



## **ETC/ICM Deliverable**

### ***D2.3 Support development of data dictionaries, QA/QC procedures and guidelines for water related data flows***

Support for the further implementation of the Shared Environmental Information System principles and practices in the ENP South region – SEIS South Support Mechanism (ENI SEIS II South)

**Version: 6.0**  
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**EEA activity: ENI SEIS II South**  
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## Version History

Version	Date	Author	Status and description	Distribution
1.0	22.05.2018	EEA/ETC (UFZ)	Data dictionary updated from SEIS Phase I, with inclusion of new indicators 3.2, 4.2, 4.3 and 5.2	EEA, EEA/ETC, Info-RAC and UNEP-MAP
2.0	31.05.2018	EEA/ETC (UFZ)	Includes comments from experts Anita Künitzer and Petra Ronen	EEA, EEA/ETC, Info-RAC and UNEP-MAP
3.0	10.07.2018	EEA/ETC (UFZ, Deltares)	Includes adjustments following Info-RAC Workshop (June 2018, Copenhagen) to ensure consistency with European and UNEP-MAP reporting and additional comments from UNEP-MAP	EEA, EEA/ETC and UNEP-MAP
4.0	12.09.2018	EEA/ETC (UFZ, Deltares)	Includes adjustments following Info-RAC revision and comments from UNEP-MAP on the Bathing Water Quality (5.2)	EEA, EEA/ETC, UNEP-MAP and Info-RAC
5.0	26.10.2018	EEA/ETC (UFZ)	Consider vocabulary consistency with the thematic areas: Waste and Industrial Emissions.	EEA, EEA/ETC, UNEP-MAP and Info-RAC
6.0	28.01.2019	EEA/ETC (Deltares)	Includes final check and minor adjustments	EEA, EEA/ETC, UNEP-MAP and Info-RAC

## About this document

This document introduces the basis for the data dictionaries for the H2020 Water Indicators (IND 3, 4 and 5). The data dictionaries were developed based on the former phase of the ENPI–SEIS project and in close consultation with UNEP-MAP, EEA and Info-RAC. This basis has been prepared considering the data needed for the Water indicators calculation and their specification sheets. The QA/QC procedures were considered, also, to ensure reliable and consistent data flows per country and per year.

# Data Description Document

Version 6.0

Date: 28.01.2019

## 1. Introduction

This document provides a description of the data sets required for calculating the selected Horizon 2020 Water indicators (see Annex 1), thereby referred to as “Data Description Document”. It will feed into the Data Dictionary of the Info-MAP system - a central service for storing technical specifications for information requested in reporting, with the purpose of supporting countries in reporting good quality data.

## 2. Overview of H2020 Water Indicators

Indicator group	Indicator group short name	Indicators
IND3	Access to sanitation	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)
IND4	Municipal Wastewater Management	4.1 Municipal wastewater collected and wastewater treated 4.2 Direct use of treated municipal wastewater 4.3 Release of nutrients from municipal wastewater
IND5	Coastal and Marine Water Quality	5.1 Nutrient concentrations in transitional, coastal and marine waters 5.2 Bathing water quality

## 3. Description of Indicators

### IND3. Dataset: Access to sanitation

#### Dataset definition

Policy theme	Access to sanitation
Short name	Improved Sanitation
Indicators	3.1 and 3.2
Key words	Improved Sanitation System (ISS) and Safely Managed Sanitation Services (SMSS)
Spatial coverage	National and catchment/ hydrological basin at the coastal area
Dataset relevance	This dataset is relevant for populating H2020 Water Indicators 3.1 and 3.2 (see Annex 1) and for reporting to SDG Indicator 6.2.1
Parameters	Total population, Urban population, Rural population, Total population with access to an ISS, Urban population with access to an ISS, Rural population with access to an ISS.
Methodology for obtaining data	Delivered by country
Planned update frequency	Every 1 year

## Overview of data tables

Data table	Name	Definition	Short description
3.1.	<b>Share of total, urban and rural population with access to an improved (ISS) sanitation system</b>	Percentage of the population (%) having access to improved sanitation systems. “Share of population with access to improved sanitation” refers to the percentage of the population with access to facilities which hygienically separate human excreta from human, animal and insect contact.	This indicator was developed by the Joint Monitoring Programme for Water Supply and Sanitation of the United Nations Children’s Fund and the World Health Organization (WHO) to help monitor progress towards one of the Millennium Development Goals.
3.2.	<b>Proportion of population using safely managed sanitation services (SMSS).</b>	Percentage of population (%) with access to safely managed sanitation systems, which are defined as an improved sanitation facility that is both: <ul style="list-style-type: none"> <li>a) Not shared with other households,</li> <li>b) and where excreta is safely disposed of in situ or treated off site.</li> </ul>	This indicator is based on the new definition of the Sustainable Development Goal (SDG) Indicator 6.2.1, which builds upon the MDG Indicator above. It addresses public health beyond the household level, including containment and treatment of the faecal waste, which is not included in the MDG definition.

**Data table 1:** Share of national population with access to an improved sanitation system (ISS)

	Column name	Column definition	Methodology	Data specifications	Equivalent in WISE if exist
1.	Country_Code	Country codes as defined in the codelist.	ISO 3166-alpha-2, Codes elements as defined in codelist: i	Type of element: common Datatype: integer Size: 3	
2.	Year_H2020	Year for which data is available	Use the format YYYY	Type of element: common Datatype: date Min. size: 4 Max. size: 4 Min. value: 2003 Max. value: Current year	
3.	Total_Population	Total population	See Table D		
4.	Urban_Population	Urban population	See Table D		
5.	Rural_Population	Rural population	See Table D		
6.	Total_Population_ISS	Total national population with access to Improved Sanitation Systems (ISS)	Total population with access to improved sanitation system refers to the population with access to facilities which hygienically separate human excreta from human, animal and insect contact.	Type of element: non-common Datatype: integer Unit: inhabitants Min. size: 1 Max. size: 10 Min. value: 1 Max. value: 1000 000 000	
7.	Urban_Population_ISS	National population living in urban areas with access to Improved Sanitation Systems (ISS)	Urban population with access to improved sanitation system refers to the population with access to facilities which hygienically separate human excreta from human, animal and insect contact.	Type of element: non-common Datatype: integer Unit: inhabitants Min. size: 1 Max. size: 10 Min. value: 1 Max. value: 1000 000 000	
8.	Rural_Population_ISS	National population living in rural areas with access to Improved Sanitation Systems (ISS)	Rural population with access to improved sanitation refers to the population with access to facilities which hygienically separate human excreta from human, animal and insect contact.	Type of element: non-common Datatype: integer Unit: inhabitants Min. size: 1 Max. size: 10 Min. value: 1 Max. value: 1000 000 000	
9.	Data_Collection_Method	Method of data collection.	Codes elements as defined in codelist vi.	Type of element: common Datatype: string Size: 3	

10.	Remarks	Remarks, comments or explanatory notes (free text).		Type of element: common Datatype: blob Max. size: 4096	
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**Data table 2:** Share of population in the catchment/hydrological basin at the coastal area with access to an improved sanitation system (ISS)

	Column Name	Column definition	Methodology	Data specifications	Equivalent in WISE if exist
1.	Country_Code	Country codes as defined in the codelist	ISO 3166-alpha-2, Codes elements as defined in codelist: i	Type of element: common Datatype: integer Size: 3	
2.	Hydrological_Basin	Name of catchment/ hydrological basin at the coastal area	Name of catchment/ hydrological basin at the coastal area according to codelist: iii	Type of element: common Datatype: string Size: 3	
3.	Year_H2020	Year for which data is available	Use format YYYY	Type of element: common Datatype: date Min. size: 4 Max. size: 4 Min. value: 2003 Max. value: Current year	
4	Total_Pop_Coast_Hydro_Basin	Total population living in the coastal area and in the hydrological basins (catchment) of coastal areas	See Table D		
5	Urban_Pop_Coast_Hydro_Basin	Urban population living in the coastal area and in the hydrological basins (catchment) of coastal areas	See Table D		
6	Rural_Pop_Coast_Hydro_Basin	Rural population living in the coastal area and in the hydrological basins (catchment) of coastal areas	See Table D		
7.	Total_Pop_Coast_ISS	Population in coastal areas and catchment/ hydrological basin at the coastal area with access to Improved Sanitation Systems (ISS).	Total population with access to improved sanitation system refers to the population with access to facilities which hygienically separate human excreta from human, animal and insect contact.	Type of element: non-common Datatype: integer Unit: inhabitants Min. size: 1 Max. size: 10 Min. value: 1 Max. value: 1000 000 000	
8.	Urban_Pop_Coast_ISS	Population living in urban coastal areas and hydrological basin at coastal areas with access	Urban population with access to improved sanitation system refers to the population with access to facilities which hygienically separate	Type of element: non-common Datatype: integer Unit: inhabitants Min. size: 1	

		to Improved Sanitation Systems (ISS).	human excreta from human, animal and insect contact.	Max. size: 10 Min. value: 1 Max. value: 1000 000 000	
9.	Rural_Pop_Coast_ISS	Population living in rural coastal areas and hydrological basin at coastal areas with access to Improved Sanitation Systems (ISS).	Rural population with access to improved sanitation system refers to the population with access to facilities which hygienically separate human excreta from human, animal and insect contact.	Type of element: non-common Datatype: integer Unit: inhabitants Min. size: 1 Max. size: 10 Min. value: 1 Max. value: 1000 000 000	
10.	Data_Collection_Method	Method of data collection.	Codes elements as defined in codelist vi.	Type of element: common Datatype: integer Max. Size: 3	
11.	Remarks	Remarks, comments or explanatory notes (free text)		Type of element: common Datatype: blob Max. size: 4096	

**Data table 3:** Proportion of national population using safely managed sanitation services (SMSS).

	<b>Column name</b>	<b>Column definition</b>	<b>Methodology</b>	<b>Data specifications</b>	<b>Equivalent in WISE if exist</b>
1.	Country_Code	Country codes as defined in the codelist	ISO 3166-alpha-2, Codes elements as defined in codelist: i	Type of element: common Datatype: integer Size: 3	
2.	Year_H2020	Year for which data is available	Use format YYYY	Type of element: common Datatype: date Min. size: 4 Max. size: 4 Min. value: 2003 Max. value: Current year	
3.	Total_Population	Total population	See Table D		
4.	Urban_Population	Urban population	See Table D		
5.	Rural_Population	Rural population	See Table D		
6.	Total_Population_SMSS	Total national population with access to Safely Managed Sanitation Systems (SMSS)	“Safely managed sanitation services” is defined as an improved sanitation facility considering: c) that is not shared with other households, d) and where excreta is safely disposed of in situ or treated off site.	Type of element: non-common Datatype: integer Unit: inhabitants Min. size: 1 Max. size: 10 Min. value: 1 Max. value: 1000 000 000	
7.	Urban_Population_SMSS	National population living in urban areas with access to Safely Managed Sanitation Systems (SMSS)	“Safely managed sanitation services” is defined as an improved sanitation facility considering: a) that is not shared with other households, b) and where excreta is safely disposed of in situ or treated off site.	Type of element: non-common Datatype: integer Unit: inhabitants Min. size: 1 Max. size: 10 Min. value: 1 Max. value: 1000 000 000	
8.	Rural_Population_SMSS	National population living in rural areas with access to safely managed sanitation systems (SMSS)	“Safely managed sanitation services” is defined as an improved sanitation facility considering: a) that is not shared with other households, b) and where excreta is safely disposed of in situ or treated off site.	Type of element: non-common Datatype: integer Unit: inhabitants Min. size: 1 Max. size: 10 Min. value: 1 Max. value: 1000 000 000	
9.	Data_Collection_Method	Method of data collection.	Codes elements as defined in	Type of element: common	

			codelist vi.	Datatype: integer Size: 3	
10.	Remarks	Remarks, comments or explanatory notes (free text)		Type of element: common Datatype: blob Max. size: 4096	

**Data table 4:** Proportion of population in the catchment/ hydrological basin at the coastal area using safely managed sanitation services (SMSS)

	<b>Column Name</b>	<b>Column definition</b>	<b>Methodology</b>	<b>Data specifications</b>	<b>Equivalent in WISE if exist</b>
1.	Country_Code	Country codes as defined in the codelist.	ISO 3166-alpha-2, Codes elements as defined in codelist: i	Type of element: common Datatype: integer Size: 3	
2.	Hydrological_Basin	Name of catchment/ hydrological basin at the coastal area	Name of catchment/ hydrological basin at the coastal area according to codelist: iii	Type of element: common Datatype: string Max. size: 3	
3.	Year_H2020	Year for which data is available	Use format YYYY	Type of element: common Datatype: date Min. size: 4 Max. size: 4 Min. value: 2003 Max. value: Current year	
4.	Total_Pop_Coast_Hydro_Basin	Total population living in the coastal area and in the hydrological basins (catchment) of coastal areas	See Table D		
5.	Urban_Pop_Coast_Hydro_Basin	Urban population living in the coastal area and in the hydrological basins (catchment) of coastal areas	See Table D		
6.	Rural_Pop_Coast_Hydro_Basin	Rural population living in the coastal area and in the hydrological basins (catchment) of coastal areas	See Table D		
7.	Total_Pop_Coast_SMSS	Population in coastal areas and catchment/ hydrological basin at the coastal area with access to Safely Managed Sanitation Systems (SMSS)	The total population as of the reference year (Year_H2020)  Data are collected at catchment/ hydrological basin at the coastal area or, if data not available, major coastal cities, in order to quantify the extent of land-based pressures that could potentially have a downstream effect on the state/impact of the sea.	Type of element: non-common Datatype: integer Unit: inhabitants Min. size: 1 Max. size: 10 Min. value: 1 Max. value: 1000 000 000	
8.	Urban_Pop_Coast_SMSS	Population living in urban	The urban population as of the	Type of element: non-common	

		coastal areas and hydrological basin at coastal areas with access Safely Managed Sanitation Systems (SMSS)	reference year (Year_H2020)  Data are collected at catchment/ hydrological basin at the coastal area or, if data not available, major coastal cities, in order to quantify the extent of land-based pressures that could potentially have a downstream effect on the state/impact of the sea.	Datatype: integer Unit: inhabitants Min. size: 1 Max. size: 10 Min. value: 1 Max. value: 1000 000 000	
9.	Rural_Pop_Coast_SMSS	Population living in rural coastal areas and hydrological basin at coastal areas with access to Safely Managed Sanitation Systems (SMSS)	The rural population as of the reference year (Year_H2020)  Data are collected at catchment/ hydrological basin at the coastal area or, if data not available, major coastal cities, in order to quantify the extent of land-based pressures that could potentially have a downstream effect on the state/impact of the sea.	Type of element: non-common Datatype: integer Unit: 1000 inhabitants Min. size: 1 Max. size: 10 Min. value: 1 Max. value: 1000 000 000	
10.	Data_Collection_Method	Method of data collection	Codes elements as defined in codelist vi.	Type of element: common Datatype: integer Size: 3	
11.	Remarks	Remarks, comments or explanatory notes (free text)		Type of element: common Datatype: blob Max. size: 4096	

## IND4. Dataset: Municipal Wastewater Management

### Dataset definition

Policy theme	Municipal wastewater management
Short name	Municipal wastewater collected, treated and used
Indicators	4.1, 4.2 and 4.3
Key words	Wastewater, collection, treatment, management, use
Spatial coverage	National and catchment/ hydrological basin at the coastal area
Dataset relevance	This dataset is relevant for populating H2020 Water indicators 4.1, 4.2 and 4.3 – see Annex 1. Indicator 4.1 is also relevant for SDG 6.3.1. Indicator 4.2 can be linked to SDG Target 6.3. Indicator 4.3 is relevant to monitor the implementation of the Regional Plan on reduction of BOD <sub>5</sub> and both 4.1 and 4.3 can be linked to Ecological Objective 5 – Eutrophication.
Parameters	Volume of municipal wastewater collected, volume of municipal wastewater treated, volume of wastewater subject to which treatment level (primary, secondary and tertiary), total volume of direct reuse of municipal wastewater, volume of direct reuse of municipal wastewater per type of activity, volume of direct reuse of municipal wastewater per level of treatment.
Methodology for obtaining data	Delivered by country
Planned update frequency	Every 1 year

### Overview of data tables

Data table	Name	Definition	Short description
4.1.	<p><b>Municipal wastewater collected and wastewater treated</b></p> <p><i>Additional information that supplements this Indicator</i></p> <ul style="list-style-type: none"> <li>Percentage of the treated wastewater according to the type of treatment (primary, secondary, tertiary).</li> <li>Total annual design capacity of functional facilities.</li> <li>Total number of functional municipal wastewater treatment facilities.</li> </ul>	<p>Volume of collected and treated municipal wastewater per year per country, including type of treatment, at the national and catchment/ hydrological basin at the coastal area.</p> <p>Wastewater treatment is defined as the process of removing contaminants from wastewater according to the established national standards on effluent quality, to allow for its discharge to the environment without adverse impact on public health and the ecosystem.</p>	<p>This indicator provides information on the collection and treatment level of wastewater in the region and can be considered as a “response” indicator. It helps identifying communities where wastewater treatment action is required, while helping to assess where progress has been made.</p>

4.2.	<b>Direct use of treated municipal wastewater</b>	<p>Volume of treated and used municipal wastewater per year and per country at the national level, including type of treatment. Volume of direct treated wastewater intended for reuse, with no or little prior dilution with freshwater during most of the year.</p> <p>“Direct use” refers to the introduction of treated wastewater via pipelines and other necessary infrastructure directly from a water treatment plant to a distribution system. An example would be the distribution of treated wastewater to be used directly in agricultural irrigation.</p>	<p>Wastewater use is a widespread practice in the Mediterranean and is an important non-conventional source of water in a context of water scarcity and increased water demands. However, the management and standards of wastewater use vary greatly across countries and in many cases raw or insufficiently treated wastewater can pose health hazards and environmental risks.</p> <p>This indicator encompasses the use of water which is generated from municipal wastewater or any other urban marginal water and treated to a standard that is appropriate for its intended use.</p>
4.3.	<b>Release of nutrients from municipal effluents</b>	<p>Release of key nutrients (BOD, N and P) from municipal wastewater originating from urban agglomerations of more than 2000 inhabitants.<sup>1</sup></p>	<p>This indicator is a “pressure” indicator, providing insight into the quality of discharged municipal effluents and the degree to which nutrients from urban wastewater may contribute to the increased concentration of nutrients in certain areas of the Mediterranean Sea.</p>

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<sup>1</sup> As per requirements of regional plan on the reduction of BOD from urban wastewater in the framework of the implementation of Article 15 of the LBS Protocol

**Data table 1:** Municipal wastewater collected and wastewater treated at the national level

	<b>Column Name</b>	<b>Column definition</b>	<b>Methodology</b>	<b>Data specifications</b>	<b>Equivalent in WISE if exist</b>
1.	Country_Code	Country codes as defined in the codelist.	ISO 3166-alpha-2, Codes elements as defined in codelist: i	Type of element: common Datatype: integer Size: 3	
2.	Year_H2020	Year for which data is available	Use format YYYY	Type of element: common Datatype: date Min. size: 4 Max. size: 4 Min. value: 2003 Max. value: Current year	
3.	Volume_Collected_MWW	Volume of municipal wastewater collected by public sewage networks and from storage tanks per year	Volume in million m <sup>3</sup> (Mm <sup>3</sup> ) of municipal wastewater collected, which is estimated based on the volume of wastewater entering the WWTPs, per year	Type of element: non-common Datatype: float Unit: Mm <sup>3</sup> /yr Min. size: 1 Max. size: 10 Min. value: 0 Max. value: 1000,000,000	uwwWasteWater Treated  <i>The value should be reported for an UWWTP that has a design capacity more than 100 000 p.e. (link to E-PRTR facility).</i>
4.	Volume_Treated_MWW	Volume of municipal wastewater treated in wastewater treatment plants per year	Volume in million m <sup>3</sup> of municipal wastewater treated, which is estimated on wastewater leaving the WWTPs per year	Type of element: non-common Datatype: float Unit: Mm <sup>3</sup> /yr Min. size: 1 Max. size: 10 Min. value: 0 Max. value: 1000,000,000	
5.	Fraction_Primary_Treatment	Fraction of municipal wastewater subject to primary treatment per year.  "Primary treatment" refers to physical and/or chemical process involving settlement of suspended solids, or other processes in which	Percentage of municipal wastewater discharged after primary treatment expressed as a fraction of volume [%] of treated municipal wastewater per year	Type of element: non-common Datatype: decimal Decimal precision: 2 Unit: % v/v Min. Size:3 Max. size: 5 Min. value: 0.00 Max. value: 100.00	uwwPrimaryTreatment

		the BOD5 of the incoming waste water is reduced by at least 20% before discharge and the total suspended solids of the incoming waste water are reduced by at least 50%.			
6.	Fraction_Secondary_Treatment	<p>Fraction of municipal wastewater subject to secondary treatment per year.</p> <p>“Secondary (biological) treatment” uses biological process to decompose most of the organic matter, resulting in the reduction of 70-90% of BOD5, and remove about 20 - 30% of the nutrients. Primary treatment alone does not remove ammonium, whereas the removal rate of ammonium by secondary (biological) treatment is around 75%.</p>	<p>Percentage of municipal wastewater discharged after secondary treatment expressed as a fraction of volume [%] of treated municipal wastewater per year</p>	<p>Type of element: non-common Datatype: decimal Decimal precision: 2 Unit: % v/v Min. Size:3 Max. size: 5 Min. value: 0.00 Max. value: 100.00</p>	uwwSecondaryTreatment
7.	Fraction_Tertiary_Treatment	<p>Fraction of municipal wastewater subject to tertiary treatment per year.</p> <p>“Tertiary (advanced or more stringent) treatment” further removes nutrients (nitrogen and/or phosphorus) and/or any other pollutant affecting the quality or a specific use of water: microbiological pollution, colour, etc.</p>	<p>Percentage of municipal wastewater discharged after tertiary treatment expressed as a fraction of volume [%] of treated municipal wastewater per year</p> <p>The sum of % of MWW receiving primary, secondary and tertiary must equal 100%.</p>	<p>Type of element: non-common Datatype: decimal Decimal precision: 2 Unit: % v/v Min. Size:3 Max. size: 5 Min. value: 0.00 Max. value: 100.00</p>	

8.	Design_Capacity1	Total annual design capacity of functional facilities (Million m <sup>3</sup> /year)	Volume in million m <sup>3</sup> per year	Type of element: non-common Datatype: float Unit: Mm <sup>3</sup> /yr Min. size: 1 Max. size: 10 Min. value: 0 Max. value: 1000,000,000	
9.	Design_Capacity2	Total annual design capacity of functional facilities in p.e. (if volume not available)	Population Equivalent (p.e.)	Type of element: non-common Unit: p. e. Min. size: 1 Max. size: 10 Min. value: 0 Max. value: 1000,000,000	rcaPlantsCapacity54
10.	Number_MWWTPs	Total number of functional Municipal Wastewater Treatment Plants	Number	Type of element: common Datatype: integer Min. size: 1 Max. size: 6 Min. value: 0 Max. value: 100,000	rcaPlants54
11.	Data_Collection_Method	Method of data collection	Codes elements as defined in codelist vii.	Type of element: common Datatype: integer Size: 3	
12.	Remarks	Remarks, comments or explanatory notes (free text).		Type of element: common Datatype: blob Max. size: 4096	

**Data table 2:** Municipal wastewater collected and wastewater treated per catchment/ hydrological basin at the coastal area

	<b>Column Name</b>	<b>Column definition</b>	<b>Methodology</b>	<b>Data specifications</b>	<b>Equivalent in WISE if exist</b>
1.	Country_Code	Country codes as defined in the codelist.	ISO 3166-alpha-2, Codes elements as defined in codelist: i	Type of element: common Datatype: integer Size: 3	
2.	Hydrological_Basin	Name of catchment/ hydrological basin at the coastal area	Name of catchment/ hydrological basin at the coastal area according to codelist: iii	Type of element: common Datatype: string Size: 3	
3.	Coastal_Agglomeration	Name of coastal city/agglomeration	Name of coastal city/agglomeration	String codelist: viii Type of element: common Datatype: string Size: 3	
4.	Year_H2020	Year for which data is available	Use format YYYY	Type of element: common Datatype: date Min. size: 4 Max. size: 4 Min. value: 2003 Max. value: Current year	
5.	Volume_MWW_Collected_Hydro_Coast	Volume of municipal wastewater collected by public sewage networks and from storage tanks in the coastal hydrological basin	Volume in million m <sup>3</sup> of municipal wastewater collected per year	Type of element: non-common Datatype: float Unit: Mm <sup>3</sup> /yr Min. size: 1 Max. size: 10 Min. value: 0 Max. value: 1,000,000,000	
6.	Volume_MWW_Collected_Coast	Volume of municipal wastewater collected by public sewage networks and from storage tanks in coastal cities or coastal area	Volume in million m <sup>3</sup> of municipal wastewater collected per year	Type of element: non-common Datatype: float Unit: Mm <sup>3</sup> /yr Min. size: 1 Max. size: 10 Min. value: 0 Max. value: 1,000,000,000	
7.	Volume_Treated_MWW_Hydro_Coast	Volume of of wastewater treated in wastewater treatment plants treated in the coastal hydrological basin	Volume in million m <sup>3</sup> of municipal wastewater treated per year	Type of element: non-common Datatype: float Unit: Mm <sup>3</sup> /yr Min. size: 1 Max. size: 10	

				Min. value: 0 Max. value: 1,000,000,000	
8.	Volume_Treated_MWW_Coast	Volume of of wastewater treated in wastewater treatment plants treated in the coastal cities or coastal area	Volume in million m <sup>3</sup> of municipal wastewater treated per year	Type of element: non-common Datatype: float Unit: Mm <sup>3</sup> /yr Min. size: 1 Max. size: 10 Min. value: 0 Max. value: 1,000,000,000	
9.	Fraction_Primary_Treatment	Fraction of municipal wastewater subject to primary treatment per year.  "Primary treatment" refers to physical and/or chemical process involving settlement of suspended solids, or other processes in which the BOD5 of the incoming waste water is reduced by at least 20% before discharge and the total suspended solids of the incoming waste water are reduced by at least 50%.	Fraction of municipal wastewater discharge after primary treatment expressed as a fraction of volume [%] of treated municipal wastewater per year  The sum of % of treated MWW receiving primary, secondary and tertiary must equal 100%.	Type of element: non-common Datatype: decimal Decimal precision: 2 Unit: % v/v Min. size: 3 Max. size: 5 Min. value: 0.00 Max. value: 100.00	aggPercPrimTreatment  But it is generated based on p.e. and not measured
10.	Fraction_Secondary_Treatment	Fraction of municipal wastewater subject to secondary treatment per year. "Secondary (biological) treatment" uses biological process to decompose most of the organic matter, resulting in the reduction of 70-90% of BOD5, and remove about 20 - 30% of the nutrients. Primary treatment alone does not remove ammonium, whereas the removal rate of ammonium by secondary (biological) treatment is	Fraction of municipal wastewater discharged after secondary treatment expressed as a fraction of volume [%] of treated municipal wastewater per year  The sum of % of treated MWW receiving primary, secondary and tertiary must equal 100%.	Type of element: non-common Datatype: decimal Decimal precision: 2 Unit: % v/v Min. size: 3 Max. size: 5 Min. value: 0.00 Max. value: 100.00	

		around 75%.			
11.	Volume_Tertiary_Treatment	Volume of municipal wastewater subject to tertiary treatment per year.  "Tertiary (advanced or more stringent) treatment" further removes nutrients (nitrogen and/or phosphorus) and/or any other pollutant affecting the quality or a specific use of water: microbiological pollution, colour, etc.	Volume of municipal wastewater discharged after tertiary treatment expressed as a fraction of volume [%] of treated municipal wastewater per year  The sum of % of treated MWW receiving primary, secondary and tertiary must equal 100%.	Type of element: non-common Datatype: decimal Decimal precision: 2 Unit: % v/v Min. size: 3 Max. size: 5 Min. value: 0.00 Max. value: 100.00	
12.	Design_Capacity_Coast1	Total annual design capacity of functional facilities in the coastal areas (Million m <sup>3</sup> /year)	Volume in million m <sup>3</sup> per year	Type of element: non-common Datatype: float Unit: Mm <sup>3</sup> /yr Min. size: 1 Max. size: 10 Min. value: 0 Max. value: 1,000,000,000	rcaPlantsCapacity54
13	Design_Capacity_Coast2	Total annual design capacity of functional facilities in P.E in the coastal (if volume not available)	Population Equivalent (p.e.)	Type of element: non-common Unit: p. e. Min. size: 1 Max. size: 10 Min. value: 0 Max. value: 1,000,000,000	
14.	Number_Coast_MWWTPs	Total number of functional Municipal Wastewater Treatment Plants that discharge directly in the Mediterranean Sea or in hydrological basins that flow into the Mediterranean.	Number	Type of element: common Datatype: integer Min. size: 1 Max. size: 6 Min. value: 0 Max. value: 100,000	
15.	Data_Collection_Method	Method of data collection	Codes elements as defined in codelist vii.	Type of element: common Datatype: integer Size: 3	
16.	Remarks	Remarks, comments or explanatory notes (free text).		Type of element: common Datatype: blob Max. size: 4096	

**Data table 3:** Direct use of treated municipal wastewater at the National level

	Column Name	Column definition	Methodology	Data specifications	Equivalent in WISE if exist
1.	Country_Code	Country codes as defined in the codelist.	ISO 3166-alpha-2, Codes elements as defined in codelist: i	Type of element: common Datatype: integer Size: 3	
2.	Year_H2020	Year for which data is available	Use format YYYY	Type of element: common Datatype: date Min. size: 4 Max. size: 4 Min. value: 2003 Max. value: Current year	
3.	Total_Volume_Direct_Reuse	Total volume of direct reuse of municipal wastewater	Real measurement of treated wastewater intended to be reused	Type of element: common Datatype: float Unit: Mm <sup>3</sup> /yr Min. size: 1 Max. size: 10 Min. value: 0 Max. value: 1000,000,000	
4.	Fraction_Primary_Treatment_Reuse	Fraction of used municipal wastewater subject to primary treatment per year.  “Primary treatment” refers to physical and/or chemical process involving settlement of suspended solids, or other processes in which the BOD5 of the incoming waste water is reduced by at least 20% before discharge and the total suspended solids of the incoming waste water are reduced by at least 50%.	Fraction of used municipal wastewater after primary treatment expressed as a fraction of volume [%] of treated municipal wastewater per year	Type of element: non-common Datatype: decimal Decimal precision: 2 Unit: % v/v Min. size: 3 Max. size: 5 Min. value: 0.00 Max. value: 100.00	
5.	Fraction_Secondary_Treatment_Reuse	Fraction of used municipal wastewater subject to secondary treatment per year.	Fraction of used municipal wastewater after secondary treatment expressed as a fraction of volume [%] of treated municipal wastewater per year	Type of element: non-common Datatype: decimal Decimal precision: 2 Unit: % v/v Min. size: 3	

		<p>“Secondary (biological) treatment” uses biological process to decompose most of the organic matter, resulting in the reduction of 70-90% of BOD5, and remove about 20 - 30% of the nutrients. Primary treatment alone does not remove ammonium, whereas the removal rate of ammonium by secondary (biological) treatment is around 75%</p>		<p>Max. size: 5 Min. value: 0.00 Max. value: 100.00</p>	
6.	Fraction_Tertiary_Treatment_Reuse	<p>Fraction of used municipal wastewater subject to tertiary treatment per year.</p> <p>“Tertiary (advanced or more stringent) treatment” further removes nutrients (nitrogen and/or phosphorus) and/or any other pollutant affecting the quality or a specific use of water: microbiological pollution, colour, etc.</p>	<p>Fraction of used municipal wastewater after tertiary treatment expressed as a fraction of volume [%] of treated municipal wastewater per year</p>	<p>Type of element: non-common Datatype: decimal Decimal precision: 2 Unit: % v/v Min. size: 3 Max. size: 5 Min. value: 0.00 Max. value: 100.00</p>	
7.	Activity_name	<p>Name of activity/sector for which municipal wastewater is used</p>	<p>Codes elements as defined in codelist vii</p>	<p>String codelist: vii Type of element: common Datatype: string Size: 1</p>	
8.	Total_Volume_Direct_Reuse_Activity	<p>Volume of direct reuse of municipal wastewater per type of activity</p>	<p>Volume in million m3 of municipal wastewater per year</p>	<p>Type of element: common Unit: Mm<sup>3</sup>/yr Min. size: 1 Max. size: 10 Min. value: 0 Max. value: 1000,000,000</p>	<p>dcplrrigation</p> <p><i>This value should be reported if part or all the treated waste water is reused. Report “R” in case of irrigation use of</i></p>

					<i>treated waste water outside the treatment plant site, "INF" in case reuse for groundwater recharge and other in case of other reuse outside the treatment plant site.</i>
9.	Data_Collection_Method	Method of data collection.	Codes elements as defined in codelist vi	Type of element: common Datatype: integer Size: 3	
10.	Remarks	Remarks, comments or explanatory notes (free text).		Type of element: common Datatype: blob Max. size: 4096	

**Data table 4:** Release of nutrients from municipal effluents per catchment/ hydrological basin at the coastal area

	<b>Column name</b>	<b>Column definition</b>	<b>Methodology</b>	<b>Data specifications</b>	<b>Equivalent in WISE if exist</b>
1.	Country_Code	Country codes as defined in the codelist.	ISO 3166-alpha-2, Codes elements as defined in codelist: i	Type of element: common Datatype: integer Size: 3	
2.	Hydrological_Basin	Name of catchment/ hydrological basin at the coastal area	Name of catchment/ hydrological basin at the coastal area	String codelist: iii Type of element: common Datatype: string Size: 3	
3.	Coastal_Agglomeration	Name of coastal city/agglomeration	Name of coastal city/agglomeration	String codelist: viii Type of element: common Datatype: string Size: 3	
4.	Year_H2020	Year for which data is available	Use format YYYY	Type of element: common Datatype: date Min. size: 4 Max. size: 4 Min. value: 2003 Max. value: Current year	
5.	Total_Pop_Coast_Hydro_Basin	Total population living in the coastal area and in the hydrological basins (catchment) of coastal areas	See Table D		
6.	Total_Population_≥2000 Inhabitants_Hydro_Coast	(In case data for the total population in the hydrological basin is not available) Total population in agglomerations ≥ 2000 inhabitants located within the hydrological basin of coastal areas and within coastal areas that discharge directly in the Mediterranean (in case total population in coastal areas and coastal hydrological basins is not available)	See Table D		

7.	Total_Population_≥2000 Inhabitants_Coast	Total population living in coastal agglomerations ≥ 2000 inhabitants	See Table D		
8.	Total_UWW_Generated_Hydro_Coast	Estimated urban wastewater generated annually in the coastal hydrological basin in p. e.	Sum of generated urban wastewater (in population equivalent) in the hydrological basins (catchments) of coastal areas and in the coastal agglomerations directly discharging into the coastal areas	Type of element: common Unit: p. e. Min. size: 1 Max. size: 10 Min. value: 0 Max. value: 1,000,000,000	
9.	Total_UWW_Generated_Coast	Estimated urban wastewater generated annually in the coastal agglomerations in p. e.	Generated urban wastewater (in population equivalent) in the coastal agglomerations directly discharging into the coastal areas	Type of element: common Unit: p. e. Min. size: 1 Max. size: 10 Min. value: 0 Max. value: 1,000,000,000	
10.	Total_Volume_Discharged_MWWTP_Hydro_Coast	Total volume of urban wastewater discharged annually by WWTPs in the hydrological basin (catchment) of coastal area and directly in the coastal areas	Total treated and discharged volume of urban wastewater from existing Municipal WWTPs in the hydrological basin (catchments) of coastal areas and in the coastal agglomerations	Type of element: non-common Datatype: decimal Unit: Mm <sup>3</sup> /yr Min. size: 1 Max. size: 10 Min. value: 1 Max. value: 1,000,000,000	
11.	Total_Volume_Discharged_MWWTP_Coast	Total volume of urban wastewater discharged annually by WWTPs directly in the coastal areas	Total treated and discharged volume of urban wastewater from existing Municipal WWTPs in the coastal agglomerations	Type of element: non-common Datatype: decimal Unit: Mm <sup>3</sup> /yr Min. size: 1 Max. size: 10 Min. value: 1 Max. value: 1,000,000,000	
12.	Estimated_BOD_Load_Treat	Estimated BOD load discharged annually from Municipal WWTPs	BOD loads from treated WWTP after primary, secondary and tertiary treatment	Type of element: common Datatype: decimal Unit: Ton/yr Min. size: 1 Max. size: 10 Min. value: 0 Max. value: 1,000,000,000	uwwBODDischargeMeasured  <i>The value (either measured, calculated or estimated) should be reported for an UWWTP that has a design capacity more</i>

					<i>than 100 000 p.e. (link to E-PRTR facility).</i>
13.	Estimated_TN_Load_Treat	Estimated Total Nitrogen load discharged annually from Municipal WWTPs	TN loads from treated WWTP after primary, secondary and tertiary treatment	Type of element: common Datatype: decimal Unit: Ton/yr Min. size: 1 Max. size: 10 Min. value: 0 Max. value: 1,000,000,000	uwwNIncoming Measured
14.	Estimated_TP_Load_Treat	Estimated Total Phosphorus load discharged annually from Municipal WWTPs	TP loads from treated WWTP after primary, secondary and tertiary treatment	Type of element: common Datatype: decimal Unit: Ton/yr Min. size: 1 Max. size: 10 Min. value: 0 Max. value: 1,000,000,000	uwwPIncoming Measured
15.	Total_Volume_Untreated_WW_Hydro_Coast	Total volume of wastewater discharged without treatment in the hydrological basin (catchment) of coastal area and directly in the coastal areas	Total volume of wastewater discharged without treatment in the hydrological basin (catchment) of coastal area and directly in the coastal areas	Type of element: non-common Datatype: decimal Unit: Mm <sup>3</sup> /yr Min. size: 1 Max. size: 10 Min. value: 1 Max. value: 1,000,000,000	
16.	BOD_Load_MWW_Untreated_Hydro_Coast	Estimated BOD load discharged annually from untreated MWW	Estimated BOD loads for wastewater discharged without treatment in the hydrological basin (catchments) of coastal areas and in the coastal agglomeration. <b>Person load</b> BOD, g/person/d (15-80); COD, g/person/d (25-200)	Type of element: common Datatype: decimal Unit: Ton/yr Min. size: 1 Max. size: 10 Min. value: 0 Max. value: 1,000,000,000	
17.	TN_Load_MWW_Untreated_Hydro_Coast	Estimated TN load discharged annually from untreated MWW	Estimated TN loads for wastewater discharged without treatment in the hydrological basin (catchments) of coastal areas and in the coastal agglomeration. <b>Person load</b> Nitrogen g/person/d (2-15)	Type of element: common Datatype: decimal Unit: Ton/yr Min. size: 1 Max. size: 10 Min. value: 0 Max. value: 1,000,000,000	rcaNDischarge d54
18.	TP_Load_MWW_Untreated_Hydro_Coast	Estimated TP load discharged annually from MWW collected without	Estimated TP loads for wastewater discharged without treatment in the hydrological basin (catchments) of	Type of element: common Datatype: decimal Unit: Ton/yr	rcaPDischarge d54

		treatment	coastal areas and in the coastal agglomeration. <b>Person load</b> Phosphorus, g/person/d (1-3)	Min. size: 1 Max. size: 10 Min. value: 0 Max. value: 1000 000 000	
19.	Total_BOD_Load_Hydro_Coast	Total BOD load discharged annually from treated and untreated MWW	Total discharged BOD loads from treated and untreated wastewater originating in agglomerations (of size $\geq 2000$ ) located in the hydrological basin of coastal areas and those directly discharging into the Mediterranean, as defined by the LBS Protocol	Type of element: common Datatype: decimal Unit: Ton/yr Min. size: 1 Max. size: 10 Min. value: 0 Max. value: 1000,000,000	
20.	TN_Load_Hydro_Coast	Total Nitrogen load discharged annually from treated and untreated MWW	Total discharged Nitrogen loads from treated and untreated wastewater originating in agglomerations (of size $\geq 2000$ ) located in the hydrological basin of coastal areas and those directly discharging into the Mediterranean, as defined by the LBS Protocol	Type of element: common Datatype: decimal Unit: Ton/yr Min. size: 1 Max. size: 10 Min. value: 0 Max. value: 1000,000,000	
21.	TP_Load_Hydro_Coast	Total Phosphorus load discharged annually from treated and untreated MWW	Total discharged Phosphorus loads from treated and untreated wastewater originating in agglomerations (of size $\geq 2000$ ) located in the hydrological basin of coastal areas and those directly discharging into the Mediterranean, as defined by the LBS Protocol	Type of element: common Datatype: decimal Unit: Ton/yr Min. size: 1 Max. size: 10 Min. value: 0 Max. value: 1000,000,000	
22.	Data_Collection_Method	Method of data collection.	Codes elements as defined in codelist vi.	Type of element: common Datatype: integer Size: 3	
23.	Remarks	Remarks, comments or explanatory notes (free text).		Type of element: common Datatype: blob Max. size: 4096	

## IND5. Dataset: Coastal and Marine Water Quality

### Dataset definition

Policy theme	Nutrient concentrations
Short name	Nutrients
Indicators	<b>5.1 and 5.2</b>
Key words	Nutrient concentrations, bathing water quality
Spatial coverage	<b>Transitional waters, Coastal waters and Marine waters</b>
Dataset relevance	This dataset is relevant for populating H2020 Water Indicators– see Annex 1. These indicators are directly linked to the Ecological Objectives 5 – Eutrophication and 9 – Contaminants, as they correspond to IMAP’s common indicators 13 and 21, respectively.
Parameters	Mean TN and TP summer and winter, Seasonal aggregated (Winter and Summer) TN and TP, Spatial aggregated TN and TP, Station, Depth, Mean Orthophosphate (o-PO <sub>4</sub> ) concentration, mean Nitrate (NO <sub>3</sub> ) concentration, mean Ammonium (NH <sub>4</sub> ) concentration, mean Nitrate (NO <sub>3</sub> ) concentration, Number of bathing water sites in the Mediterranean and on Intestinal Enterococci (IE) concentrations at the coastal monitoring sites.
Methodology for obtaining data	Delivered by country
Planned update frequency	Every 1 year

### Overview of data tables

Data table	Name	Definition	Short description
5.1.	<b>Nutrient concentrations in transitional, coastal and marine waters</b>	<p><b>Main indicator:</b> The levels and trends in total nitrogen (TN) and total phosphorus (TP) concentration in the transitional, coastal and marine waters of the Mediterranean Sea.</p> <p><b>Sub-indicator:</b> These sub indicators (NO<sub>3</sub>, NO<sub>2</sub>, NH<sub>4</sub>, o-PO<sub>4</sub>) refer to the levels and trends in: nitrate, nitrite, ammonia and ortho-phosphate concentration in transitional, coastal and marine waters of the Mediterranean Sea.</p> <p><b>Transitional waters</b> are surface waters in the vicinity of river mouths which are partly saline in character as a result of their proximity to coastal waters but which are substantially influenced by fresh waters</p> <p><b>Coastal waters</b> are surface waters at a distance of one nautical mile on the seaward side from the nearest point of the baseline from which the breadth of territorial waters is measured, extending where appropriate up to the outer limit of transitional waters.</p> <p><b>Marine waters</b> are the part of the ocean that extends further to the</p>	<p>The Mediterranean Sea is one of the most oligotrophic (poor in nutrients) oceanic systems. 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.</p> <p>This indicator reflects the concentration of key nutrients in the water column and provides information relative to eutrophication. It is a «state» indicator and can relate more directly to land-based sources of nutrients, in particular when assessed in combination with indicators 4.2.</p>

		coastal waters to the open seas	
5.2.	<b>Bathing water quality</b>	<p><u>Percentage of intestinal enterococci concentration measurements in bathing water sites within established standards</u></p> <p>Limit values are (in CFU/100 mL)<sup>2</sup>:</p> <ul style="list-style-type: none"> <li>- &lt;100 (excellent)</li> <li>- 101-200 (good)</li> <li>- 185 (sufficient)</li> <li>&gt;185 (poor)</li> </ul> <p>In case data for E. coli is available, this can be provided as complementary indicator</p>	<p>Tourism is an important component of socio-economic development in the Mediterranean region and therefore it is crucial to monitor the water quality of bathing sites to ensure the safety of public and visitors.</p> <p>Enterococci sp. has been demonstrated to be an appropriate indicator for faecal bacteria in brackish and marine waters and is known to be a good indicator for human pathogens in wastewater discharges.</p>

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<sup>2</sup> Methods on how to determine this are in the Annex I and II of the EC directive on Bathing Water (2006) <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32006L0007> and the Criteria and Standards for Microbial Water Quality (Decision IG.20/9) in the frame of the implementation of Article 7 of the LBS Protocol from the Barcelona Convention

**Data table 1:** Nutrient concentrations in transitional, coastal and marine waters (Station)

	Column Name	Column definition	Methodology	Data specifications	Equivalent in WISE if exist
1.	Country_Code	Country codes as defined in the codelist.	ISO 3166-alpha-2, Codes elements as defined in codelist: i	Type of element: common Datatype: integer Size: 3	
2.	National_Station_ID	Station code	Use the former sampling guidelines provided by UNEP-MAP	Type of element: non-common Datatype: string Min. size: 0 Max. size: 255	
3.	National_Station_Name	Name of the station	Use the former sampling guidelines provided by UNEP-MAP	Type of element: non-common Datatype: string Min. size: 0 Max. size: 255	
4.	Longitude	Longitude in the reference system WGS84 decimal degrees	This is a required, not null field. Use the common geodetic datum WGS84. The bathing water must be located within country border.	Type of element: non-common Datatype: decimal Unit: decimal degrees Datatype: decimal Minimum size:7 Maximum size: 9 Minimum value: -180 Maximum value: 180 Decimal precision: 6	
5.	Latitude	Latitude in the reference system WGS84 decimal degrees	This is a required, not null field. Use the common geodetic datum WGS84. The bathing water must be located within country border.	Type of element: non-common Datatype: decimal Unit: decimal degrees Minimum size:7 Maximum size: 8 Minimum value: -90 Maximum value: 90 Decimal precision: 6	
6.	Closest_Coast	Distance from the station to the Coast (km)	Measured distance between the station point and closest coast	Type of element: non-common Datatype: decimal Unit: km Min. value: 0 Max. value: 1000	

7.	Sea_Depth	Depth of the Sea bed (m)	Measured distance between the Sea depth and the station point location	Type of element: non-common Datatype: decimal Unit: m Min. value: 0 Max. value: 1,000	
8.	Mixing	Mixing characteristics of the water column in the station point, enter one of the values in the list (FM = Fully mixed, PM = Partially mixed, VS = Vertically stratified)	Degree of mixing of water column	Type of element: common Datatype: string Min. size: 2 Max. size: 2	
9.	Area_Type	Type of monitored area, enter one of the values in the list (HS = Hot spot, PSA = Protected Sea Area, LTER = Long Term Ecological Research Network, O = Other)	Type of station point	Type of element: common Datatype: string Min. size: 1 Max. size: 4	
10.	Remarks	Remarks, comments or explanatory notes (free text).		Type of element: common Datatype: blob Max. size: 4096	

**Data table 2:** Nutrient concentrations in transitional, coastal and marine waters (Parameters)

	Column Name	Column definition	Methodology	Data specifications	Equivalent in WISE if exist
1.	Country_Code	Country codes as defined in the codelist.	ISO 3166-alpha-2, Codes elements as defined in codelist: i	Type of element: common Datatype: string Size: 2	
2.	National_Station_ID	Station code	Use the former sampling guidelines provided by UNEP-MAP	Type of element: non-common Datatype: string Min. size: 0 Max. size: 255	
3.	Sampling_Time	Date and time of sampling	Use the format YYYY-MM-DD HH:MM	Type of element: common Datatype: date Min. size: 8 Max. size: 8 Min. value: 2003-01-01 Max. value: Current date	
4.	Sample_ID	Sample code in case multiple replicas are made with the same value of Year, Month, Day and Time	Use the former sampling guidelines provided by UNEP-MAP	Type of element: non-common Datatype: string Min. size: 0 Max. size: 255	
5.	Determinant_Nutrients	Name of the chemical-physical or nutrient parameter, enter one of the values in the codelist: v	Codelist v	Type of element: non-common Datatype: string Min. size: 0 Max. size: 10	
6.	Unit_Nutrients_Seawater	Unit of parameters according to codelist v	Codelist v	Type of element: common Datatype: string Min. size: 2 Max. size: 5	
7.	Concentration_Flag	Enter the value '<' if the concentration value is lower than the limit of quantification or the value 'l' if the concentration value is lower than the limit of detection. In other cases leave the field empty.	Concentration status	Type of element: common Datatype: string Min. size: 2 Max. size: 5	
8.	Concentration	Concentration value	Codelist v	Type of element: non-	

				common Datatype: decimal Unit: depends on the parameter (codelist v) Min. value: 0 Max. value: 1,000	
9.	Sample_Depth	Depth of Sample collection (m)	Measured distance between the Sea depth and the station point location	Type of element: non-common Datatype: decimal Unit: m Min. value: 0 Max. value: 1,000	
10.	Data_Collection_Method	Method of data collection.	Codes elements as defined in codelist vi.	Type of element: common Datatype: integer Size: 3	
11.	Remarks	Remarks, comments or explanatory notes (free text).		Type of element: common Datatype: blob Max. size: 4096	

**Data table 3: Bathing Water Quality**

	<b>Column Name</b>	<b>Column definition</b>	<b>Methodology</b>	<b>Data specifications</b>	<b>Equivalent in WISE if exist</b>
1.	Country_Code	Country codes as defined in the codelist.	ISO 3166-alpha-2, Codes elements as defined in codelist: i	Type of element: common Datatype: integer Size: 3	
2.	Bathing_Water_Name	Name of bathing water.	Use the former sampling guidelines provided by UNEP-MAP	Datatype: string Minimum size: 1 Maximum size: 100	
3.	Short_Bathing_Water_Name	Short name of bathing water.	Must be ≤ 20 characters. If Bathing Water Name ≤ 20 characters it can be used for ShortBathingWaterName as well.	Datatype: string Minimum size: 1 Maximum size: 20	
4.	Bathing_Water_ID	Unique identification code of bathing water	This is a required, not null field. Must be unique according to each country guidance	Datatype: string Minimum size: 3 Maximum size: 24	
5.	Longitude	Longitude in the reference system WGS84 decimal degrees	This is a required, not null field. Use the common geodetic datum WGS84. The bathing water must be located within country border.	Datatype: decimal Maximum size: 9 Minimum value: -180 Maximum value: 180 Decimal precision: 4 Unit: decimal degrees	<i>Same coordinate system used in WISE</i>
6.	Latitude	Latitude in the reference system WGS84 decimal degrees	This is a required, not null field. Use the common geodetic datum WGS84. The bathing water must be located within country border.	Datatype: decimal Maximum size: 8 Minimum value: -90 Maximum value: 90 Decimal precision: 4 Unit: decimal degrees	<i>Same coordinate system used in WISE</i>
7.	Start_Date	Start date of the bathing season	This is a required, not null field. Format: YYYY-MM-DD (year-month - day); YYYY must be the same as attribute of Bathing_Sampling_Year (YYYY) Must be < End_Date	Datatype: date	
8.	End_Date	End date of the bathing season	This is a required, not null field. Format: YYYY-MM-DD (year-month - day); YYYY must be the same as attribute of Bathing_Sampling_Year (YYYY) Must be > Start_Date	Datatype: date	
9.	Bathing_Sampling_Time	Date and time of	This is a required, not null field.	Datatype: date	

		sampling	Format: YYYY-MM-DD (year-month - day).		
10.	Bathing_Classification_UNEP-MAP_Criteria_Standards	Classification of the bathing site according to the criteria and standards agreed for the Mediterranean <sup>3</sup>	% of samples < 100 CFU : Excellent water 101 – 200 CFU <sup>4</sup> : Good 185 <sup>5</sup> CFU: Sufficient > 185 <sup>6</sup> : Poor	Datatype: string Minimum size: 4 Maximum size: 100	Class
11.	Other_Bathing_Classification_Used	Classification of the bathing site when it differs from UNEP-MAP classification	Provide the used Criteria and Standards (please provide the reference document)	Datatype: string Minimum size: 4 Maximum size: 100	
12.	Concentration_IE	Measured concentration of intestinal enterococci per sample in "colony forming unit" per 100 ml (cfu/100ml).	This is a required, not null field. Minimum value is minimal detection limit. Zero value is replaced by minimal detection limit. Upper detection limit: 35000 with 2 dilutions for all methods.	Datatype: decimal Maximum size: 10 Maximum value: 35,000 Unit: cfu / 100 ml	ConcIE  <i>Same parameter, unit and protocol are used in WISE under the Directive 2006/7/EC</i>
13.	Concentration_EC	Measured concentration of <i>Escherichia coli</i> per sample in "colony forming unit" per 100 ml (cfu/100ml).	This is a required, not null field. Minimum value is minimal detection limit. Zero value is replaced by minimal detection limit. Upper detection limit: 35.000 with 2 dilutions for all methods.	Datatype: decimal Maximum size: 10 Maximum value: 35,000 Unit: cfu / 100 ml	ConcEC  <i>Same parameter, unit and protocol are used in WISE under the Directive 2006/7/EC</i>
14.	Remarks	Remarks, comments or explanatory notes (free text).		Type of element: common Datatype: blob Max. size: 4096	

<sup>3</sup> UNEP/MED, 2012. Decision IG.20/9 - Criteria and Standards for bathing waters quality in the framework of the implementation of Article 7 of the LBS Protocol.  
<https://wedocs.unep.org/rest/bitstreams/8498/retrieve>

<sup>4</sup> 95th percentile intestinal enterococci/100 mL (applying the formula 95th Percentile = antilog ( $\mu + 1,65 \sigma$ ))

<sup>5</sup> 90th percentile intestinal enterococci/100 mL (90th Percentile=antilog ( $\mu + 1,282 \sigma$ ),  $\mu$ =calculated arithmetic mean of the log10 values;  $\sigma$ = calculated standard deviation of the log10 values)

<sup>6</sup> 90th percentile intestinal enterococci/100 mL (90th Percentile=antilog ( $\mu + 1,282 \sigma$ ),  $\mu$ =calculated arithmetic mean of the log10 values;  $\sigma$ = calculated standard deviation of the log10 values)

# Annex 1: Codelists

## i. List of country codes

Type: Fixed

Value	Definition
DZ	Algeria
EG	Egypt
IL	Israel
JO	Jordan
LB	Lebanon
LY	Libya
MA	Morocco
PS	Palestine
TN	Tunisia

ISO 3166-1-alpha-2 code

[http://www.iso.org/iso/home/standards/country\\_codes/country\\_names\\_and\\_code\\_elements.htm](http://www.iso.org/iso/home/standards/country_codes/country_names_and_code_elements.htm)

## ii. Codelist of Administrative Mediterranean Regions

Country	Region
Albania	Peqini
Albania	Vlora
Albania	Saranda
Albania	Delvina
Albania	Kavaja
Albania	Fieri
Albania	Kruja
Albania	Durres
Albania	Kurbini
Albania	Lushnja
Albania	Mallakstra
Albania	Elbasan
Albania	Shkodra
Albania	Lezha
Albania	Tirana
Algeria	El Tarf
Algeria	Tlemcen
Algeria	Ain Temouchent
Algeria	Oran
Algeria	Mostaganem
Algeria	Chlef
Algeria	Tipaza
Algeria	Alger

Algeria	Boumerdes
Algeria	Tizi Ouzou
Algeria	Bejaia
Algeria	Jijel
Algeria	Skikda
Algeria	Annaba
Bosnia Herzegovina	Coastal Area - Neum
Bosnia Herzegovina	Trebisnjica
Bosnia Herzegovina	Cetina
Bosnia Herzegovina	Neretva
Croatia	Primorsko-Goranska
Croatia	Zadarska
Croatia	Licko-Senjaska
Croatia	Sibensko-Kninska
Croatia	Istarska
Croatia	Dubrovacko-Neretvanska
Croatia	Splitsko-Dalmatinska
Cyprus	Cyprus
Egypt	Alexandria
France	Champagne-Ardenne
France	Frache-Comte
France	Herault
France	Alpes maritimes
France	Pyrenees orientales

France	Aude
France	Bourgogne
France	Provence-Alpes-Cote d'Azur
France	Gard
France	Corse
France	Bouches du Rhone
France	Rhone-Alpes
Greece	Aegean Islands
Greece	West Macedonia
Greece	West Continental Greece
Greece	West Peloponnes
Greece	North Peloponnes
Greece	Attica
Greece	East Peloponnes
Greece	Epirus
Greece	Thrace
Greece	East Macedonia
Greece	East Continental Greece
Greece	Crete
Greece	Central Macedonia
Greece	Thessalia
Israel	Israel
Italy	Puglia
Italy	Umbria
Italy	Veneto
Italy	Toscana
Italy	Lombardia
Italy	Valle d Aosta
Italy	Liguria
Italy	Friuli
Italy	Molise
Italy	Marche
Italy	Sardegna
Italy	Trentino
Italy	Emilia Romagna
Italy	Abruzzo
Italy	Calabria
Italy	Piemonte
Italy	Basilicata
Italy	Lazio
Italy	Sicilia

Italy	Campania
Lebanon	Lebanon
Libya	Alnigat Alkhams
Libya	Sirt
Libya	Ajdabiya
Libya	Tripoli
Libya	Dernah
Libya	Azzawiya
Libya	Al jifarah
Libya	Al batnan
Libya	Misratah
Libya	Al Khums
Libya	Benghazi
Libya	Alnigat ilkamse
Malta	Malta
Montenegro	Budva
Montenegro	Ulcinj
Montenegro	Tivat
Montenegro	Kotor
Montenegro	Herceg Novi
Montenegro	Bar
Morocco	Nador
Morocco	Tanger
Morocco	Tetouan
Palestine	Wadi Gaza
Slovenia	Slovenia
Spain	Barcelona
Spain	Alava
Spain	Cuenca
Spain	Huesca
Spain	Alicante
Spain	Albacete
Spain	Burgos
Spain	Granada
Spain	Valencia
Spain	Lleida
Spain	Girona
Spain	Malaga
Spain	Tarragona
Spain	Baleares
Spain	Navarra

Spain	Murcia
Spain	Zaragoza
Spain	Melilla
Spain	Rioja
Spain	Teruel
Spain	Soria
Spain	Cantabria
Spain	Cadiz
Spain	Almeria
Spain	Castellon
Syria	Tartous
Syria	Lattakia
Tunisia	Gabes
Tunisia	Sfax
Tunisia	Bizerte
Tunisia	Mahdia
Tunisia	Sousse
Tunisia	Ariana
Tunisia	Nabeul
Tunisia	Ben Arous
Tunisia	Monastir
Tunisia	Medenine
Tunisia	Tunis
Turkey	Denizli
Turkey	Hatay
Turkey	Antalya
Turkey	Kahramanma
Turkey	Isparta
Turkey	Manisa
Turkey	Mugla
Turkey	Usak
Turkey	Icel
Turkey	Kutahya
Turkey	Osmaniye
Turkey	Afyon
Turkey	Izmir
Turkey	Balikesir
Turkey	Canakkale
Turkey	Aydin
Turkey	Adana

### iii. Hydrological basins per country codelist

Type: Suggested

Catchment/ hydrological basin at the coastal area	Country code
	DZ
	EG
	IL
	JO
	LB
	LY
	MA
	PS
	TN

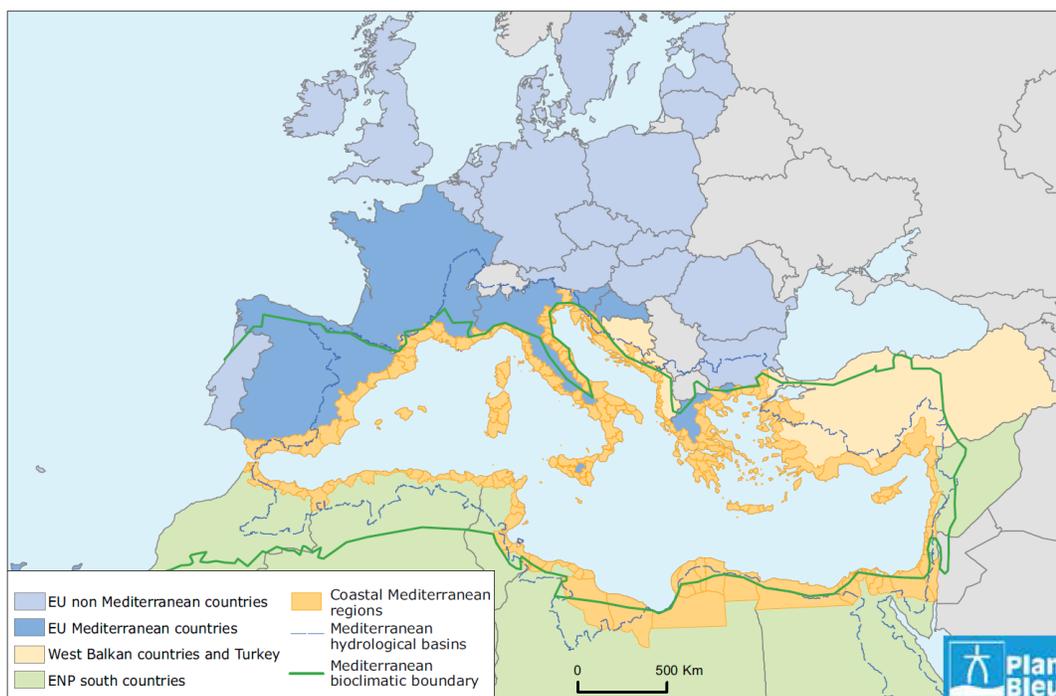


Figure 1. Coastal hydrological basins draining into the Mediterranean Sea

### iv. Unit of measurement codelist and abbreviations

Type: Suggested

Value	Definition
Mm <sup>3</sup> /yr	Volume in million m <sup>3</sup> per year of collected municipal wastewater
Mm <sup>3</sup> /yr	Volume in million m <sup>3</sup> per year of municipal wastewater treated
% v/v	volume of municipal wastewater treated by primary, secondary or tertiary treatment divided by treated

	municipal wastewater
p. e.	Population Equivalent
MWW	Municipal Waste Water
cfu	Colony-forming Unit

#### v. List\_parameters\_Chemical-Physics

Value	Description
Temperature (water)	Water temperature expressed in degree Celsius (Cel)
Salinity	Practical Salinity Unit (psu)
Electrical conductivity	Electrical conductivity in $\mu$ -Siemens per centimeters ( $\mu$ S/cm)
Dissolved oxygen	Dissolved oxygen ( $\mu$ mol O <sub>2</sub> /l)
Oxygen saturation	Oxygen saturation expressed in percentage of saturation (%)
pH	pH
Chlorophyll a	Chlorophyll a ( $\mu$ g/l)
Secchi depth	Secchi depth (m)
Nitrate	Micromoles of Nitrate per volume ( $\mu$ mol {NO <sub>3</sub> }/L)
Nitrite	Expressed in micromoles of Nitrite per volume ( $\mu$ mol {NO <sub>2</sub> }/L). Conversion factor: 1 mg{N}/L = 3.2845 mg{NO <sub>2</sub> }/L
Ammonium	Expressed in micromoles of Ammonium per volume ( $\mu$ mol {NH <sub>4</sub> }/L). Conversion factor: 1 mg{N}/L = 1.2888 mg{NH <sub>4</sub> }/L
Total phosphorus	Expressed in micromoles of Phosphorus per volume ( $\mu$ mol {P}/L).
Orthophosphates	Expressed in micromoles of Phosphate per volume ( $\mu$ mol {PO <sub>4</sub> }/L). Conversion factor: 1 mg{P}/L = 3.0662 mg{PO <sub>4</sub> }/L
Total nitrogen	Expressed in micromoles of Nitrogen per volume ( $\mu$ mol {N}/L).
Silicate	Expressed in micromoles of Silicate per volume ( $\mu$ mol {SiO <sub>3</sub> }/L).

#### vi. Method of data collection codelist I

Type: Suggested

Value	Definition	Short description
C	Calculated	
E	Estimated	
M	Measured	

## vii. Method of data collection codelist II

Method	Example	Comments
1. Using the location of the centre of the commune	If the centre of the commune is inside the hydrological basin, then 100 % of the waste water is considered. If it is outside, 0% of the waste water is considered	Easy but very rough
2. Using the share of the area of the commune within the coastal hydrological basin limit	If, for example, 30 % of the area of the commune falls within the hydrological basin, then 30% of the volume of waste water is considered	Need to compute the area using GIS
3. Using the share of the population living within the limit	If, for example, 70 % of the population of the commune is living in the hydrological basin, then 70% of the volume of waste water is considered	The spatial distribution of the population in the commune must be available and analysed
4. Using GIS layer of disaggregated data on individual wastewater treatment plants and collecting systems	Geo-analysis using overlay and intersect with the GIS layer of delineated hydrological basin (catchment) of coastal area	Most precise calculation. The approach for calculating the indicator at the level of hydrological basin (catchment) of coastal areas depends primarily on the availability of GIS layer of basin delineation. In case the layer is not available, a temporary approach is recommended (see Methodology for gap filling)
5. Other		Please specify

## viii. Activities/sectors codelist

Type: Suggested

Value	Definition	Short description
Agri	Agriculture irrigation (e.g. food crops)	
Aqua	Aquaculture and fish ponds	
Dual	Dual water supply systems for urban non-potable use (toilet flushing, garden use)	
Indu	Industrial processes, water for manufacturing and construction industry (cooling and process water)	
Recr	Recreation (e.g. recreational water bodies, irrigation of areas for sports, etc.)	
Rech	Aquifer recharge (e.g. through injection wells for saline intrusion control)	
Rest	Water restoration and recreation of existing or creating new aquatic ecosystems	
Urba	Irrigation of public gardens and landscape, firefighting, street washing, dust suppression, etc.	
Other	Other purposes	

## ix. Coastal city/agglomeration per country codelist

Coastal city/agglomeration	Country code
	DZ
	EG
	IL
	JO
	LB
	LY
	MA
	PS
	TN

**Table D<sup>7</sup>**

Methodology	Data specifications	Equivalent in WISE if exist
The population as of the reference year (Year_H2020)	Type of element: non-common Datatype: integer Unit: inhabitants Min. size: 1 Max. size: 10 Min. value: 1 Max. value: 1000 000 000	

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<sup>7</sup> If you are compiling spreadsheets, please refer to “Demographic Dataset” spreadsheet.