Twinning Project
"Strengthening of the National Statistical System of Armenia – Phase II"

Activity 6.1
Assessment of the current status on water statistics and water accounts

An overview of Water Statistics

Stefano Tersigni
Simona Ramberti
Giovanna Tagliacozzo
Donatella Vignani

Istat – Italian National Institute of Statistics
State of Environment Division
Water resources and climate Unit

Yerevan, 1-4 February 2016

Istat

How to describe water resources (WR)

WHO?

HOW?

Environmental statisticians, water experts, national accountants, hydrologists, policy-makers need to be able to communicate using a common language…. need to work together in order to make this happen.

Water statistics (WS) and Water accounts (WA) are part of an integrated programme where **WS provide the list of variables and indicators related to water** and WA measure the interactions between the hydrological system and the economy

PROMOTE THE USE OF ENVIRONMENTAL ACCOUNTING AS A KEY ELEMENT OF ENVIRONMENTAL ASSESSMENT AND POLICY SUPPORT

Having a structured informative system to describe WR with good quality data is unavoidable for further elaborations and in-depth analysis….
WA are a strictly consequence of WS
WS are at the base of WA

Current official water statistics in Eurostat

Current official **water statistics** collected and disseminated by Eurostat encompass the following topics:

- Water resources
- Water abstractions by type of source (groundwater, surface water, non-fresh water, water re-use, desalination)
- Water losses
- Water use by supply (public water supply, self-supply)
- Generation (by economic activity) and discharge (by type of treatment) of wastewater (by volume and various pollutants)
- Connection rate to public water supply
- Connection rate to wastewater treatment by type of collection and treatment
- Wastewater treatment infrastructure (number and capacity of wastewater treatment plants by type and level of treatment)
- Generation and disposal of sewage sludge

Conceptual Framework used by Eurostat is harmonised with UNSD and OECD

EUROSTAT: the statistical office of the European Union situated in Luxembourg. Its task is to provide the European Union with statistics at European level that enable comparisons between countries and regions.

Eurostat Questionnaires

Eurostat's water data collection is organized around <u>two questionnaires</u>:

- ✓ the **OECD/Eurostat Joint Questionnaire on Inland Waters (JQ-IW)** for national data,
- ✓ the **Eurostat Regional Environmental Questionnaire (REQ)** for subnational data (NUTS2 and River Basin Districts (RBD) - according to the EU Water Framework Directive).

<u>Relevant EU Water legislation</u>: EU statistical work programme / EU Water Framework Directive (2000/60/EC) / Urban wastewater directive (91/271/EEC)

<u>Reporting frequency</u>: every 24 months, but they collect several years of data, thus data for every year are eventually to be reported. In each survey occasion the time series can be revised.

<u>Respondents:</u> JQ-IW and REQ are sent to National Statistical Offices, which often collaborate with experts or institutions concerned with water-related topics for advice and support (e.g. from ministries, universities, hydrological institutes).

<u>In other cases NSOs produce data directly by surveys, administrative data, estimations studies.</u>

Istat

ORGANISATION FOR ECONOMIC
CO-OPERATION AND DEVELOPMENT

OECD

BETTER POLICIES FOR BETTER LIVES

Eurostat
STATISTICAL OFFICE OF THE
EUROPEAN **UNION**

Environment Directorate
Direction de l'environnement

Directorate E: Sectoral and regional statistics

Environment Performance and Information Division

Unit E-3: Environment and forestry

Working Party on Environmental Information

Working Group "Statistics of the Environment"
Sub-Group "Water Statistics"

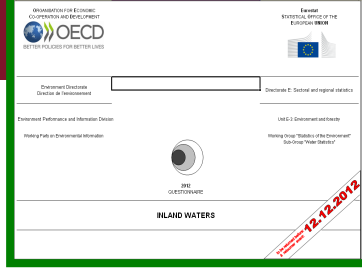
2012
QUESTIONNAIRE

INLAND WATERS

to be returned before:
à retourner avant: **12.12.2012**

Istat

The Oecd/Eurostat JQ_IW /1



Foreword

- ✓ The data collection was first established in 1980 by OECD
- ✓ Eurostat joined this exercise in 1988
- ✓ The United Nations Statistical Division (UNSD) set up an environmental data collection on a more reduced level but entirely compatible with the JQ-IW

Reporting group: OECD/Eurostat Questionnaires on the State of the Environment (a world-wide coherent data collections on the main environmental issues: air, inland water, marine environment, land, forest, wild life, waste, noise, environmental expenditures).

Description: The questionnaire on IW includes the whole water cycle from abstraction to use and then discharge, and additional tables on quality of some rivers and lakes only used by OECD. Quantities of water abstracted, and used, capacity of waste water treatment plants, sludges produced, and emissions of chemicals, of which heavy metals from the sources industry, agriculture and human settlements.

Respondents: NSOs

Reporting frequency: every 24 months

Next reporting: it is expected at the end of 2016

The Oecd/Eurostat JQ_IW /2

Type of obligation: expected**.**

There is no specific legal base for this questionnaire: it is voluntary reporting (gentlemen's agreement), but there is an indirect obligation as EU countries have approved in Parliament and Council the 5y Statistical Programme and the annual work programmes.

Other clients using this reporting

European Commission, Directorate General Environment

European Environment Agency

UNECE Environment and Human Settlements Division

Organization for Economic Cooperation and Development

Food and Agriculture Organization

World Health Organization

United Nations Statistics Division


ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT
OECD
BETTER POLICIES FOR BETTER LIVES
Eurostat
STATISTICAL OFFICE OF THE EUROPEAN UNION
Environment Directorate
Direction de l'environnement
Directorate E: Sectoral and regional statistics
Environment Performance and Information Division
Unit E-3: Environment and forestry
Working Party on Environmental Information
Working Group "Statistics of the Environment" Sub-Group "Water Statistics"
2012
QUESTIONNAIRE
INLAND WATERS
12.12.2012

Participating countries/territories

EU + CC (Candidate Countries) + EFTA (European Free Trade Association) + neighbours (+ non European OECD)

Dissemination

The data, as far as validated by Eurostat, are publicly accessible on Eurostat's Database (theme "Environment and energy“). Eurostat also presents and explains selected water statistics on its Wikistyle Website "Statistics Explained" . Parts of the data are used for publications (Statistical Yearbook, Key Figures on Europe).

Istat

The Oecd/Eurostat JQ_IW /3

Principle repository: EDAMIS webform

Questionnaires Upgrading

The Questionnaires are regularly revised in order to adapt to changing needs, to improve the internal consistency of the Questionnaire, to clarify the variables requested, and to harmonise terminology with related definitions of European Union (EU) water Directives and other standards. The latest revision in 2014.

Prefilling

Eurostat made an effort to facilitate JQ-IW reporting by pre-filling questionnaires with information already available at EU level (EEA, Directives). However the exercise did not significantly increase response rates and proved to be very burdensome for Eurostat and the EEA. Eurostat intends to discontinue this pre-filling work.

Data coverage

Response rates vary a lot across countries/regions and for different topics

Data Check

In case of errors or anomalies countries could be requested to verify data transmitted

Definition

Most definitions are based on the ECE standard classification of water use (CES/636) and Systems of Water Statistics in the ECE Region (ECE/Water/43) and have been aligned with the IRWS and SEEA-W wherever appropriate.

Main purposes

The OECD/Eurostat Questionnaires on the State of the Environment

- ✓ Support the collection and harmonisation of national environmenatal data
- ✓ Encourage the updating and improving of environmental statistics
- ✓ Contribute to work of the European environmental policies

The JQ on Inland Waters

- ✓ Provide shared and standardised guidelines for the data production
- ✓ Produce structural indicators
- ✓ Produce indicators for sustainable development
- ✓ Produce indicators for water management
- ✓ Support economic analysis of the water industry and water account


ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT
OECD
BETTER POLICIES FOR BETTER LIVES

Eurostat
STATISTICAL OFFICE OF THE EUROPEAN UNION

Environment Directorate
Direction de l'environnement

Directorate E: Sectoral and regional statistics

Environment Performance and Information Division

Unit E-3: Environment and forestry

Working Party on Environmental Information

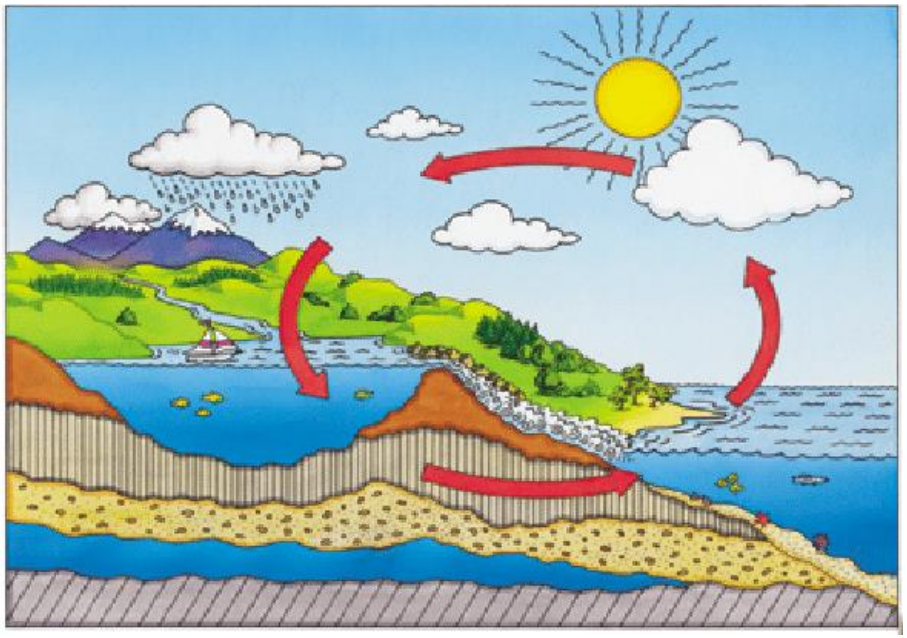
Working Group "Statistics of the Environment"
Sub-Group "Water Statistics"

2012
QUESTIONNAIRE

INLAND WATERS

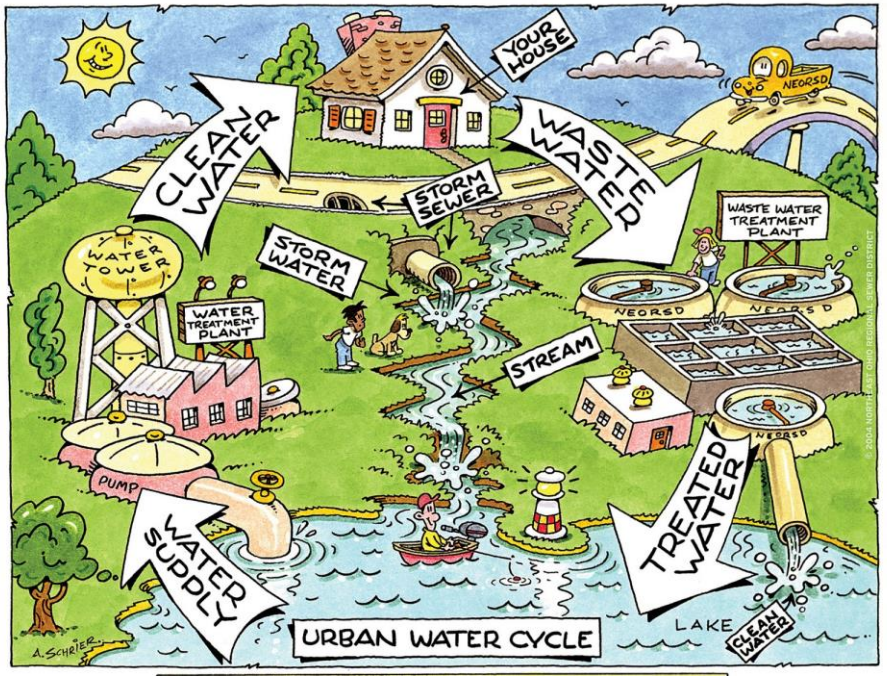
12.12.2012

JQ_IW: overall content



Water in the natural cycle

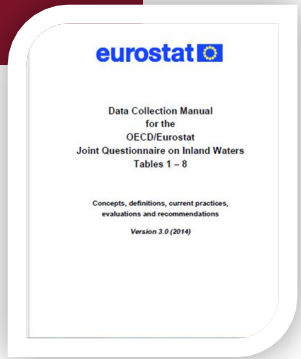
The big water cycle



Water in the humane cycle.

The small water cycle

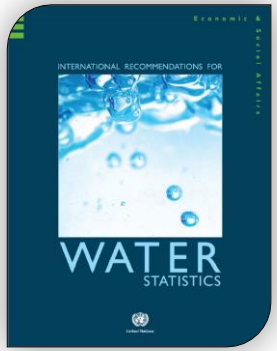
International standards and guidance



Data Collection Manual for the OECD/Eurostat Joint Questionnaire on Inland Waters

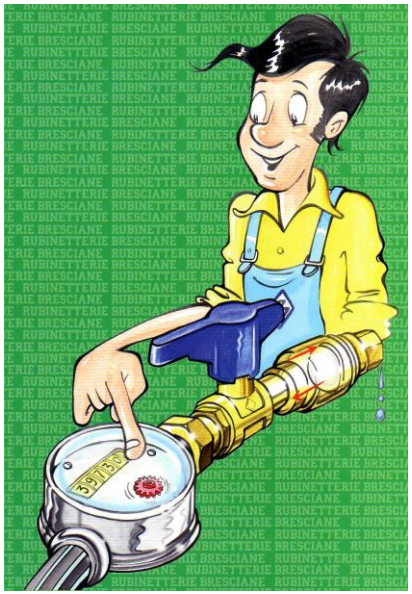
- A list of good practices and **standards** in collecting, estimating and compiling the data required by JQ-IW.
- A list of the internationally agreed **definitions** for WS.
- A comprehensive description of the **terminology** and **methodology** for WS.
- In continuous **revision** (the current new version 3.0 (2014) adapts the Manual to the latest changes in the JQ-IW)
- A support to those involved in the collection and processing of water-related data
- A contribute to harmonizing data collection practices and increasing international comparability of data.
- Annexes with some examples of general methods used for data collection in various countries. Data **examples on estimation coefficients** for nearly all Tables of the JQ-IW. As country-specific, estimation coefficients listed in the DCM are therefore merely supposed to give guidance for the determination of specific locally accurate coefficients and the orders of magnitude of such coefficients.

International Recommendations for WS (IRWS)



- to assist countries in the collection, compilation and dissemination
- Uses technical standards (ISO) and statistical classifications (ISIC, CPC)
- Links directly to OEECD, UNEP/UNSD, Eurostat and Fao data collections
- Provides the data foundation for SEEA-W

Data availability



As measurement and monitoring in the environment is costly, to reduce the cost, the monitoring system is often implemented to cover only a part, most often the most significant part for a parameter, and the rest is estimated. Or, in other cases, there is not a monitoring system.

When data cannot be directly measured, monitored or surveyed (in total or partially), they can be estimated on the basis of available data, estimation coefficient, models, tools.

Data can derive from a **measurement** or an **estimation** (total or partial)

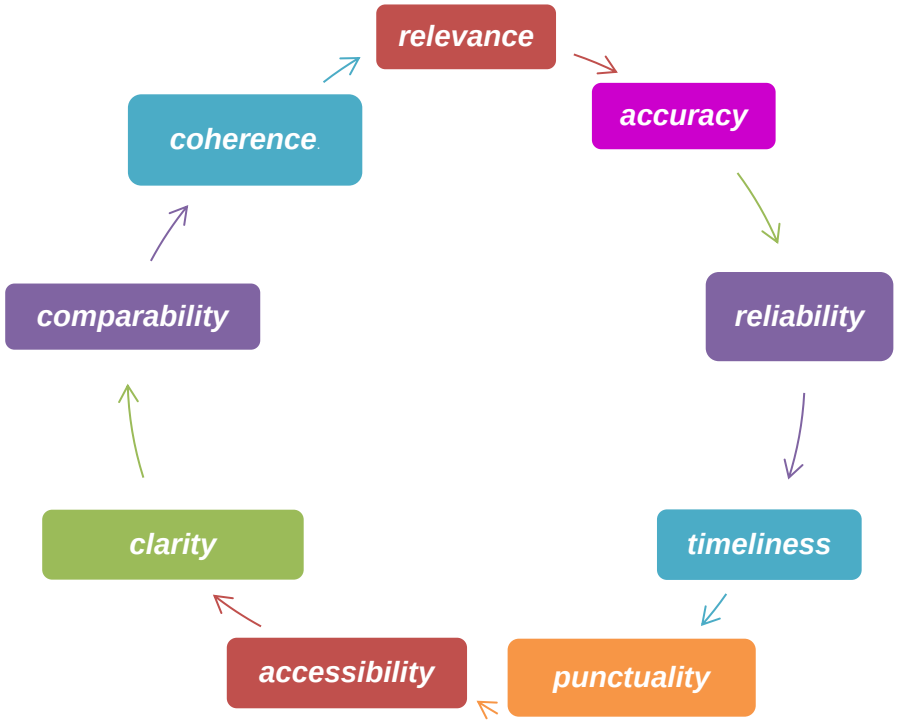
If data are **estimated** JQ-IW users have to indicate the estimation method in the footnotes, overall to avoid misleading comparison with other countries.

If an **incomplete data-set** is provided in the JQ-IW, it has to be highlighted that the given figure exclusively represents data from part of the national territory.

Istat

Data quality requested

Eurostat's mission is to be the leading provider of high-quality statistics on Europe. Accordingly, quality considerations play a central role with regard to Eurostat corporate management as well in the day-to-day statistical operations.



Standards flags, special values and rounding rules

Flags provide supplementary information about the statistical values; they are represented by a code (usually a letter) which is stored in a separate field and shown next to the actual value.

For example:
b: break in times
e: estimated
p: provisional
n: not significant

An **empty cell** indicates that the respective data are not available. In cases where either an information is not relevant (e.g. discharge to the sea for landlocked countries) or the estimate for the parameter value is zero indicate **0.**

Rules for rounding/number of digits

Correct rounding is recommended when reporting imprecise numerical data in tables for the following reasons:

- data from the JQ-IW on Inland Waters are frequently used for international comparison without the range of uncertainty indicated.
- trends and/or fluctuations in time series that are artificial should be avoided (because consecutive years differ only due to the uncertainty of the estimation method).

Reference period

In general, the JQ-IW refers to the calendar year. However, for water balance purposes, a hydrological year is commonly preferred, which helps to overcome problems of estimating storage in a snow cover or in the soil zone. In many countries, the hydrological year starts on October 1st, when soil and groundwater is often low and snow cover has not yet started to accumulate. JQ-IW users have to indicate whether the reported quantities refer to the calendar or to the hydrological year.

Long-term annual averages (LTAA)

Long-term annual averages (LTAA) are also asked for JQ-IW items. These should be based on annual values, averaged over a period of at least 30 consecutive years. It is recommended that the LTAA values are consistent with the annual values provided, using the same methods and basic data. It is requested to report the year-period considered in LTAA.

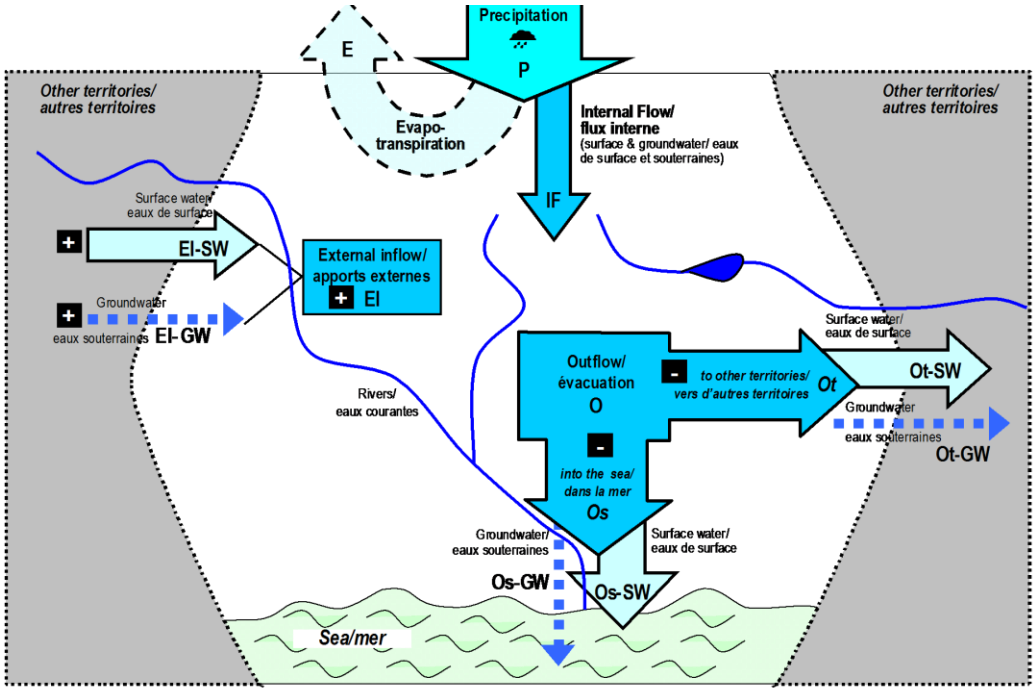
JQ-IW: tables list

TABLE 1: Renewable freshwater resources
TABLE 2: Annual freshwater abstraction by source and by sector
TABLE 3: Water made available for use
TABLE 4a+4b: Water use (26) by supply category and by sector
TABLE 5: Population connected to wastewater treatment plants
TABLE 6: Treatment capacity of wastewater treatment plants, in terms of BOD5
TABLE 7: Sewage sludge production and disposal) (in dry substance (d.s.))
TABLE 8: Generation and discharge of wastewater

JQ_Table 1 – Renewable freshwater resources

Table 1 of the JQ-IW aims at obtaining an overview of freshwater resources available on the national territory, and of the different flows of which they are composed (Internal flow and Actual external inflow). By definition, the concept of renewable resources excludes nonrenewable resources available from the potential use of water reserves (essentially groundwater).

Precipitations - P	1
Actual evapotranspiration - ET	2
Internal flow	3
Actual external inflow - EI	4
Total actual outflow - O	5
into the sea	6
into neighbouring territories	7
Total renewable freshwater resources	8
Recharge into the aquifer – R	9
Groundwater available for annual abstraction	10
Freshwater resources 95 per cent of time	11



JQ-IW Table 1: the importance

- Provide data needed to bring water availability in relation with water use → sustainabilty?
- Show the stock of freshwater resources available on the national territory and of the different flows, both inflow and outflow
- Allow a comparison between different countries
- Show national time series and trends

Renewable freshwater resources: an extract

TABLE 1: Renewable freshwater resources (mio m³) (note 1a)

Theme :08.2 - Provide quality environmental statistics
Domain :ENVJQWTR
Dataset :ENVJQWTR_TABLE1_A
Year :2013 Reference period :A Country :IT Status :Transfered

	2005-Annual	2006-Annual	2007-Annual	2008-Annual	2009-Annual	2010-Annual	2011-Annual	2012-Annual	2013-Annual
Precipitation (Def.1)	250316.0	201418.1	194680.0	262289.8	272025.8	306883.1			
Actual evapotranspiration (b) (Def.2)	148898.3	145159.6	146305.5	150447.8	148425.1	155688.3			
Internal Flow (Def. 3) (note 1b)	101417.7	56258.5	48374.5	111842.0	123600.7	151194.8	0.0	0.0	0.0
Actual external inflow (c) (Def.4)	17476.2	19763.2	24076.0	22858.5	32611.4	30196.3			
Total actual outflow (c) (Def.5)	118974.0	76118.7	72550.1	134774.9	156314.2	181494.6			
into the sea (Def.6)	118676.8	75855.3	72268.3	134302.5	155970.0	181100.7			
into neighbouring territories (Def. 7)	297.3	263.4	281.8	472.4	344.2	393.9			
TOTAL RENEWABLE FRESHWATER RESOURCES (Def.8)	118893.9	76021.7	72450.5	134700.5	156212.1	181391.1	0.0	0.0	0.0
Recharge into the Aquifer (Def.9)	63829.9	33483.8	36225.5	69034.2	77445.2	87664.9			
Groundwater available for annual abstraction (Def. 10)	51063.9	26787.1	28980.4	55227.4	61956.2	70131.9			
Freshwater resources 95 % of years, LTAA (Def. 11)									

Freshwater availability in a country is determined by climate conditions, geomorphology, land uses and transboundary water flows (in other words, external flows). A number of countries receive a significant proportion of their freshwater resources as external inflow

Freshwater resources in EU countries – absolute values

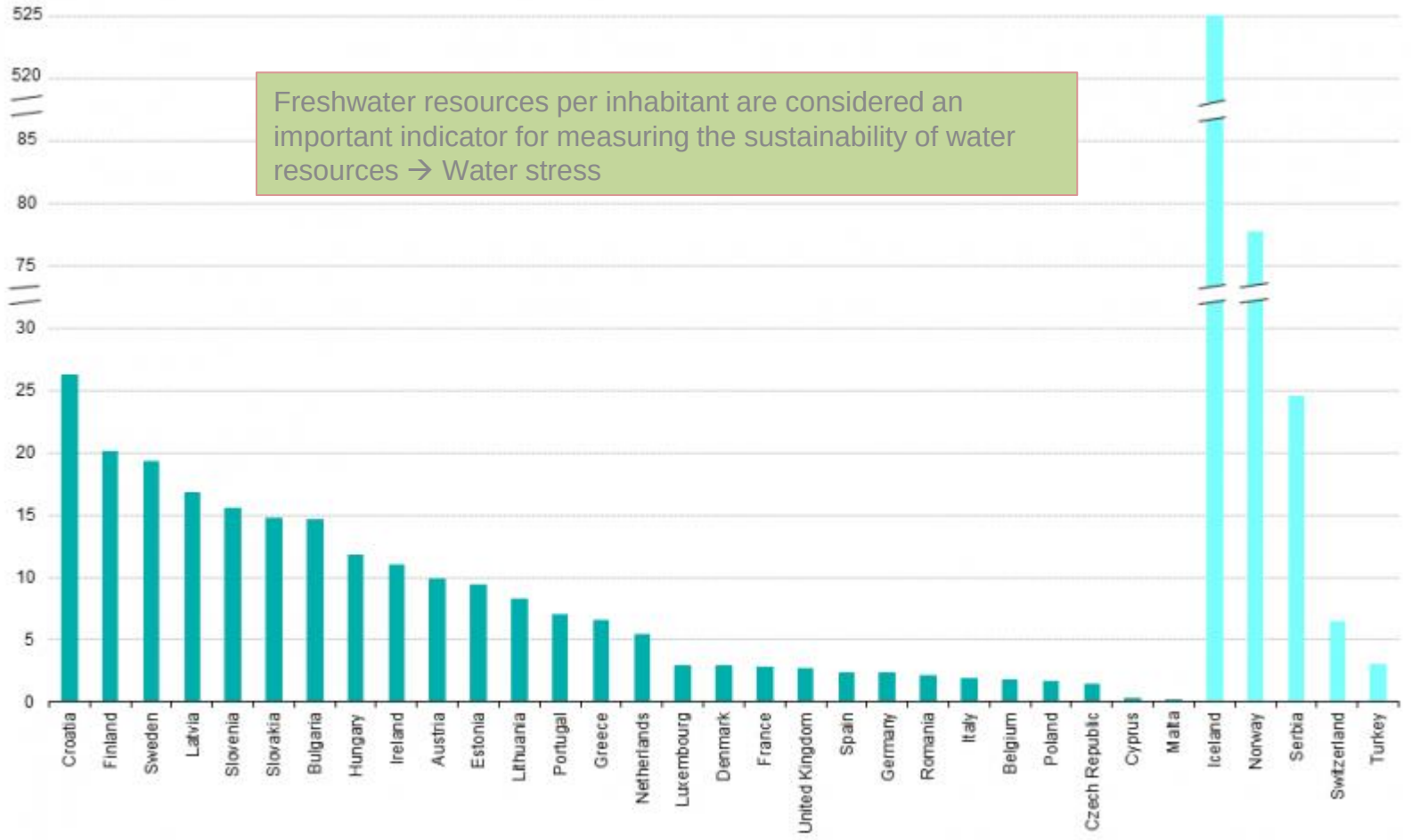
long-term annual average (billion m³)

	A. Precipitation	B. Evapotranspiration	C. Internal flow (C. = A.–B.)	D. External inflow	E. Freshwater resources (E. = C.+D.)	Outflow
Belgium	28.9	16.6	12.3	7.6	19.9	15.6
Bulgaria	69.9	52.3	17.6	89.1	106.7	108.0
Czech Republic	54.7	39.4	15.2	0.7	16.0	16.0
Denmark	38.5	22.1	16.3	*0.0*	16.3	1.9
Germany	307.0	190.0	117.0	75.0	188.0	182.0
Estonia	29.0	:	12.3	:	12.3	:
Ireland	80.0	32.5	47.5	3.5	51.0	:
Greece	115.0	55.0	60.0	12.0	72.0	:
Spain	346.5	235.4	111.1	0.0	111.1	111.1
France	500.8	320.8	180.0	11.0	186.3	168.0
Croatia	65.7	39.6	26.1	85.6	111.7	111.7
Italy	241.1	155.8	85.3	30.5	115.8	115.9
Cyprus	3.0	2.7	0.3	0.0	0.3	0.1
Latvia	42.7	25.8	16.9	16.8	33.7	32.9
Lithuania	44.0	28.5	15.5	9.0	24.5	25.9
Luxembourg	2.0	1.1	0.9	0.7	1.6	1.6
Hungary	55.7	48.2	7.5	108.9	116.4	115.7
Malta	0.2	0.1	0.1	0.0	0.1	0.1
Netherlands	31.6	21.3	10.3	81.5	91.8	90.9
Austria	98.0	43.0	55.0	29.0	84.0	84.0
Poland	193.1	138.3	54.8	8.3	63.1	63.1
Portugal	82.2	43.6	38.6	35.0	73.6	34.0
Romania	154.0	114.6	39.4	2.9	42.3	17.9
Slovenia	31.7	13.1	18.6	13.5	32.1	32.3
Slovakia	37.4	24.3	13.1	67.3	80.3	81.7
Finland	222.0	115.0	107.0	3.2	110.0	110.0
Sweden	342.2	169.9	172.6	13.6	186.2	186.2
United Kingdom	287.6	127.3	161.4	6.5	172.9	171.0
Iceland	200.0	30.0	170.0	0.0	170.0	170.0
Norway	470.7	112.0	380.7	12.3	393.0	393.0
Switzerland	61.2	21.4	39.8	12.6	52.4	53.1
FYR of Macedonia	19.5	:	:	1.0	:	6.3
Serbia	56.1	43.3	12.8	162.6	175.4	175.4
Turkey	503.1	275.7	227.4	6.9	234.3	178.0

(') The minimum period taken into account for the calculation of long term annual averages is 20 years.
Source: Eurostat (online data code: env_wat_res)

Freshwater resources in EU countries – per inhabitant

long-term average (1 000 m³ per inhabitant)



Freshwater resources per inhabitant are considered an important indicator for measuring the sustainability of water resources → Water stress

(*) The minimum period taken into account for the calculation of long term annual averages is 20 years.
Source: Eurostat (online data code: env_wat_res)

Istat

Water resources: A map of the long-term annual average

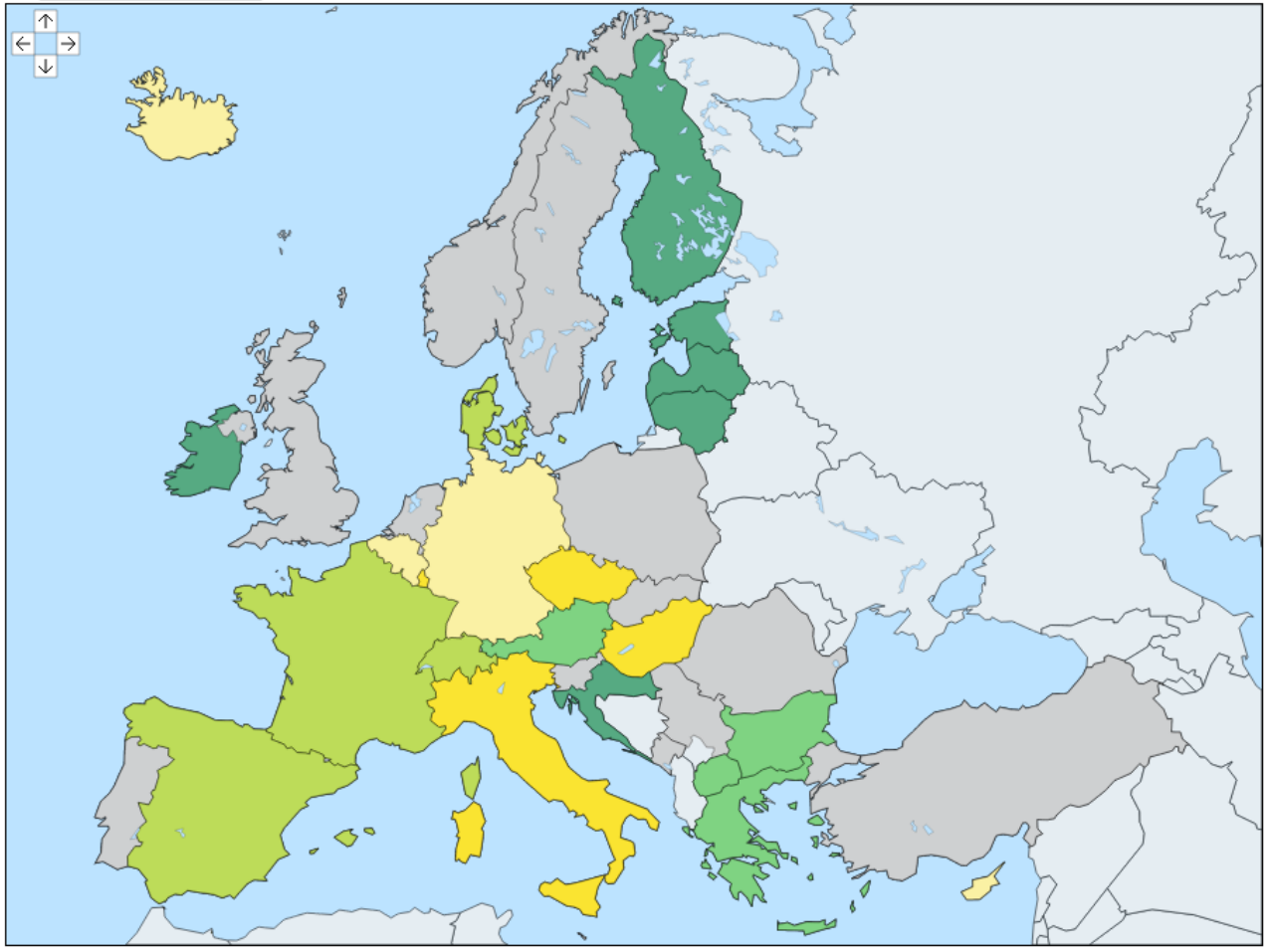
eurostat

Table ▾ Graph ▾ Map ▾

Water resources: long-term annual average

The minimum period taken into account for the calculation of **long term annual** ... more

unit Cubic metres per inhabitant ▾



Click on map to:
Recenter Zoom In/Recenter Zoom Out/Recenter

Data for Precipitation

Legend			Cases
	621.39 to	3,742.96	4
	3,742.96 to	5,621.97	4
	5,621.97 to	7,638.27	4
	7,638.27 to	11,595.08	4
	11,595.08 to	40,909.04	6
	Data not available		16

Minimum value: 621.39
Maximum value: 40,909.04

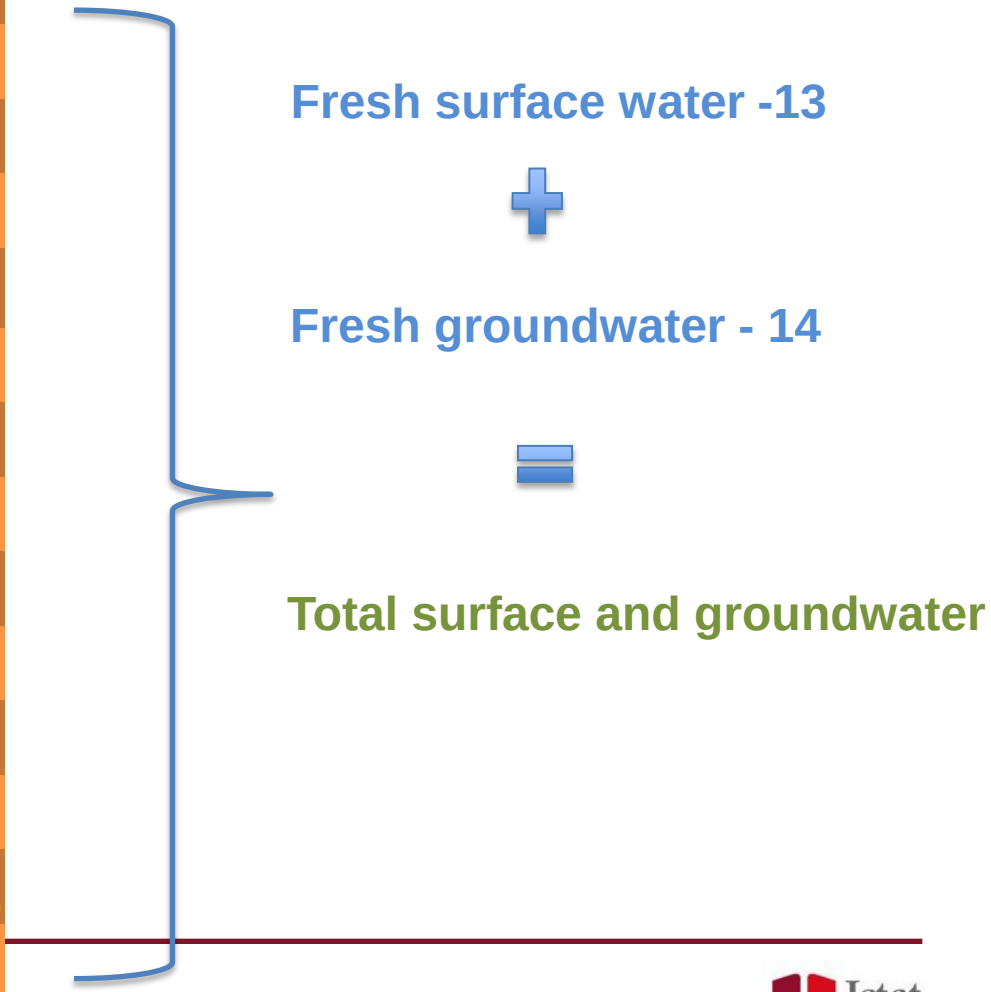
: = not available
d = definition differs (see metadata)
e = estimated

Istat

JQ Table 2: Annual freshwater abstraction by source and sector

Table 2 of the JQ-IW seeks to establish the volumes of water abstracted by countries from freshwater resources (surface and groundwater) for different sectors of water use. The aim is to identify the principal sources, establish the proportion of the available freshwater and other resources abstracted and quantify the distribution of water between use sectors. The table provides main components for water use balance.

Total gross abstraction	15
Public water supply	16
Agriculture, forestry, fishing	
Irrigation	17
Aquaculture	18
Mining and quarrying	
Manufacturing industry	
Cooling in manufacturing industry	19
Cooling in electricity production	19
Construction	
Services	
Private households	
Water returned without use	20
Net freshwareter abstraction	21



Istat

Annual freshwater abstraction by source and sector: an extract

TABLE 2: Annual freshwater abstraction by source and by sector (mio m³)

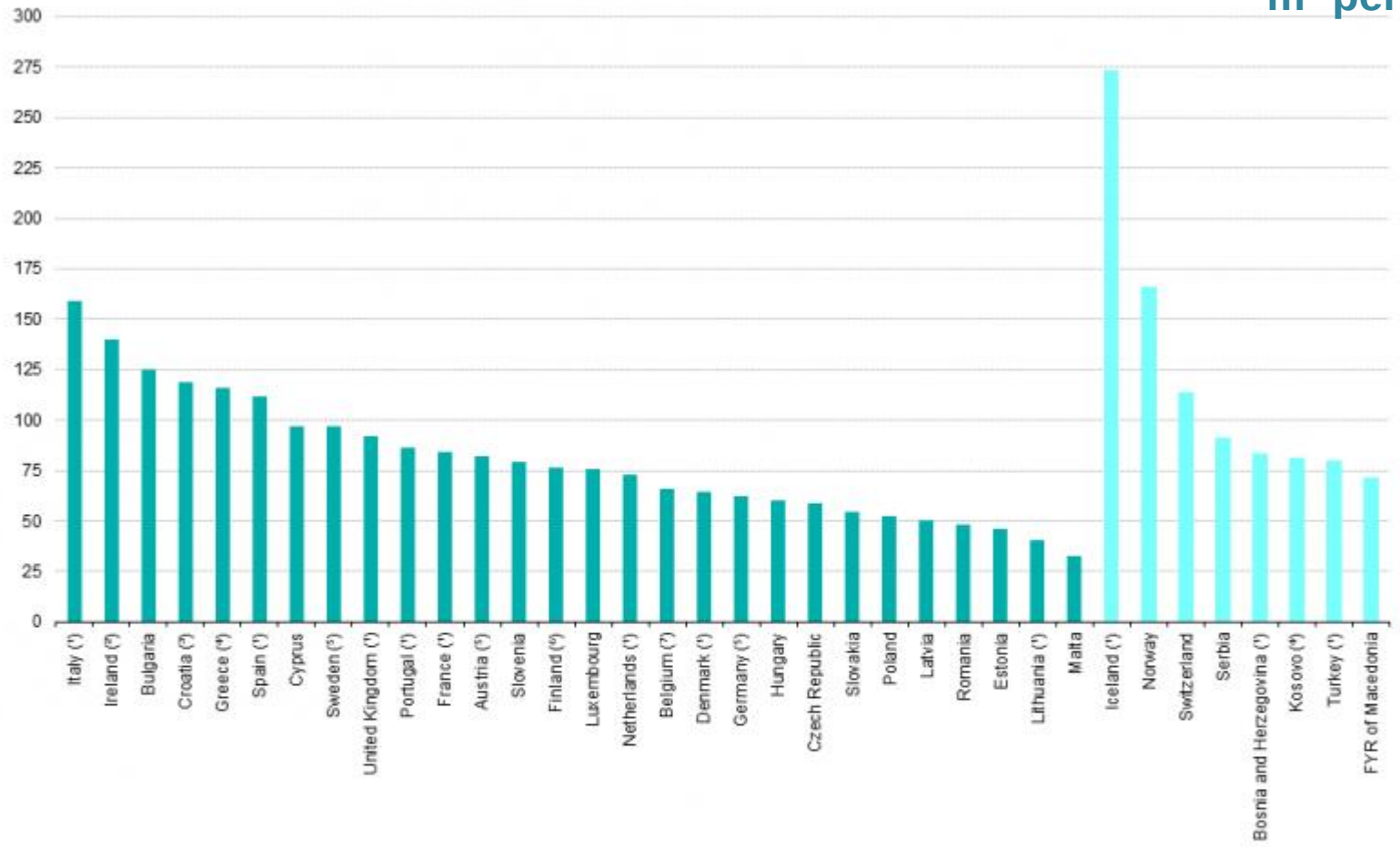
Theme :08.2 - Provide quality environmental statistics
Domain :ENVJQWTR
Dataset :ENVJQWTR_TABLE2_A
Year :2013 Reference period :A Country :IT Status :Transfered

	2005-Annual	2006-Annual	2007-Annual	2008-Annual	2009-Annual	2010-Annual	2011-Annual	2012-Annual	2013-Annual
1. Fresh surface water (Def.13) Total gross abstraction (Def.15) (note2a) (Nace 01-99)									
Public water supply (Def.16)	1227.49			1301.40				1427.40	
Agriculture, forestry, fishing (Nace 01-03)									
- Irrigation (Def.17)									
- Aquaculture (Def.18)									
Mining and quarrying (Nace 05-09)									
Manufacturing industry (Nace 10-33)									
Cooling (Def.19) in manufacturing industry									
Cooling (Def.19) in electricity production (Nace 35.11-35.13)									
Construction									
Services (note2b) (Nace 45-96)									
Private households (note2b)									
2. Fresh groundwater (Def.14) Total gross abstraction (Def.15) (note2a) (Nace 01-99)									
Public water supply (Def.16)	7714.75			7793.29				8023.31	
Agriculture, forestry, fishing (Nace 01-03)									
- Irrigation (Def.17)									
- Aquaculture (Def.18)									
Mining and quarrying (Nace 05-09)									
Manufacturing industry (Nace 10-33)									

Istat

Total freshwater abstraction by public water supply in EU countries

m³ per inhabitant



(1) 2012.
(2) 2007.
(3) Provisional.
(4) 2011.
(5) 2010.
(6) Estimate.
(7) 2009.
Source: Eurostat (online data code: env_wat_abs)

Istat

JQ Table 3: Water made available for use

Table 3 – Water made available for use, seeks to establish the volumes of water made available for use, in principle from other sources of water: non-freshwater sources (seawater and transitional water, such as brackish water), desalinated water and reused water.

Non fresh water sources 22(Marine and brackish water) Total gross abstraction (Nace 01-99) 15	Irrigation in agriculture, forestry (Nace 01-02)
Agriculture, forestry, fishing (Nace 01-03)	Manufacturing industry (Nace10-33)
Irrigation 17	Imports of water - total 25
Aquaculture 18	Exports of water- total 30
Manufacturing industry (Nace 10-33)	Non renewable groundwater, Total 14
Cooling in manufacturing industry 19	Total water made available for use
Cooling in electricity production (Nace 35.11-35.13) 19	Losses during transport TOTAL 27
Services (Nace 45-96)	Evaporation losses
Desalinated water- Total 23	Leakage
Public water supply 16	Memorandum items for water abstraction:
Reused water - Total 24	Abstraction from artificial reservoirs
	Water abstraction for purposes of hydroelectricity generation

Istat

JQ Table 4: Annual water use by supply category and by sector

Table 4 of the JQ-IW seeks to distinguish water used within usage sectors by supply category, and with a separate breakdown for manufacturing industries. The table provides main components for water use balance.

TOTAL	
Agriculture, forestry, fishing (Nace 01-03)	
All industrial activities : (Nace 05-43)	
Mining and quarrying (Nace 05-09)	
Manufacturing industry (Nace 10-33)	
Cooling (Def.19) in manufacturing industry	19
Food processing industry (Nace 10-11)	
Basic metals (Nace 24)	
Motor vehicles and transport equipment (Nace 29-30)	
Textiles, etc.. (Nace 13-15)	
Paper and paper products (Nace 17)	
Chemicals, refined petroleum, etc. (Nace 19-21)	
Other manufacturing industry n.e.c.	
Production and distribution of electricity (Nace 35.11-35.13)	
Cooling in electricity production (Nace 35.11-35.13)	19
Construction (Nace 41-43)	
Services (Nace 45 - 96)	
Private households	
Memorandum item	
Population connected to public water supply (%)	

Public water supply - TOTAL (Nace 01-99) 16

Self and other supply - TOTAL (Nace 01-99) 28-29

Istat

JQ Table 5: Population connected to WWTP

Table 5 aims at describing the connection rates of the resident population, to the different possible sewer networks and associated types of treatment plants. It provides service parameters and indirectly gives information on quantitative aspects and apportionment of the main flows originating from the population within a territory.

Percentage of resident population	
Connected to urban wastewater collecting system	45
Connected to a wastewater treatment plant (WWTP)	34,36, 44
Primary treatment	40
Secondary treatment	41
Tertiary treatment	42
Unspecified treatment	
Not connected to a WWTP (without treatment)	
Independent wastewater treatment	46
with at least secondary treatment	41
Total connected to wastewater treatment	
Memorandum items	
National resident population whose wastewater is transported from independent storage tanks to wastewater treatment plants by means of trucks (%)	
National resident population covered in the response if different from the total (in Thousand)	35
Population living in agglomerations of less than 2000 p.e. (in Thousand)	

Share of the population connected to at least secondary UWWTP

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Belgium	51.4	53.2	*54.4*	*57.4*	68.7	71.0	72.8	75.0	77.0	82.0	84.0
Bulgaria	37.9	38.0	38.3	38.8	39.7	41.4	42.7	45.1	53.6	53.9	54.5
Czech Republic	70.6	70.8	72.8	71.9	73.0	75.4	75.7	76.9	78.0	78.0	79.8
Denmark	:	:	:	:	:	:	89.4	88.0	88.4	88.4	90.1
Germany	:	93.8	97.3	:	91.9	:	:	95.3	:	:	:
Estonia	70.0	71.0	73.0	73.0	73.5	79.5	79.5	78.3	81.1	81.2	82.1
Ireland	:	:	:	:	:	:	:	:	:	:	:
Greece	:	:	:	:	85.0	:	87.3	87.3	88.1	92.0	:
Spain	:	:	:	88.0	:	88.0	:	93.0	:	94.8	:
France	:	79.5	:	:	:	:	:	:	56.1	*56.1*	*55.4*
Croatia	:	:	:	:	:	:	:	:	27.0	:	:
Italy	:	:	93.6	:	:	:	83.0	:	:	:	:
Cyprus	22.9	28.4	29.8	:	:	:	:	:	:	:	:
Latvia	68.3	64.3	63.8	62.9	60.9	54.3	60.9	58.1	63.9	66.0	67.2
Lithuania	27.6	:	:	:	:	:	:	:	:	63.1	:
Luxembourg	88.1	:	:	:	:	:	:	91.3	90.9	96.1	96.3
Hungary	38.9	40.2	*41.7*	*45.3*	*49.8*	*50.0*	*52.1*	*69.5*	*71.1*	*72.8*	*72.6*
Malta	16.1	13.3	*13.2*	*9.3*	*8.4*	*14.8*	*15.2*	6.6	*93.2*	*93.1*	*92.9*
Netherlands	98.6	98.9	99.0	99.1	:	99.3	:	99.4	:	99.4	:
Austria	:	88.9	:	:	:	*92.6*	:	*93.9*	:	94.5	:
Poland	55.5	56.8	58.1	60.7	61.8	62.9	64.1	64.5	65.5	68.5	70.2
Portugal	32.0	:	42.6	37.0	51.0	52.0	55.8	:	:	:	:
Romania	:	*16.9*	16.9	:	:	:	:	22.0	31.0	32.7	35.5
Slovenia	19.9	29.3	32.1	47.6	48.8	51.1	52.9	52.5	54.0	54.2	54.9
Slovakia	:	:	:	:	:	:	:	:	:	:	:
Finland	:	:	:	:	:	:	:	83.0	*83.0*	*83.0*	*83.0*
Sweden	86.0	86.0	86.0	86.0	86.0	86.0	86.0	86.0	86.0	87.0	87.0
United Kingdom	:	:	:	:	:	96.9	97.0	99.5	:	:	:
Iceland	1.0	1.0	2.0	:	:	2.0	:	:	:	:	:
Norway	55.4	56.2	58.0	58.6	58.5	58.8	59.3	59.2	61.4	62.6	62.6
Switzerland	:	:	:	:	:	:	:	:	:	:	*98.0*
Albania	:	:	:	:	:	:	:	4.7	4.7	7.4	*22.0*
Serbia	5.4	5.8	6.4	6.9	6.9	7.5	8.9	8.6	8.9	9.0	9.4
Turkey	21.1	24.8	:	:	31.1	31.4	35.2	37.6	:	42.0	:
Bosnia and Herzegovina	1.5	1.5	1.5	1.6	1.6	1.7	1.7	1.7	1.8	1.8	1.8
Kosovo	:	:	:	:	:	:	:	:	0.6	0.6	0.6

Source: Eurostat (online data code: env_ww_con)

Istat

JQ Table 6: Treatment capacity of WWTP in terms of BOD5

Table 6 is focused on wastewater treatment. It aims at describing the number, capacity and effectiveness of urban wastewater treatment plants and other WWTPs, both focused on one main parameter: the organic pollution of all the wastewater treatment facilities in a country, whatever the origin of wastewater, the type of collecting system, or the size of the plant.

URBAN WASTEWATER TREATMENT / OTHER WASTEWATER TREATMENT Total treatment	**36**
Plants	
Design capacity BOD5	47
Incoming load BOD5	
Effluent BOD5	
Primary treatment / Secondary treatment	**40/41**
Plants	
Design capacity BOD5	
Incoming load BOD5	
Effluent BOD5	
Tertiary treatment (Def.42) : Total	**42**
Plants	
Design capacity BOD5 (Def.47)	
Incoming load BOD5	
Effluent BOD5	
Tertiary treatment : Nitrogen removal / Phosporus removal	**48/49**
Plants	
Design capacity BOD5 (Def.47)	
Incoming load BOD5	
Effluent BOD5	
OTHER WASTEWATER TREATMENT - Total treatment (same breakdown than for 'Urban wastewater treatment' excluding 'Nitrogen' and 'Phosphorus')	**44**

JQ Table 7: Sewage sludge production and disposal

Table 7 aims at collecting data on quantities of sludge generated from treatment of wastewater from urban WWTPs and other WWTPs and the quantities of sludge going to the different disposal pathways.

URBAN WASTEWATER TREATMENT	36
Total sludge production	
Total sludge disposal	
Agricultural use	
Compost and other applications	
Landfill	
Dumping at sea	
Incineration	
Others, please specify	
OTHER WASTEWATER TREATMENT	**44**
Total sludge production	
Total sludge disposal	
Agricultural use	
Compost and other applications	
Landfill	
Dumping at sea	
Incineration	
Others, please specify	

(IN DRY SUBSTANCE (D.S.))
(1,000 tonnes)

Istat

JQ Table 8: Generation and discharge of wastewater

Table 8 has two main parts. The first part aims at building an exhaustive inventory of the quantities of pollution produced by all anthropogenic sources for eight main parameters. The second part is focused on the main groups of point sources which are: urban wastewater treated or not, industrial wastewater treated or not, and agricultural wastewater (including forestry and fishery) direct discharges. This part aims to treat the quantities of the same eight parameters and their discharges in the receiving water.

GENERATION OF WASTEWATER	33
POINT SOURCES - Total	
Agriculture, forestry, fishing	
Industry, total	
Mining and quarrying	
Manufacturing industry	
Food-processing industry	
Basic metals	
Motor vehicles and transport equipment	
Textiles	
Paper and paper products	
Chemical products and refined petroleum	
Production and distribution of electricity	
(excluding cooling water)	
Construction	
Domestic sector – total	
Services	
Private households	
NON-POINT SOURCES	
ALL SOURCES	

Volume – mio M3

BOD - Tonnes O2/day

COD - Tonnes O2/day

Suspended Solids - Tonnes/day

N-tot - Tonnes/day

P-tot - Tonnes/day

Cu – Tonnes

Zn - Tonnes

Istat

JQ Table 8: Generation and discharge of wastewater

Table 8 has two main parts. The first part aims at building an exhaustive inventory of the quantities of pollution produced by all anthropogenic sources for eight main parameters. The second part is focused on the main groups of point sources which are: urban wastewater treated or not, industrial wastewater treated or not, and agricultural wastewater (including forestry and fishery) direct discharges. This part aims to treat the quantities of the same eight parameters and their discharges in the receiving water.

TREATMENT AND DISCHARGE OF WASTEWATER	38
1 . Urban wastewater Total generated	
Treated in WWTPs 36,44 - Total inflow 34	
Discharged – Total	52
Discharged after treatment in WWTPs	
Discharged after independent treatment	46
Discharged without treatment	
2 . Industrial wastewater Total generated	39
Treated in 'Other' WWTPs – Total inflow	34,44
Discharged – Total	52
Discharged after treatment in 'other' WWTPs	
Discharged without treatment	
Total discharges of WWTP's (urban and other)	**36,44**
3. Agricultural wastewater incl. forestry +fisheries -direct discharges	
Total discharges to Inland waters	52
Total discharges to the sea	52

Volume – mio M3

BOD - Tonnes O2/day

COD - Tonnes O2/day

Suspended Solids - Tonnes/day

N-tot - Tonnes/day

P-tot - Tonnes/day

Cu – Tonnes

Zn - Tonnes

Istat

JQ Summary Table : Water use balance

This summary table is included in the JQ-IW to bring together the different information that is intended to be collected by the JQ-IW. Only three parameters, not available from the others tables, are collected: losses during use, cooling water discharged to inland waters and cooling water discharged to marine waters.

Losses during use, total
Total cooling water discharged
Discharged to inland waters
Discharged to marine waters

STATISTICAL OFFICE OF THE
EUROPEAN UNION

OFFICE STATISTIQUE DE
L'UNION EUROPÉENNE

Directorate E: Sectoral and regional statistics
Direction E: Statistiques régionales et sectorielles

Unit E-3: Environmental and Forestry Statistics
Unité E-3 : Statistiques sur l'Environnement et les Forêts

Regional Environmental Statistics
Statistiques regionales de l'Environnement

2012
QUESTIONNAIRE

REGIONAL ENVIRONMENTAL DATA COLLECTION "INLAND WATER"

Istat

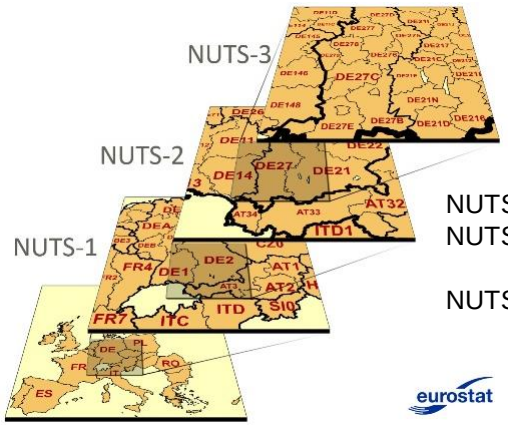
Regional Statistics, which?

The EU Water Framework Directive (WFD), designed to protect European waters, achieve good ecological status and enable sustainable use, stipulates that *water must be managed at river basin level*, a natural geographical and hydrological unit. EU Member States have been encouraged to identify their river basins and to propose management plans for protecting all of their water bodies (including surface waters and groundwater)

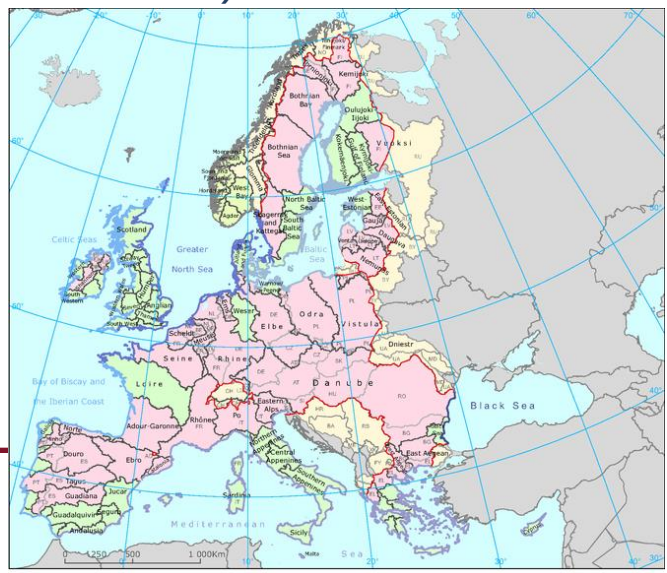
NUT2 and RBD

The regional environmental questionnaire treats two types of subnational statistics:

- regional breakdown, generally provided at the NUTS 2 level (although some EU Member States provided data at the NUTS 1 level).
- river basin districts.



NUTS 1: major socio-economic regions
NUTS 2: basic regions for the application of regional policies
NUTS 3: small regions for specific diagnoses



REQ tables

TABLE 1: Renewable freshwater resources (mio m^3)

TABLE 2: Total gross water abstraction and water losses by source

TABLE 3: Water use (mio m^3)

TABLE 4: Population connected to wastewater treatment (%)

TABLE 5: Treatment capacity of wastewater treatment plants

TABLE 6: Generation and discharge of wastewater

Territorial detail

Tables

Principle repository:
EDAMIS webform

Last reporting:
REQ 2014

In addition

TABLE 2.1 - Generation and treatment of municipal waste

TABLE 2.2 - Coverage of municipal waste collection - %

TABLE 3 – Land use

Table 4. ENERGY - Final consumption of energy

TABLE 5. TRANSPORT - Individual and public transport

Istat

TABLE 1: Renewable freshwater resources (mio m³)

		2005-Annual	2006-Annual	2007-Annual	2011-Annual	2012-Annual	2013-Annual
Eastern Alps	Precipitation (Def.1)	33668.48	26225.09	28199.87			
	Actual evapotranspiration (note 1b) (Def.2)	20842.12	19227.79	21144.23			
	Internal Flow (Def.3)	12826.36	6997.29	7055.64			
	Actual external inflow (note 1c) (Def.4)	2843.02	3248.21	2856.7			
	Total actual outflow (note 1c) (Def.5)	15669.38	10245.51	9912.34			
	TOTAL RENEWABLE FRESHWATER RESOURCES (Def.8)	15669.38	10245.51	9912.34			
	Recharge into the Aquifer (Def.9)	9680.77	5318.67	5865.48			
	Groundwater available for annual abstraction (Def.10)	7744.61	4254.94	4692.38			
	Total exploitable volume of reservoirs (note 1d)						
Po Basin (IT)	Precipitation (Def.1)	51473.45	44837.99	42929.92			
	Actual evapotranspiration (note 1b) (Def.2)	35924.58	31852.49	37799.52			
	Internal Flow (Def.3)	15548.88	12985.51	5130.4			
	Actual external inflow (note 1c) (Def.4)	14120.8	16043.08	20778.23			
	Total actual outflow (note 1c) (Def.5)	29669.7	29028.6	25908.6			
	TOTAL RENEWABLE FRESHWATER RESOURCES (Def.8)	29669.67	29028.59	25908.63			
	Recharge into the Aquifer (Def.9)	6011.65	3332.41	2590.16			
	Groundwater available for annual abstraction (Def.10)	4809.32	2665.93	2072.13			
	Total exploitable volume of reservoirs (note 1d)						
Northern Appenines	Precipitation (Def.1)	32373.69	24667.21	22571.72			
	Actual evapotranspiration (note 1b) (Def.2)	19142.42	18020.55	17980.23			
	Internal Flow (Def.3)	13231.27	6646.67	4591.49			
	Actual external inflow (note 1c) (Def.4)	1363.48	471.87	441.05			
	Total actual outflow (note 1c) (Def.5)	14594.75	6207.36	4724.69			
	TOTAL RENEWABLE FRESHWATER RESOURCES (Def.8)	14594.75	7118.54	5032.53			
	Recharge into the Aquifer (Def.9)	7642.24	2841.9	2536.23			

Corresponding to JQ-IW Table 1

Istat

TABLE 2: Total gross water abstraction and water losses by source

		2005-Annual			2006-Annual			2007-Annual			2012-Annual			2013-Ann	
Eastern Alps	1. Fresh surface water (Def.13) Total gross abstraction (Def.15) (Nace 01-99)														
	Public water supply (Def.16)	68.41													
	Irrigation in agriculture														
	Cooling in electricity production (Def.19) (Nace 35.11-35.13)														
	2. Fresh groundwater (Def.14) Total gross abstraction (Def.15) (Nace 01-99)														
	Public water supply (Def.16)	994.15													
	Irrigation in agriculture														
	Non fresh water sources (Def.22) (Marine and brackish water) Total gross abstraction (Nace 01-99)														
	Desalinated water (Def.23) - Total														
	Reused water (Def.24) - Total														
	Water transferred from other regions (imports)														
	Water transferred to other regions (exports)														
	Losses during transport (Def.27) TOTAL														
	Evaporation losses														
	Leakage														
Po Basin (IT)	1. Fresh surface water (Def.13) Total gross abstraction (Def.15) (Nace 01-99)														
	Public water supply (Def.16)	187.19													
	Irrigation in agriculture														
	Cooling in electricity production (Def.19) (Nace 35.11-35.13)														
	2. Fresh groundwater (Def.14) Total gross abstraction (Def.15) (Nace 01-99)														
	Public water supply (Def.16)	2273.12													
	Irrigation in agriculture														
	Non fresh water sources (Def.22) (Marine and brackish water) Total gross abstraction (Nace 01-99)														
	Desalinated water (Def.23) - Total														
	Reused water (Def.24) - Total														

Corresponding to JQ-IW Table 2

Istat

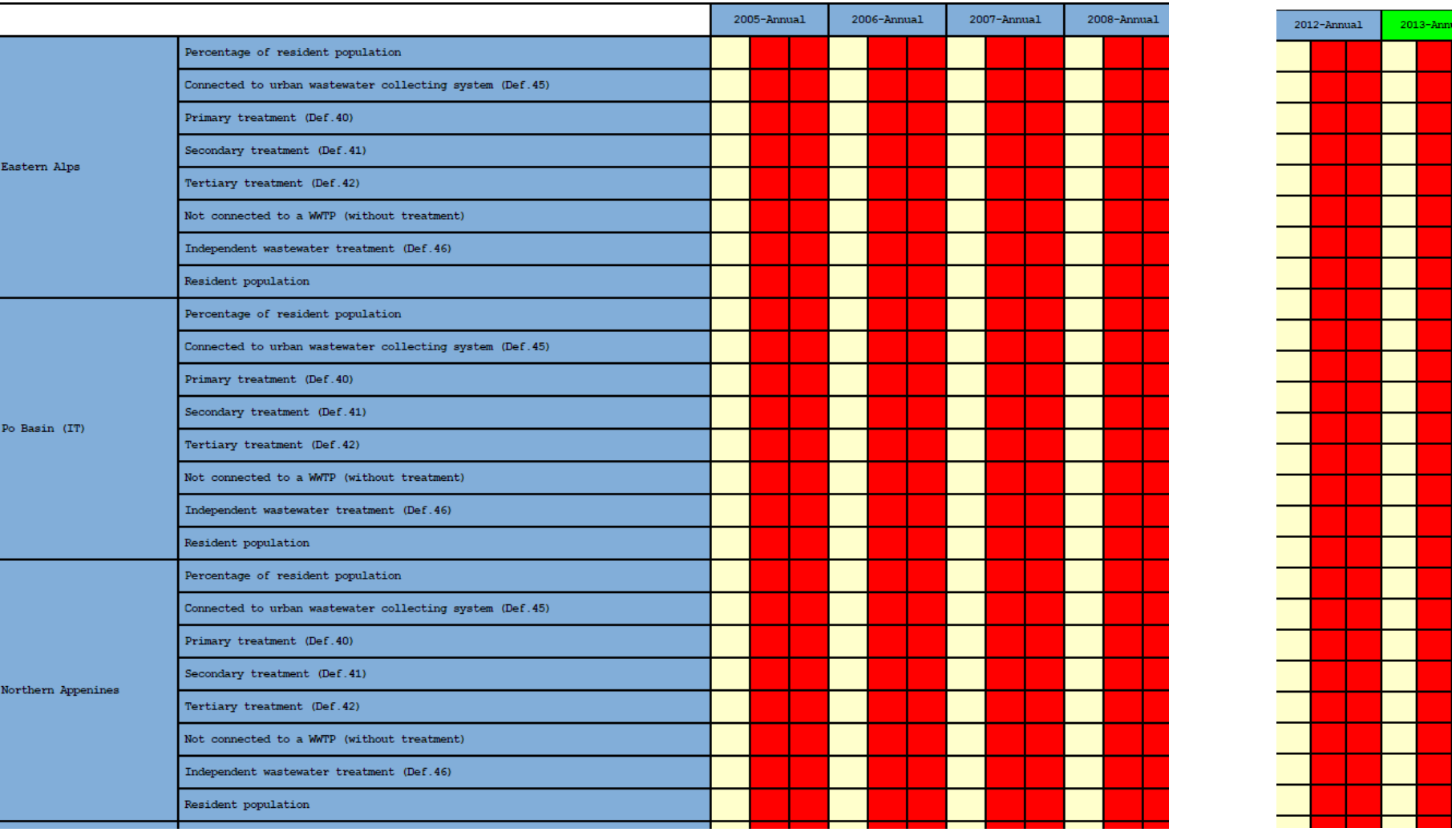
TABLE 3: Water use (mio m³)

		2005-Annual	2006-Annual	2007-Annual	2008-Annual	2012-Annual	2013-Ann
Piemonte	Public water supply (Def.16) - TOTAL (Nace 01-99)	396.82			398.28		
	Agriculture, forestry, fishing (Nace 01-03)						
	of which : for irrigation						
	All industrial activities : (Nace 05-43)						
	Mining and quarrying (Nace 05-09)						
	Manufacturing industry (Nace 10-33)						
	Food processing industry (Nace 10-11)						
	Basic metals (Nace 24)						
	Motor vehicles and transport equipment (Nace 29-30)						
	Textiles, etc.. (Nace 13-15)						
	Paper and paper products (Nace 17)						
	Chemicals, refined petroleum, etc. (Nace 19-21)						
	Other manufacturing industry n.e.c.						
	Electric power generation, transmission and distribution (Nace 35.11 - 35.13)						
	Cooling in electricity production (Def.19) (Nace 35.11-35.13)						
	Construction (Nace 41-43)						
	Services (Nace 45 - 96)						
	Private households						
	Population connected to public water supply (%)						

Corresponding to JQ-IW Table 4

Istat

TABLE 4: Population connected to wastewater treatment (%)



Corresponding to JQ-IW Table 5

Istat

TABLE 5: Treatment capacity of wastewater treatment plants

		2005-Annual	2006-Annual	2007-Annual	2008-Annual	2009-Annual
Piemonte	URBAN AND OTHER WASTEWATER TREATMENT (Def.36)					
	Primary treatment					
	Plants	2034			2391	
	Design capacity BOD5					
	Incoming load BOD5	16.35			18.55	
	Effluent BOD5					
	Secondary treatment					
	Plants	916			1058	
	Design capacity BOD5					
	Incoming load BOD5	82.74			96.6	
	Effluent BOD5					
	Tertiary treatment					
	Plants	53			63	
	Design capacity BOD5					
	Incoming load BOD5	274.34			283.37	
	Effluent BOD5					

Corresponding to JQ-IW Table 6

Istat

TABLE 6: Generation and discharge of wastewater

		2005-Annual			2006-Annual			2007-Annual			2008-Annual			2009-Annual			2010-Annual		
Eastern Alps	VOLUME																		
	GENERATION OF WASTEWATER (Def.33) - POINT SOURCES (Total) (Nace 01-99)																		
	Agriculture, forestry, fishing (Nace 01-03)																		
	Industry, total (Nace 05-43)																		
	Mining and quarrying (Nace 05-09)																		
	Manufacturing industry (Nace 10-33)																		
	Construction (Nace 41-43)																		
	Services (Nace 45-96)																		
	Private households																		
	TREATMENT AND DISCHARGE OF WASTEWATER																		
	Treated in WWTPs (Def.36, 44) : total inflow (Def.34)																		
	Discharged without treatment																		
	Total discharges of WWTP's (urban (Def.36) and other (Def.44))																		
	Total discharges to Inland waters (Def.52)																		
	BOD																		
	GENERATION OF WASTEWATER (Def.33) - POINT SOURCES (Total) (Nace 01-99)																		
	Agriculture, forestry, fishing (Nace 01-03)																		
	Industry, total (Nace 05-43)																		
	Mining and quarrying (Nace 05-09)																		
	Manufacturing industry (Nace 10-33)																		
	Construction (Nace 41-43)																		
	Services (Nace 45-96)																		
	Private households																		

Corresponding to JQ-IW Table 8

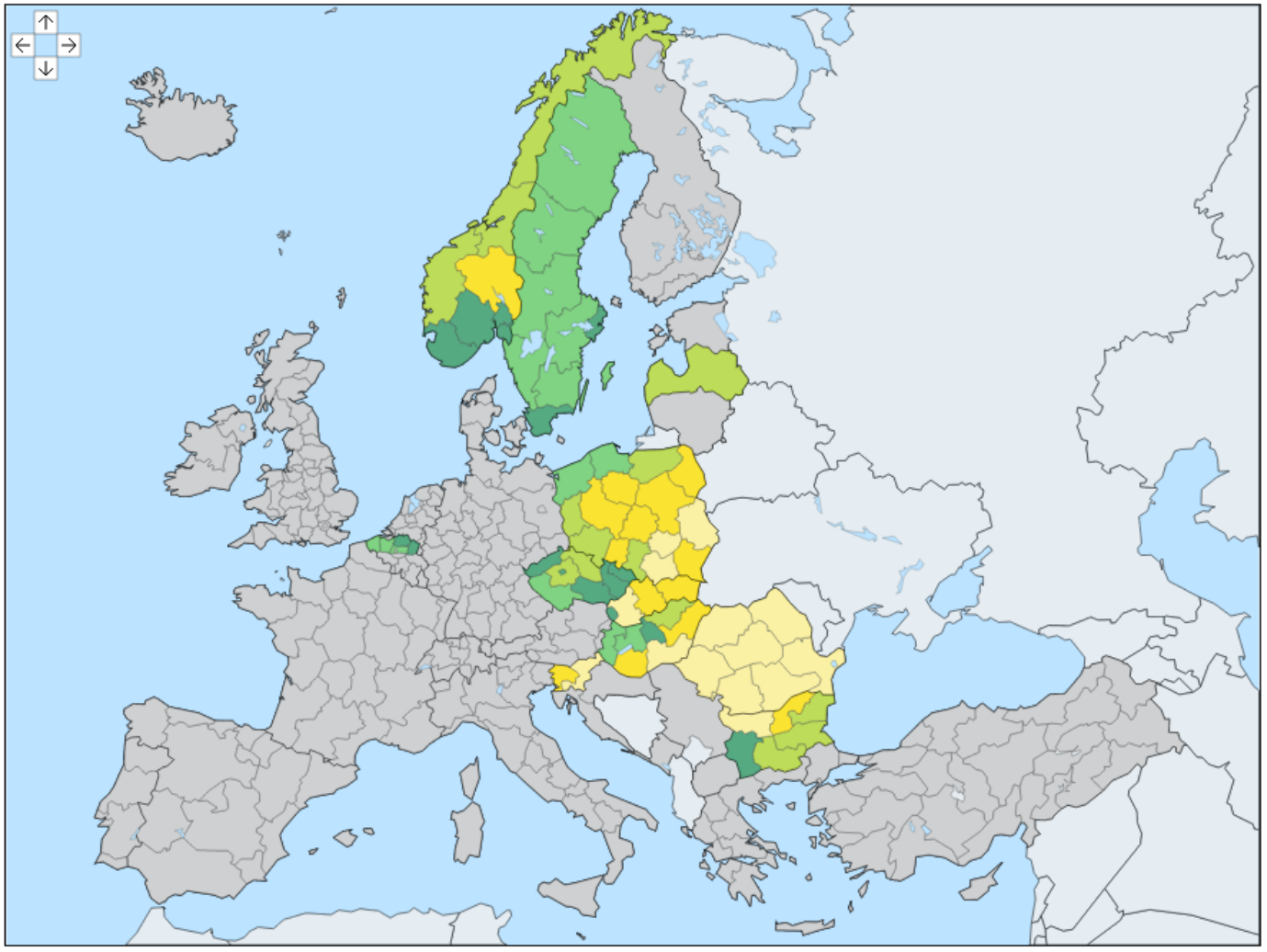
Istat

A map by NUT2 region

Population connected to wastewater collection and treatment systems by NUTS 2 regions

%

This relates to any kind of sewage treatment (primary to tertiary) in municipal treatment ... more



Hide toolbox

Types | Data | Classes | Layers

Map Type

- Coloured Map
- Symbol Map by size

Colour with: black

- Symbol Map by color

Comparison

- No Comparison
- Compare with geo: Rég. Bruxelles
- Compare with time: 2013
- Compare with value

Refresh

Data for 2013

Legend	Cases
30.4 to 59.6	14
59.6 to 70.8	14
70.8 to 78.36	14
78.36 to 85	15
85 to 101.16	15
Data not available	138

Minimum value: 30.4
Maximum value: 101.16

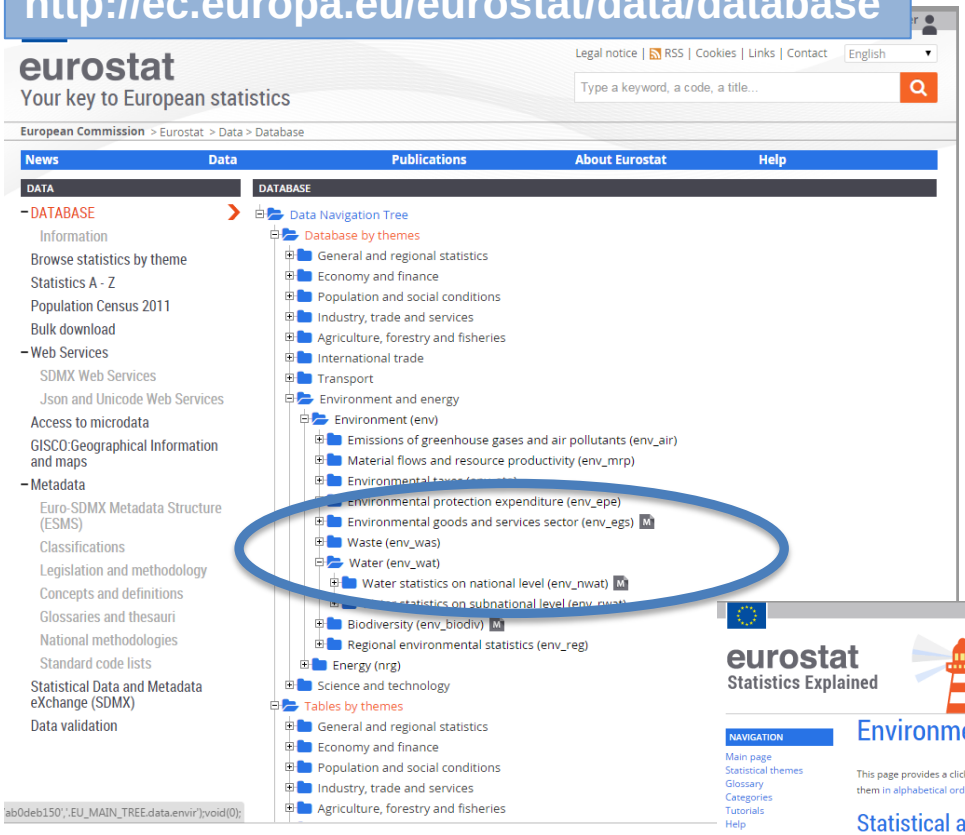
: = not available
d = definition differs (see metadata)

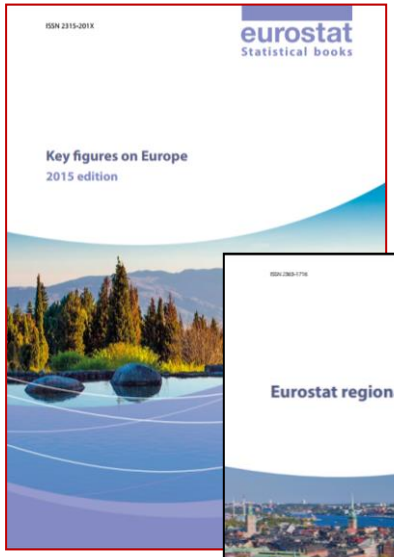
Click on map to:

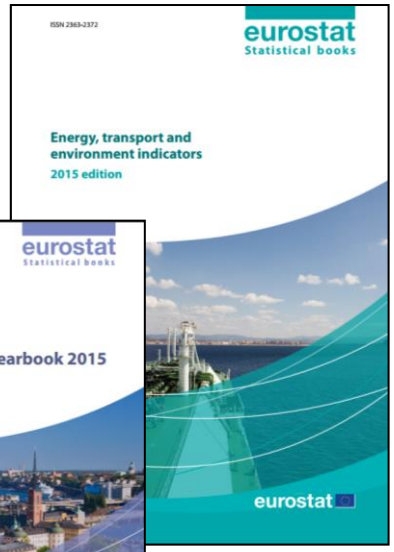
Recenter | Zoom In/Recenter | Zoom Out/Recenter

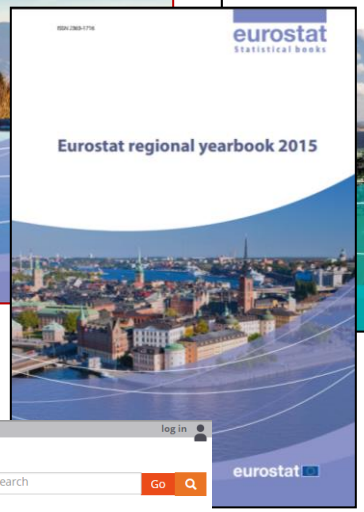
Eurostat dissemination

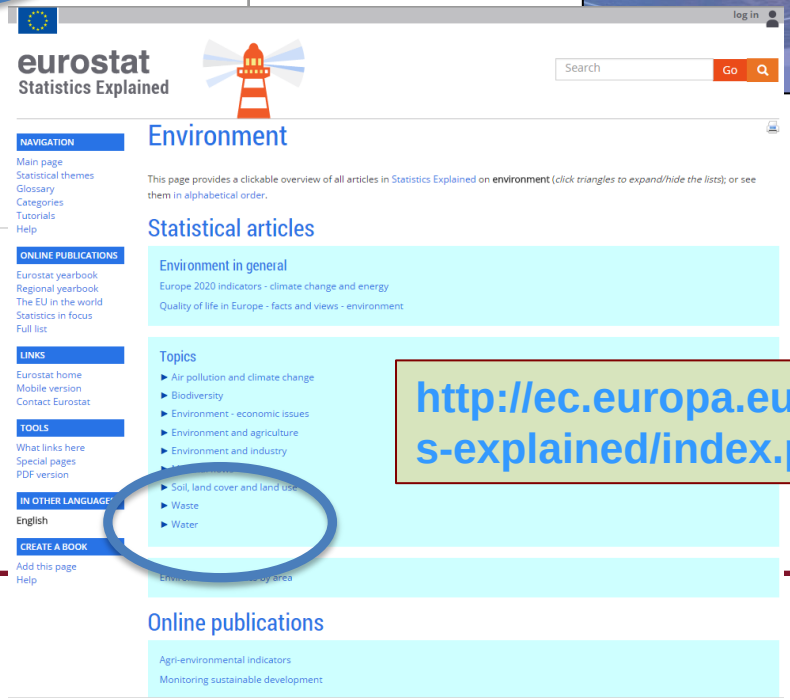
http://ec.europa.eu/eurostat/data/database











http://ec.europa.eu/eurostat/statistics-explained/index.php/Environment

Istat

Stefano Tersigni (stefano.tersigni@istat.it
Simona Ramberti (simona.ramberti@istat.it)
Giovanna Tagliacozzo (giovanna.tagliacozzo@istat.it)
Donatella Vignani (vignani@istat.it)

Socio-demographic and Environmental Statistics Directorate
State of Environment Division - Water resources and climate Unit
Istat- Italian National Institute of Statistics

Istat