of the population with access to improved sanitation (orange=rural, blue=urban), 2015.*
Source: Plan Blue 2016, based on UN database

Specific assessment text

In this section, the specific assessment text for Ind 3.1 should be presented, based on the specific figures and addressing the specific policy question *« What is the progress in access to improved sanitation systems in urban, rural and coastal areas? »* above.

Example text from the H2020 Ind 3 Factsheet – ENI SEIS Phase I (2015):

The breakdown between urban and rural population (Figure 1) shows that in most cases, access to improved sanitation in rural areas is lagging behind. More than 5.5 million people living in urban areas and no less than 12 million rural dwellers were deprived from access to improved sanitation systems in 2011 and had to revert to public or shared solutions and open defecation. The corresponding data from 2003 shows that the number of people without access to improved sanitation systems was 5.5 and 18 million in urban and rural areas, respectively. This implies that the gap between the urban and rural coverage has been gradually narrowing down in most countries over the time period 2003-2011.

Example text from the H2020 Mediterranean report (2014):

A steady increase was observed in the access to sanitation systems in the coastal hydrological basin of Morocco during the time period from 2003 to 2011 in the 16 provinces (see Figure 2). Based on the available data, the rate of access to sanitation systems in 2011 has exceeded 90 % in the following 6 provinces: Berkane, Taourirt, Chefchaouen, M'Diq Fnidq, Tetouan and Al Hoceima. In the ENPI-SEIS focus area, coverage increased from ~ 63 % in 2003 to 88 % in 2011, denoting a significant progress in sanitation services. This estimation, however, does not include the provinces of Jerada, Ouja Augad, Midelt Tanjer-Assilah, Guercif, Taza, one commune in Berkane, one commune in Driouch, five communes in Nador and two communes in Taourirt, with a collective population of 1.9 million inhabitants in 2003 and 1.3 million inhabitants in 2011, for

which no data are available. At national level, the rate of access to sanitation systems is around 70 %.

Example text from the Plan Blue Access to Sanitation fact sheet (2016)

In the Mediterranean, about 27 million people do not have access to an adequate sanitation system. In 2015, the proportion of the population with access to a sanitation system is about 77% in Morocco and 100 % in most of the northern Mediterranean countries (Figure 3 and 4). The percentage of the urban population with access to a sanitation system is higher than 90%, with the exception of Morocco (84%), Lebanon (81 %). The disparities between urban and rural areas are still great and the access rate in rural areas can be lower than 80% (Morocco, Tunisia). The rate of the access to an improved sanitation system in the south and east Mediterranean countries (95%) is higher than the world average (about 78%). It is the same situation for the access rate in urban (96%) and rural areas (88%).

References in specific assessment text

If you refer to information, assessments etc. from other publications and reports, the respective references should be listed here.

Specific policy questions:

3.2 What is the progress in the proportion of the population using safely managed sanitation services?

Specific figure(s)

A copy of the figures (graphs or maps) should be inserted here, together with the link to the respective data package files containing the drill-down data, underpinning data and metadata. In case of maps, the metadata should be in a separate file.

Note that if no data at the requested scale is available, case studies can also be included.

A number of example illustations are provided below.

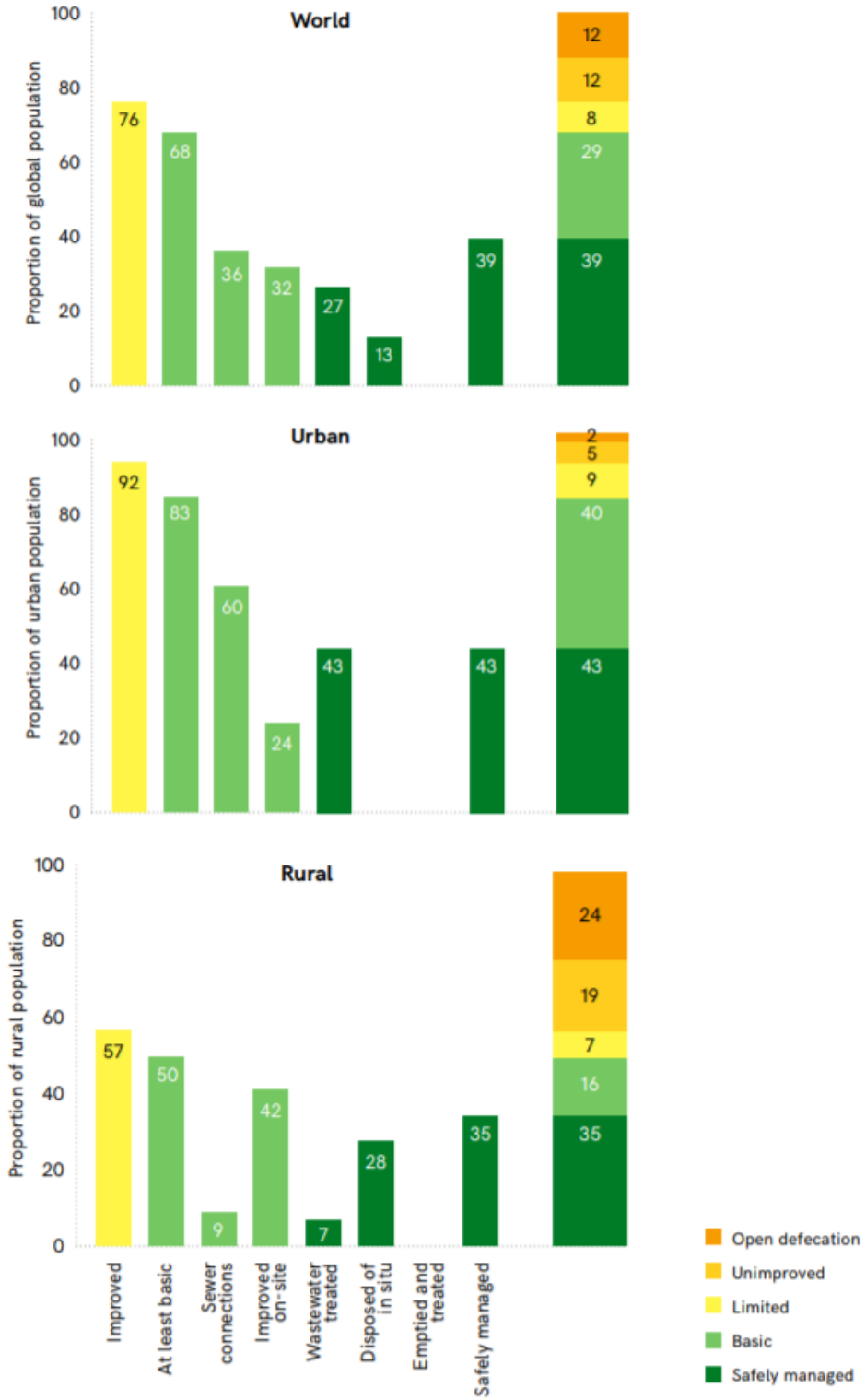

Figure 5 *– Population using sanitation facilities meeting SDG criteria for safely managed services, global, rural and urban, 2015*
Source: WHO/UNICEF, 2017

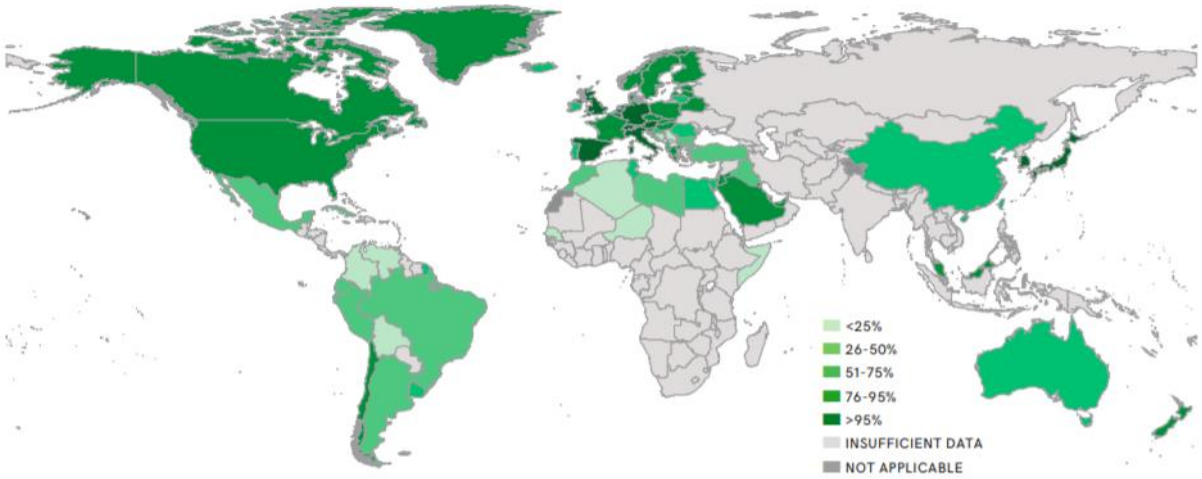

Figure 6 *– Proportion of population using safely managed sanitation services, 2015. Source: WHO/UNICEF, 2017*

Specific assessment text

In this section, the specific assessment text for Ind 3.2 should be presented, based on the specific figures and addressing the specific policy question « *What is the progress in the proportion of the population using safely managed sanitation services?* » above.

Examples from the WHO/UNICEF, 2017. (Note the text refers to the global context. As this is a relatively new indicator, example assessment text at the Mediterranean level is not yet available)

Figure 5 illustrates the global implications of taking into account the new SDG criteria for safely managed sanitation services. Globally, 76 % of the population used improved sanitation facilities in 2015, of which 68 per cent were not shared and count as at least basic sanitation services. Thirty-six per cent of the population had at least basic services provided by means of sewer connections, while 32 % used septic tanks, latrines or other improved on-site sanitation facilities that were not shared with other households. Where data on excreta management are available, some of these basic services can meet the criteria for safely managed sanitation services. Twenty-six per cent of the population used toilets connected through sewers to a facility which provided wastewater treatment, and were thus classified as having safely managed sanitation services. Another 13 % used improved on-site facilities where wastes are disposed of in situ.This counts as a form of treatment and is also classified as safely managed. Where data on excreta management are not available, the entire population using improved facilities that are not shared is classified as having at least basic services.

Globally, improved sanitation facilities (including shared facilities) are evenly split between sewer connections and on-site systems, with 2.8 billion people (38 %) using sewer connections and another 2.8 billion using septic tanks, latrines or other improved on-site systems (Figure 6).

References in specific assessment text

If you refer to information, assessments etc. from other publications and reports, the respective references should be listed here.

Key assessment text
In this section, the outcomes of the specific assessment text below should be integrated to answer the overall key policy question « *Are sanitation services improving in the Mediterranean?* ». EEA uses the DPSIR framework (Driving force/ Pressure/ State/ Impact and Response) to characterise the typology of the different environmental indicators. In general, access to sanitation can be considered as "pressures" indicators and it can be affected by "drivers" such as population growth. In this sense, «integration » can be done using the DPSIR framework, or any adjustment of it that helps linking analytical elements together. Note that such linkages can be specific to a particular country situation. Also, it is important to refer to the Indicator Specification sheet and more specifically to the Rationale for each indicator to help identify the elements to integration, e.g. natural/ecological/GES/policy/governance, relevant at the national level. Any linkages in the sub-indicators (e.g. similar trends, hotspot locations etc) should be analyzed in order to derive the overall key messages. An overview of the key assessment points and the link between the different DPSIR indicators can be provided in the overall « WATER Thematic Assessment ». **Example of key assessment text in support to key policy question from H2020 Ind 3 Factsheet – ENI SEIS Phase I and H2020 Mediterranean report, 2014:** *In 2011, around 92 % of the population in the ENP South region had access to improved sanitation. Most countries reached connection rates as high as 95 % of the total population, as compared to an overall coverage of 87.5 % in 2003. This implies that steady progress has been achieved since 2003 in all the ENP South countries, in particular in Egypt and Tunisia where coverage increased by more than 5 % of the total population over the time period 2003 -2011. Since 2003, more than 3 million people have gained access to improved sanitation in the region, in large part made possible by investments from regional and international cooperation.* *Although the indicator data shows general progress in access to sanitation services, it does not take fully into account the actual population growth and urban sprawl (especially informal) which are amongst the major drivers, as well as pressures in the region. These figures should therefore be interpreted with caution, accounting for a possible bias that depicts a more favourable situation than it actually is in reality. Although most countries have already reached the target set for 2015 (MDG database; UNSD), data for 2011 shows that an estimated 17.6 million people continued to rely on unimproved sanitation solutions, calling for more localized efforts.*
References in key assessment text
If you refer to information, assessments etc. from other publications and reports, the respective references should be listed here.

Key messages*(in +/- 3 bullet points, based on key assessment text)*

Based on all your analyses and assessment, the key messages should be developed. This is the most important section of the indicator assessment and in many cases is the final section to be written. The key messages should be simple, easily understandable, but strong and explicit. They should only contain the final judgement of your assessment as response to the key policy questions and specific policy questions.

Key messages should contain factual statements and are usually 2-3 bullet points (or short paragraphs). Each point should be 1-2 sentences and not a long text, nor a plain copy of the assessment text.

When writing Key Messages, it is important to reflect on the following:

- distribution coastal versus marine,
- time frame of the current assessment (baseline/reference year, or time periods considered in the assessment)
- uncertainties/knowledge gaps
- national characteristics within a regional context

Example key messages from the* H2020 Ind 3 Factsheet – ENI SEIS Phase I *(2015):

- *Steady progress in access to improved sanitation services has been achieved since 2003 in all the ENP South countries. In 2011, ~ 92 % of the population in the ENP South region had access to improved sanitation as compared to 87.5 % in 2003, in large part made possible by investments from regional and international cooperation.*
- *It is estimated that ~11.5 out of the 17.6 million inhabitants without access to sanitation systems are concentrated in the coastal watershed. Therefore access to sanitation systems in still deserves attention in localized regions.*
- *The gap between urban and rural coverage still remains: more than 5.5 million people living in urban areas and no less than 12 million rural dwellers were deprived of access to improved sanitation systems in 2011. However, when compared to 2003, this gap has been narrowing down in most countries over the time period 2003-2011.*

Guidance for Indicator Assessment

4. Municipal Wastewater Management

H2020 / NAPs Indicators

4.1 Municipal wastewater collected and wastewater treated

4.2 Direct use of treated municipal wastewater

4.3 Release of nutrients from municipal wastewater

Period: year - year

Version: x.0
Date: xx.xx.xx

Guidance Template for Indicator Assessment

H2020 / NAPs Indicators	
Thematic area **WATER**	**Date** DD.MM.YYYY **Author(s): Text** If you are filling up this template, affiliate your name as author. There may be more than one name as co-author (s)
Policy theme **4. Municipal Wastewater Management**	
Indicators: **4.1 Municipal wastewater collected and wastewater treated** **4.2 Direct use of treated municipal wastewater** **4.3 Release of nutrients from municipal wastewater**	

General note:
This template for the indicator assessment sheet provides guidance, assistance and directions towards the elaboration of the H2020 indicator assessment at the national level. It follows the structure of the assessment templates used for the development of the Mediterranean Quality Status Report 2017 and the EEA Indicator Assessment sheets. It complements the corresponding Indicator Specification sheet, in which the « Rationale », « Indicator Definition », « Policy Context and Targets », « Methodology », « Uncertainties » are specified. Together, the Indicator Specification sheet and the Indicator Assessment sheet make up the Indicator Factsheet. This template should be filled in taking into account the policy scope of the Horizon 2020 Initiative and the progress in national implementation thereof.

The generic indicator assessment template has been modified to accommodate the three indictors (4.1, 4.2 and 4.3) under the Policy Theme « 4. Municipal Wastewater Management ». The following sections can be identified:

4. Key policy question
5. Specific policy question/specific figures/specific assessment text/references: one for each indicator 4.1, 4.2 & 4.3
6. Key assessment text /references and key messages: based on the specific sections and pertaining to the overall policy theme « 4. Municipal Wastewater Management »

Text in blue provides guidance on how to fill in the different sections; text in *green* provides example text.

Key policy question: *Is wastewater management in the Mediterranean improving?*

The Key Policy Question should be reformulated to fit the national context (within the regional frame), as required.

Specific policy questions:

4.1What is the progress in municipal wastewater collected and treated?

Specific figure(s)

A copy of the figures (graphs or maps) should be inserted here, together with the link to the respective data package files containing the drill-down data, underpinning data and metadata. In case of maps, the metadata should be in a separate file.

Note that if no data at the requested scale is available, case studies can also be included.

Below a number of example illustations are provided.

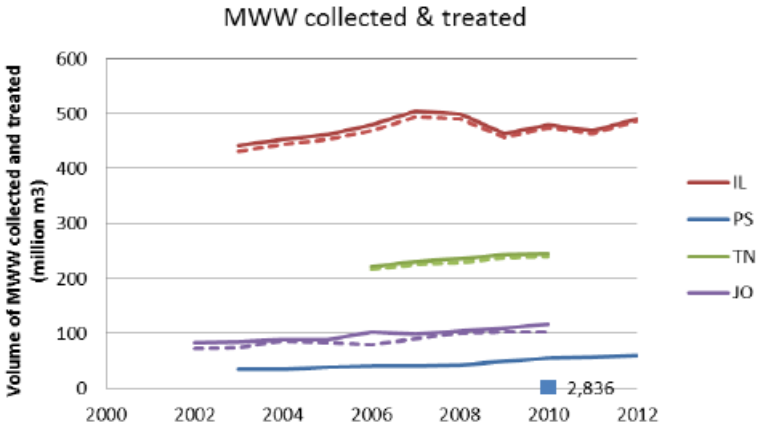

Figure 1 *– Volume of municipal wastewater collected and treated in the ENP South region per country. Note that data for Tunisia (TN) refers to entire country and to the volume of municipal wastewater collected by public sewage networks only.*

Source: H2020 Indicator 4 Fact Sheet SEIS I

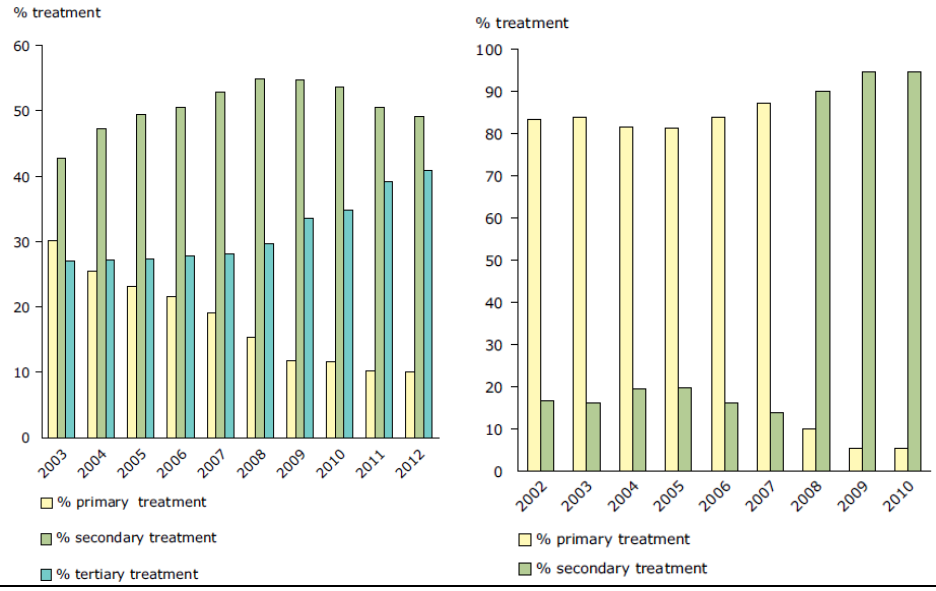

***Figure 2** – Wastewater treatment type during the period 2003-2012 in Israel (left) and Jordan (right).*
Source: National reporting, 2013

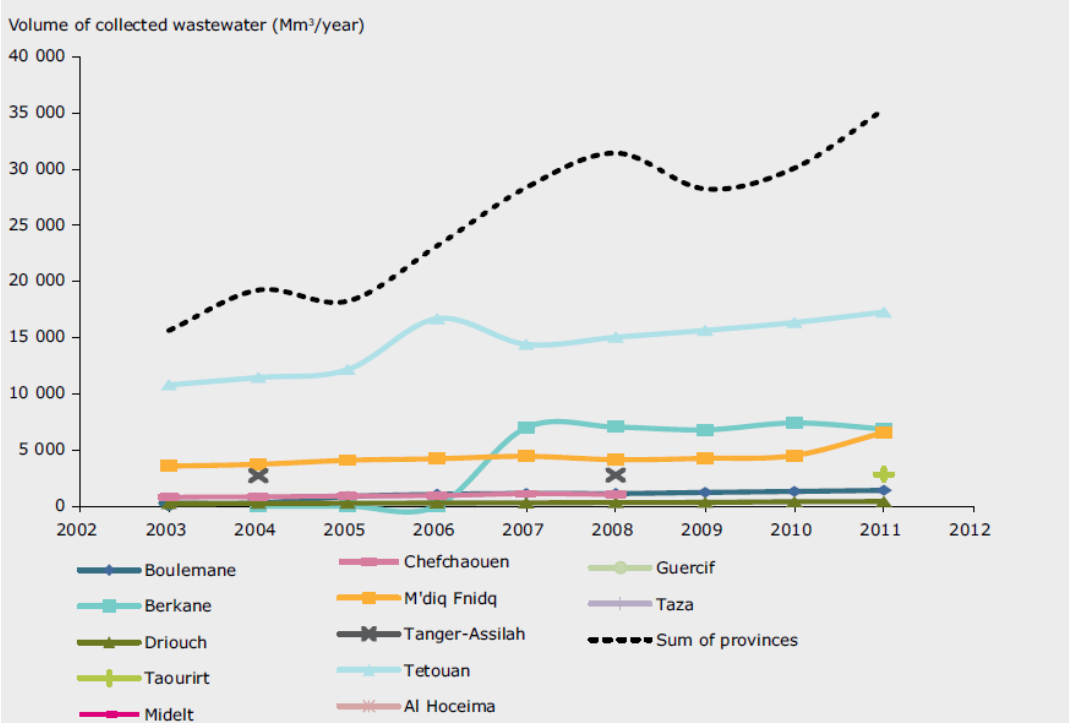

***Figure 3** – Volume of collected wastewater (Mm³/year) in the 16 provinces located in the Mediterranean coastal hydrological basins of Morocco*
Source: H2020 Mediterranean report, 2014

Governorate	Number of stations
Cairo	11
Giza	7
El-Qallliopiah	11
Alexandria	17
Kafr El-Sheikh	22
El-Sharkeya	29
Damietta	27
Dakahlia	43
El-Beheira	22
El-Garbia	34
El- Menoufia	19
El-Minya	11
Bani Sueif	14
Aswan	14
El-Fayoum	25
Luxor	5
Qena	5
Sohage	6
Ismaila	7
Port Said	5
Suez	3
Assiut and New Valley	5/14
North and South Sinai	12
Red Sea	1
Matrouth	1
Total	370

***Figure 4** – Number of WWTPs in 2012/13 per governorate in Egypt*
Source: Egypt country-level assessment, EEAA, 2013.

Specific assessment text

In this section, the specific assessment text for Ind 4.1 should be presented, based on the specific figures and addressing thespecific policy question « What is the progress in municipal wastewater collected and treated?» above.

Example from the *H2020 Ind 4 Factsheet – ENI SEIS Phase I*

Although the geographical context of H2020 is the 22 Mediterranean bordering countries and Jordan, the following indicator assessment focuses primarily on the 8 ENP south countries (Algeria, Egypt, Israel, Jordan Lebanon, Morocco Palestine and Tunisia). Indicator 4 on wastewater management (Figure 1) shows a general increase in the volume of wastewater collected and treated in Israel, Jordan, Palestine and Tunisia over the past 10 years. In some countries, such as Palestine and Jordan, the volume of wastewater collected in 2011 is nearly 50 % higher than in 2003. A similar increase in the volume of wastewater treated is observed, implying that most of the collected wastewater (~80-98.6 %; Figure 1)undergoes treatment.

In Israel, a gradual shift from primary treatment to tertiary treatment is observed, with around 40 % of the wastewater undergoing tertiary treatment in 2012 (Figure 2, left). Around 50 % of wastewater is subject to secondary treatment while 10 % of wastewater undergoes primary treatment. Jordan also experienced a drastic shift from primary to secondary wastewater treatment, with more than 90 % of the wastewater treatment being subject to secondary treatment in 2010 (Figure 2, right). The most significant change occurred between 2006 and 2007 when the wastewater treatment plant Alkerbeh Al-Samra, which treats more than 50% of wastewater, was upgraded to perform biological treatment in addition to mechanical treatment.

Example text from the H2020 Mediterranean report (2014):

Data for the communes and provinces in the coastal hydrological basins of Oued Moulouya and Tangier in Morocco shows an overall general increase in the volume of wastewater collected in the 16 coastal provinces (Figure 3). The increase in collected wastewater (from ~ 15 000 Mm^3/year in 2003 to 35 000 Mm^3/year in 2011) not only compensates for the 17 % growth in population over the same time period, but also indicates improved wastewater collection practices and facilities. In fact, data available for selected communes show a gradual increase in the volume of wastewater collected per capita.

Figure 4 shows the number of wastewater treatment plants in Egypt in 2012/2013. In Egypt, the total number of WWTPs has been increased from 301 plants in the year 2008/2009 to 333 plants in 2010/11, reaching 370 plants in 2012/2013. This represents an increase of about 23 % across all Egypt.

References in specific assessment text

If you refer to information, assessments etc. from other publications and reports, the respective references should be listed here.

Specific policy questions:

4.2 What is the progress in direct use of treated municipal wastewater?

Specific figure(s)

A copy of the figures (graphs or maps) should be inserted here, together with the link to the respective data package files containing the drill-down data, underpinning data and metadata. In case of maps, the metadata should be in a separate file.

Note that if no data at the requested scale is available, case studies can also be included.

Below a number of example illustations are provided.

Figure 5 *– Disposal of treated and untreated wastewater in the Mediterranean and ENP South countries*

Source: UNEP/MAP/MED POL, 2011.

	Total population (1000 inhab) 2006 data [1] (A)	Total volume of treated wastewater reuse ($m^3 d^{-1}$)[2] (B)	Total Volume of treated wastewater per capita (C) = (B) / (A)	Types of Wastewater Reuse reported in different countries [3]
In Europe:				
Spain	43,887	1,117,808	25,470.14	Agriculture, Municipal, groundwater recharge, environmental
France	61,330	19,178	312.70	Agricultural, municipal, potable
Monaco	33	n/a	n/a	-
Malta	405	10,960	27.06	Agricultural, industrial
Italy	58,779	123,288	2,097.48	Agricultural, municipal, groundwater recharging, industrial
Slovania	2,001	n/a	n/a	-
Croatia	4,556	n/a	n/a	-
Bosnia-Herz.	3,926	n/a	n/a	-
Albania	3,172	n/a	n/a	-
Greece	11,123	28,000	2,517.31	Agriculture, industrial
Cyprus	846	68,493	80.96	Agricultural, municipal, environmental
In Asia:				
Turkey	73,922	136,986	1,853.12	Agricultural, Municipal, Environmental
Syria	19,408	1,014,000	52,246.50	Agricultural, groundwater recharge
Lebanon	4,055	5,500	1,356.35	-
Palestine	3,889		n/a	Agricultural, groundwater recharge
Israel	6,810	1,014,000	148,898.68	Agricultural, municipal, groundwater recharge, environmental
In Africa:				
Egypt	74,166	1,780,821	24,011.29	Agricultural, groundwater recharge
Libya	6,039	110,000	18,214.94	Agricultural
Tunisia	10,215	512,328	50,154.48	Agricultural, municipal, groundwater recharge, environmental
Algeria	33,351	-	n/a	Agricultural, municipal, groundwater recharge, environmental
Morocco	30,853	6,600	213.92	Non treated wastewater reused

(1) Source: FAO, 2009
(2) Source: studies referenced in this paper and U.S.EPA, 2004
(3) *Source: Asano and Jimenez, 2008*

Figure 6 *– Water reuse in Mediterranean countries*
Source: Kellis et al., 2013

Specific assessment text

In this section, the specific assessment text for Ind 4.2 should be presented, based on the specific figures and addressing the specific policy question «*What is the progress in direct use of treated municipal wastewater?* » above.

Example text from the H2020 Mediterranean report (2014):

Based on the analysis carried out by UNEP/MAP/ MED POL, (2011), information on the type of discharge of treated and, in particular, untreatedwastewater in the Mediterranean region, is

largely unavailable (Figure 5). In general, the most common ways of disposal of both treated and untreated wastewater is through its discharge, either directly into the sea or into rivers that drain into the sea. The fraction of treated wastewater that is reused amounts to 7 % in the Mediterranean region. ENP South country data show that more than half of the treated wastewater is disposed of through discharge into rivers, while the untreated fraction is more likely to be discharged directly into the sea. The extent of reuse of both treated and untreated wastewater is limited to ~ 1 % in ENP South countries.

Example for Morocco from Kellis et al. (2013):

Most wastewater treatment plants in Morocco are secondary plants (Fatta et al., 2005). The volume of collected municipal wastewater was estimated at 380 Mm^3/yr in 1998, 500 Mm^3/yr in 2000, and is expected to reach 700 Mm^3/yr by 2020. 58% of the treated wastewater is discharged into the sea and 52% into rivers. 85% of the produced sewage does not undergo treatment. There are 69 wastewater treatment plants in Morocco and only 29 or 40% remain in operation whereas the rest are either out of order, or non-completed. Current uses of treated wastewater are primarily agriculture, and in a very limited way landscaping and industrial uses, and cement. Potential future uses include aquaculture, agro-forestry, environmental reuse and industrial reuse (Kalavrouziotis and Arslan-Alaton, 2008; Choukr-Allah, 2005).

References in specific assessment text

If you refer to information, assessments etc. from other publications and reports, the respective references should be listed here.

Specific policy questions:

4.3 Is the release of nutrients from municipal wastewater diminishing?

Specific figure(s)

A copy of the figures (graphs or maps) should be inserted here, together with the link to the respective data package files containing the drill-down data, underpinning data and metadata. In case of maps, the metadata should be in a separate file.

Note that if no data at the requested scale is available, case studies can also be included.

Below a number of example illustations are provided.

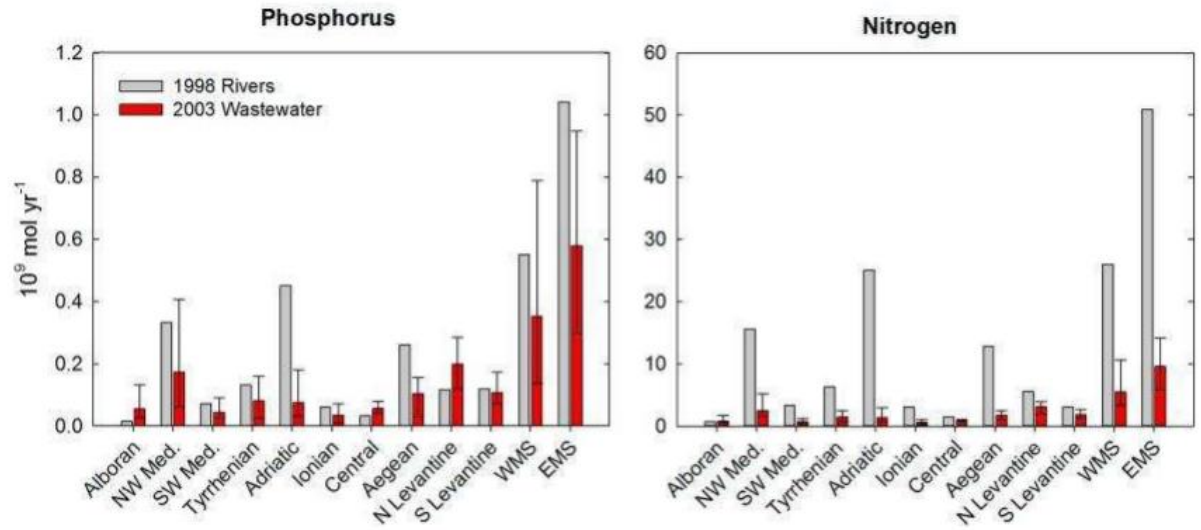

Figure 7 *– Inputs of Total Phosphorus (TP) and Total Nitrogen (TN) to the Mediterranean Sea: direct domestic wastewater versus riverine discharges. Wastewater inputs are those calculated in this study for year 2003 (baseline), riverine inputs are those reported in Ludwig et al.2010 for year 1998. WMS = Western Mediterranean Sea, EMS = Eastern Mediterranean Sea.*
Source: Powley et al., 2016

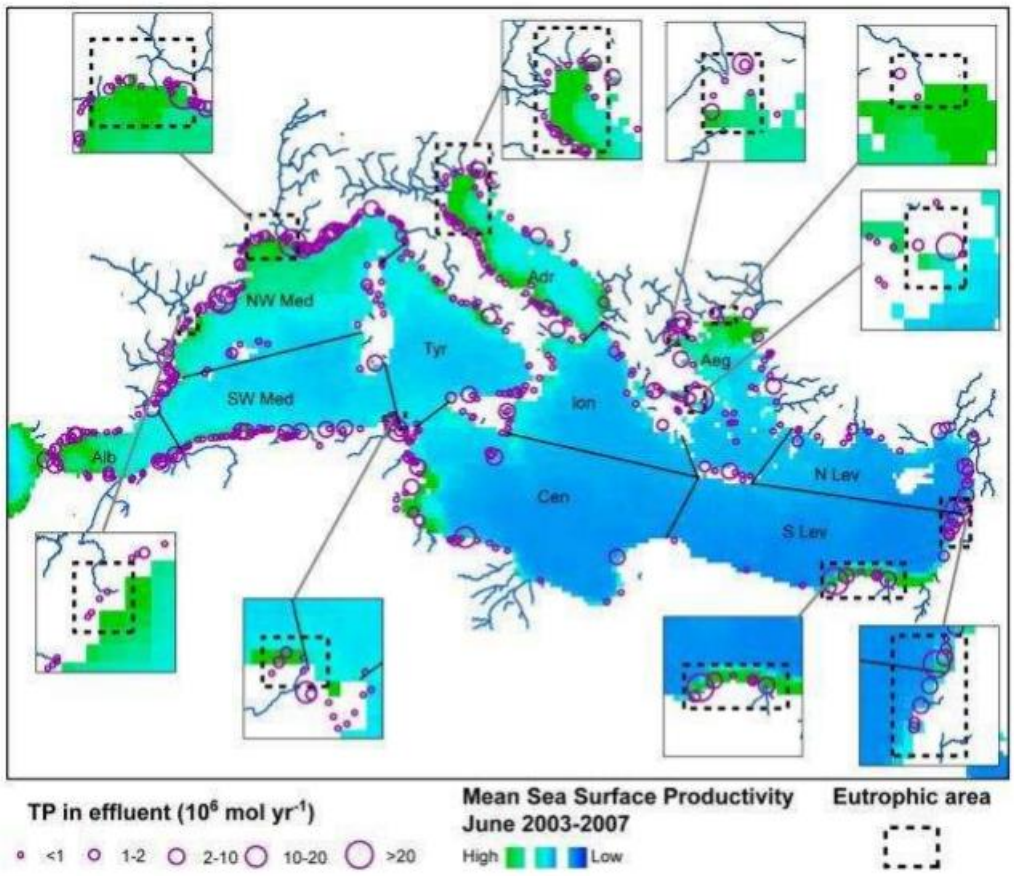

Figure 8 *–Direct domestic wastewater discharges of Total Phosphorus (TP) into the Mediterranean Sea from cities with more than 10 000 inhabitants (purple circles) in year 2003 (baseline). Also shown are the spatial distribution of the mean primary productivity across Mediterranean surface waters,56 and coastal areas with 2 or more classified eutrophic sites between 1960 and 2016 (dashed boxes). Alb = Alboran Sea; NW Med = North-West Mediterranean; SW Med = South West Mediterranean; Tyr = Tyrrhenian Sea; Cen = Central Mediterranean; Ion = Ionian Sea; Adr = Adriatic Sea; Aeg = Aegean Sea; N Lev = North Levantine; S Lev = South*

Levantine.
Source: Powley et al, 2016

Specific assessment text

In this section, the specific assessment text for Ind 4.3 should be presented, based on the specific figures and addressing the specific policy question «*Is the release of nutrients from municipal wastewater diminuishing?*» above.

Example adapted from Powley et al, 2016:

For 2003, the estimates of the aggregated inputs of domestic TP and TN discharged directly into the entire Mediterranean Sea, by 534 cities with population ≥10 000 plus 950 cities with 2000–10 000 inhabitants, are 0.93 × 10^9 mol P/yr and 15 × 10^9 mol N/yr. For P, the direct wastewater input estimate is comparable to the riverine input to the Mediterranean Sea, while for N it is distinctly lower (Figure 7).

Treated wastewater contributes mostly to the direct domestic wastewater P and N inputs from Northern Mediterranean countries (79% and 80% of the TP and TN total inputs, respectively); for Eastern Mediterranean countries and Southern Mediterranean countries untreated wastewater is the main source, with only 16 and 36% contributions from treated wastewater, respectively. Lebanon, Libya, and Syria, in particular, lack adequate wastewater treatment facilities: 95–100% of all P and N in effluent outfalls into the Mediterranean Sea comes from untreated wastewater. Of all the sub-basins of the Eastern Mediterranean countries, the North Levantine basin yields the highest per capita TP and TN inputs from direct domestic wastewater discharges (Figure 8).

References in specific assessment text

If you refer to information, assessments etc. from other publications and reports, the respective references should be listed here.

Key assessment text

In this section, the outcomes of the specific assessment text below should be integrated to answer the overall key policy question «*Is wastewater management in the Mediterranean improving?* ».

EEA uses the DPSIR framework (Driving force/ Pressure/ State/ Impact and Response) to characterise the typology of the different environmental indicators. In general, municipal wastewater can be considered as a "pressure" whereas the collection and treatment of municipal wastewater is considered as a "response" . In this sense, «integration » can be done using the DPSIR framework, or any adjustment of it that helps linking analytical elements together. Note that such linkages can be specific to a particular country situation. Also, it is important to refer to the Indicator Specification sheet and more specifically to the Rationale for each indicator to help identify the elements to integration, e.g. natural/ecological/GES/policy/governanace, relevant at the national level. Any linkages in the sub-indicators (e.g. similar trends, hotspot locations etc) should be analyzed in order to derive the overall key messages.

An overview of the key assessment points and the link between the different DPSIR indicators can be provided in the overall « WATER Thematic Assessment ».

Example of key assessment text in support to key policy question from the H2020 Mediterranean

assessment 2014.

The discharge of untreated municipal wastewater in coastal areas or rivers flowing into the Mediterranean Sea remains a major environmental issue in most ENP South countries and therefore constitutes one of the challenges of H2020. Municipal wastewater carries high loads of nutrients (nitrogen and phosphorus), pathogens and microorganisms (including coliforms, faecal streptococci, and salmonellae) posing direct or indirect risks to human health and well-being. In cities with intense industrial activity, municipal wastewater discharged directly into public sewerage systems generally contains a variety of chemical wastes: total dissolved solids, ions (such as sodium, calcium and magnesium), organic compounds (such as phenols, pesticides and chlorinated hydrocarbons) and metals (such as cadmium, zinc, nickel, and mercury). These substances are of particular concern due to their toxicity and their resistance to conventional wastewater treatment methods.

One identified source of environmental pressure in Morocco in relation to the operation of the existing treatment plants is the management of the significant amounts of generated sludge. It is estimated that quantity of produced sludge in the study area was approximately 4 184 tonnes/year in 2010, representing almost 12 % of national production. This production is mainly related to the wastewater treatment in the cities of Nador and Al Hoceima.

References in key assessment text

If you refer to information, assessments etc. from other publications and reports, the respective references should be listed here.

Key messages *(in +/- 3 bullet points, based on key assessment text)*

Based on all your analyses and assessment, the key messages should be developed. This is the most important section of the indicator assessment and in many cases is the final section to be written. The key messages should be simple, easily understandable, but strong and explicit. They should only contain the final judgement of your assessment as response to the key policy questions and specific policy questions.

Key messages should contain factual statements and are usually 2-3 bullet points (or short paragraphs). Each point should be 1-2 sentences and not a long text, nor a plain copy of the assessment text.

When writing Key Messages, it is important to reflect on the following:

- distribution coastal versus marine
- time frame of the current assessment (baseline/reference year, or time periods the assessment is looking at)
- uncertainties/knowledge gaps
- national characteristics within a regional context

Example key messages from the H2020 Ind 4 Factsheet – ENI SEIS Phase I

- *In general, an increase in the volume of wastewater collected and treated is observed in those countries for which data is available. This increase does not only cover the concurrent population growth but also contributes to the relative improvement of the wastewater management practices in the region. However, it is not possible to confirm whether these trends are the result of increased data coverage or the result of heavy investments in wastewater treatment contributing towards social and economic development.*
- *Although the indicator data provided in the frame of the ENPI-SEIS project shows that volume of treated wastewater follows closely the volume of wastewater collected, the fraction of collected wastewater does not always reflect the volume of wastewater that is generated. This implies that the fraction of generated wastewater that remains uncollected (and therefore untreated) is not accounted for by this indicator.*

Guidance for Indicator Assessment

5. Coastal and Marine Water Quality

H2020 / NAPs Indicators

5.1 - Nutrient concentrations in transitional, coastal and marine waters

5.2 - Bathing water quality

Period: year - year

Version: x.0
Date: xx.xx.xx

Guidance Template for Indicator Assessment

H2020 / NAPs Indicators	
Thematic area **WATER**	**Date** DD.MM.YYYY **Author(s): Text** If you are filling up this template, affiliate your name as author. There may be more than one name as co-author (s)
Policy theme **5. Coastal and Marine Water Quality**	
Indicators: **5.1 Nutrient concentrations in transitional, coastal and marine waters** **5.2 Bathing water quality**	

General note:
This template for the indicator assessment sheet provides guidance, assistance and directions towards the elaboration of the H2020 indicator assessment at the national level. It follows the structure of the assessment templates used for the development of the Mediterranean Quality Status Report 2017 and the EEA Indicator Assessment sheets. It complements the corresponding Indicator Specification sheet, in which the « Rationale, « Indicator Definition », « Policy Context and Targets », « Methodology », « Uncertainties » are specified. Together, the Indicator Specification sheet and the Indicator Assessment sheet make up the Indicator Factsheet. This template should be filled in taking into account the policy scope of the Horizon 2020 Initiative and the progress in national implementation thereof.

The generic indicator assessment template has been modified to accommodate the two indictors (5.1 and 5.2) under the Policy Theme « 5. Coastal and Marine Water Quality ». The following sections can be identified:

7. Key policy question
8. Specific policy question/specific figures/specific assessment text/references: one for each indicator 5.1 & 5.2
9. Key assessment text /references and key messages: based on the specific sections and pertaining to the overall policy theme « 5. Coastal and Marine Water Quality »

Text in blue provides guidance on how to fill in the different sections; text in *green* provides example text.

Key policy question: *Is the quality of coastal and marine waters improving?*

The Key Policy Question may be reformulated to fit the national context (within the regional frame), as required.

Specific policy questions:

5.1 What is the state of nutrient concentrations in coastal and marine waters? What are the areas of most concern? Are elevated nutrients concentrations in coastal water decreasing?

Specific figure(s)

A copy of the figures (graphs or maps) should be inserted here, together with the link to the respective data package files containing the drill-down data, underpinning data and metadata. In case of maps, the metadata should be in a separate file.

Note that if no data at the requested scale is available, case studies can also be included.

Below a number of example illustations are provided.

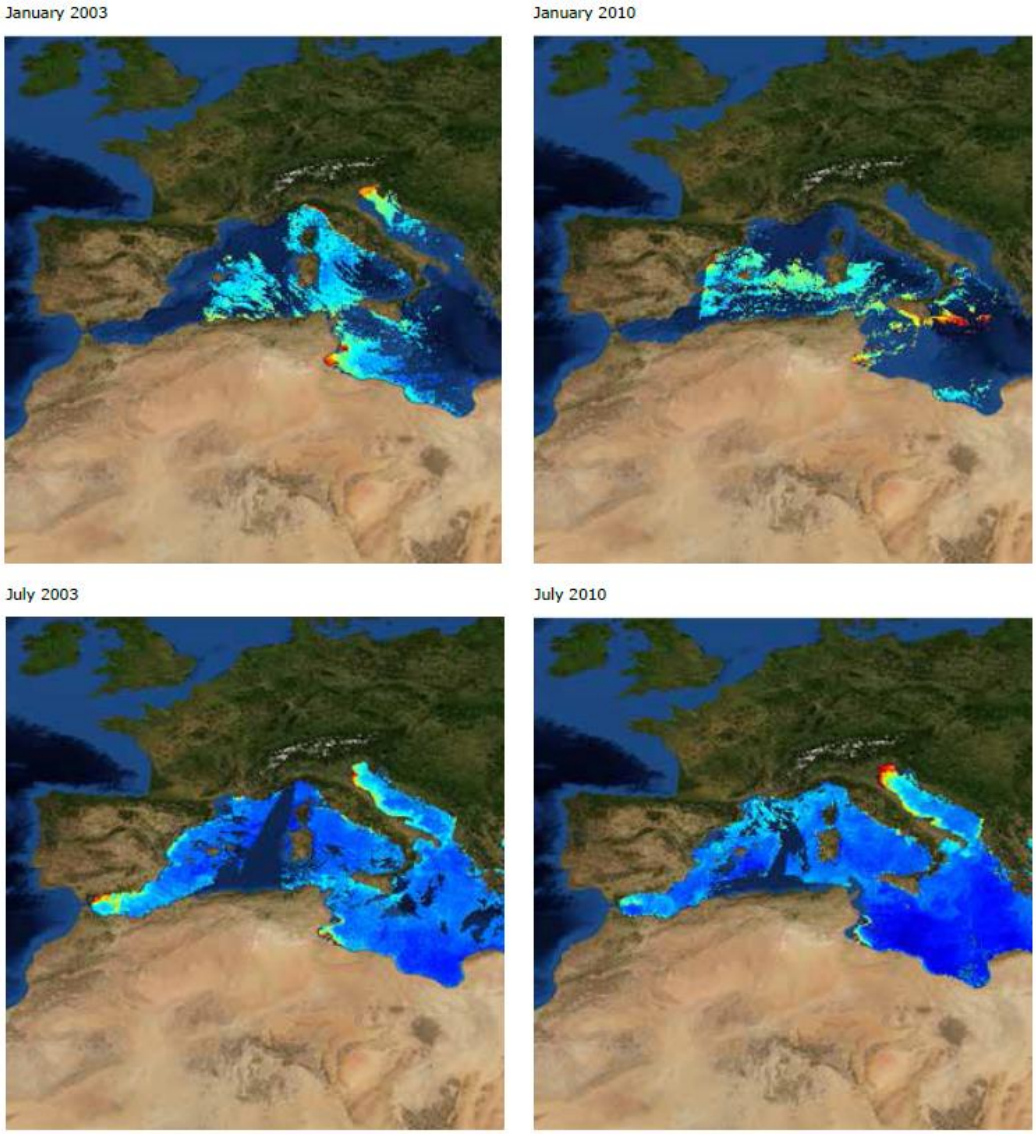

Figure 1 *– Surface chlorophyll-a concentrations in the Mediterranean in January 2003 and 2010.*

Source: MyOcean project 2009-2012

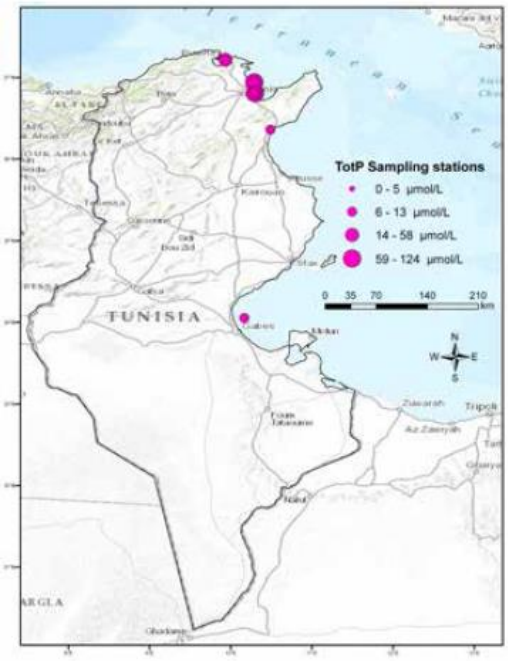

Figure 2 *– Detailed map showing total phosphorus sampling stations in Tunisia*

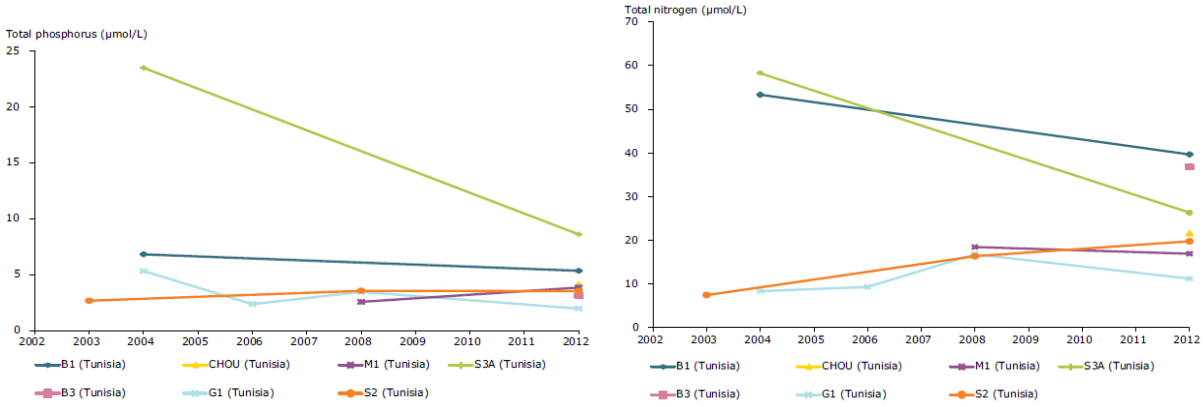

Figure 3 *– Total Phosphorus concentrations (left) and total nitrogen (right) in Tunisian stations for the time period 2003-2012 (mean winter)*. Source: UNEP/MAP/MED POL monitoring database 2002-2011

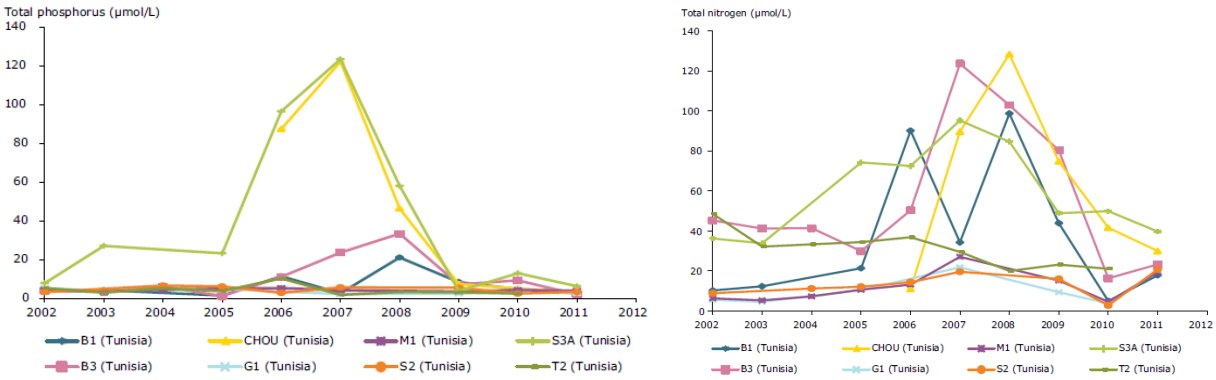

***Figure 4**– Total Phosphorus concentrations (left) and total nitrogen (right) in Tunisian stations for the time period 2003-2012 (mean summer)*. Source: UNEP/MAP/MED POL monitoring database 2002-2011

Specific assessment text

In this section, the specific assessment text for Ind 5.1 should be presented, based on the specific figures and addressing thespecific policy question «*Are elevated nutrients concentrations in coastal water decreasing* » above.

Example of the H2020 assessment report (2014):

Satellite images of the Mediterranean (Figure 1) reveal that the highest levels of autotrophic biomass correspond to the areas close to river deltas or those off large urban agglomerations. The northern coastline presents most eutrophication hotspots, whereas open seawaters in the eastern Mediterranean are extremely oligotrophic (UNEP/MAP MTS, 2007).

In the framework of the National Monitoring Programme of Tunisia the following stations were monitored systematically between 2003 and 2011 (Fig 2). : B1 (émissaire), B2 and B3 (Menzel Jemil) in the Bay of Bizerte, T2 (Canal), S3A (Éstuaire Méliene) and CHOU (Rejet Choutrana) in the area of Tunis, G1 in Akarit — Gabès, S2 in Barraka — Sfax and M1 in Oued Chouâba — Médenine. Both total phosphorus and total nitrogen and chlorophyll were measured. The high values obtained indicate that the objective of study (Fig. 3 and 4) were the outfalls rather than the receiving bodies. It is thus difficult to make an assessment of the degree of eutrophication existing in places, such as the Bay of Bizerte or the Lake of Tunis.

The time series from Tunisia shows a significant variability with values that increase from 2005 to 2008, to almost double, and then decrease back, close to their original values. This can be attributed to a variety of reasons, and definitely calls for further examination. All high Tunisia values in the period 2007–2010 are found in stations in the Gulf of Tunis and in Bizerte (see Fig. 3 and 4).

References in specific assessment text

If you refer to information, assessments etc. from other publications and reports, the respective references should be listed here.

Specific policy questions:

5.2 What is the quality of bathing waters in terms of microbiological contamination? Is bathing water quality improving?

Specific figure(s)

A copy of the figures (graphs or maps) should be inserted here, together with the link to the respective data package files containing the drill-down data, underpinning data and metadata. In case of maps, the metadata should be in a separate file.

Note that if no data at the requested scale is available, case studies can also be included.

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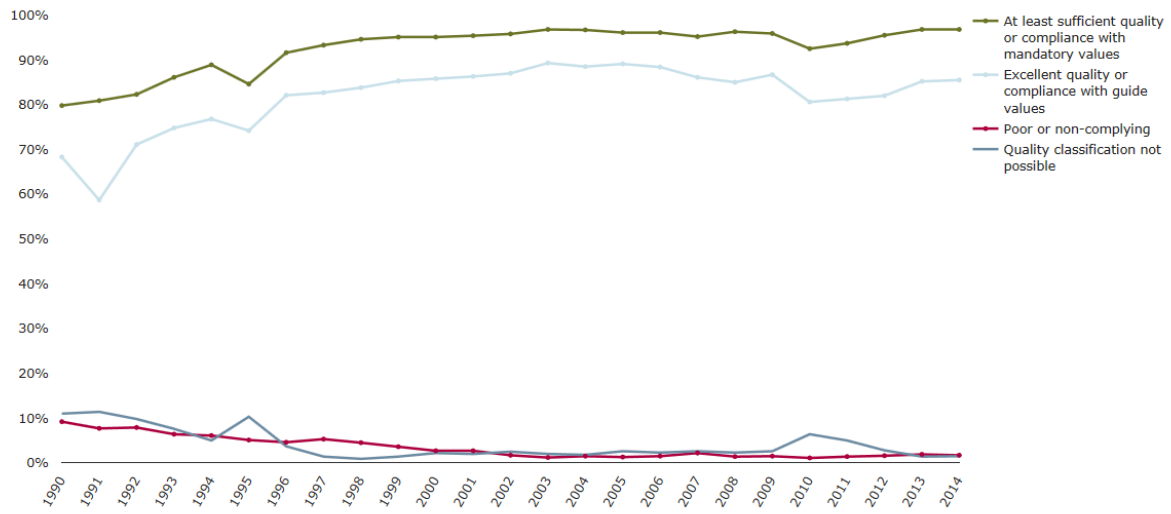

Figure 5 *– Percentage of coastal bathing waters in the EU per compliance category*

Specific assessment text

In this section, the specific assessment text for Ind 5.2 should be presented, based on the specific figures and addressing thespecific policy question «*Are elevated nutrients concentrations in coastal water decreasing* » above.

Example of the CSI 022:

Trends in coastal bathing water quality

Some 93.1 % of coastal bathing waters achieved at least sufficient quality or complied with the mandatory values (Fig. 5). This was an increase of 1.0 percentage points compared to 2010. Some 80.1 % of coastal bathing waters complied with the more stringent guide values during the 2011 bathing season. The proportion of coastal bathing waters classified as excellent (or compliant with the more stringent guide values) increased by 0.6 percentage points in 2011, compared to 2010.

The EU Member States reported 212 coastal bathing waters (1.5 %) with poor quality or not in compliance with mandatory values in 2011. That represented a 0.3 percentage point increase from 2010. In 1990, 9.2 % of bathing waters did not comply with the bathing water directives' provisions and by 2011 this had fallen to just 1.5 %. There were 139 coastal bathing waters closed in 2011, representing 1.0 % of all coastal bathing waters. This was a 0.7 percentage point increase from 2010 but a 1.3 percentage point decrease from 2009. The remaining coastal bathing waters were insufficiently sampled, not sampled, or newly opened and not yet assessed under the new directive.

Compliance with mandatory values increased from just under 80 % in 1990 to over 95 % in 1999, and has remained quite stable since then. Compliance with guide values likewise rose from 68 % to over 89 % in 2003 and was then nearly constant but dropped below 80 % in 2010. The trend is

now positive again.
References in specific assessment text If you refer to information, assessments etc. from other publications and reports, the respective references should be listed here.

Key assessment text

In this section, the outcomes of the specific assessment text below should be integrated to answer the overall key policy question «*Is the quality of coastal and marine waters improving*».

EEA uses the DPSIR framework (Driving force/ Pressure/ State/ Impact and Response) to characterise the typology of the different environmental indicators. In general, coastal and marine water quality can be considered as "state" indicators and it can be affected by "pressures" such as the discharge of insufficiently treated wastewater and agricultural runnoff. In this sense, «integration » can be done using the DPSIR framework, or any adjustment of it that helps linking analytical elements together. Note that such linkages can be specific to a particular country situation. Also, it is important to refer to the Indicator Specification sheet and more specifically to the Rationale for each indicator to help identify the elements to integration, e.g. natural/ecological/GES/policy/governanace, relevant at the national level. Any linkages in the sub-indicators (e.g. similar trends, hotspot locations etc) should be analyzed in order to derive the overall key messages.

An overview of the key assessment points and the link between the different DPSIR indicators can be provided in the overall « WATER Thematic Assessment ».

Example of key assessment text in support to key policy question (adapted from H2020 Ind 5 Factsheet – ENI SEIS Phase I)

The assessment confirms that the main body of water of the Mediterranean Sea is characterized by very low nutrient concentrations. However some coastal hotspots receive excessive loads of nutrients from sewage effluents, river fluxes, aquaculture farms, fertilizers, and industrial facilities, resulting into intense eutrophic phenomena with adverse effects for the marine ecosystem and humans. This explains why eutrophication in the Mediterranean is mostly limited to coastal areas, enclosed bays, river estuaries, coastal lagoons or embayments with restricted water exchange with the open sea.

Although eutrophication has been more intense in the Northern part of the basin, special attention also has to be paid to the Southern part where the population keeps on growing steadily, agricultural and industrial activities are in, certain cases, rapidly developing and sewage treatment facilities are still lacking behind. In fact, 15 coastal countries had reported on facing eutrophication problems, among which 12 countries characterised these problems as medium (Albania, Algeria, Greece, France, Israel, Morocco, Palestine, Slovenia, Spain, Syria and Tunisia) and 4 countries as important (Croatia, Egypt, Italy, Turkey).

Based on the current dataset, only a few notable changes in nutrient concentrations were detected. In four of the Croatian monitoring stations, an increasing trend in oxidised nitrogen concentrations was found. Generally orthophosphate concentrations did not show clear trends, except for a decreasing trend in one Croatian station.

References in key assessment text

If you refer to information, assessments etc. from other publications and reports, the respective references should be listed here.

Key messages*(in +/- 3 bullet points, based on key assessment text)*

Based on all your analyses and assessment, the key messages should be developed. This is the most important section of the indicator assessment and in many cases is the final section to be written. The key messages should be simple, easily understandable, but strong and explicit. They should only contain the final judgement of your assessment as response to the key policy questions and specific policy questions.

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- distribution coastal versus marine,
- time frame of the current assessment (baseline/reference year, or time periods the assessment is looking at)
- uncertainties/knowledge gaps
- national characteristics within a regional context

Example key messages from the European Assessment of Nutrients in transitional, coastal and marine waters (CSI 021):

- *Between 1985 and 2012, most stations in European Seas that reported to the EEA showed no change in trends of concentrations of Dissolved Inorganic Nitrogen (DIN) or orthophosphate. In addition, a decrease in concentrations was observed for 14% and 13% respectively, while only a minority of stations showed an increase.*
- *These trends mostly refer to stations in the northeast Atlantic Ocean and Baltic Sea, however, due to lack of reported data for other regional seas. Available data shows nitrogen and phosphorus concentrations are decreasing in the southern North Sea which is an area with a recognised eutrophication problem. In the Baltic Sea, also affected by eutrophication, nitrogen concentrations are decreasing but phosphate concentrations show an increase at some stations.*