Water quantity reporting to EEA – WISE SoE - 3

10 October 2019 – WISE 3 Webinar
Nihat Zal, EEA

Agenda

- Introductions and technical instructions (10mins)

- EEA uses of the water quantity data (WISE-3)(15 mins)

- Linking WISE 3 with WISE 5 (15 mins)

- Feedback on the 2018 WISE-3 datacall (15 mins)

- 2019 WISE-3 datacall (15 mins)

- Discussion (20 mins)

- Thank you for participating in the Webinar
- The Webinar will be recorded and made available after the Webinar
- Presentations are available for download. They will also be uploaded to Eionet Forum after the Webinar
- Use the chat for making comments or asking questions
- Avoid detailed questions on your data, you should use the WISE SoE Helpdesk when you start reporting

2. EEA uses of water quantity data (WISE 3)

It is the European Environment Agency's (EEA) task to provide objective, reliable and comparable information on the environment in order to allow the European Commission, Member Countries and the general public to judge the effectiveness of environmental policy and the needs for policy development. This comprises 'state of the environment' assessments using indicators to assess current status, pressures and impacts as well as trends in the mid and long-term.

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EU and global policy hooks

- **7th EAP** - to protect, conserve and enhance the Union's **natural capital**, resource-efficient economy, safeguard the Union's citizens from environment-related pressures and risks to health and wellbeing

- **Resource Efficient Europe** (COM(2011) 571) transformation Europe's economy into a sustainable one by 2050

- **EU biodiversity strategy 2020** - Action 5: Improve knowledge of ecosystems and their services in the EU

- **Water Scarcity and Droughts Policy**

- **UN SGDs 6** - Ensure availability and sustainable management of water and sanitation for all

- UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes

- At the operation level – EEA involvement in the **KIP INCA project**
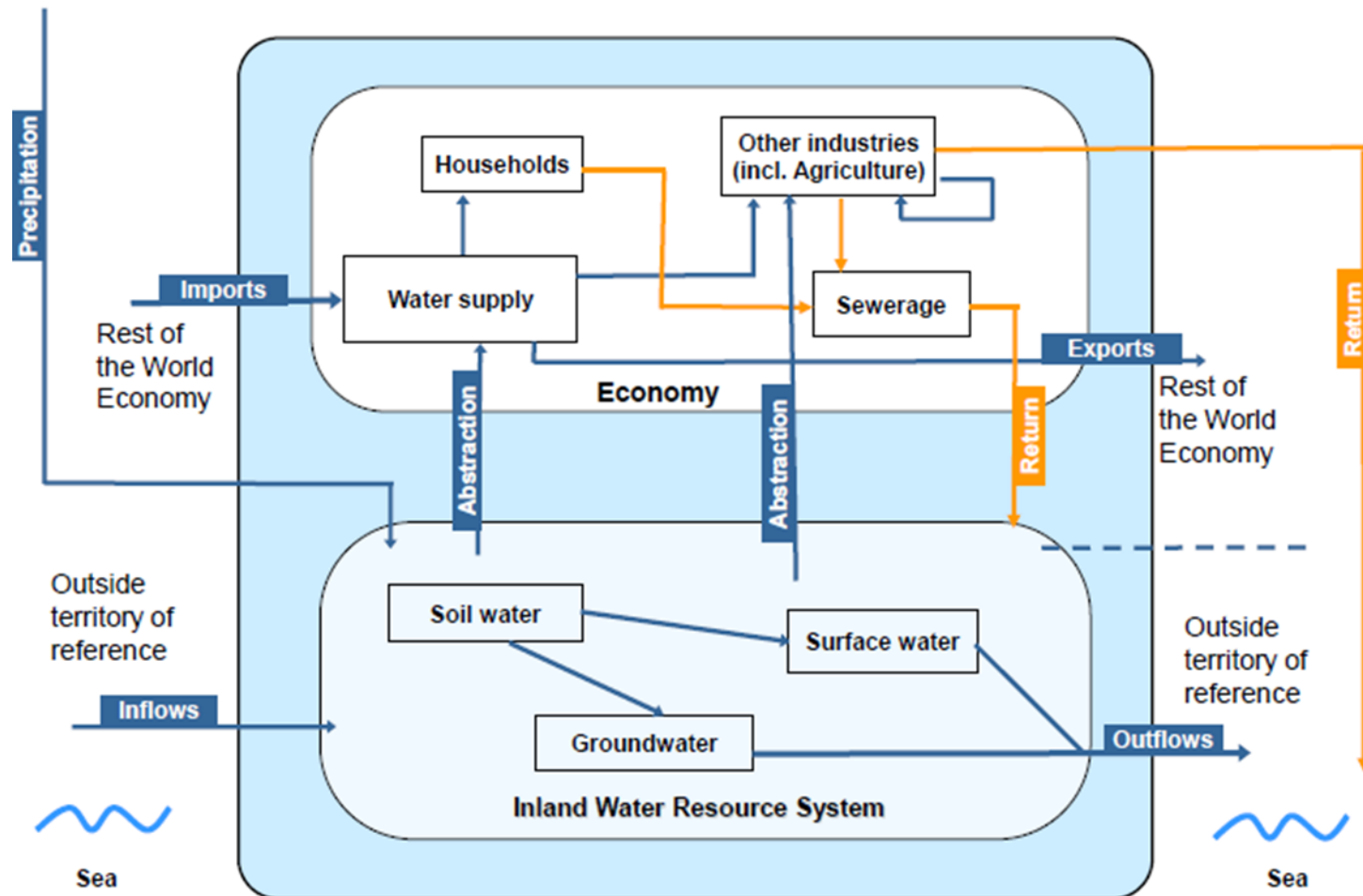
Status of Europe's waters

- **Overall freshwater quality**(overall status, ecological status, conservation status of freshwater habitats and species);

- **Water pollution and quality**(e.g. nutrients in groundwater, rivers and lakes; pollution sources and emissions);

- **Water and health** (Bathing water quality, drinking water quality, hazardous substances related to health)

- **Water resources focus on water scarcity and drought** (Water Exploitation Index, water abstraction by sectors, water accounts, water efficiency)

- **Floods and water related disasters**

- **Climate change impacts on water and water adaptation measures**

- **Hydromorphological/structural activities** (e.g. hydropower, navigation, number of barriers in rivers, straightened rivers).

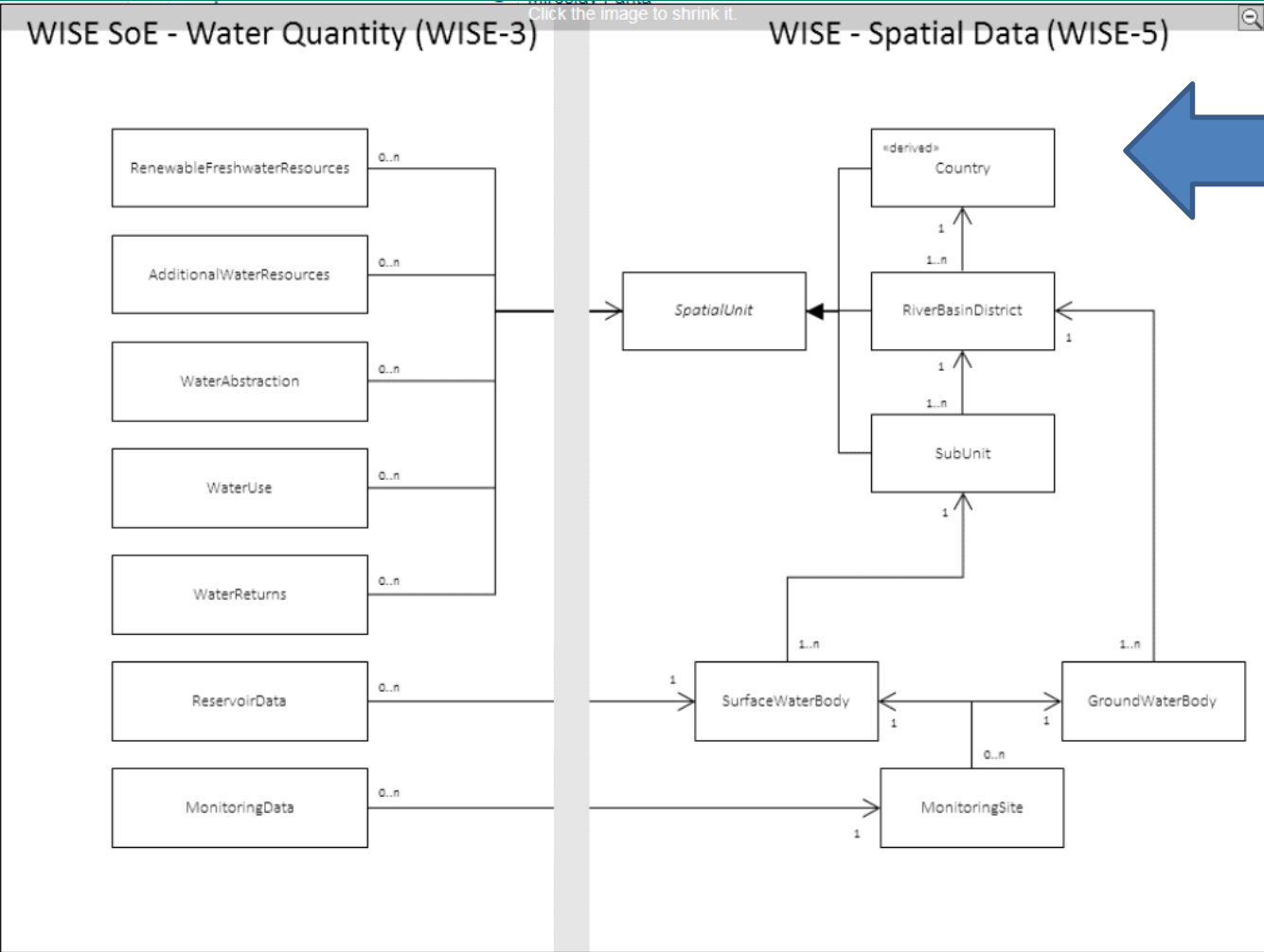# Water quantity data flow and EEA productions

- Renewable freshwater resources (Precipitation, ETA, snowpack, aquifer recharge etc.)

- Water abstraction (by source and by sector)

- Water use (by sector)

- Water returns
  (leakages, direct discharge,
  discharge after the treatment)

- Monitoring data
  (Streamflow, groundwater level)

- Reservoir data

- Additional water resources

UN SEEA Water, 2012

Data model and variables of the WISE 3

WISE SoE - Water Quantity (WISE-3)

Click the image to shrink it.

WISE - Spatial Data (WISE-5)

RenewableFreshwaterResources 0..n

AdditionalWaterResources 0..n

WaterAbstraction 0..n

WaterUse 0..n

WaterReturns 0..n

ReservoirData 0..n

MonitoringData 0..n

SpatialUnit

«derived» Country

1 / 1..n

RiverBasinDistrict 1

1 / 1..n

SubUnit

1

SurfaceWaterBody 1..n / 1..n GroundWaterBody

1 / 1

0..n

MonitoringSite

1

🔗 Data model   🔗 Tables

✔ Exports

Dataset tables

Full name	Short name
Monitoring Data	MonitoringData
Reservoir Data	ReservoirData
Renewable Freshwater Resources	RenewableFreshwaterResources
Additional Water Resources	AdditionalWaterResources
Water Abstraction	WaterAbstraction
Water Use	WaterUse
Water Returns	WaterReturns

Link

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European water accounts (2015)

Surface and Groundwater (million m³)

107,326	56,993	28,184	37,029	907	1,902

Thermo electric cooling — Agriculture — Other industries — Water collection treatment and supply — Households — Connected services

27,785 → Households
9,244 → Connected services

81,051 — 18,704 — 9,154 — 816

2,946

4,991 — 15.752

Sewerage

23,689 — 2,811 — 8,394

Environment
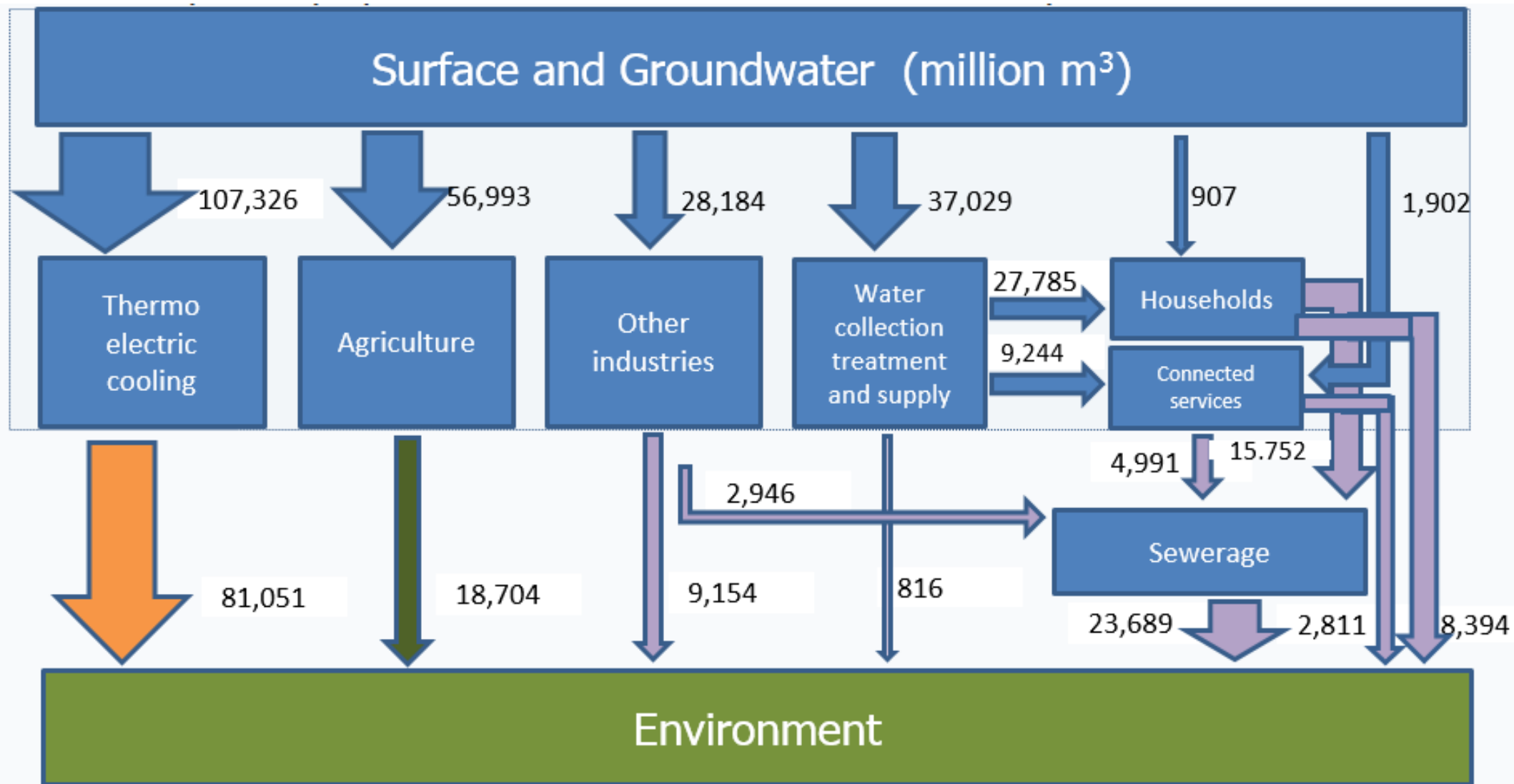
Time series are available at the river basin level on seasonal resolution for the years 1990-2015

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Simplified water balance of Europe - 2015

On average, 3% of world's total precipitation (2014)
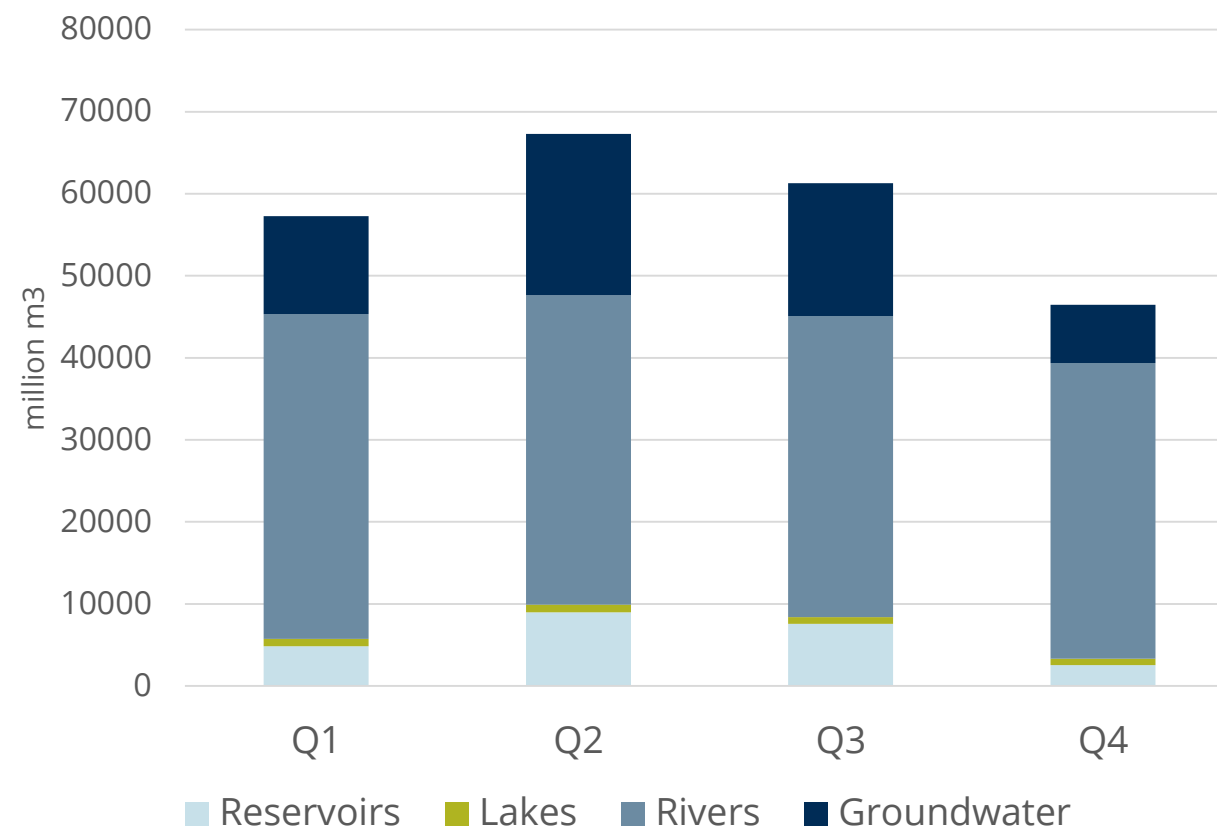
China has abstracted 595,000 hm³ of water in 2015

Annual total precipitation 3,300,000 Mm³	Annual actual evapotranspiration 2,000,000 Mm³

1 hm³= 1 million m³

1 m³ = 1,000 Lt

Total annual water abstraction 232,000 Mm³

Annual renewable water resources – 1,600,000 Mm³ – (2015) (2,400 m³/per capita/year. Falkenmark index: No water stress > 1,700 m³/per capita/year)

Net water consumption 88,000 Mm³ (130 m³/per capita/year)

Total annual returns 144 000 Mm³

Baseflow from GW to SW 400,000 Mm³

Outflow to the sea 1,800,000 Mm³

Pressures on water resources - Water abstraction by source in Europe (2015)

Pressures of economic activities - water use by sectors in Europe (2015)

Annual water use

Service industry 2%

Mining and quarrying, Manufacturing and Construction 18%

Households 12%

Agriculture, Forestry and Fishing 40%

Electricity, gas, steam and air conditioning supply 28%
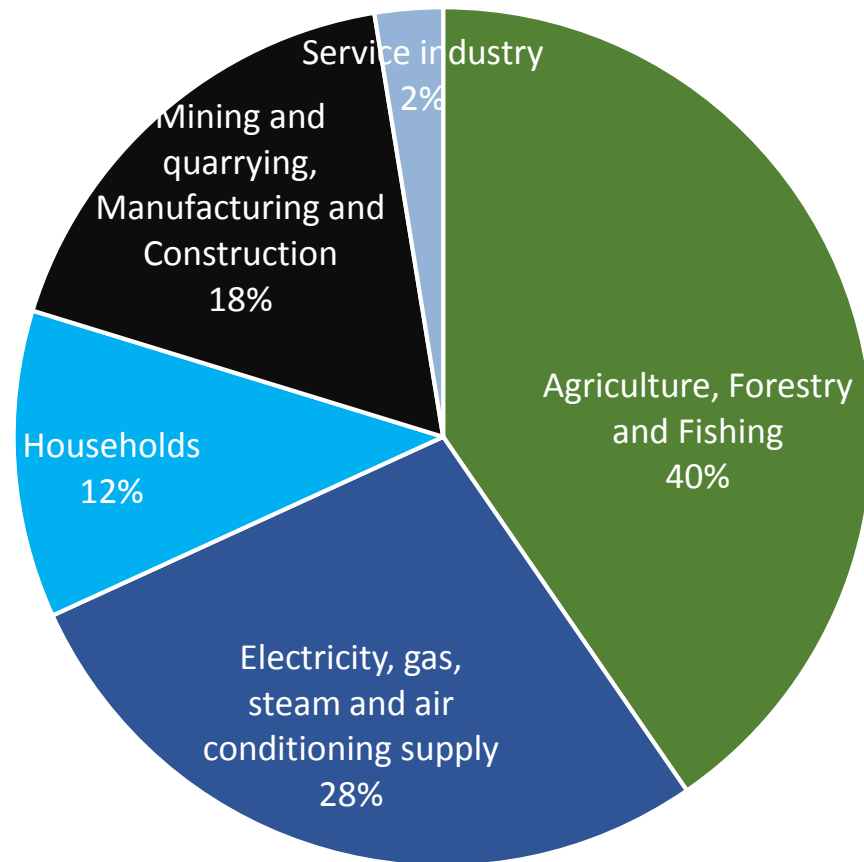
Seasonal water use

million m3
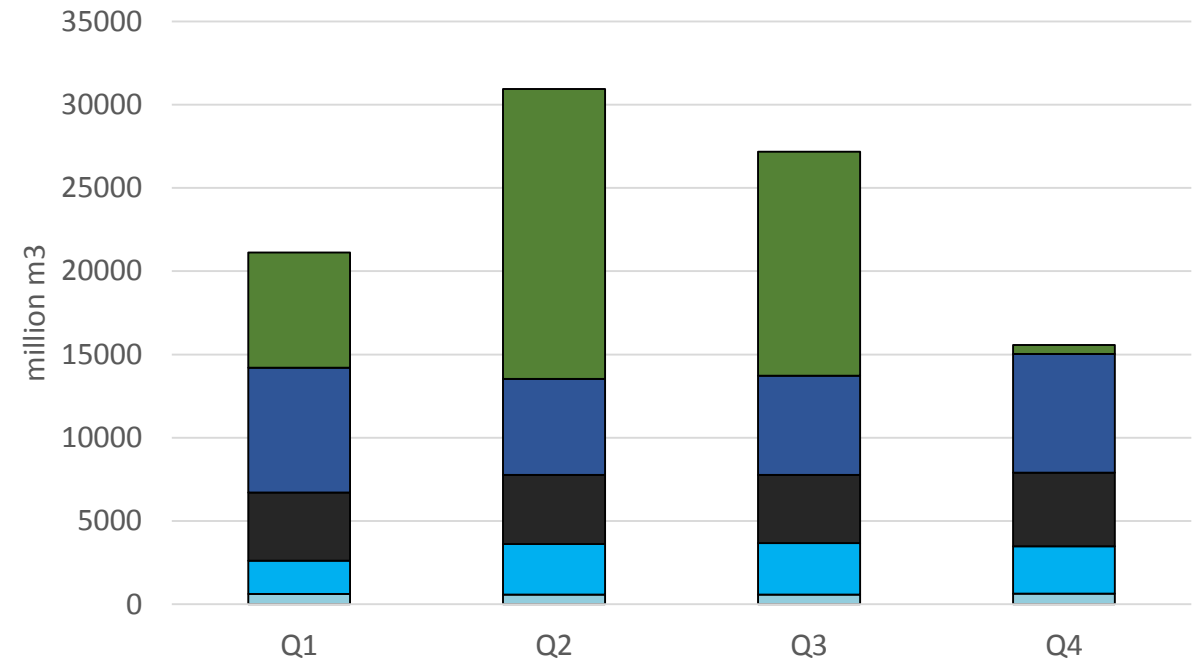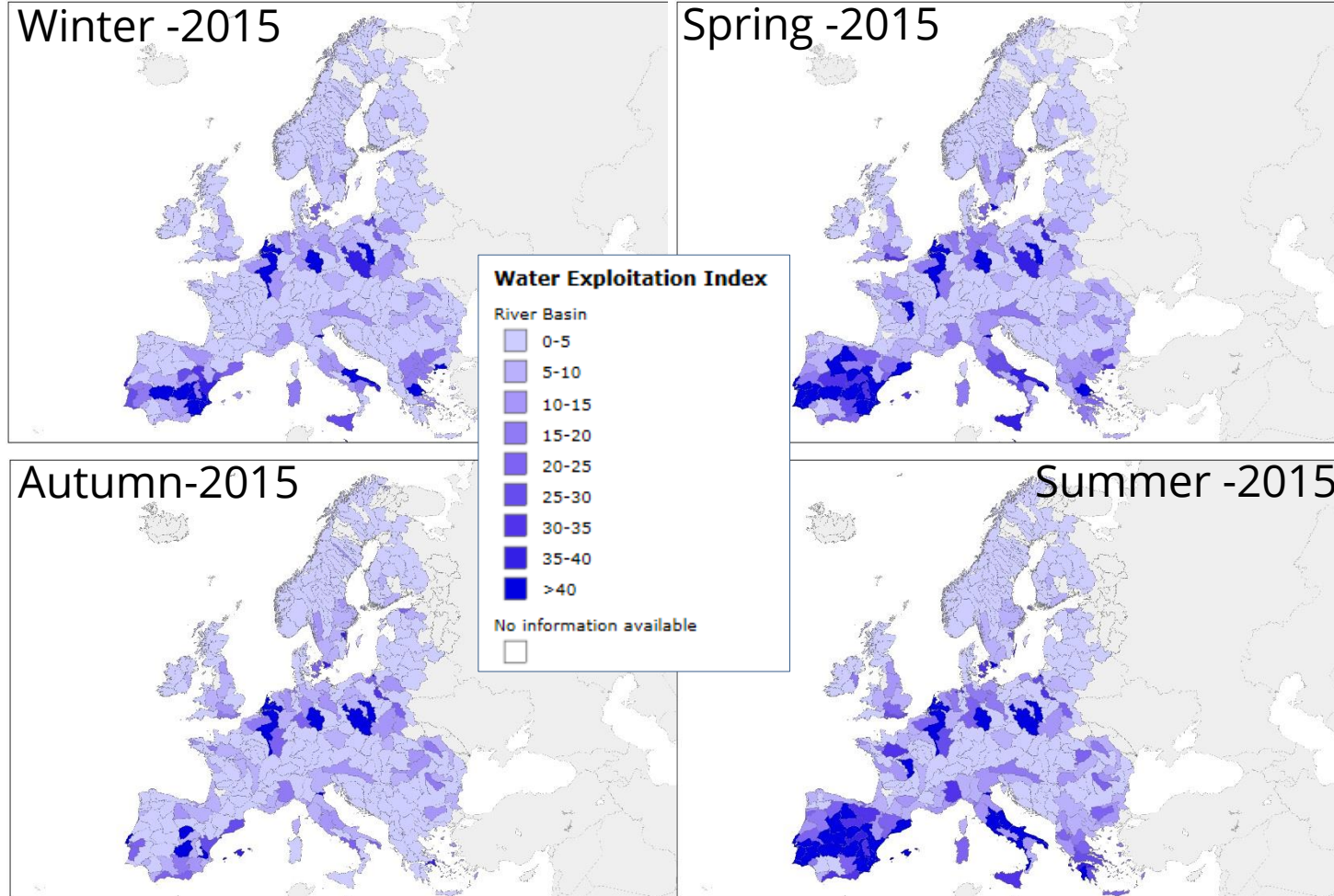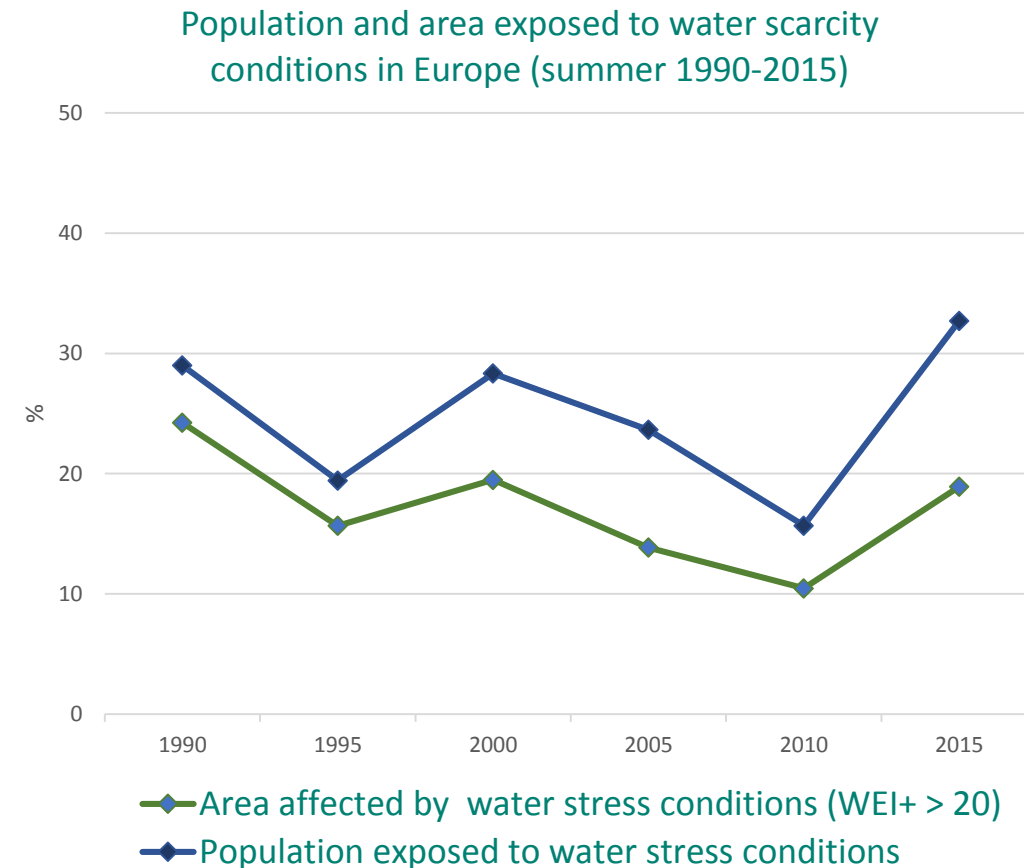
- Agriculture, Forestry and Fishing
- Electricity, gas, steam and air conditioning supply
- Mining and quarrying, Manufacturing and Construction
- Households
- Service industry

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Water scarcity indicator - Water exploitation index (WEI+)

Winter -2015

Spring -2015

Autumn-2015

Summer -2015

Water Exploitation Index

River Basin
- 0-5
- 5-10
- 10-15
- 15-20
- 20-25
- 25-30
- 30-35
- 35-40
- >40

No information available

Population and area exposed to water scarcity conditions in Europe (summer 1990-2015)

—◆— Area affected by water stress conditions (WEI+ > 20)

—◆— Population exposed to water stress conditions

https://www.eea.europa.eu/data-and-maps/explore-interactive-maps/water-exploitation-index-for-river-2/

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Water efficiency information - development of water abstraction in Europe (1900-2015)
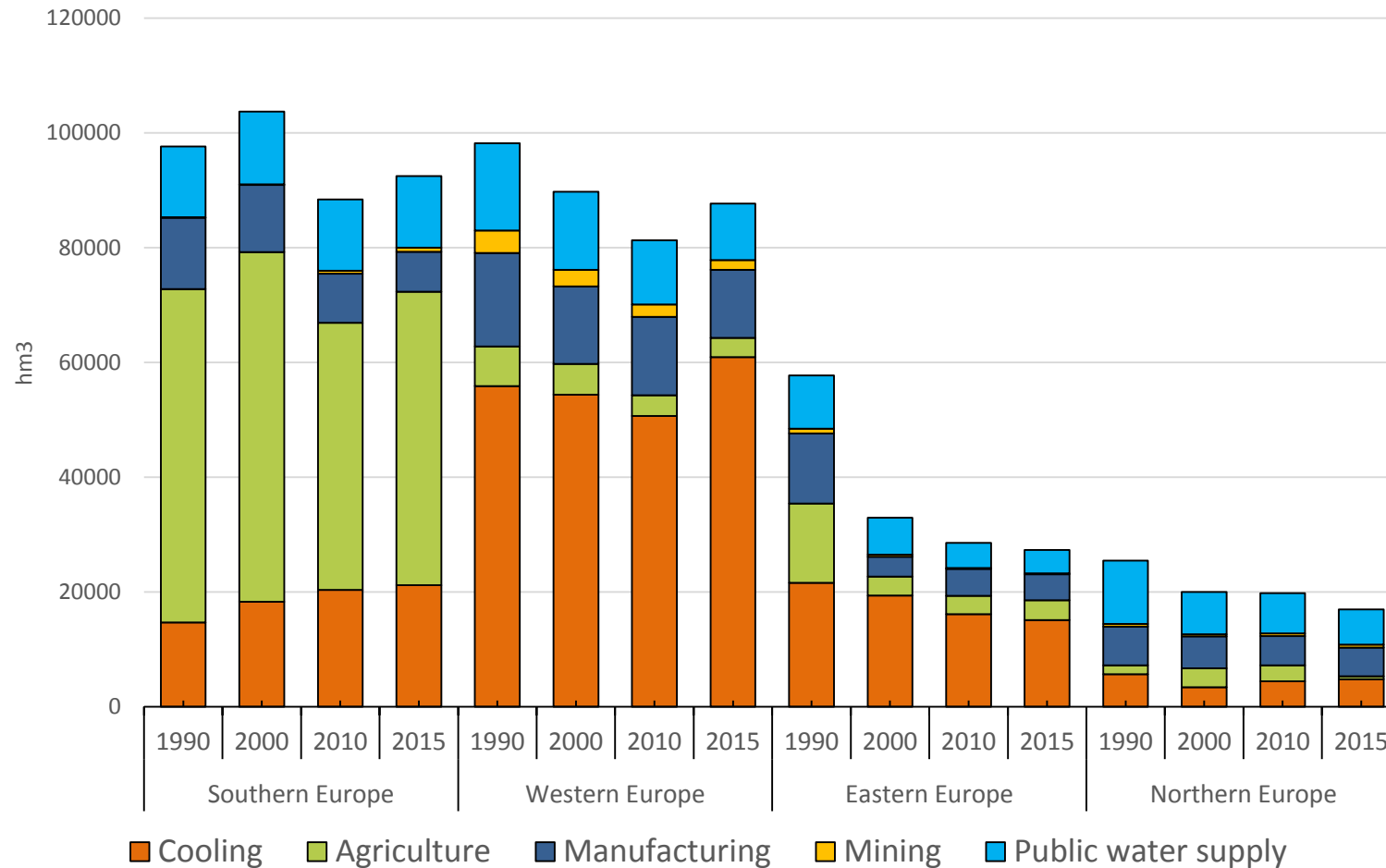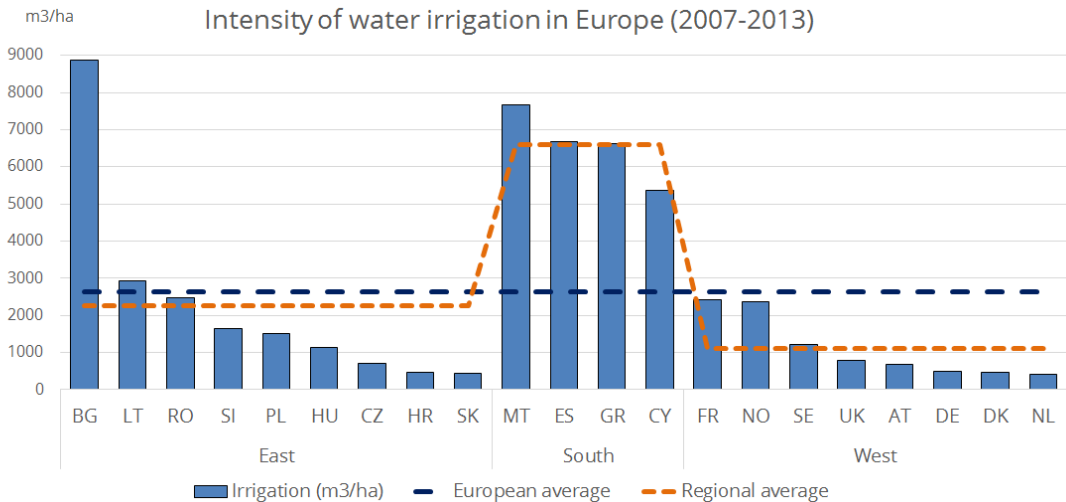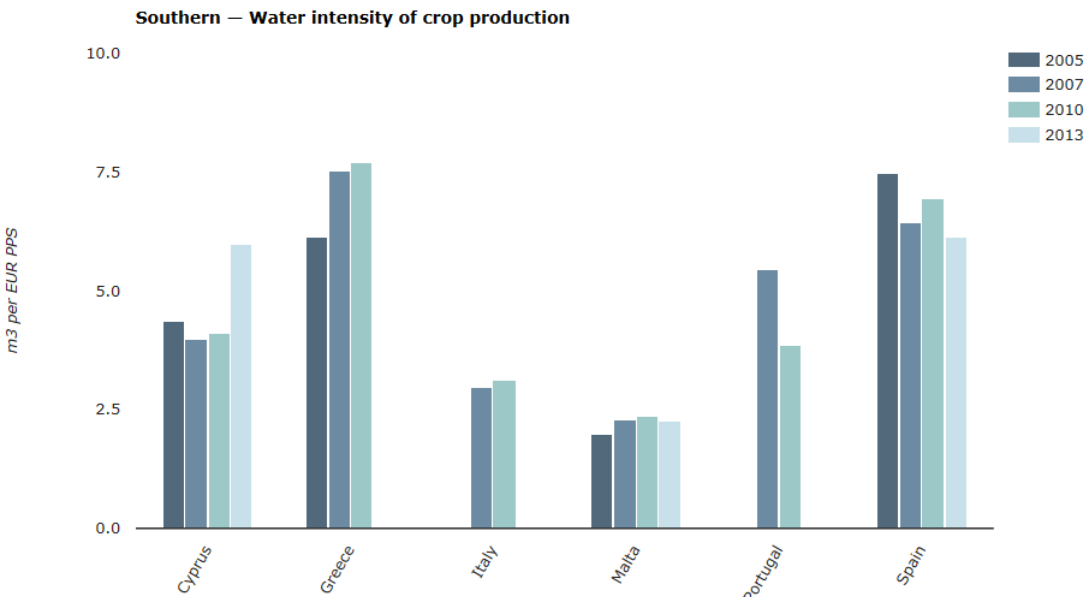

Gross value added from all economic sectors and total water abstraction in the EU 28 (2000=index 100)

Cooling Agriculture Manufacturing Mining Public water supply

Gross value added from all economic sector at basic price (Euro)

Total annual freshwater abstraction (mio m3)

https://www.eea.europa.eu/data-and-maps/indicators/use-of-freshwater-resources-2/assessment-3
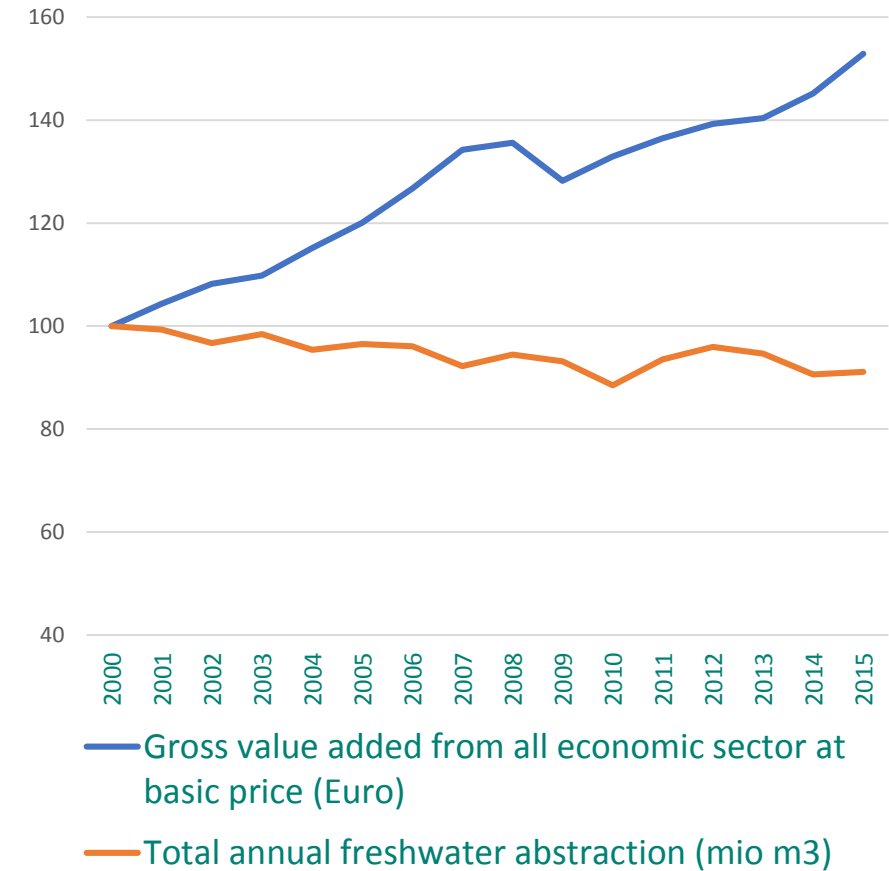
Water efficiency information – Water intensity of crop production

Southern — Water intensity of crop production

Eastern — Water intensity of crop production

Western — Water intensity of crop production

Intensity of water irrigation in Europe (2007-2013)

Link

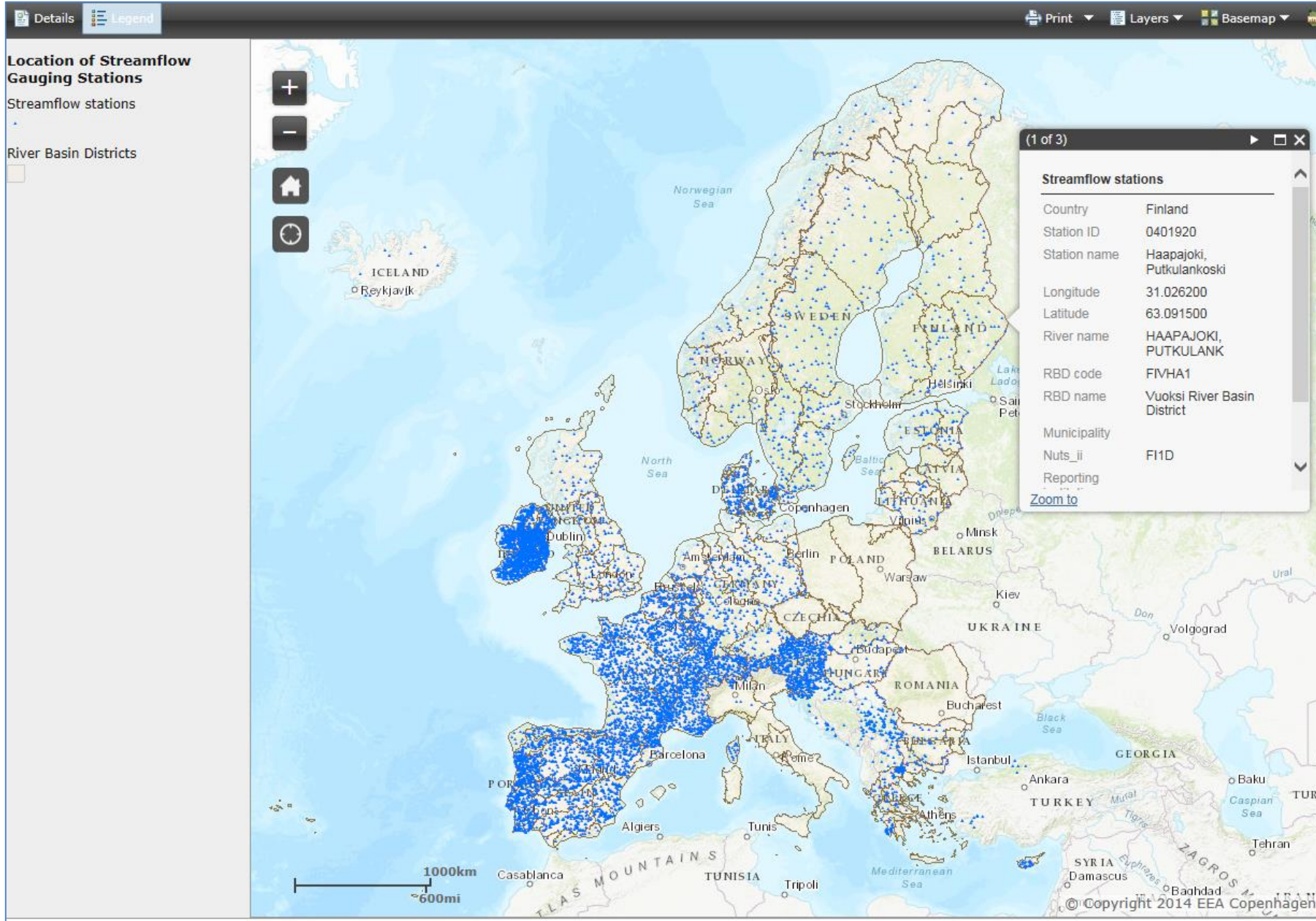European Environment Agency
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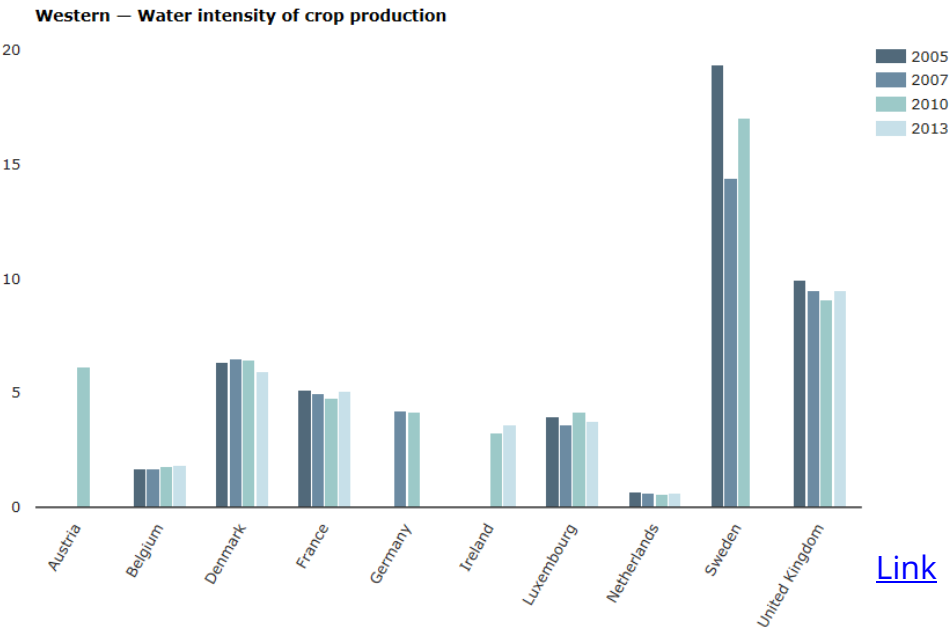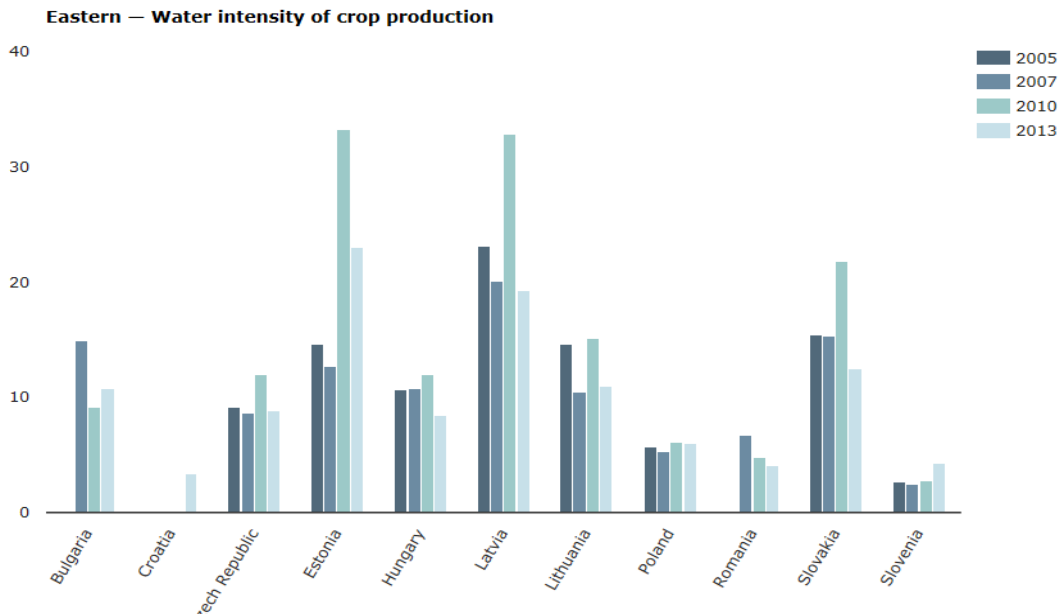
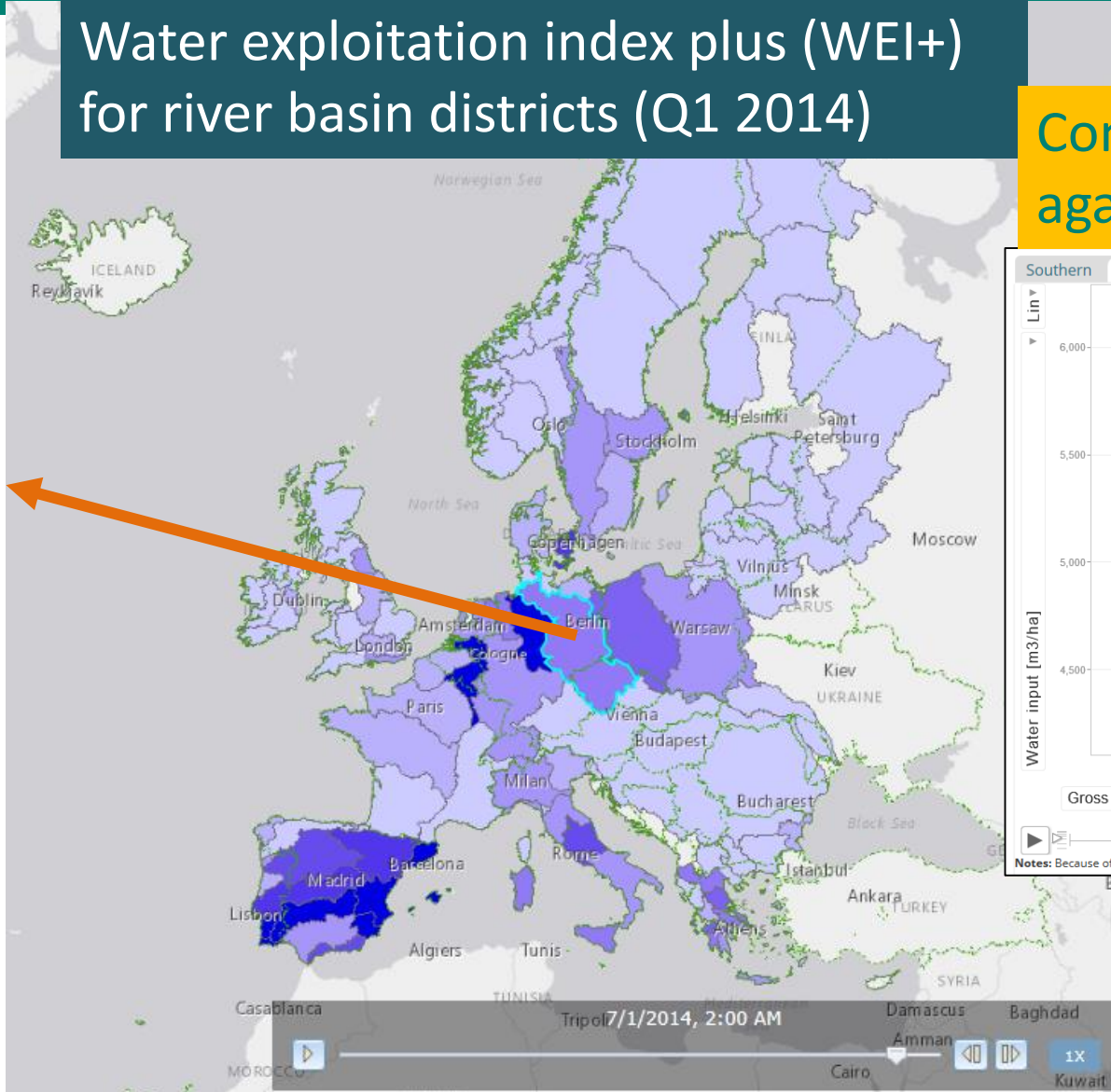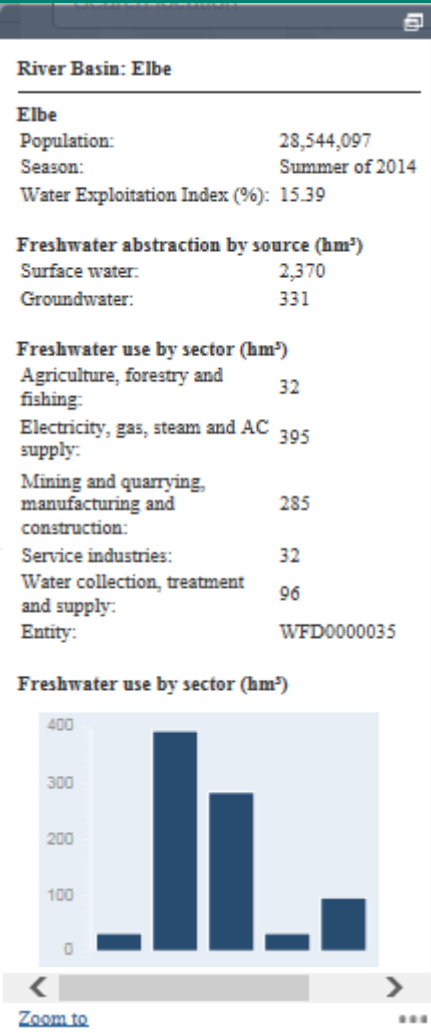# Information on European water resources
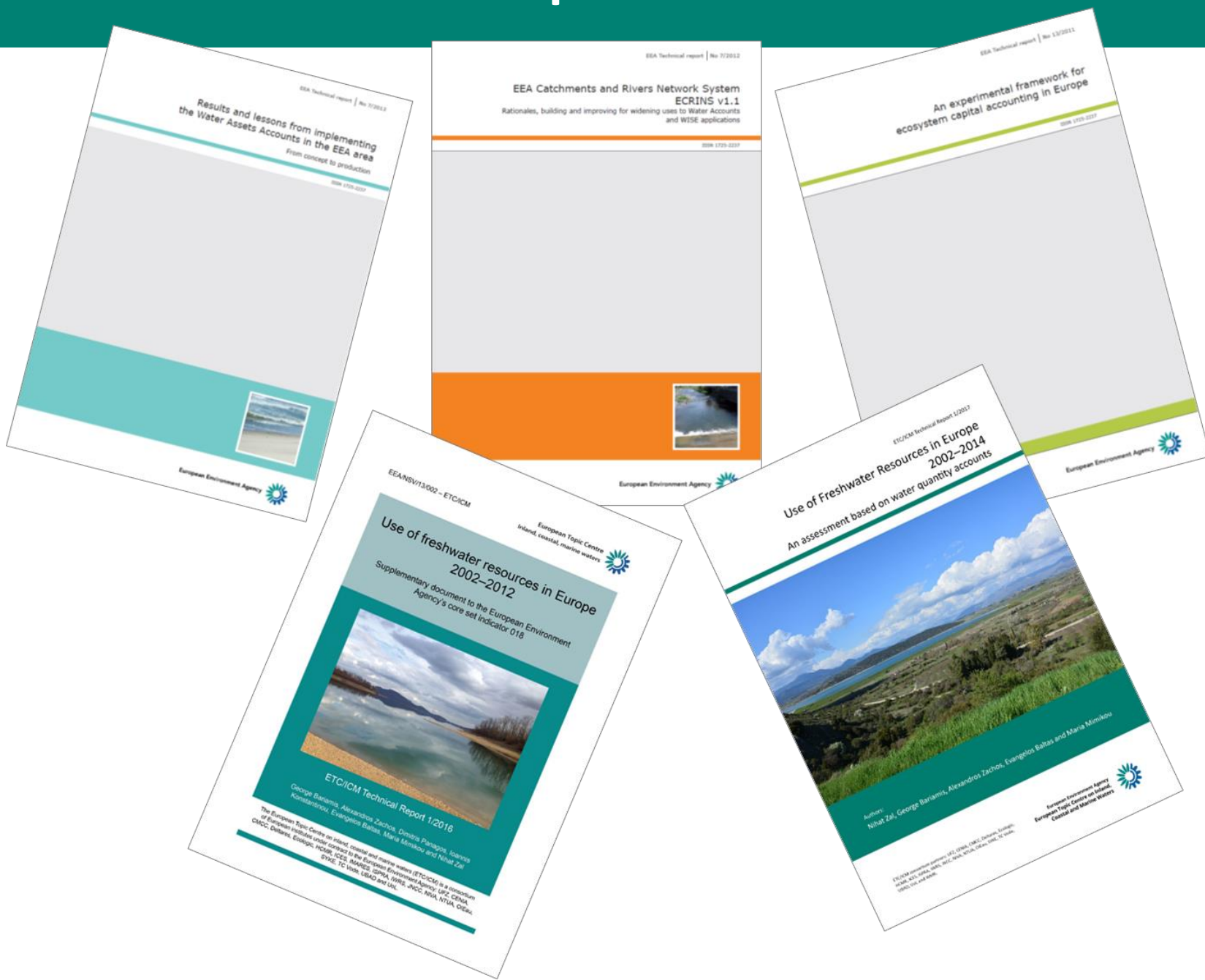
New generation of WISE interactive maps/charts

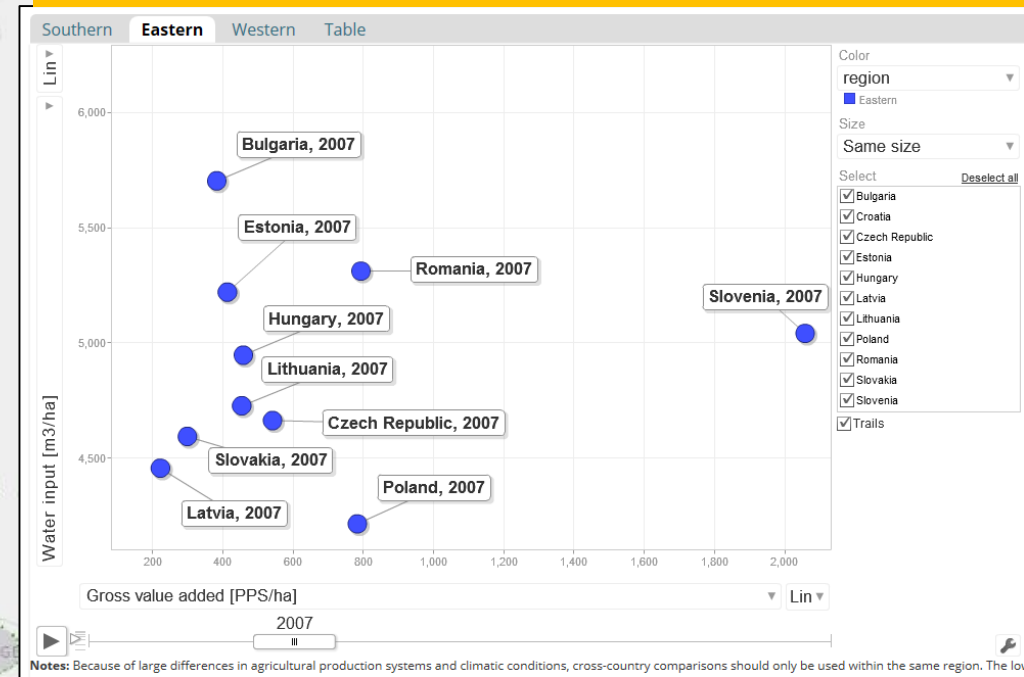Location of streamflow stations – reported by EEA Member countries

New generation of WISE interactive maps/charts

Water exploitation index plus (WEI+)
for river basin districts (Q1 2014)

Comparison of total water input
against gross value added from crops

River Basin: Elbe

Elbe
Population:	28,544,097
Season:	Summer of 2014
Water Exploitation Index (%):	15.39

Freshwater abstraction by source (hm³)
Surface water:	2,370
Groundwater:	331

Freshwater use by sector (hm³)
Agriculture, forestry and fishing:	32
Electricity, gas, steam and AC supply:	395
Mining and quarrying, manufacturing and construction:	285
Service industries:	32
Water collection, treatment and supply:	96
Entity:	WFD0000035

Freshwater use by sector (hm³)

Time series are available for 1990-2015 with gap filling in the underlying data

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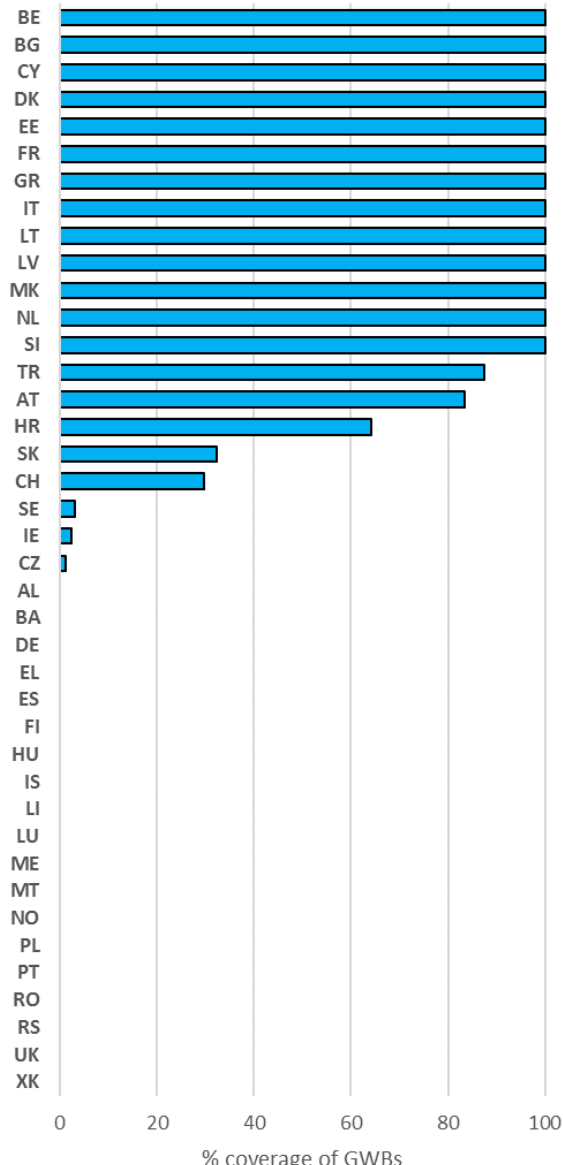European Environment Agency

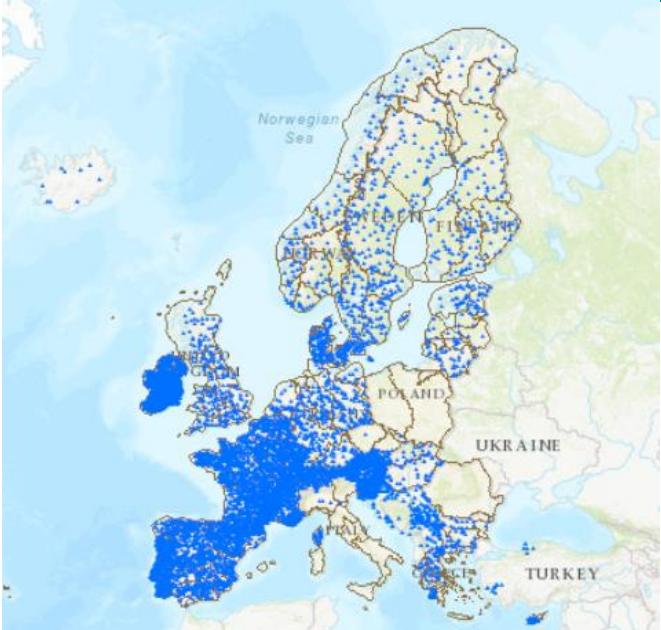- Support SDG 6.4.2 – every year

- Water exploitation index plus for agriculture – A CAP impact indicator to support the CAP policy processes - 2020

- Publication of the European water accounts-v1 -2019

- Second version of the European water accounts -2021

- Updating EEA 2009 report on Water scarcity across Europe — confronting water scarcity and drought -2021

3. Overview of the 2018 WISE-3 datacall

Feedback on the 2018 WISE-3 data call – density of streamflow and groundwater monitoring (including west Balkans cooperating countries)

11 870 reported monitoring sites for streamflow and groundwater level
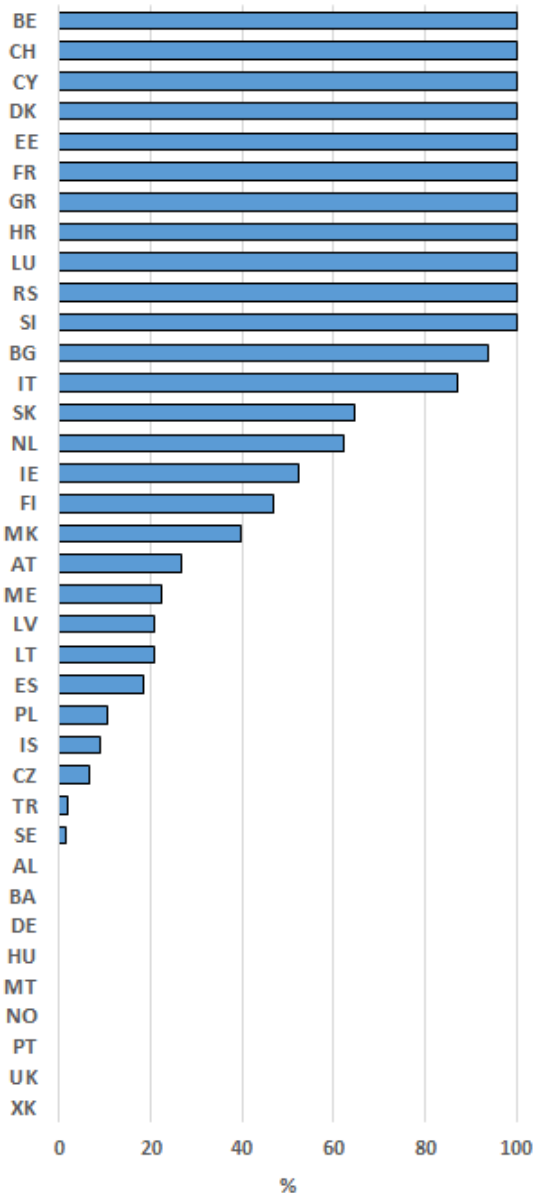
1000 km2 per station

Station per GWB

European Environment Agency

Year	AT	BE	BG	CH	CY	CZ	DE	DK	EE	EL	ES	FI	FR	HR	HU	IE	IS	IT	LI	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK	AL	BA	ME	MK	RS	XK
																																		EIONET member countries → Cooperating countries						
2000					2			7														94																	
2001					2			7														97											124						
2002					2			13														98																	
2003					2			13														94								12									
2004					2			13														92								13									
2005		33	12		2			14														91		12						13									
2006		33		15	2			14	23			7			7							120		22			20			13									
2007		61		2	2			14					498		242					34		119		20				12	10	13									
2008	7	67		2	2	210		14	5				648			35				93		117		33				10		17							4		
2009		70		2	2			14					657							93		118				16				14									
2010		130	270	2	2			14					653				72			95		116		33				12	165	13	72								
2011		119	1119	2	2			9	169	26			653				130			93		116								13	72				2			11	
2012		81	1001	130	2			14	169				574				118			93		117		33			88	12		13	936	33						10	
2013		99	84		2			44	120				573			33	84			122		86			33	10	8	21		13	1920		3168					8	
2014		78	86		2			42	120			8	191			33	85			122		86			33	10		21		13	1920		3168					9	
2015		78	109		2			40	120			6	187			33	84			122	25	88			33			21		26	1920		3168					33	
2016		57	113		2			64	103			6				31				124	33	85								26	1920		3168				8	33	
2017		12	114		2			60	103			6				31				124	33	84								26	1920		3168					33	

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Feedback on the 2018 WISE-3 data call – Water abstraction for irrigation

Year	AT	BE	BG	CH	CY	CZ	DE	DK	EE	EL	ES	FI	FR	HR	HU	IE	IS	IT	LI	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	TR	UK	AL	BA	ME	MK	RS	XK
2000								1														8																	
2001								1														8											22						
2002								2														8																	
2003								2														8																	
2004								2														8																	
2005		2	2					2														8		2															
2006		2		2				2	5						1							8		2															
2007		6						2					86							7		8		2				2											
2008		6				6		2					61							8		8		2				2		2									
2009		6						2					61							8		8					16												
2010		14	44					2					61							8		8		2				2	10										
2011		10	98					1					62				13			8		8									12								
2012		6	78	9				2					60				13			8		8		2				2			156	2							
2013		6	8						24				61			2				8		8			2			2			130		192						
2014		6	8						24				18			2	13			8		8			2			2			130		192						
2015		6	8						24				19			2	12			8	2	8			2			2			130		192					2	
2016		4	8					8	13							2				8	2	8									130		192					2	
2017			8					8	13							2				8	2	8									130		192					2	

EIONET member countries (AT–UK) · **Cooperating countries** (AL BA ME MK RS XK)

Important data for production of water exploitation index for agriculture under the CAP impact assessment

Feedback on the 2018 WISE-3 data call - Status of the last data deliveries

- Many countries had hard time in reporting, but after correction of errors succeeded in releasing the folders and data were harvested and included in Waterbase.

Main issues

- Very large files (in particular after conversion into XML);

- BLOCKERS (more details in next sessions):

- Logical errors amongst variables

- Format errors

- Some countries have not reported the last 5-7 years.

Overview and description for the different QC rule categories

●

- **BLOCKER**. A critical error. The envelope can not be released. Normally, a blocker is an error in the format of the file, or in the structure or content of the data. Such a critical error makes it impossible for the delivery to be harvested and integrated into the European database. The envelope can only be released if every incorrect file is removed and replaced by corrected files

- **ERROR**. A non-critical error. The envelope can be released, but part of its content may be excluded from the European database (or be marked as having low reliability). Data Reporters are strongly advised to correct the non-critical errors. If the automated QC returned errors, a clarification or a resubmission may be requested by the Data Client, when the data is processed, and the final feedback is added to the envelope.

- **WARNING**. An issue that may be an error. Data Reporters are advised to check the correctness of the records or values that raised the warning. The envelope can be released. If the automated QC returned warnings, a clarification may be requested by the Data Client, when the data is processed and the final feedback is added to the envelope.

- **INFO**. Other issues related to the quality of the data. The envelope can be released. A clarification may be requested by the Data Client, when the data is processed and the final feedback is added to the envelope. Note that the observation status and the remarks fields can be used to provide include the clarifications in the delivery itself.

- **OK**. The automatic QC did not detect quality issues. The envelope can be released.

- In addition to the tests described in this document, a result values –range limits test is implemented in WISE-3 (Water Quantity). The test checks if the resultObservedValues within the acceptable value range for each variable.

Feedback on the 2018 WISE-3 data call -Monitoring site identifier reference test

MonitoringData
• monitoringSiteIdentifier
• monitoringSiteIdentifierScheme

Vocabulary: Monitoring sites
• monitoringSiteIdentifier
• monitoringSiteIdentifierScheme
• status
• label (name)

MonitoringData (11 870 reported monitoring sites for streamflow and groundwater level)

• 2 monitoringSiteIdentifier are not in reference list; 543 monitoring sites do not have same monitoringSiteIdentifierScheme (eionetMonitoringSiteCode ≠ euMonitoringSiteCode)

• 11 325 montoring sites (monitoringSiteIdentifier & monitoringSiteIdentifierScheme) are equal, of which

  – 10 613 montoring sites where status are valid, stable or experimental

  – 712 montoring sites where status are deprecated (retired) or superceeded

Monitoring site identifier format test

- Monitoring site identifier format test. Tests the validity of the monitoringSiteIdentifiervalue format: CountryCode e.g. DK and The identifier value cannot contain punctuation marks, white space or other special characters.

- Monitoring site identifier reference test. Tests the presence of the monitoringSiteIdentifier and its respective monitoringSiteIdentifierScheme in the WISE register. The list has been created from previously reported data on monitoring sites.

6. Monitoring site identifier reference test

Tested presence of the monitoringSiteIdentifier and its respective monitoringSiteIdntifierScheme in the official reference list. The list has been created from the previously reported data on monitoring sites.

BLOCKER - some of the monitoringSiteIdentifier values are missing in the reference list. Please assure that it is not due to an error and that they are reported under WFD, or report them under WISE Spatial data reporting.

21 identifiers detected.

Hide all records

monitoringSiteIdentifier	monitoringSiteIdentifierScheme	number of records
1514	eionetMonitoringSiteCode	2

BLOCKER
Solution;
- update Spatial data, or
- Split data set into two one with accepted monitoringSites and one with missing monitoringSites

BLOCKERS - Example of a blocked files and not being harvested and included in Waterbase

Eionet » CDR » Italy » EEA, requests » WISE SoE Data Deliveries » Water Quantity (WISE-3)

We are grateful for the efforts made by the member countries!

Water Quantity (WISE-3)

Obligation(s) WISE SoE - Water Quantity (WISE-3)

- In this case; *BLOCKER; some of the monitoringSiteIndetifier values are missing in the reference list*

BLOCKER - some of the monitoringSiteIdentifier values are missing in the reference list.
are reported under WFD, or report them under WISE Spatial data reporting.

47 identifiers detected.

Hide all records

Envelopes and subcollections

WISE3 - 2016	02 Apr 2019
WISE3 -2017	02 Apr 2019
wise3_2015	25 Jan 2019
wise3_2014	25 Jan 2019
wise3_2013	25 Jan 2019
WISE SoE - Water Quantity 2014_24_7_2017	21 Aug 2017
WISE SoE - Water Quantity 2015_24_7_2017	21 Aug 2017
WISE SoE - Water Quantity 2013_24_7_2017	24 Jul 2017
WISE SoE - Water Quantity 2014	06 Jun 2017
WISE SoE - Water Quantity 2015	06 Jun 2017
WISE SoE - Water Quantity 2013	06 Jun 2017

- 1. Mandatory values test - INFO
- 2. Record uniqueness test - OK
- 3. Data types test - OK
- 4. Valid codes test - OK
- 5. Monitoring site identifier format test - OK
- 6. Monitoring site identifier reference test - BLOCKER
- 7. Time reference period test - OK

Data could not be used from 1 608 GW monitoring stations

269 SF monitoring stations

53 034 records are pending!

Overview | History | Data quality

WISE3 -2017

Description	
Obligations	WISE SoE - Water Quantity (WISE-3)
Period	2018 - Not applicable
Coverage	Italy
Status	Task(s) waiting to be assigned: **Draft**
	The last AutomaticQA run has flagged this envelope as unfit for release.

Remember to release the envelope when you have uploaded all fil
Feedback for this envelope

[BLOCKER] AutomaticQA result for file WISE3_2017_28.03.
data (Posted automatically on 02 Apr 2019)

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- Certain value ranges are applied to each of variables

Before preparing your data, it will be helpful to have a look into it

Link

- Be aware that there are two logical tests applied to your data for automatic quality control;

| 8 | Time period volume sum test | Tests whether the sum of monthly volume values doesn't exceed the corresponding annual volume value. | BLOCKER |

| 9.03 | Parameter volume mathematical relation rules test - total surface water abstraction, abstraction from rivers | Tests whether the ABS_SW volume value isn't lower than ABS_SW_RIV volume value reported from the same spatial unit and time period. | BLOCKER |

Link

4. 2019 WISE 3 datacall

2019 WISE-3 data call

We will present the following:

- No change in data model and variables

- Only with value range for ABS_SW_NACE_D3511_HYDR – from 100 000 to 1 000 000 million m^3

- Preparation of the data set

- WISE SoE helpdesk functions

- Quality controls (errors, warnings, blockers)

- How to solve problems if a file has blockers?

- Release of the folder

- Reading the WISE SoE Reportnet Guidance would be a good preparation for this session – https://cdr.eionet.europa.eu/help/WISE_SoE/wise3/WISE_SoE_ReportnetGuidance.pdf

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2019 data call – two important source of information

WISE SoE

The following material is intended for national reporters of WISE SoE data.
It shows how to use Reportnet tools during the reporting process and how to improve the quality of deliveries.

Dataflow specific instructions

- WISE SoE - Emissions (WISE-1)
- WISE SoE - Biological data in rivers, lakes, transitional and coastal waters (WISE-2)
- WISE SoE - Water Quantity (WISE-3)
- WISE SoE - Water Quality (WISE-4)
- WISE - Spatial Data (WISE-5)
- WISE SoE - Water Quality (WISE-6)

WISE dataflows

- WISE SoE Data Flows
- Water Framework Directive
- Floods Directive
- Bathing Water Directive
- Drinking Water Directive
- Urban Waste Water Treatment Directive

More information

- How to upload a report
- Using envelopes in CDR
- Setting up access limitations to files
- Security principles
- Reportnet architecture

If you have problems with CDR please contact Eionet Helpdesk   Link

WISE SoE - Water Quantity (WISE-3)

The following material is intended for national reporters of WISE-3 data.
It describes how to use Reportnet during with the reporting process and how to improve the quality of d

Dataflow specific instructions

- Reporting obligation
- Data dictionary
- WISE SoE - Water Quantity (WISE-3) Reporters
- WISE SoE upper and lower limits rules for automatic quality control (QC):
- WISE SoE Quality control rules
- WISE SoE Reportnet guidance

Link

- Using the Data Dictionary http://dd.eionet.europa.eu/datasets/latest/WISE-SoE_WaterQuantity
- Export the needed template(s) and codelists (if needed)
- Follow the instructions in the WISE SoE ReportnetGuidance the latest version can always be found here:
https://cdr.eionet.europa.eu/help/WISE_SoE/wise3/WISE_SoE_ReportnetGuidance.pdf
- Test your files in the https://cdrsandbox.eionet.europa.eu/
  - –Username: datareporter
  - –Password: datareporter
- Correct blockers, errors and check warnings –ask the WISE SoE Helpdesk for help
- Upload

2019 data call – next steps

- [Announcement letter 17 July 2019](#)
- The call for spatial data (WISE-5) is open from now until October 31st 2019.
- Important to check that the monitoring sites you want to report data from are in the monitoringSitevocabulary http://dd.eionet.europa.eu/vocabulary/wise/MonitoringSite/view
- The call for the other WISE dataflows will run from Monday 14th October 2019 until Friday 17th January 2020.
- Download templates for data; -test the data set in https://cdrsandbox.eionet.europa.eu/
- If there are Blockers that prevent release of the folder
    - –correct the issues;
    - –contact the helpdesk for help; or
    - –split the data set into two files (one data set without Blockers and a separate file with problematic records).
- Upload the files to CDR.

Discussion, comments and questions

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Gratitude to all Member Countries, reporters, IT consultants and EEA colleagues

1994-2019
European Environment Agency