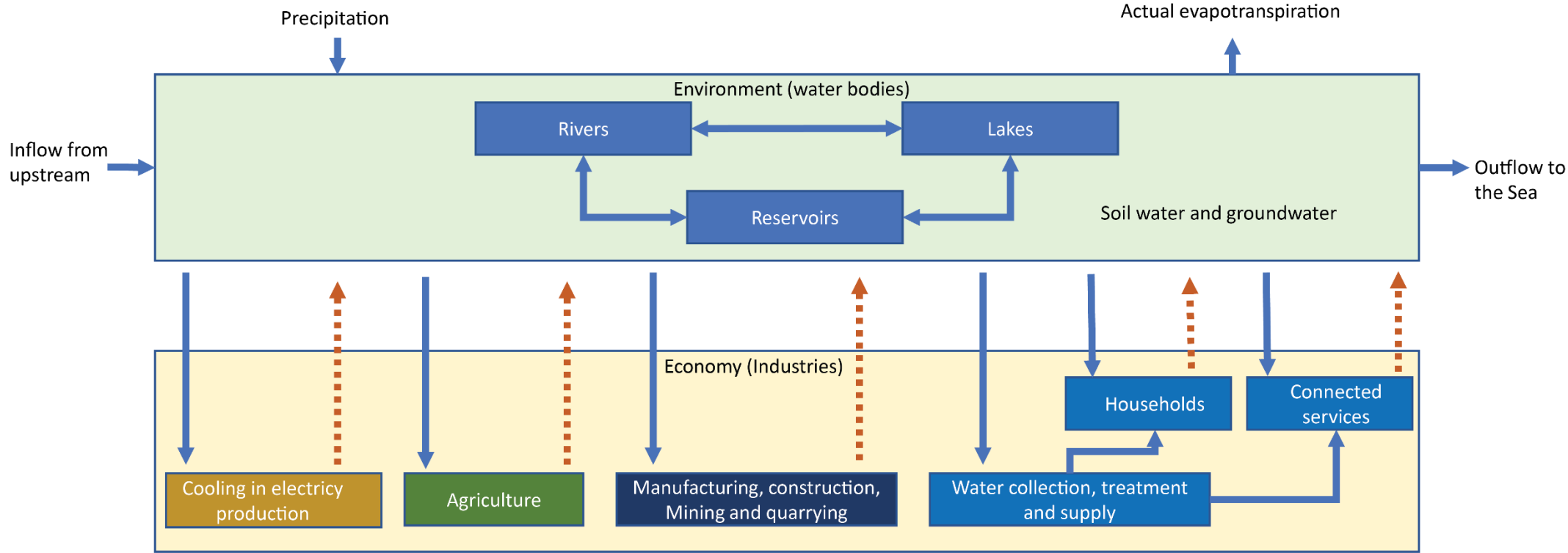


# Conceptual model of the WEI+ computation



**Computation of the water exploitation index plus:**

$$WEI+ = \frac{\text{Abstraction} - \text{Return}}{\text{Renewable water resources}}$$

RWR= Outflow + (Abstraction-Return) – Change in storage

Change in storage = Water in (Lakes+Reservoirs) – Water out (Lakes+Reservoirs)

Abstraction - Return = Water use

**Legend**

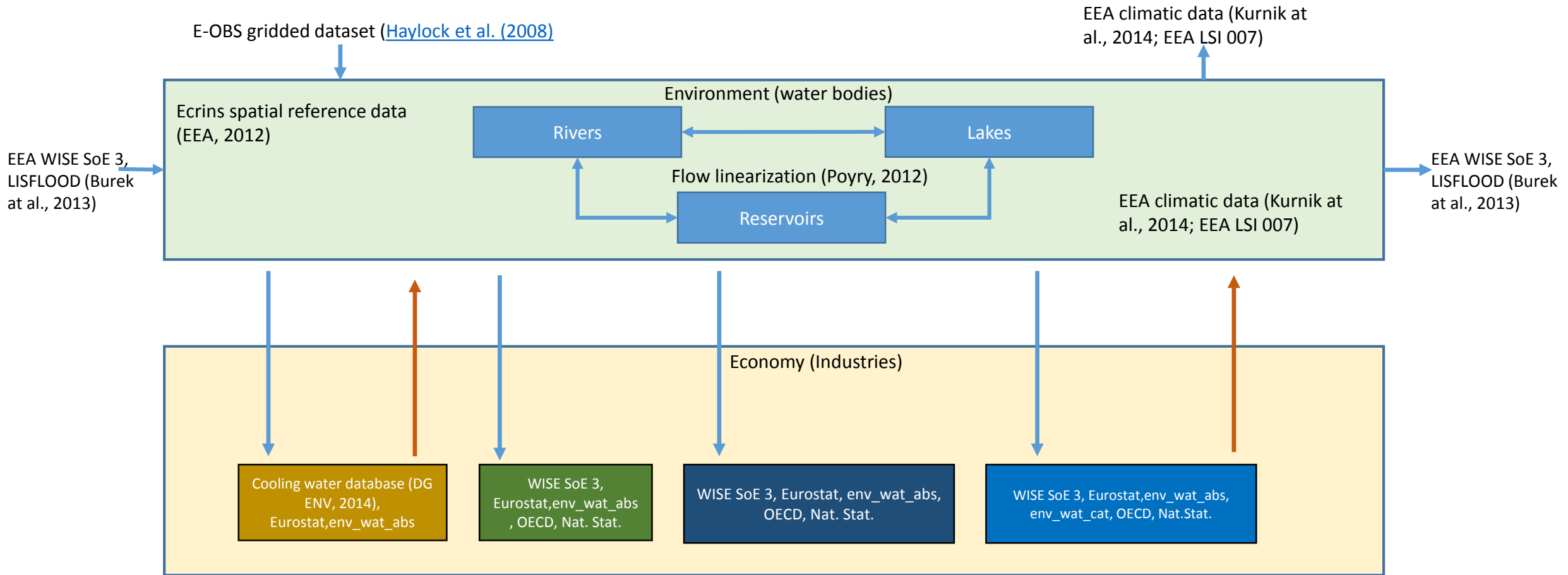
→ Abstraction

→ Return

**Note:**

- Desalinated water, inter-basin water transfers via conveyance infrastructure and net water losses are not included into the calculation because of insufficient data coverage.
- Similarly, change in the groundwater aquifers is not included into the computation of the change in storage because no data available at the European level

# Main data sources for estimation the water exploitation index plus (WEI+)

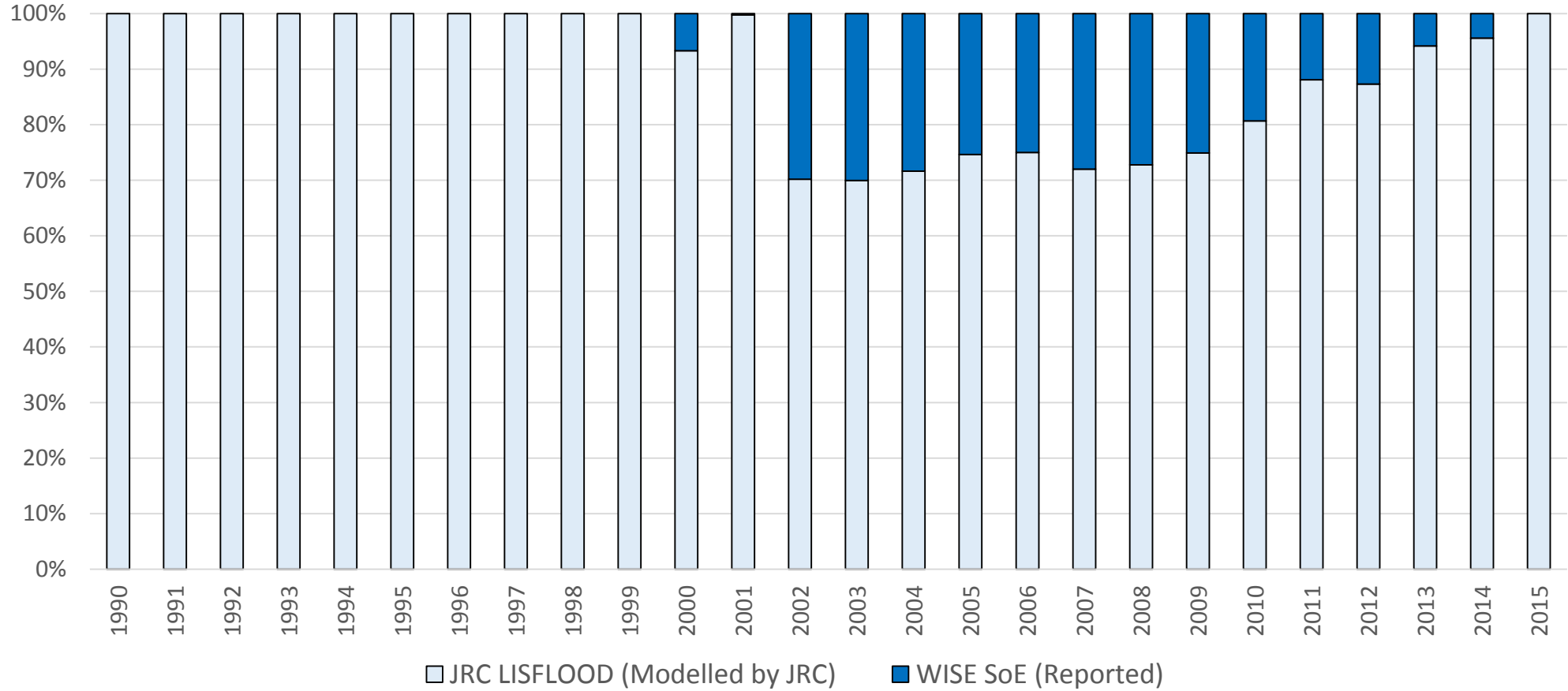


## Legend

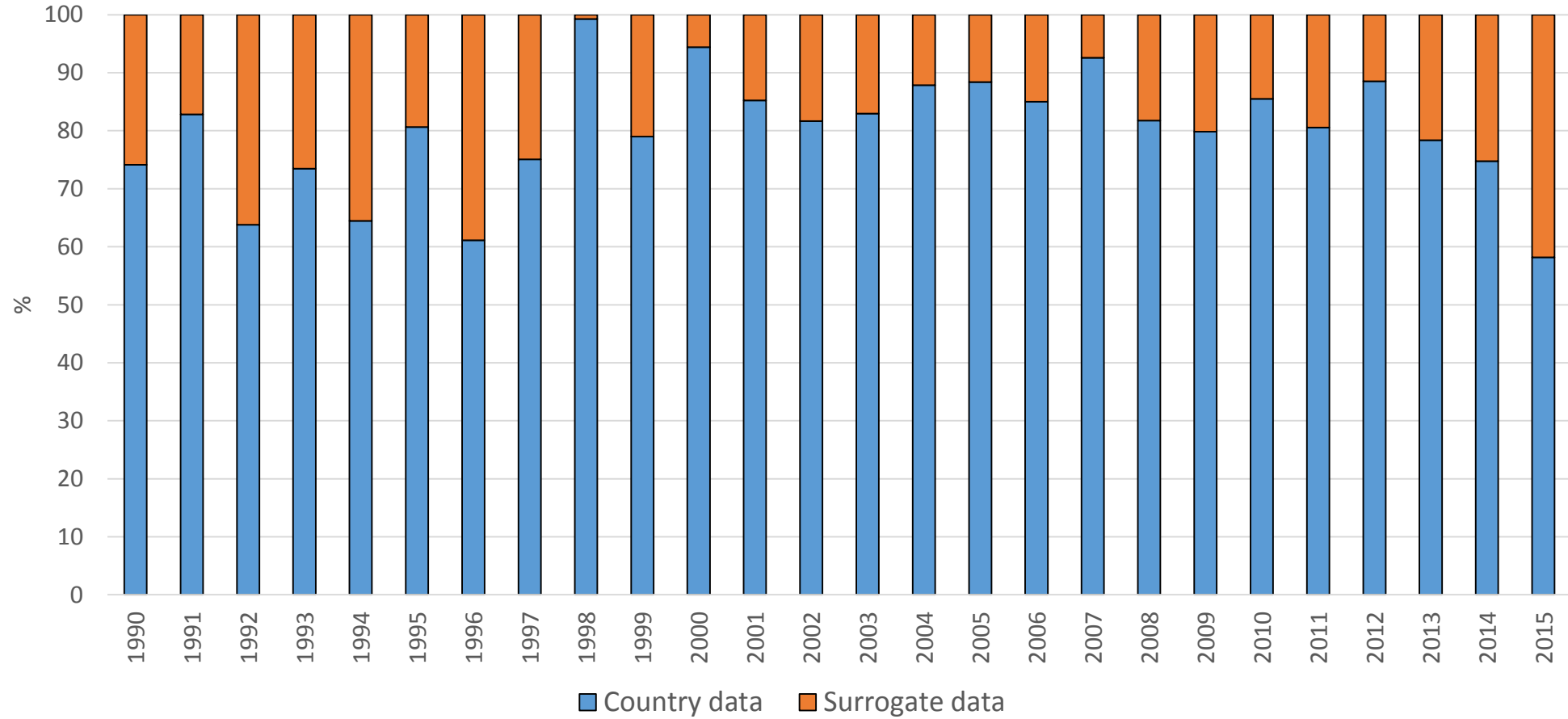
- Abstraction
- Return

NOTE: Water return from agriculture and manufacturing industry of which is not connected to sewerage network is estimated by applying modulation coefficients. Data references to the modulation coefficients are given in the Table-1

### Availability on streamflow data (total volume of runoff)



## Share of surrogate data versus reported data on water abstraction by all economic sectors (total volume)



**Table 1 – Reference data sources for gap filling and modulation coefficients**

Cooling water		Irrigation		Manufacturing industries		Water collection treatment supply				
Method for gap filling	Input data	Method for gap filling	Input data	Method for gap filling	Input data	Method for gap filling	Input data			
Mean factor water intake, discharge, consumption of cooling instalation x electricity generation	Eurostat,[nrg_110a]	Step 1-Mean factor of share of Irrigated area in UUA	Eurostat, apro_acs_a	Step1 - Mean factor water intake, discharge, consumption of manufacturing industry (NACE digit 2)	BREF specifications (JRC)	Step 1 Share of households in public water supply	WISE SoE, env_wat_abs, OECD			
			Eurostat, ef_poirrig			Step 2 Water abstraction per capita for households	Water abstr/Eurostat, [demo_gind]+Eurostat, [tour_occ_nin2]			
			Eurostat, [nrg_113a]	OECD.stat_irrigated_area	Step 2- Location of industrial installations	E-PRTR (EEA, 2015)	Step 3 Proportional population distribution over water abstraction for households	UWWTP database (EEA, 2017)		
			DG ENV, 2014, Coolin water database	Eurostat, [aei_ef_ir]			Step 4 Share of water abst. Between households and connected services	WISE SoE, env_wat_abs		
					Step 2-Mean factor of water density (m3/ha)	CLC-212, 2012	Step 3 Water intake, water consumption and discharge/Industrial production	Eurostat, sts_inpr_a	Step 5 Water supply to households and connected services	WISE SoE, env_wat_cat
						Wise SoE 3, env_wat_abs, OECD stat				
						Wise SoE, env_wat_abs, OECD stat/Irrigated area				
Step- 3 water irrigation										
Water density x Irrigated area										
Step 4 Monthly disaggregation										
Phenology	Ivits, at al., 2012									
Crop water needs	FAO <a href="http://www.fao.org/docrep/s2022e/s2022e05.htm#TopOfPage">http://www.fao.org/docrep/s2022e/s2022e05.htm#TopOfPage</a>									

See also following references to data sources, methods for gap filling and uncertainties implemented in the estimation of the water exploitation index plus;

[Use of Freshwater Resources](#) (ETC/ICM, 2016),

[Results and lessons from implementing the Water Assets Accounts in the EEA area](#) (EEA, 2013)

[Reference system and resources datasets](#) (Poyry, 2012)

[Uses and supply](#) (Poyry, 2012)