

Developing an efficient and sustainable way forward on the Eionet water data flows :

Review of SoE water quantity data flows and data handling processes

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Introduction

- WISE SoE water quantity dataflow established in 2009 (water availability, abstractions, water accounts & use).
- New developments (e.g. WFD, new data products and indicators) require to streamline WISE SoE reporting with other dataflows.

Considering these developments and the overall reporting experience, a new dataset could be proposed to:

- Support the new reporting cycle of the WFD (e.g. WEI+)
- Line up with WISE SoE established and new data products (e.g. Water Accounts)
- Establish a common understanding set of terms with other dataflows (e.g. OECD/EUROSTAT JQ)
- Reduce the reporting burden for the Member States



Key points of proposed changes

- ✓ Concerning the introduction of WEI+
- ✓ Concerning reduction of reporting classes (WFD categorization)
- ✓ Separation of groundwater and surface water reporting parameters (where applicable)
- ✓ Identification and matching of all point data and RBD coding, between WFD, SoE water quantity and OECD/EUROSTAT JQ
- ✓ Merging of water use sub categories: “public supply” and “self supply” in “total” water use
- ✓ Alignment of definitions with OECD/EUROSTAT JQ.



Proposed changes in SoE water quantity reporting due to WFD guidance & use of indicator WEI+

1. Proposed introduction of “WEI+”

- WEI+ is an important indicator that should be derived by the reported parameters.

$$\text{WEI+} = (\text{Abstractions} - \text{Returns}) / \text{Renewable Water Resources}$$

- Where:

Abstraction-return=consumption



Proposed changes in SoE water quantity reporting due to WFD guidance & use of indicator WEI+

- Renewable Water Resources (**RWR**) can be calculated either by the relationship:

$$\text{RWR} = \text{ExIn} + \text{P} - \text{ETa} - \Delta\text{snat}$$

Or:

$$\text{RWR} = \text{Outflow} + (\text{Abstraction} - \text{Return}) - \Delta\text{Sart}$$

Where:

ExIn: actual external Inflow,

P: precipitation,

Eta: actual evapotranspiration,

Δsnat: changes in the amount of water from natural processes

Δsart: changes from artificial processes (regulated lakes or artificial reservoirs).

Outflow: Actual outflow of rivers and groundwater into the sea or neighbouring territories (within or outside a country).



Proposed changes in SoE water quantity reporting due to WFD guidance & use of indicator WEI+

“**Consumptive Use**” parameters, haven't been asked in the existing SoE water quantity dataflow and are proposed to be introduced
(Consumption parameters are asked for validation of the data series of the reported data, and for the case that abstractions or returns are not reported)

- ConsumptiveUseAgricultureSW
- ConsumptiveUseAgricultureGW
- ConsumptiveUseIndustrySW
- ConsumptiveUseIndustryGW
- ConsumptiveUseIndustryEnergy
- ConsumptiveUseWaterSupplySW
- ConsumptiveUseWaterSupplyGW

Where SW: surface water, GW: ground water

Red: introduced



Proposed changes in SoE water quantity reporting due to WFD guidance & use of indicator WEI+

2. Proposed reduction or reporting classes

In order to have more streamlined data with WFD data flow and avoid aggregation procedures when common use of data is needed, a reduction of the reported classes in water accounts and water abstractions could be proposed:

Existing SoE water quantity classes

1. Domestic
2. NACE a (agriculture, forestry and fishing)
3. NACE b (mining and quarrying)
4. NACE c (manufacturing)
5. NACE d (electricity, gas, etc.)
6. NACE e (water supply, sewerage, etc.)
7. NACE i (accommodation, food services)



Proposed SoE water quantity classes

1. Water supply (domestic, NACE e, NACE i)
2. Agriculture (NACE a)
3. Industry (NACE b + c)
4. Industry energy (NACE d)

Proposed changes in SoE water quantity reporting due to WFD guidance & use of indicator WEI+

- To align abstractions with consumptions in each category the following parameters are related:

Abstractions	Consumptive Use
wa_abstraction_total_sw-nace_a_irrgation	ConsumptiveUseAgricultureSW
wa_abstraction_total_gw-nace_a_irrgation	ConsumptiveUseAgricultureGW
wa_abstraction_total_sw-nace_b+c	ConsumptiveUseIndustrySW
wa_abstraction_total_gw-nace_b+c	ConsumptiveUseIndustryGW
wa_abstraction_total_sw-nace_d wa_abstraction_total_gw-nace_d	ConsumptiveUseIndustryEnergy
wa_abstraction_total_sw-domestic+nace e+l	ConsumptiveUseWaterSupplySW
wa_abstraction_total_gw-domestic+nace e+l	ConsumptiveUseWaterSupplyGW

Proposed changes in SoE water quantity reporting due to WFD guidance & use of indicator WEI+

- In the existing SoE water quantity report, “**return flows**” were asked to be reported in one parameter. For more analytical reporting, 6 new parameters are proposed to be introduced and the initial to be modified to “**return flow agriculture SW**”:

- **wb_return_flow_agriculture_SW**
- **wb_return_flow_agriculture_GW**
- **wb_return_flow_industry_SW**
- **wb_return_flow_industry_GW**
- **wb_return_flow_industry_energy**
- **wb_return_flow_water_supply_SW**
- **wb_return_flow_water_supply_GW**

Where SW: surface water, GW: ground water

Blue: modified, **Red:** introduced



Proposed changes in SoE water quantity reporting due to WFD guidance & use of indicator WEI+

3. Separation of groundwater and surface water reporting parameters

Separation of parameters in SoE water quantity in Surface Water(SW) and Ground Water(GW) categories, (when this is not already the case), is also proposed for alignment reasons with WFD, in order to support common assessments.

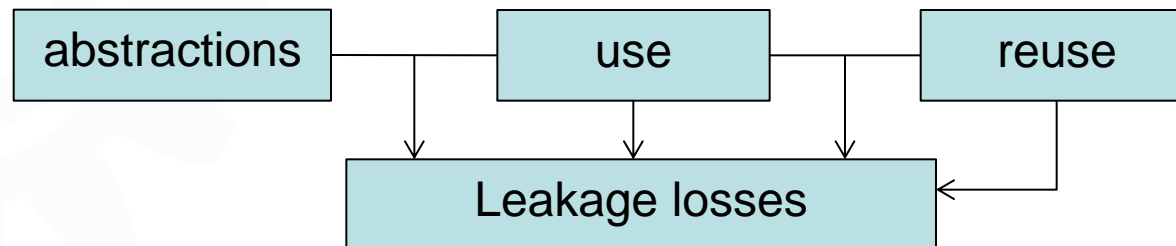
4. Identification and matching of all point data and RBD coding, between WFD, SoE water quantity and OECD/EUROSTAT JQ

A laborious task is proposed to identify and match the reporting code id of every station or areal entry in various dataflows in order to have a stable spatial background of all reported data.

Proposed changes in SoE water quantity reporting due to alignment with OECD/Eurostat definitions

- **Water abstraction for hydropower**, is excluded from the definition of the term of Total Water Abstraction (as in-situ water use without changes in quality and quantity) and introduced as new to tag where hydropower is dominating the water balance.
- **Water discharge for cooling** is no longer considered to be a Wastewater Discharge and is reported separately.
- **Leakage Losses** before and between use and reuse are aggregated in one parameter (small amounts of reused water reported and high losses from water distribution systems)

wb_returned_before_and_between_use_and_reuse_(losses)



Proposed changes in SoE water quantity reporting due to alignment with comments of MS

- **wb_internal_flow**: The definition of the parameter is proposed to be modified, in order to represent more efficiently the water accounts of a RBD, as follows:

$$\text{internal_flow} = (\text{areal_precipitation}) - (\text{act_evapotranspiration}) - (\text{storage_change})$$

In the second part of the equation the term “storage change” representing all types of storage (surface or underground storage) has been added.

This modification was made due to inconsistencies in the internal water accounts of a RBD.

Proposed changes in SoE water quantity reporting due to experiences from analyses

- In total 97 parameters could be cut due to the reasons of the next Table, and 15 to be introduced ($185-97+15=103$) in the proposed SoE in respect to the existing SoE quantity data

No of parameters removed	Main reason of removal
13	Without MS reporting
20	Merged with another parameter
38	Only “total freshwater” water uses are asked (not “public supply” and “self supply” separately)
25	Limited participation in reporting
1	Difficulty in reporting
97	Total

Overview of proposed changes in SoE water quantity

In the next Table the existing and proposed parameters are shown according to the main category that they belong.

Category of parameters	Existing SoE	Proposed SoE
Point data	4	4
Indicators	0	2
Water availability general	7	5
Water availability non freshwater	15	8
Water availability abstractions	38	24
Water accounts	50	34
Water use	71	26
Total	185	103

Overview of proposed changes in SoE water quantity

In the next Table the number of parameters is shown, according to the common parameters with OECD/Eurostat, the introduced, and the removed ones

Organization	No of Parameters
EEA and OECD/Eurostat	47
EEA (SoE) only (total)	56
EEA (SoE) newly introduced	15
Total EEA SoE (existing)	185
Total removed	97
Total EEA SoE (new)	$47+56=185-97+15=103$

Link of WISE SoE water quantity and WFD dataflows

RBPM Program of measures	WISE SoE dataflow can support RBMP PoM by providing quantitative data relevant to characterization, pressure and impact analysis in RB scale.
GW pressure indication	Various parameters asked under WISE SoE dataflow are relevant to groundwater accounts quantities
Water Accounts	Water accounts can be supported through water balance group of parameters
Abstractions & Return flow	Introduced parameters in WISE SoE dataflow can cover WFD requirements
WEI+	WISE SoE is streamlined with WFD for the derivation of WEI+
EU Status Assessments	SoE and WFD data flows can be interrelated for the derivation of Integrated Assessments.
SOER 2015	SoE water quantity is contributing in SEIS (Shared Environmental Information System) and through EEA common work space with WFD, will produce SOER 2015 among other assessments