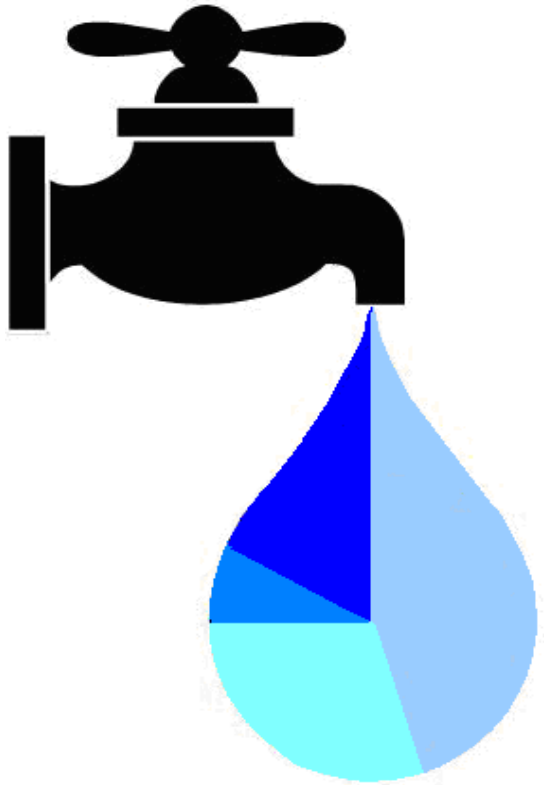
DATA MANUAL v.3.1
WATER QUANTITY-SoE#3



European Topic Centre
Inland, coastal, marine waters

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Prepared by / compiled by: **George Karavokiros, Ifigeneia Koutiva, Maggie Kossida**
Organisation: **National Technical University of Athens**

EEA Project manager: **Marek Staron**

Version History

Version	Date	Author	Status and description	Distribution
1.0	28/07/2009	Maggie Kossida, Ifigeneia Koutiva	Final draft for EEA	
2.0	20/06/2010	Maggie Kossida, Ifigeneia Koutiva	Final draft for EEA: Additions in Section 4. Water Use datasets	
3.0	14/06/2011	Maggie Kossida, Ifigeneia Koutiva	Final draft for EEA: Additions in Section 2 Table 1. Water Availability Part A. Water Balance	
3.1	15/07/2013	George Karavokiros	Final draft for EEA: Update of the document for the 2013 reporting	

PREFACE

This document holds the technical specifications for the Water Quantity data requested in the WISE-SoE reporting obligations. The purpose of this manual is to support countries in reporting good quality data, providing the full details of the data requested on the state and quantity of water resources in the SoE reporting sheet#3 also in alignment with the Eurostat JQ IWA (Joint Questionnaire on Inland Waters) and containing detailed specifications in a structured format. Suggestions from users on how to improve the document are welcome.

In general the data requested are described in this manual under three main categories: Water Availability, Water Abstraction, and Water Use.

WATER AVAILABILITY	WATER ABSTRACTION	WATER USE
Components of the **Water Balance** as spatially aggregated data on a specific reporting unit (e.g. RBD) • Area Precipitation (P) • Potential Evapotranspiration (PET) • Actual Evapotranspiration (ETa) • Internal Flow (D = P - ETa) • Total actual external inflow (Q_i) • Total actual outflow (Qo) • Water Requirements (WR) • Aquifer Recharge (Re) **Hydro-meteorological Parameters**	• Total Volume of freshwater abstraction (from both SW + GW) • Total Volume of freshwater abstraction for public water supply systems (from both SW + GW) • Total Volume of freshwater abstraction (from both SW + GW) for self-supply and breakdown per sector (according to NACE classes)	• Total Volume of freshwater used and breakdown by sector (according to NACE classes) • Total volume of freshwater used provided by public water supply systems and breakdown by sector (according to NACE classes) • Total volume of freshwater used provided by self-supply and breakdown by sector(according to NACE classes)
• Snowpack • Changes in Reservoir storage (ΔSW_s) • Changes in Groundwater storage (ΔGW_s) **Storage**	• Groundwater available for annual abstraction • Evaporation Losses (during transport and use) • Non freshwater sources (marine and brackish water) and breakdown per sector (according to NACE classes)	• Volume of freshwater (from both SW + GW) used per large item (based on 3 classes categorisation for cities, industries and agricultural units)
• Return flow (before/after use) • Reused water (and leakages) • Desalinated water • Water imports • Water exports • Bottled wateSnowpack • Changes in Reservoir storage (ΔSW_s) **Additional Water Resources**		• Recycled water
Point data (individual measurements within the specific reporting unit) • Streamflow (Q) at selected gauges • Reservoir inflow/outflow • Groundwater level (H) at selected wells • General info on rain gauge stations		

Figure 1: Water Quantity datasets (in summary)

NOTE: Due to the fact that the Water Quantity reporting introduces flexibility in reporting at different spatial and temporal scales, the traditional EIONET process and related xml files are not user friendly enough to accommodate these needs. Thus, a user friendly reporting tool has been developed in order to use for this reporting. The data requested through the reporting tool are the ones described in the current document.

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1. General information for WISE-SOE Reporting: Water Quantity dataset

Basic metadata:

Short name	WISE-SOE: Water Quantity
Registration Status	Released 9 July 2009
Reference URL	
Name	WISE-SOE Reporting: Water Quantity
Keyword	Water availability, water balance, water abstraction, water use
EEA issue	Water quantity, water scarcity
Definition	Data on freshwater resources availability, abstraction and use at regional spatial scale will be collected annually through the Eionet-Water annual data flow. Data and information obtained through the Eionet-Water annual data flow are primarily used to formulate indicators (associated with the EEA's Core Set Indicators) and assess the state and trends of the water resources and associated pressures, and monitor the progress with European policy objectives. The information needed in relation to water quantity is generally described as drivers, pressures, state, impact, response. In general there is a need for coherent European indicators describing water availability/scarcity in connection with water use and water use efficiency to assess the extent and intensity of the problem, and of the impact of particular socio-economic sectors on water abstraction (e.g. water abstraction by agriculture). Data collected through the Eionet- Water annual data flow are also published in Waterbase, a series of water topic-specific databases and web pages, publicly accessible via the EEA Data Service's web site. Data on the status and quantity of collected Europe's water resources can be viewed, analysed and downloaded from Waterbase at: **http://dataservice.eea.europa.eu/dataservice/available2.asp?type=findkeyword&theme=waterbase** Full details of the data requested on the state and quantity of water resources are presented in the current document and include data on freshwater resources availability, abstraction and use.
Methodology	The data requested through the WISE-SoE data collection process should be derived from existing national and/or regional monitoring networks within each EEA Member Country. Member Countries are asked to provide data on freshwater availability, abstraction and use according to the SoE reporting sheet#3 as accepted by the SCG November 2008, and as detailed in this data request. It is expected that these data should provide a general overview, based on truly comparable data, of the state of water resources and associated pressures at a European level. It is recognised that whilst Member Countries already report data under various obligations of the WFD there may be information gaps in the data supplied in terms of the requirements of the EEA (e.g. regarding the requested parameters, temporal scales etc.). It is indented that all relevant reporting initiatives are streamlined in one data flow and incorporated into WISE. For the moment Member States report data on water resource and water abstraction at country level via the “Eurostat/OECD Joint Questionnaire on the State of the Environment" (JQ). The methodology used in the Eurostat/OECD JQ has been reflected in this reporting and further alignment between the two data requests is incorporated in the current data manual (regarding the parameters which relate to water quanity) in order not to duplicate reporting. To reflect the spatial variability of water resources the current requested information has been scaled down to each particular RBD and sub-unit. Additionally, the minimum proposed time step is monthly to allow distinguishing seasonal patterns and assessing dry periods within a hydrological year. It is recognised that some information may not be available in first years of reporting in the level of detail ideally required. A phased and flexible approach has therefore been adopted with summary information at the RBD level required in the first years, and the flexibility to report at different regional and temporal spatial scales. It is assumed that detailed information will be available after 2010 and should be supplied by electronic means at this time. Please consider the following guidelines when compiling your data delivery:

	1. Submit water quantity data up to and including 2008. Do not supply any data for 2009. In case that the 2008 data are not available yet please report the latest available year. This option will be incorporated in the reporting input tool. 2. Provide as long a time series of water quantity data, for as many determinants and as many stations (where requested) as possible. Fill in any gaps in existing data. (* this applies for the reporting years to follow) 3. Select the spatial reporting scale: regarding the spatial unit for which you report the spatially aggregated data (tables: water balance, water abstraction, water use), you have the flexibility to report at different scales: River Basin District (RBD), sub-unit (SU), River Basin (RB), Administrative Region (ADR). Please report at the SMALLEST available spatial scale. In case that through your reporting you did not mange to cover the entire territory of your country (e.g. your country has 10 RBDs but you only reported data for 9 of them, thus you have not covered the entire territory of your country) it is requested to also report country level data in order to ensure continuation of the representation of your country. 4. Select the temporal reporting scale: regarding the temporal resolution for which you report the data, you have the flexibility to report at different scales: Monthly, Seasonal, Annual. Please report at the LOWEST available temporal scale. In case that through your reporting you did not mange to cover the entire year (e.g. the year has 12 months but you only reported data for 8 of them, thus you have not covered the entire year) it is requested to also report annual data in order to ensure continuation of the representation of your country. 5. Remember to refer to the pre-filled examples which will provided together with the input tool 6. Provide additional information based on your judgement (e.g. what was the calculation method used in the water balance table) in the column "Remarks". This is very useful during the data quality assurance process. 7. Longitude and Latitude values where requested must be provided in decimal degrees format. 8. Use the current definition and specifications to guide you in formatting and collating your data delivery. Be aware that you need to pay emphasis in the definitions as some of them may differ from the Eurostat JQ IWA definitions (e.g. reused water). Streamlining with Eurostat to adopt common definition is under progress. The input tool will incorporate a help menu to further facilitate you in the reporting process. 9. The input tool (that will be available to you in September) will at the end create xml files (details will be hand out at that time together with the tool). Upload your created xml data files to your nominated repository: the Central Data Repository at http://cdr.eionet.europa.eu or your national Eionet server.
Contact information	The ETC/ICM contact person for the Eionet-Water Quantity data manual is Maggie Kossida, based at National Technical University of Athens (NTUA), Greece. If you have any questions about the format and content of the data request please contact her at: Maggie Kossida National Technical University of Athens Laboratory of Hydrology & Water Resources Management 5, Iroon Polytechniou str., 15780 Athens, Greece

	Tel: +30 210 7723325 Email: m.kossida@chi.civil.ntua.gr
Planned Update Frequency	Annual
Version	May 2011
Identifier	Water Quantity

2. Water Availability datasets

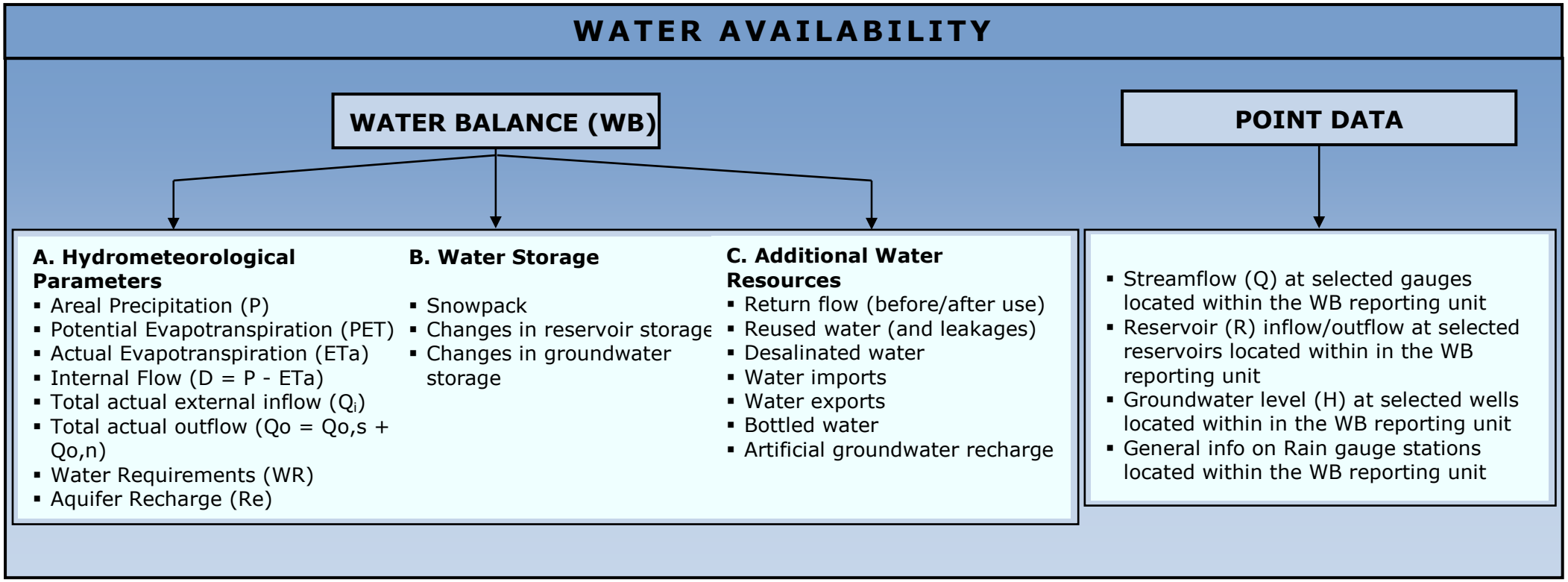

Figure 2: Water Availability dataset flowchart

TABLE 1: WATER AVAILABILITY				
PART A: WATER BALANCE		**Requested Data**		
Variable	**Definition**	**Temporal Scale**	**Spatial Scale**	**Other**
Areal Precipitation (P)	Total volume of atmospheric wet precipitation (rain, snow, hail etc.). Precipitation is usually measured by meteorological or hydrological institutes.	Monthly M Seasonal Annual M [1] LTAA M	RBD M RB Sub-units Administrative	unit: Million cubic meters (mio m^3)

[1] LTAA = Long Term Annual Average. Based on annual values, averaged over a period of at least 20 consecutive years. The time period used to calculate the LTAA should also be provided

TABLE 1: WATER AVAILABILITY PART A: WATER BALANCE		Requested Data		
Variable	**Definition**	**Temporal Scale**	**Spatial Scale**	**Other**
			Region Country [M]	
Potential Evapotranspiration (PET)	The maximum quantity of water capable of being evaporated in a given climate from a continuous stretch of vegetation covering the whole ground and well supplied with water.	Monthly [M] Seasonal Annual [M] LTAA [M]	RBD [M] RB Sub-units Administrative Region Country [M]	unit: Million cubic meters (mio m^3)
Actual Evapotranspiration (ET_a)	Total volume of evaporation from the ground, wetlands and natural water bodies and transpiration of plants. According the definition of this concept in hydrology, the evapotranspiration generated by all human interventions is excluded, except rain-fed agriculture and forestry. The "actual evapotranspiration" is measured or calculated using different types of mathematical models, ranging from very simple algorithms (Turc, Penmann, Budyko, Turn Pyke, etc) and corrections related to vegetal cover and season to schemes that capture the hydrological cycle in detail. **Please do not report potential evapotranspiration here.**	Monthly [M] Seasonal Annual [M] LTAA [M]	RBD [M] RB Sub-units Administrative Region Country [M]	unit: Million cubic meters (mio m^3)
Internal flow (D = P - ET_a)	Total volume of river run-off and groundwater generated, in natural conditions, exclusively by precipitation into a territory. The internal flow is equal to precipitation less actual evapotranspiration and can be calculated or measured. If the river run-off and groundwater generation are measured separately, transfers between surface and groundwater should be netted out to avoid double counting.	Monthly [M] Seasonal Annual [M] LTAA [M]	RBD [M] RB Sub-units Administrative Region Country [M]	unit: Million cubic meters (mio m^3) Calculated based on the above reported values of P and ET_a.
Total actual external inflow (Q_i)	Total volume of actual flow of rivers and groundwater, coming from neighbouring territories (e.g. RBDs) within or outside the country.	Monthly [M] Seasonal Annual [M] LTAA [M]	RBD [M] RB Sub-units Administrative Region	unit: Million cubic meters (mio m^3)

[M] This field is mandatory.
[M] This field is mandatory.

TABLE 1: WATER AVAILABILITY PART A: WATER BALANCE		Requested Data		
Variable	**Definition**	**Temporal Scale**	**Spatial Scale**	**Other**
			Country [M]	
Total actual outflow ($Q_o = Q_{o,s} + Q_{o,n}$) of which $Q_{o,s}$ **into the sea** of which $Q_{o,n}$ **into neighbouring territories**	Actual outflow of rivers and groundwater into the sea plus actual outflow into neighbouring territories (within or outside the country). Total actual outflow – of which into the sea: The total volume of actual outflow of rivers and groundwater into the sea. Total actual outflow – of which to neighbouring territories: The total volume of actual outflow of rivers and groundwater into neighbouring territories (RBDs or Countries if Country level is reported).	Monthly [M] Seasonal Annual [M] LTAA [M]	RBD [M] RB Sub-units Administrative Region Country [M]	unit: Million cubic meters (mio m^3)
Water Requirements (WR)	The volume of water which must be retained in the catchment (thus not actually available for abstraction) in order to meet environmental requirements and other legal obligations e.g. transboundary treaties.	Monthly [M] Seasonal Annual [M] LTAA [M]	RBD [M] RB Sub-units Administrative Region Country [M]	unit: Million cubic meters (mio m^3)
Aquifer Recharge (Re)	Total volume of water added from outside to the zone of saturation of an aquifer through natural recharge only (either from percolation of precipitation or from a loosing surface water body-river, lake). Artificial recharge is excluded here.	Monthly [M] Seasonal Annual [M] LTAA [M]	GWB [M] RBD [M] RB Sub-units Administrative Region Country [M]	unit: Million cubic meters (mio m^3)
Snowpack (estimates of changes in storage; volume of snow)	Volume of snow accumulated stored over a period which can result (fully or partially) in snow melted water. It does not include the glaciers, and it is measured at a reference time.	Monthly [M] Seasonal Annual LTAA [M]	RBD[M] RB Sub-units Administrative Region Country [M]	unit: Million cubic meters (mio m^3)
Changes in reservoir storage	Volumetric change of the water stored in a reservoir (natural and manmade) at a given time	Monthly [M] Seasonal Annual [M] LTAA [M]	RBD[M] RB Sub-units Administrative	unit: Million cubic meters (mio m^3)

TABLE 1: WATER AVAILABILITY PART A: WATER BALANCE		Requested Data		
Variable	**Definition**	**Temporal Scale**	**Spatial Scale**	**Other**
			Region Country [M]	
Changes in groundwater storage	Volumetric change of the groundwater stored in an aquifer at a given time	Monthly [M] Seasonal Annual [M] LTAA [M]	GWB [M] RBD [M] RB Sub-units Administrative Region Country [M]	unit: Million cubic meters (mio m^3)
Return flow (amount & to which hydrological unit, if different than where abstracted)	Water abstracted from any fresh water source and discharged into fresh waters before or after use. Discharges to the sea are excluded.	Monthly [M] Seasonal Annual [M] LTAA [M]	RBD[M] RB Sub-units Administrative Region Country [M]	unit: Million cubic meters (mio m^3) The Hydrological Unit of the returned flow needs to be defined if it is different than the one where the water was originally abstracted
1. Returned Before Use (Leakage Losses) (amount & to which hydrological unit, if different than where abstracted)	Water abstracted from any freshwater source and returned into a freshwater recipient before use. It refers to the volume of water lost during transport **through leakage** between a point of abstraction and a point of use, and/or between a water supplier/distributor. Discharges to the sea are excluded. **Do not** report here evapotranspiration losses, or water which occurs during mining or construction activities.	Monthly [M] Seasonal Annual [M] LTAA [M]	RBD[M] RB Sub-units Administrative Region Country [M]	unit: Million cubic meters (mio m^3) The Hydrological Unit of the returned flow needs to be defined if it is different than the one where the water was originally abstracted
2. Returned After Use (amount & to which hydrological unit, if different than where abstracted)	Total volume of water discharged after use as treated effluent or as non-treated into fresh waters. **Cooling water is included**. Discharges to the sea are excluded. The hydrological unit-recipient of the discharge is also requested if it is different than the one where the water was originally abstracted.			unit: Million cubic meters (mio m^3) The Hydrological Unit of the returned flow needs to be defined if it is different than the one where the

TABLE 1: WATER AVAILABILITY PART A: WATER BALANCE		Requested Data		
Variable	**Definition**	**Temporal Scale**	**Spatial Scale**	**Other**
				water was originally abstracted
2a. Treated effluent and discharged from: (amount & to which hydrological unit, if different than where abstracted) Of which: – UWWTP – Other WWTP	Effluent that has undergone treatment through UWWTP or other WWTP. **UWWTP:** all treatment in urban wastewater treatment plants (UWWTP's). UWWTP's are usually operated by public authorities or by private companies working by order of public authorities. Includes the treatment of wastewater delivered to treatment plants by trucks. **Other WWTP**: treatment in any non-public treatment plant, e.g. industrial wastewater treatment plants or treatment facilities of hotels, army camps etc. that do not fall under Independent Treatment. Excluded from "other wastewater treatment" is the treatment in septic tanks.	Monthly [M] Seasonal Annual [M] LTAA [M]	RBD[M] RB Sub-units Administrative Region Country [M]	unit: Million cubic meters (mio m^3)
2b. Non-treated and discharged (amount & to which hydrological unit, if different than where abstracted) Of which: – Cooling water (generated from NACE activities B, C, D) – Water used for hydropower generation	Effluent that has not undergone any wastewater treatment and was retuned to the water body. It includes water that was directly discharged from a user (e.g. domestic, industrial etc. including cooling water, mining, and water used for **hydropower** generation), and water lost from the waste water collection system (as overflow or leakage).	Monthly [M] Seasonal Annual [M] LTAA [M]	RBD[M] RB Sub-units Administrative Region Country [M]	unit: Million cubic meters (mio m^3)
Reused water (amount & to which recipient)	Water that has undergone wastewater treatment and is delivered to a user as reclaimed wastewater. This means the direct supply of treated effluent to the user. Excluded is waste water discharged into a watercourse and used again	Monthly [M] Seasonal Annual [M] LTAA [M]	RBD[M] RB Sub-units Administrative	unit: Million cubic meters (mio m^3) Annotation needed if this

TABLE 1: WATER AVAILABILITY				
PART A: WATER BALANCE		**Requested Data**		
Variable	**Definition**	**Temporal Scale**	**Spatial Scale**	**Other**
Of which: – Domestic – Agriculture, forestry, fishing (NACE A) of which: Irrigation – Mining & Quarrying (NACE B) – Manufacturing industry (NACE C) of which: cooling water for industry – Production of electricity (cooling water) (NACE D) – Services (e.g. tourism) (NACE I)	downstream. **Recycling is excluded**. If this amount of water is made available (totally or partially) for reuse to recipients which are located in a different hydrological unit (than the one where the water was originally abstracted) -in other words the water is exported for reuse elsewhere- this should be mentioned to avoid miscalculations, and the hydrological unit receiving this water should be defined if possible.		Region Country M	water is exported (in total or in part) in order to be reused by recipients located outside the boundaries of the Hydrological Unit where the water was originally abstracted.
Leakage losses betwn. Use and Reuse	It refers to the volume of water lost during transport through leakage **between points of use and reuse,** after the treated effluent leaves the wastewater treatment plant and is transported to the recipients. Do not report here evapotranspiration losses.	Monthly M Seasonal Annual M LTAA M	RBD M RB Sub-units Administrative Region Country M	unit: Million cubic meters (mio m^3) Annotation needed if this treated water is exported (in total or in part) in order to be reused by recipients located outside the boundaries of the Hydrological Unit where the water was originally abstracted.
Desalinated water (amount & to which recipient)	Total volume of water obtained from desalination processes.	Monthly M Seasonal Annual M	RBD M RB Sub-units	unit: Million cubic meters (mio m^3)

TABLE 1: WATER AVAILABILITY				
PART A: WATER BALANCE		**Requested Data**		
Variable	**Definition**	**Temporal Scale**	**Spatial Scale**	**Other**
Of which: – Domestic – Agriculture, forestry, fishing (NACE A) of which: Irrigation – Mining & Quarrying (NACE B) – Manufacturing industry (NACE C) of which: cooling water for industry – Production of electricity (cooling water) (NACE D) Services (e.g. tourism) (NACE I)		LTAA [M]	Administrative Region Country [M]	
Water imports (amount & from which hydrological unit)	Traded bulk water from another territory outside the specific reporting unit (bottled water is not included)	Monthly [M] Seasonal Annual [M] LTAA [M]	RBD[M] RB Sub-units Administrative Region Country [M]	unit: Million cubic meters (mio m^3)
Water exports (amount & to which hydrological unit)	Traded bulk water to another territory outside the specific reporting unit (bottled water is not included)	Monthly [M] Seasonal Annual [M] LTAA [M]	RBD[M] RB Sub-units Administrative Region Country [M]	unit: Million cubic meters (mio m^3)
Bottled Water	Traded bottled water that is imported to and/or exported from the specific reporting unit.	Monthly [M] Seasonal	RBD[M] RB	unit: Million cubic meters (mio m^3)

TABLE 1: WATER AVAILABILITY				
PART A: WATER BALANCE		**Requested Data**		
Variable	**Definition**	**Temporal Scale**	**Spatial Scale**	**Other**
– Amount Imported – Amount Exported		Annual [M] LTAA [M]	Sub-units Administrative Region Country [M]	
Artificial groundwater recharge (amount & from which source this water originates) Originating sources: – Return flow – Desalinated water – Water imports	Total volume of water added from outside to the zone of saturation of an aquifer through artificial recharge only.	Monthly [M] Seasonal Annual [M] LTAA [M]	GWB [M] RBD [M] RB Sub-units Administrative Region Country [M]	unit: Million cubic meters (mio m^3)

PART B: POINT MEASUREMENTS		**Requested Data**		
Variable	**Definition**	**Temporal Scale**	**Spatial Scale**	**Other**
Stream flow	Daily steamflow data on selected gauging stations within the RBD. Supplementary statistics are also needed such as mean, min, max, monthly values plus the dates of min and max observations. Basic information on the characteristics of these streamflow gauging stations (e.g. latitude, longitude, area of the catchment upstream the station or area controlled by the station etc.) is requested. The selection of the stations relies on the member country. Yet, some general guidelines are to select stations which are located on the outlet of the river, at the intersection of the main stream with its major tributaries, directly upstream and downstream of the water abstraction points. Stations may also be selected to describe natural flow such as pristine site stations unaffected by	Daily [M] Monthly [M] Seasonal Annual [M] LTAA [M]	Streamflow Gauging Station [M] RBD[M] RB Sub-units Administrative Region Country [M]	unit: Cubic meters per second (m^3/sec)

	reservoirs or water abstractions.			
Reservoir Inflow/Outflow	Total volume of water entering in (Inflow) and released from (Outflow) a natural or manmade reservoir. The reservoirs must be located within the reporting unit (RBD or other) Basic information on the characteristics of these reservoirs (e.g. latitude, longitude, max storage capacity etc.) is requested.	Monthly M Seasonal Annual M LTAA M	Reservoir M RBD M RB Sub-units Administrative Region Country M	unit: Cubic meters per second (m^3/sec)
Groundwater level	Groundwater level observations from wells located within the reporting unit (RBD or other). Basic information on the characteristics of these wells (e.g. latitude, longitude etc.) is requested.	Monthly M Seasonal Annual M LTAA M	Well M RBD M GWB M RB Sub-units Administrative Region Country M	unit: Meters (m)
Rain gauge stations	Only basic information on the characteristics of the raingauge stations which are located within the reporting unit (e.g. latitude, longitude, period of available record etc.) is requested (precipitation measurements are not requested) It is assumed that these stations were used to calculate the Areal Precipitation requested in the above Water Balance Table of part A.		Raingauge Station M RBD M RB Sub-units Administrative Region Country M	

3. Water Abstraction dataset

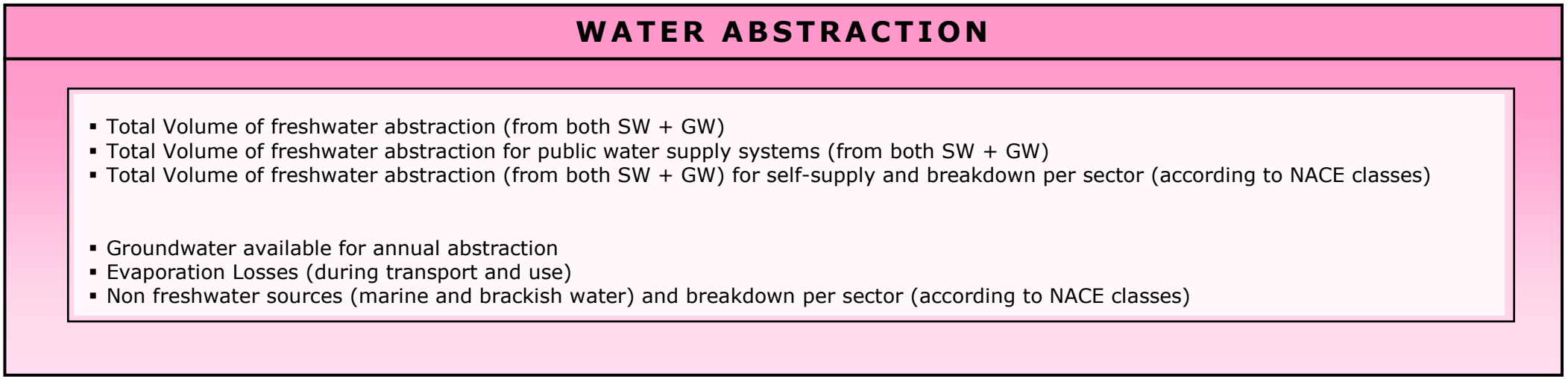

Figure 3: Water Abstraction dataset flowchart

TABLE 2: WATER ABSTRACTION

		Requested Data		
Variable	**Definition**	**Temporal Scale**	**Spatial Scale**	**Other**
Total Volume of freshwater abstraction (from both SW + GW + RAIN) Of which: – Amount used for **Hydropower** generation * If available differentiate between SW abstraction and GW abstraction	Freshwater abstraction (= freshwater withdrawal) is defined as water removed from any source, either permanently or temporarily. Mine water and drainage water are included. Water used for **hydropower generation is included** (although in-situ it is considered a use, but this item is also asked as a separate category to allow identifying this amount of water). Water abstractions from groundwater resources in any given time period are defined as total amount withdrawn from the aquifer (regardless of any input from artificial recharge which may be taking place). **Surface water (SW):** Water which flows over, or rests on the	Monthly [M] Seasonal Annual [M] LTAA [M]	RBD[M] RB Sub-units Administrative Region Country [M]	unit: Million cubic meters (mio m^3)

TABLE 2: WATER ABSTRACTION				
		Requested Data		
Variable	**Definition**	**Temporal Scale**	**Spatial Scale**	**Other**
	surface of a land mass, natural watercourses such as rivers, streams, brooks, lakes, etc., as well as artificial watercourses such as irrigation, industrial and navigation canals, drainage systems and artificial reservoirs. For purposes of this questionnaire, bank filtration (induced infiltration of river water through bankside gravel strata (by pumping from wells sunk into the gravel strata to create a hydraulic gradient) with the intention of improving the water quality) is included under fresh surface water. Sea-water, and transitional waters, such as brackish swamps, lagoons and estuarine areas are not considered fresh surface water and so are included under - Non Freshwater Sources **Ground Water (GW):** Fresh water which is being held in, and can usually be recovered from, or via, an underground formation. All permanent and temporary deposits of water, both artificially charged and naturally, in the subsoil, of sufficient quality for at least seasonal use. This category includes phreatic water-bearing strata, as well as deep strata under pressure or not, contained in porous or fracture soils. For purposes of this questionnaire, ground water includes springs, both concentrated and diffused, which may be sub aqueous. *Total Water Abstraction = Total Water Abstraction from Surface Water + Total Water Abstraction from Groundwater* *Total Water Abstraction = Water Abstraction for Public Water Systems + Water Abstraction for Self Supply*			
Volume from Rainwater harvesting	Rainwater harvesting is the collection of rainfall water in appropriate tanks, reservoirs and other collection systems in order to be used.	Monthly [M] Seasonal Annual [M] LTAA [M]	RBD[M] RB Sub-units Administrative Region	unit: Million cubic meters (mio m^3)

TABLE 2: WATER ABSTRACTION				
		Requested Data		
Variable	**Definition**	**Temporal Scale**	**Spatial Scale**	**Other**
			Country [M]	
Total Volume of freshwater abstraction (from both SW + GW) **for public** water **supply systems.** * If available differentiate between SW abstraction and GW abstraction	Refers to the volume of freshwater abstraction (as defined in the previous field) which was withdrawn from/through public supply systems **Public water supply:** Water supplied by economic units engaged in collection, purification and distribution of water (excluding system operation for agricultural purposes and treatment of waste water solely in order to prevent pollution). It corresponds to division 41 (NACE/ISIC) independently of the sector involved. Deliveries of water from one public supply undertaking to another are excluded. Note: Public water supply services provide water for domestic use, use at offices, restaurants and hotels, factories, municipal use etc. (all or some of these uses). Thus, since this depends on the system it may not be possible to separate which amount is intended for each user. In some cases of course this might. be possible. *Total Water Abstraction for Public Water Systems = Water Abstraction for Public Water Systems from Surface Water + Water Abstraction for Public Water Systems from Groundwater*	Monthly [M] Seasonal Annual [M] LTAA [M]	RBD[M] RB Sub-units Administrative Region Country [M]	unit: Million cubic meters (mio m^3)
Volume from Rainwater harvesting (for public water supply system)	Rainwater harvesting is the collection of rainfall water from the public water supply system in appropriate tanks, reservoirs and other collection systems in order to be used.	Monthly [M] Seasonal Annual [M] LTAA [M]	RBD[M] RB Sub-units Administrative Region Country [M]	unit: Million cubic meters (mio m^3)
Total Volume of freshwater abstraction (from both SW + GW) **for self –**	Refers to the volume of freshwater abstraction (as defined in the previous field) which was withdrawn from/through self-supply	Monthly [M] Seasonal Annual [M]	RBD[M] RB Sub-units	unit: Million cubic meters (mio m^3)

TABLE 2: WATER ABSTRACTION				
		Requested Data		
Variable	**Definition**	**Temporal Scale**	**Spatial Scale**	**Other**
supply. Of which for: – Domestic water use – Agriculture, forestry, fishing (NACE A) of which: Irrigation – Mining & Quarrying (NACE B) – Manufacturing industry (NACE C) of which: cooling water – Production of electricity (NACE D) of which: – cooling water – Hydropower generation – Services (e.g. tourism) (NACE I) – Any other economic activity (e.g. construction) * If available differentiate between SW abstraction and GW abstraction	**Self – supply:** Abstraction of water by the user for own final use. For instance a resort or an industry can abstract directly water from a surface or groundwater body and use it to cover its individual needs. *Total Water Abstraction for Self Supply = Water Abstraction for Self Supply from Surface Water + Water Abstraction for Self Supply from Groundwater* **Irrigation water:** Water which is applied to soils in order to increase their moisture content and to provide for normal plant growth. Data reported under this item fit in NACE/ISIC division 01. **Cooling water:** Water which is used to absorb and remove heat. In this questionnaire cooling water is broken down into cooling water used in the generation of electricity in power stations, and cooling water used in other industrial processes (manufacturing industry).	LTAA M	Administrative Region Country M	
Volume from Rainwater harvesting (for self-supply)	Rainwater harvesting is the collection of rainfall water from the self-supply system in appropriate tanks, reservoirs and other collection systems in order to be used.	Monthly M Seasonal Annual M LTAA M	RBD M RB Sub-units Administrative Region Country M	unit: Million cubic meters (mio m^3)
Groundwater available for	It is the theoretical maximum of groundwater and equals the	Monthly M	GWB M	unit: Million cubic

TABLE 2: WATER ABSTRACTION				
		Requested Data		
Variable	**Definition**	**Temporal Scale**	**Spatial Scale**	**Other**
annual abstraction	Recharge minus the LTAA Ecological Discharge. Recharge less the long term annual average rate of flow required to achieve ecological quality objectives for associated surface water. It takes account of the ecological restrictions imposed to groundwater exploitability, nevertheless other restrictions based on economic and technical criteria could also be taken into account in terms of accessibility, productivity and maximum production cost deemed acceptable by developers.	Seasonal Annual M LTAA M	RBD M RB Sub-units Administrative Region Country M	meters (mio m^3)
Evaporation Losses	Water abstracted from any freshwater source lost during transport **<u>through evaporation</u>** between a point of abstraction and a point of use, between a water supplier/distributor and a point of use or between points of use and reuse.	Monthly M Seasonal Annual M LTAA M	RBD M RB Sub-units Administrative Region Country M	unit: Million cubic meters (mio m^3)
Non freshwater sources (from and to which recipient) Total gross abstraction for: – Domestic water use – Agriculture, forestry, fishing (NACE A) of which: Irrigation – Mining & Quarrying (NACE B) – Manufacturing industry (NACE C) of which: cooling water – Production of electricity (NACE D) of which: cooling water – Services (e.g. tourism) (NACE I) – Any other economic activity (e.g. construction)	**<u>Non freshwater sources:</u>** (Marine and brackish water) Includes sea water and transitional water, such as brackish swamps, lagoons and estuarine areas. Such water resources may be of great importance locally, although in a national context, they are usually of lesser importance as compared to surface and groundwater resources.	Monthly M Seasonal Annual M LTAA M	RBD M RB Sub-units Administrative Region Country M	unit: Million cubic meters (mio m^3)

4. Water Use dataset

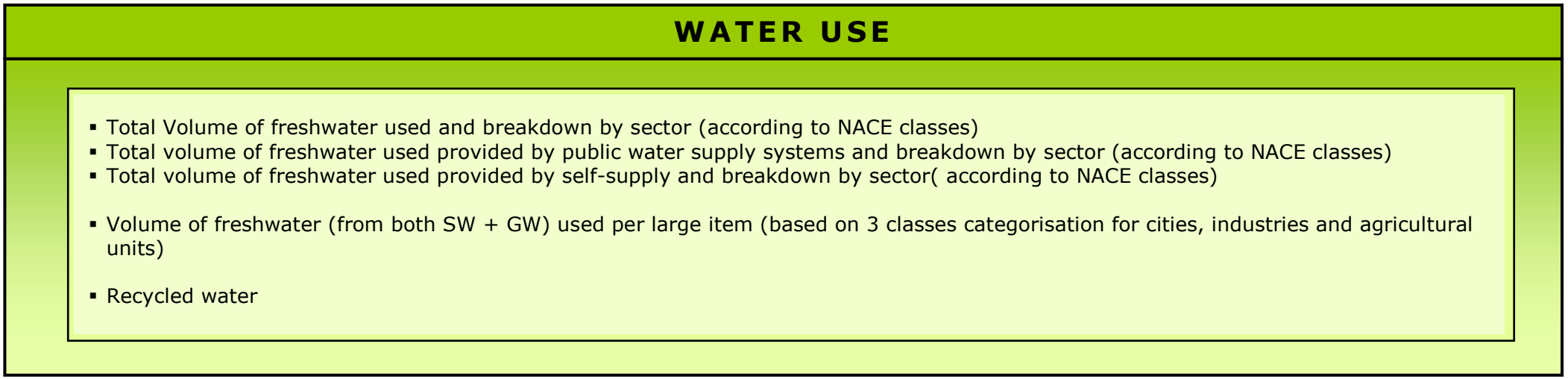

Figure 4: Water Use dataset flowchart

TABLE 3: WATER USE				
		Requested Data		
Variable	**Definition**	**Temporal Scale**	**Spatial Scale**	**Other**
Total Volume of freshwater used (breakdown per sector) of which used by: – Domestic – Agriculture, forestry, fishing, fish farms (NACE A) of which for: Irrigation – Mining & Quarrying (NACE B) – Manufacturing industry (NACE C) of which for:	**Water Use:** In contrast to **water supply** (i.e. is delivery of water to final users including abstraction for own final use), **water use** refers to water that is actually used by end users for a specific purpose within a territory, such as for domestic use, irrigation or industrial processing. Excludes returned water.	Monthly [M] Seasonal Annual [M] LTAA [M]	RBD[M] RB Sub-units Administrative Region Country [M]	unit: Million cubic meters (mio m^3)

TABLE 3: WATER USE				
		Requested Data		
Variable	Definition	Temporal Scale	Spatial Scale	Other
– Food processing industry – Basic metals – Transport equipment – Textiles – Paper and paper products – Chemicals, refined petroleum, etc. – Other manufacturing industry of which: Cooling water – Production of electricity (NACE D) of which: – Cooling water – Hydropower generation – Services (e.g. tourism) (NACE I) – Any other economic activity (e.g. construction)				
Total volume of freshwater used provided by **public water supply systems** (breakdown per sector) of which used by: – Domestic – Agriculture, forestry, fishing, fish farms (NACE A) – Mining & Quarrying (NACE B) – Manufacturing industry (NACE C) of which for: – Food processing industry – Basic metals – Transport equipment – Textiles – Paper and paper products – Chemicals, refined petroleum, etc. – Other manufacturing industry	Water used by end users for a specific purpose within a territory, such as for domestic use, irrigation or industrial processing (excluding returned water) and which is provided to them by public water supply systems. **Public water supply:** Water supplied by economic units engaged in collection, purification and distribution of water (excluding system operation for agricultural purposes and treatment of waste water solely in order to prevent pollution). It corresponds to division 41 (NACE/ISIC) independently of the sector involved. Deliveries of water from one public supply undertaking to another are excluded.	Monthly M Seasonal Annual M LTAA M	RBD M RB Sub-units Administrative Region Country M	unit: Million cubic meters (mio m^3)

TABLE 3: WATER USE				
		Requested Data		
Variable	Definition	Temporal Scale	Spatial Scale	Other
of which: Cooling water – Production of electricity (NACE D) of which: – Cooling water – Hydropower generation – Services (e.g. tourism) (NACE I) Any other economic activity (e.g. construction)				
Total volume of freshwater used provided by **Self-supply** (Breakdown per sector) of which used by: – Domestic – Agriculture, forestry, fishing, fish farms (NACE A) of which for: Irrigation – Mining & Quarrying (NACE B) – Manufacturing industry (NACE C) of which for: – Food processing industry – Basic metals – Transport equipment – Textiles – Paper and paper products – Chemicals, refined petroleum, etc. – Other manufacturing industry of which: Cooling water – Production of electricity (NACE D) of which: – Cooling water – Hydropower generation – Services (e.g. tourism) (NACE I) Any other economic activity (e.g.	Water used by end users for a specific purpose within a territory, such as for domestic use, irrigation or industrial processing (excluding returned water) and which is provided to them by self-supply. **Self – supply:** Abstraction of water by the user for own final use. For instance a resort or an industry can abstract directly water from a surface or groundwater body and use it to cover its individual needs.	Monthly M Seasonal Annual M LTAA M	RBD M RB Sub-units Administrative Region Country M	unit: Million cubic meters (mio m^3)

TABLE 3: WATER USE				
		Requested Data		
Variable	**Definition**	**Temporal Scale**	**Spatial Scale**	**Other**
construction)				
Volume of freshwater (from both SW + GW) used per **item (large)** – Cities – Industries – Agricultural units	**<u>Large Items:</u>** Differentiating large units (often known at the MS statistical office level) from the aggregates aims at the accurate placement of abstractions and returns at the relevant subunit disaggregation level[2]. Large items is relevant for 3 main users: Cities, Industries, Agricultural units Suggested classification: Class 1: the class grouping the largest abstraction sites, together representing 50 to 70% of the activity (as a rule of thumb for domestic use, class 1 should be made of those agglomerations that together host in the range of 50% - 70% of total population per district) Class 2: the intermediate class Class 3: the class of smallest abstraction sites, representing 60 to 80% in number (or more) and in the range of 5 to 15% in cumulated activity.	Monthly [M] Seasonal Annual [M] LTAA [M]	RBD[M] RB Sub-units Administrative Region Country [M]	unit: Million cubic meters (mio m^3)

[2] Less than 500 major urban areas group more than 50% of the European population, and probably abstract more than 70% of the urban water volumes (population, urban activities, etc.).

TABLE 3: WATER USE				
		Requested Data		
Variable	**Definition**	**Temporal Scale**	**Spatial Scale**	**Other**
Recycled water (amount & user) Of which: – Domestic – Agriculture, forestry, fishing (NACE A) of which: Irrigation – Mining & Quarrying (NACE B) – Manufacturing industry (NACE C) of which: cooling water – Production of electricity (cooling water) (NACE D) – Services (e.g. tourism) (NACE I)	Water that is used multiple times by the **same** user. (either treated or non treated)	Monthly M Seasonal Annual M LTAA M	RBD M RB Sub-units Administrative Region Country M	unit: Million cubic meters (mio m^3)