



# Outline

**EEA regulation and SEIS as umbrella**  
**EEA's working methodology**  
**EEA as data centre**  
**The data handling process**  
**Evolution of data and its exchange**  
**Gap filling and data analysis tools**  
**Emerging trends**

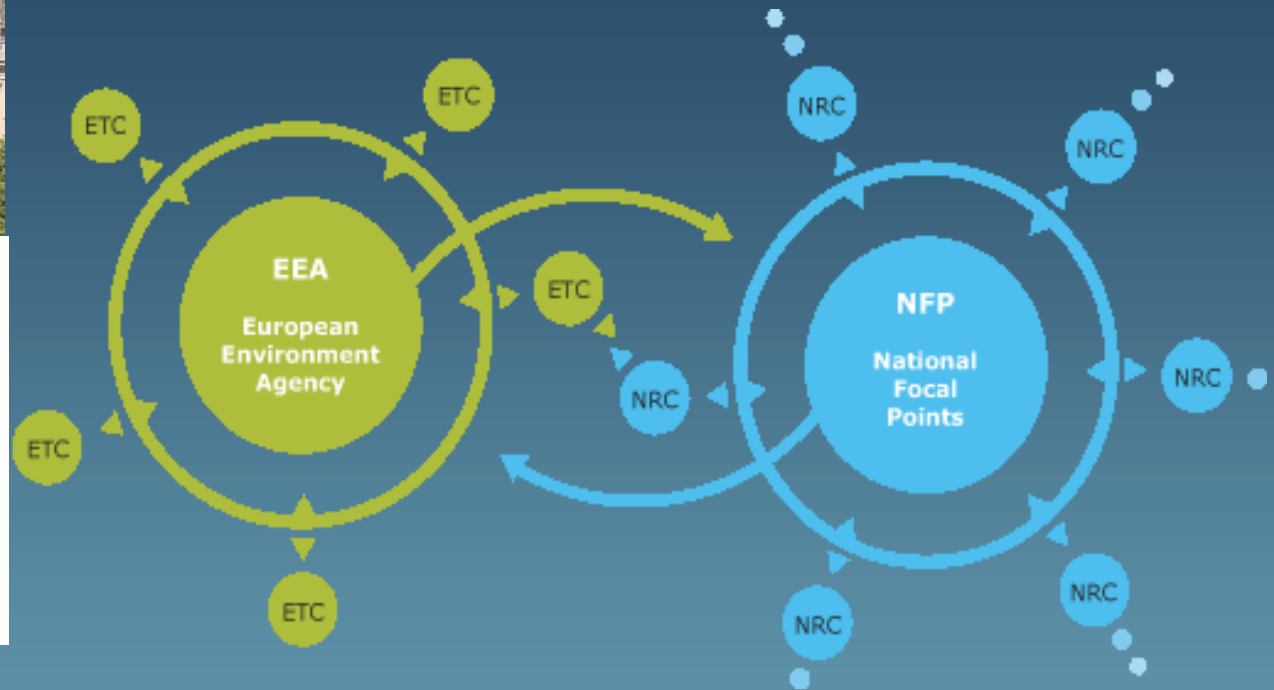


# Chapter

## **EEA regulation and SEIS as umbrella**

# COUNCIL REGULATION (EEC) No 1210/90 7 May 1990

32 member and 7 cooperating countries



A network of > 1000 experts from EEA member and cooperating countries in > 350 national organisations



# SEIS and related EU policy instruments

## SEIS – Shared Environmental Information System

ENVIROnMENT

European Commission

European Commission > Environment > SEIS

Home | Who's who | Policies | Integration | Funding | Law | Resources | News & Developments

Introduction

What is the Shared Environmental Information System?

Why is SEIS needed?

What benefits will SEIS bring?

SEIS and eGovernment

Funding opportunities

Real-life e-Environment examples

Citizens right to access environmental information

Electronic Reporting

Benchmarking on e-Environment

How to appreciate e-Environment services

Learning from experience

Public Sector Information

SEIS related projects

News

Events

Cases

Library

Communication toolkit

Newsletter Archive

Documents

Links

FAQs

Contact

Shared Environmental Information System

Why is SEIS needed?

- Because EU Policy makers at all levels (local to European) are convinced that better decisions need better and more timely information
- Because EU Member States deserves a modern, efficient and user friendly e-Reporting System to fulfil their reporting obligations related to European Union environmental policies and legislation, avoiding duplication of efforts, overlapping and redundancies

Timely, reliable and relevant information on the state of the environment is essential for sound policy making. Policy makers and the public need to know in a timely manner how the climate is changing, whether European waters are becoming cleaner or more polluted, how nature is reacting to pollution and changing land use and whether policies are effective. This information should be made available to all in a way that everyone can understand the changes to the environment and their impact.

The Sixth Environment Action Programme (6EAP) confirmed that sound information on the state of the environment and on key trends, pressures and drivers for environmental change is essential for the development of effective policy and its implementation, and for empowering citizens more generally. As the environment is a public good that belongs to everyone, it is equally essential that this information be widely shared and available.

**The need for sharing environmental information**

More than 70 of the several hundred pieces of environmental legislation in force in the European Union require Member States to report on specific aspects of the environment within their territory. A large amount of environmental data is thus collected by various levels of public authorities throughout the EU.

This information is used to analyse trends and pressures on the environment and is vital when drawing up policy or assessing whether policy is effective or being properly implemented. At present, this wealth of information is neither made available in a timely manner nor in a format that policy makers and the public can readily understand and use. This is due to a range of obstacles of a legal, financial, technical or procedural nature.

SEIS

Good decisions need the right information at the right time

a) SEIS communication 1/2008

c) SEIS staff working paper 6/2012  
(EU internal)

ENVIROnMENT

European Commission

European Commission > Environment > Law > Implementation

Home | Who's who | Policies | Integration | Funding | Law | Resources | News & Developments

Legislation

Implementation

Liability

Crime

Aarhus Convention

Links

Compliance Promotion

Communication on Improving the delivery of benefits from EU environment measures: building confidence through better knowledge and responsiveness

On 7 March 2012 the Commission adopted the [Communication on Improving the delivery of benefits from EU environment measures: building confidence through better knowledge and responsiveness](#). For further information see the press release (IP/12/220), the [citizens' summary](#) and [Questions & Answers](#).

A high level of environmental protection is one of the fundamental objectives of the European Union. However, the latest state of the environment reports show serious implementation concerns in key areas, such as, biodiversity, water, waste and air.

Implementation has a cost. But the cost of non-implementation is very often much higher. The costs of not implementing current legislation are broadly estimated at around €50 billion a year in health costs and direct costs to the environment. The Communication also underlines the benefits of environmental law and advantages it can bring to the industry. In the waste sector alone full implementation would generate an additional 400,000 jobs with net costs that are €72 billion less than non-implementation.

Better and more consistent implementation would not only help to achieve the objectives for a cleaner and healthier environment but also to ensure a more level playing field and incentives for green growth.

b) Communication on better implementation  
3/2012



# SEIS principles and building blocks

## Principles **Data and information are:**

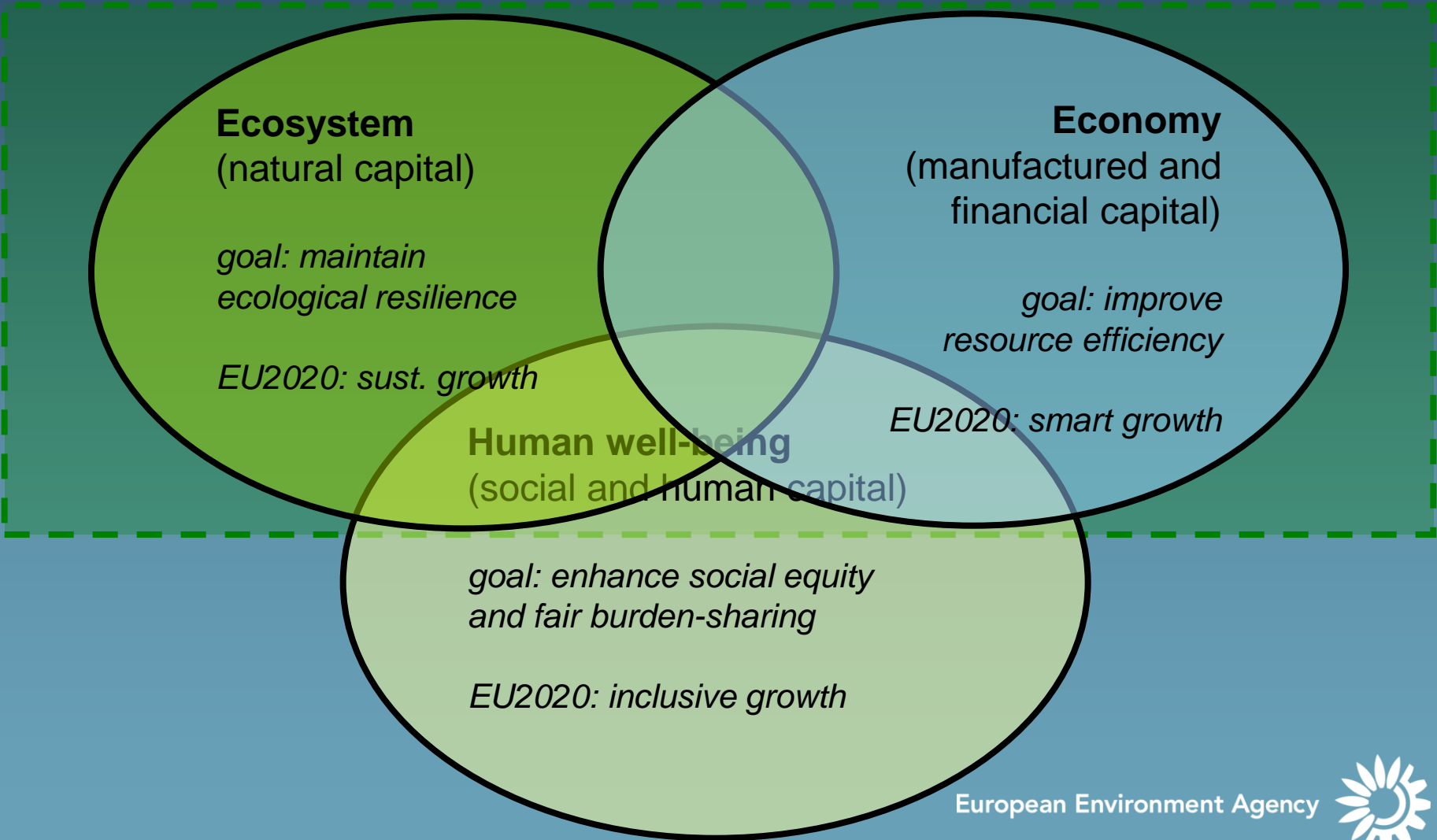
- Managed as close as possible to its source.
- Collected once, and shared with others for many purposes.
- Readily available to easily fulfil reporting obligations.
- Easily accessible to all users.
- Accessible to enable comparisons at the appropriate geographical scale, and citizen participation.
- Fully available to the general public, and at the national level in the relevant national language(s).
- Supported through common, free open software standards.

## Building blocks

- Cooperation
- Content
- Infrastructure



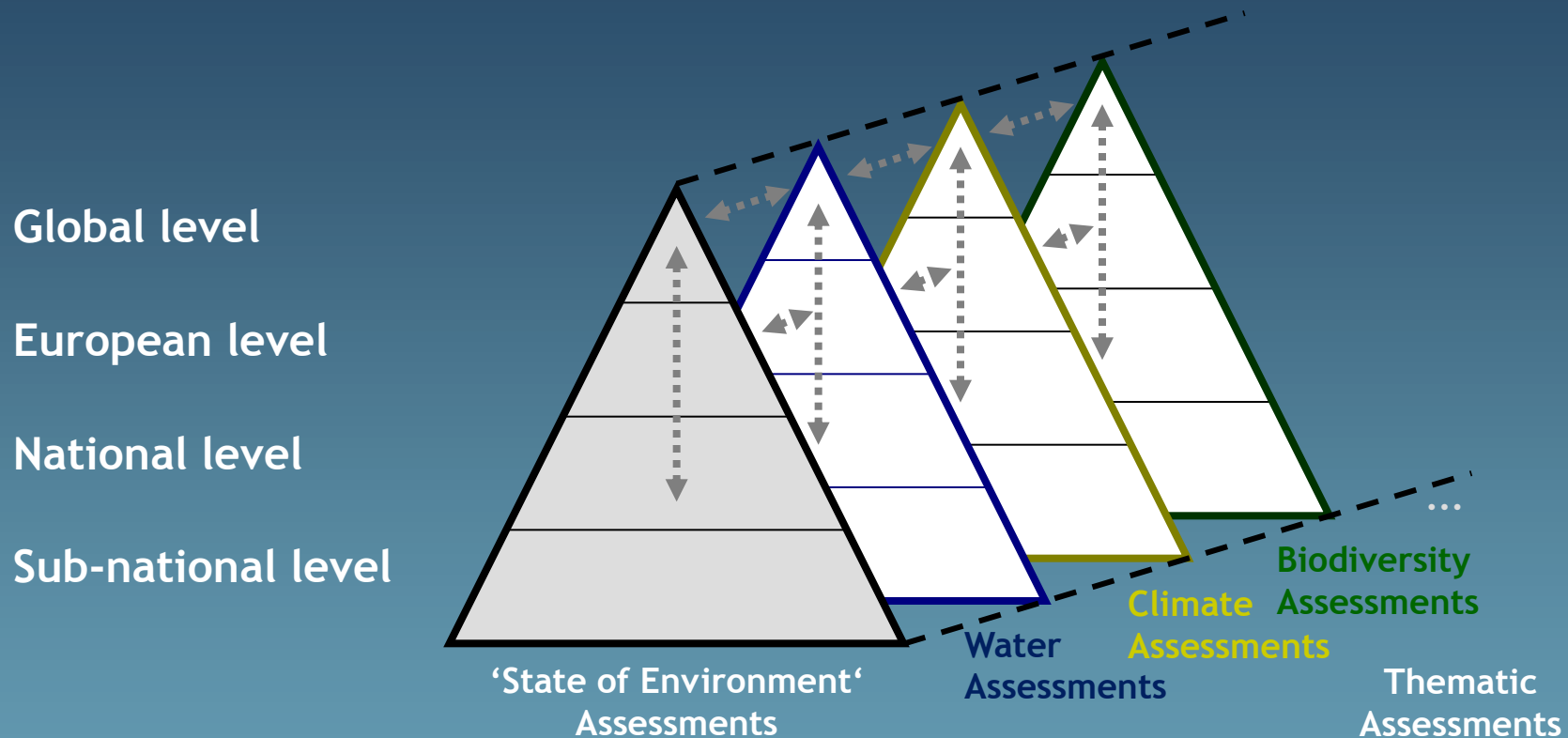
# From 6<sup>th</sup> to 7<sup>th</sup> Environmental Action Program



# Chapter

## EEA's working methodology

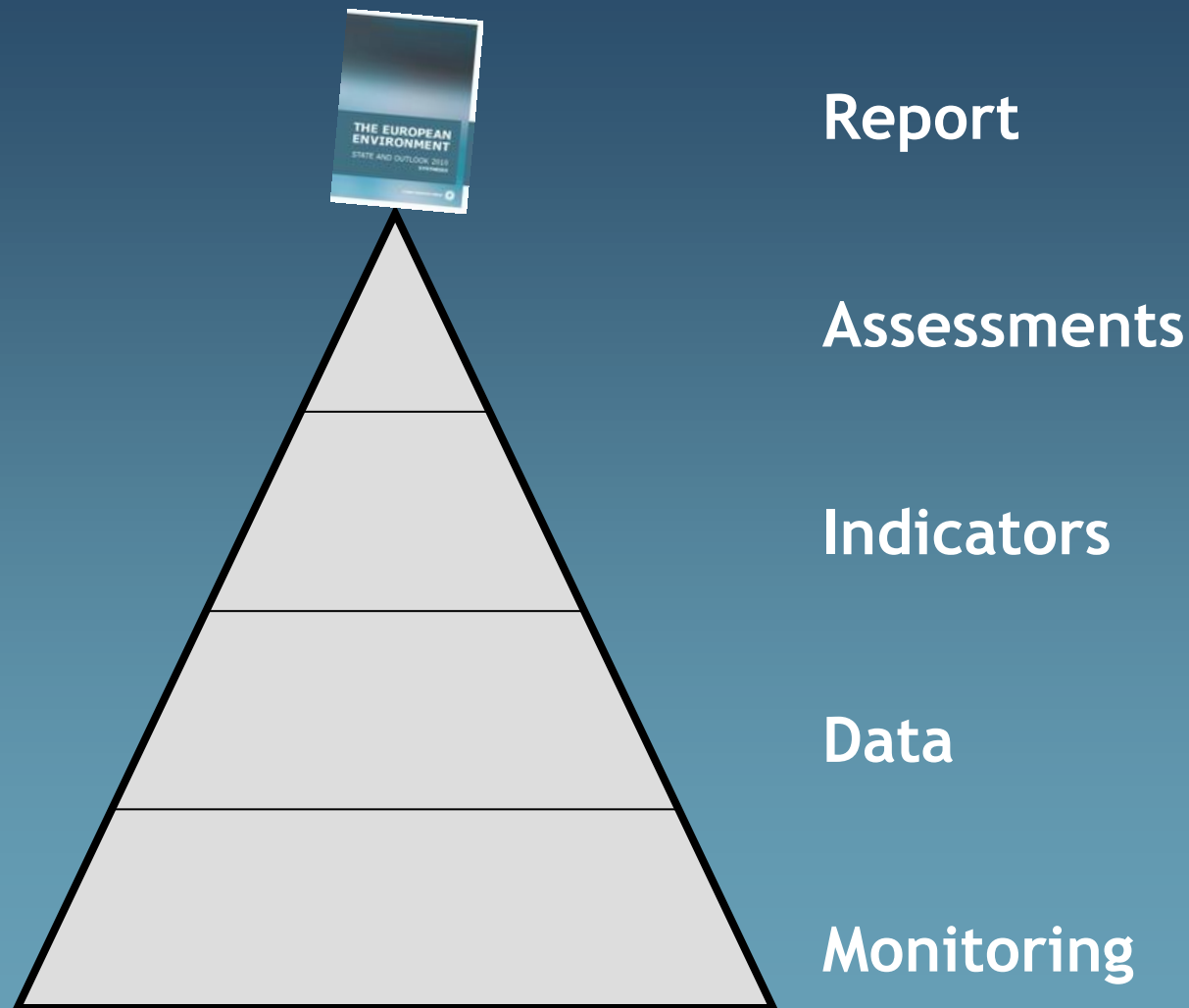
# EEA SOE reports and other SOE reports



*Note: Indicators (i.e. the toblerone's 'scaffolding') are the basis of environmental assessments (i.e. the toblerone's 'chocolate')*

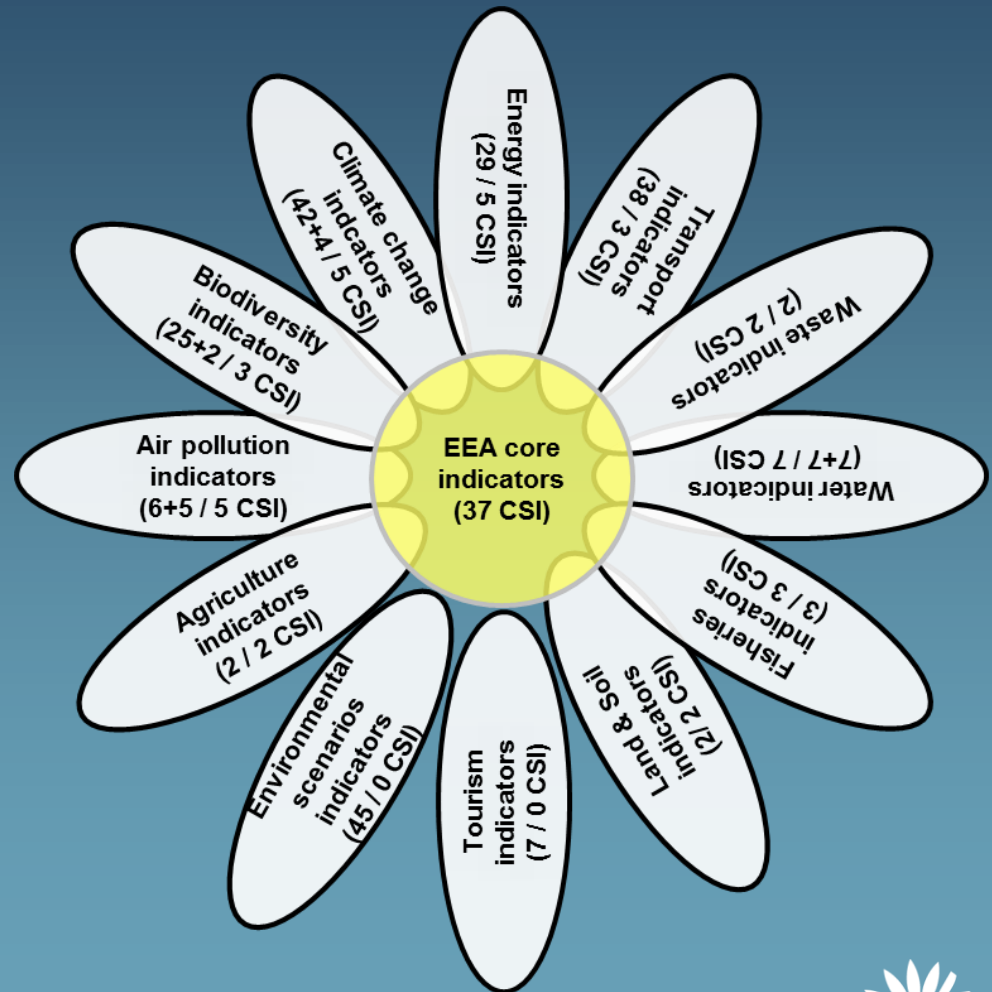
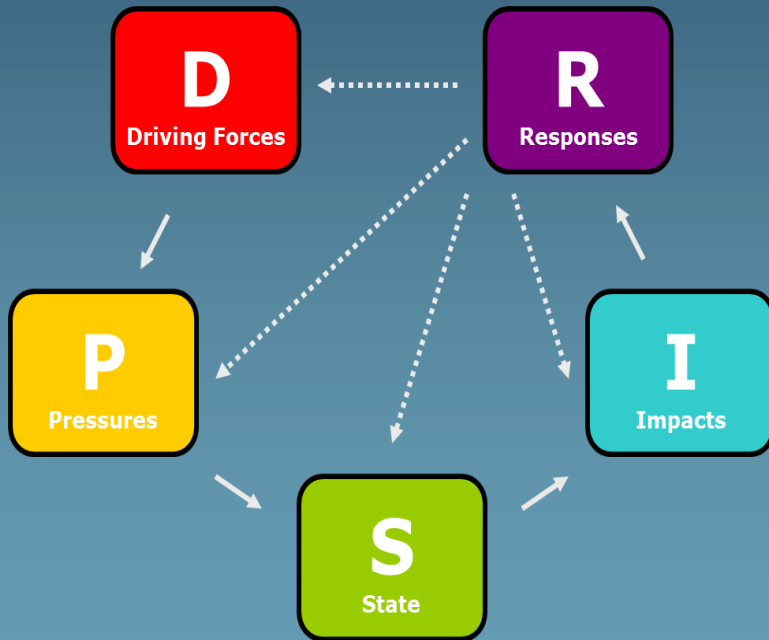


# Reporting relies on environmental information pyramid (MDIA-R)



# Indicators as key EEA instrument

DPSIR model to guide the balanced selection of indicators



# Indicators and geospatial data

## Core Set of Indicators (CSI):

- Aprox. 1/3 of CSI use geospatial data as input sources
- CSI 004 / CSI 005 / CSI 007 / CSI 008 / CSI 012 / CSI 014 / CSI 019 / CSI 020 / CSI 021 / CSI 022 / CSI 023 /CSI 033



### EEA:

- AirBase
- Bathing Water status
- Conservation status of habitat types and species (Article 17 Habitats Directive)
- Corine Land Cover
- Corine Land Cover Changes
  - Natura 2000
- Nationally designated areas
  - WaterBase

### Other data providers:



- Critical loads data base Coordination Centre for Effects, EMEP
- Modelled deposition estimates for sulphur and nitrogen EMEP
  - Eurostat Urban Audit
  - GIS data ESRI
- KNMI European Climate Assessment
- NASA Global temperature data
  - FAO Fishery data
- ICES Cod and mackerel spawning stock biomass



# Example: CSI 008 - Designated areas (biodiversity)

## Generic metadata

### Topics:

-  Biodiversity (Primary topic)
-  Natural resources
-  Policy instruments

### Tags:

assessment08 | CSI008 | natural | biodiversity | policy | CSI

DPSIR: Response

**Typology:** Descriptive indicator (Type A – What is happening to the environment and to humans?)

### Indicator codes

- CSI 008

### Geographical coverage:



©EEA2010

EU25, EU27, EU12, EU15, EFTA4, EEA32, Albania, Bosnia and Herzegovina, Croatia, Monaco, Montenegro, Serbia



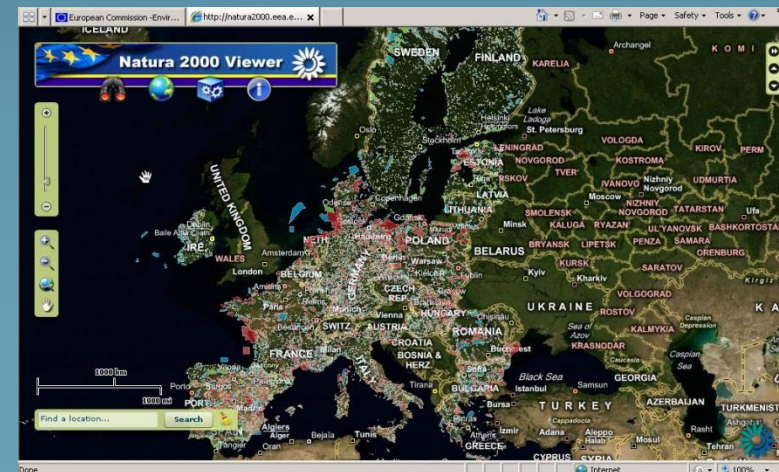
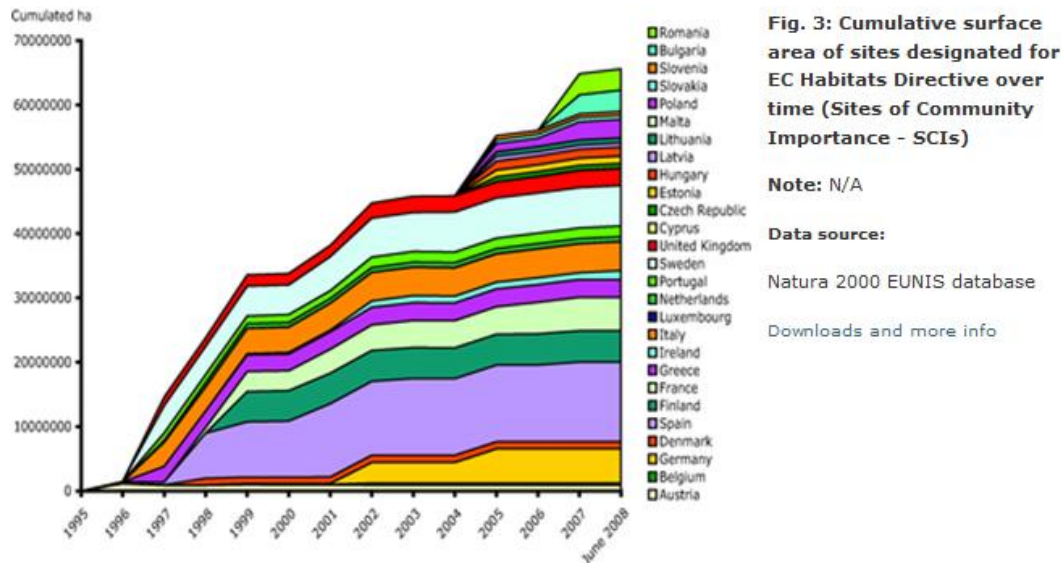
## Are Natura 2000 objectives being met?

Progress in fulfilling the objectives of the Natura 2000 network is assessed in two ways for the Habitats Directive:

- the proposal and designation by EU Member States of sufficient Natura 2000 sites that are home to species and habitats of European concern; and
- the extent to which the designation of such sites is effective in achieving favourable conservation status for those species and habitats.

## Data sources:

Natura 2000  
Nationally designated areas  
CDDA



# Chapter

## EEA as data centre

# The EEA as data centre

Browse complete catalogue

Filter by topic

All data products Datasets Maps Interactive maps Indicators Graphs

The screenshot displays a grid of data products. Each product is represented by a small thumbnail image and a text label. The products include:

- Plant-by-plant emissions of SO<sub>2</sub>, NO<sub>x</sub>
- Measurement methods used for
- Proportion (%) of HM and BaP measuring
- Trend in average annual mean C6H6
- Annual changes in concentrations of
- Real time map of air quality in Europe
- Heat wave risk of European cities
- National emissions reported to the
- Nationally designated areas (CDDA), 2010 -
- Waterbase - Transitional, coastal
- Rural concentration map of the ozone
- Global and European temperature (CSI)
- Exceedance of air quality limit values in
- Exposure of ecosystems to
- Explore ground level ozone statistics
- Annual temperature changes for 2021-

Read more

## Featured datasets

- Waterbase - Lakes
- Waterbase - Rivers
- Nationally designated areas (National - CDDA)
- National emissions reported to the UNFCCC and to the EU Greenhouse Gas Monitoring Mechanism
- National emissions reported to the Convention on Long-range Transboundary Air Pollution (LRTAP Convention)

## Interactive data viewers

See all



Explore ground level ozone statistics

Tool for exploring up-to-date data on ground level ozone

Read more



Browse by organisation



Semantic Data Service



# 5 priority areas of emphasis\*



Air pollution



Biodiversity



Climate change



Land use



Water

## Data centre overview

Last modified : Apr 13, 2011 06:50 PM

The air pollution data centre provides access to data and information related to the amount of air pollutants emitted into the atmosphere from different anthropogenic (human-made) sources as well as measured ambient air pollution at monitoring stations across Europe. The air pollution data centre also provides access to related products for air pollution indicators and assessments. Priority is given to providing policy-relevant data and information for European and national institutions, professionals, researchers and the public.

### Search

Advanced search

Search



Air pollution homepage

### Browse catalogue

All data products Datasets Maps Interactive maps Indicators Graphs



Plant-by-plant emissions of SO<sub>2</sub>, NO<sub>x</sub>



Measurement methods used for



Proportion (%) of HM and BaP measuring



Trend in average annual mean C<sub>6</sub>H<sub>6</sub>



Annual changes in concentrations of



Real time map of air quality in Europe



Rural concentration map of the ozone



Exposure of forest area to ozone



National Emission Ceilings (NEC) Directive Inventory



Pause

\* based on agreement with EU Commission services



# Content in EEA data centres

## Topics

- All (230)
- Agriculture (11)
- Air pollution (18)
- Biodiversity (35)
- Chemicals (4)
- Climate change (46)
- Coasts and seas (9)
- Default (0)
- Energy (41)
- Environment and health (6)
- Environmental scenarios (44)
- Environmental technology (0)
- Fisheries (4)
- Green economy (2)
- Household consumption (2)
- Industry (8)
- Land use (3)
- Natural resources (2)
- Noise (1)
- Policy instruments (1)
- Soil (2)
- Specific regions (0)
- Tourism (4)
- Transport (45)
- Urban environment (1)
- Various other issues (0)
- Waste and material resources (6)
- Water (22)

106 data sets

230 indicators

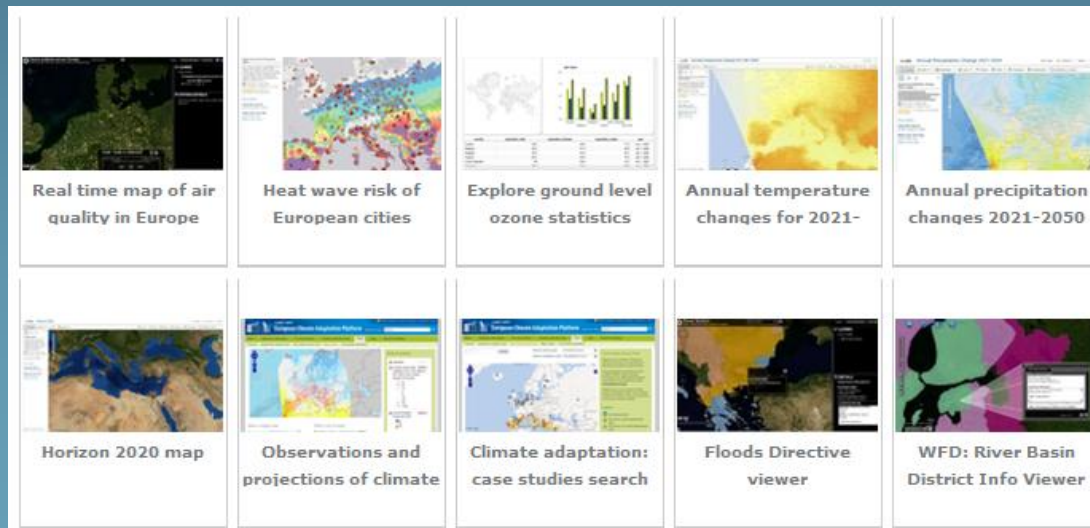
1076 maps

56 interactive data and map viewers

(as of 5.10.2012)

viewers

indicators



# Chapter

## **The data handling process**

# Reportnet Core Modules

## ROD

Reporting Obligations Database

A online database containing  
~500 reporting obligations

<http://rod.eionet.europa.eu>

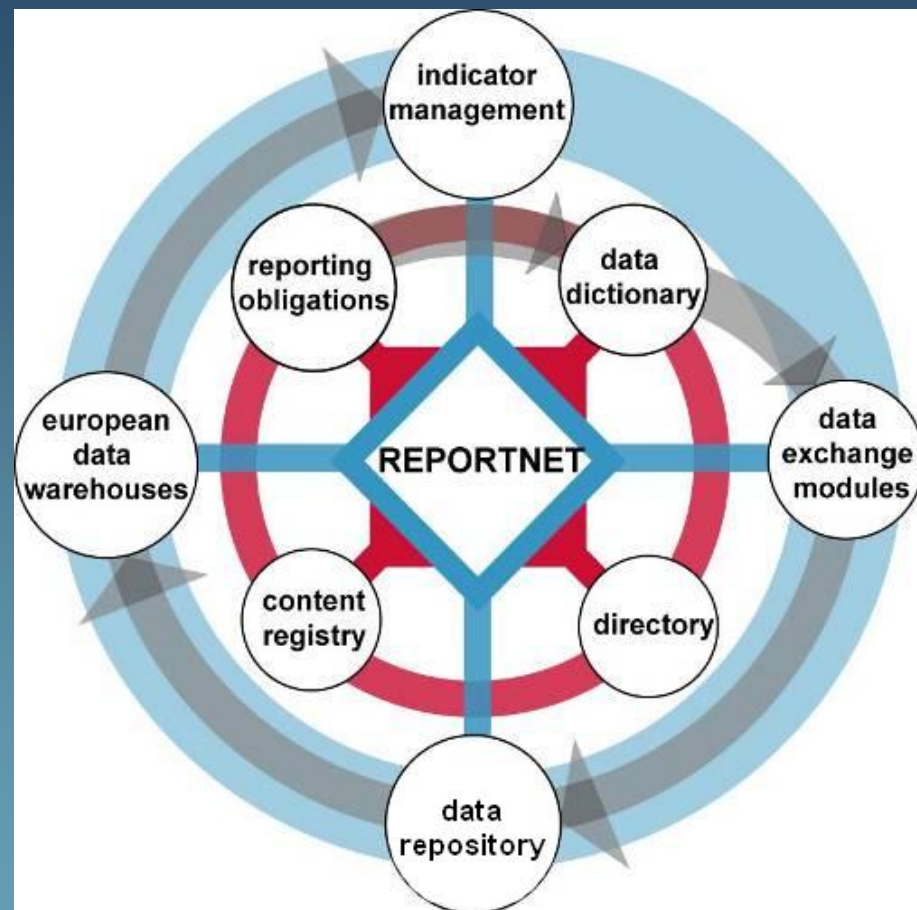
## CDR

Central Data Repository

The web site for uploading data

CDR includes basic quality checks

<http://cdr.eionet.europa.eu>







**Production line**

The diagram features a large blue arrow pointing to the right, with the text 'Production line' inside it. To the left of the arrow's tail are two vertical rectangular boxes, one taller than the other, representing components of the production line.

**Data  
Collection**

**Data  
Processing**

**Dissemination  
of information**



Fig. 1: Measured and projected concentrations of 'Kyoto' greenhouse gases (Ver. 1.00)

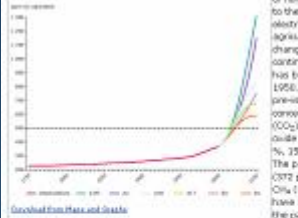


Fig. 2: Mean winter surface concentrations of nitrate-nitrite in the Baltic Sea Area, 2000 (Ver. 1.00)



EEA data service

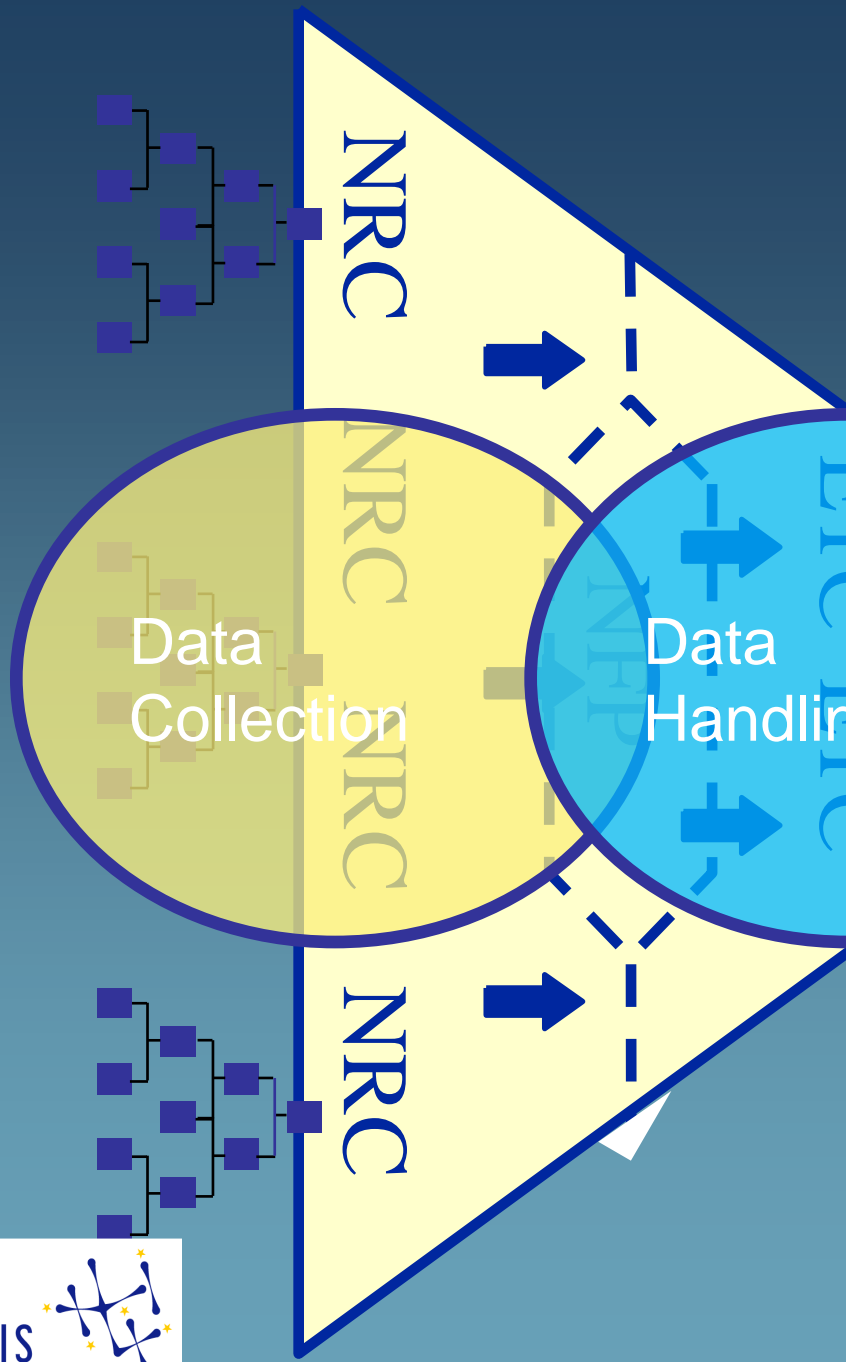
### Waterbase - Rivers: Consistent time series of nutrients and organic matter in rivers

Statistic:  Determinand:  Period:  Station type:

Mean  Nitrate (mg/l N)  Annual  Representative station

From 1992 to 2003

	Total	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
<b>Total</b>	2,585	2,763	2,685	2,685	2,602	2,654	2,696	2,735	2,581	2,617	2,488	2,408	2,311
<input checked="" type="checkbox"/> Austria	1,258	1,364	1,282	1,293	1,357	1,417	1,327	1,22	1,216	1,138	1,161	1,177	1,14
<input checked="" type="checkbox"/> Czech Republic	3,534	3,368	3,678	4,028	3,937	4,006	3,607	3,309	3,393	3,095	3,205	3,259	2,927
<input checked="" type="checkbox"/> Denmark	5,711	8,111	7,387	5,991	5,453	5,422	5,553	6,611	5,234	5,004	4,78	4,713	4,293
<input checked="" type="checkbox"/> Estonia													
<input checked="" type="checkbox"/> Finland													
<input checked="" type="checkbox"/> France													
<input checked="" type="checkbox"/> Germany													
<input checked="" type="checkbox"/> Hungary													
<input checked="" type="checkbox"/> EU 25													
<input type="checkbox"/> Latvia													
<input type="checkbox"/> Lithuania													
<input type="checkbox"/> Netherlan													
<input type="checkbox"/> Poland													
<input type="checkbox"/> Slovakia													
<input type="checkbox"/> Slovenia													
<input type="checkbox"/> Sweden													
<input type="checkbox"/> United Kin													



# Data quality: Which dimension is most important?

Many say:

**Relevance**

Another popular choice:

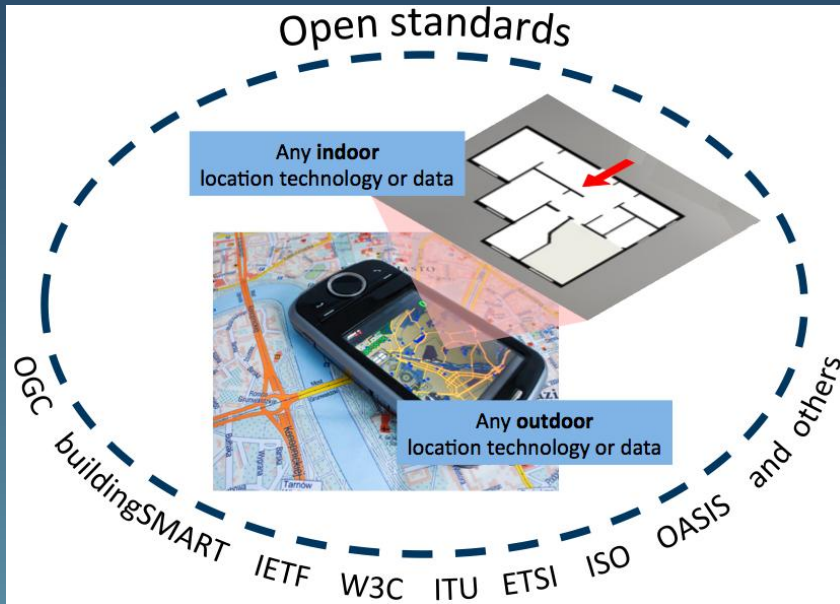
**Timeliness**

The classical one: **Accuracy**

A smart answer is: **All**



# Data and service quality: The role of standardisation



courtesy OGC



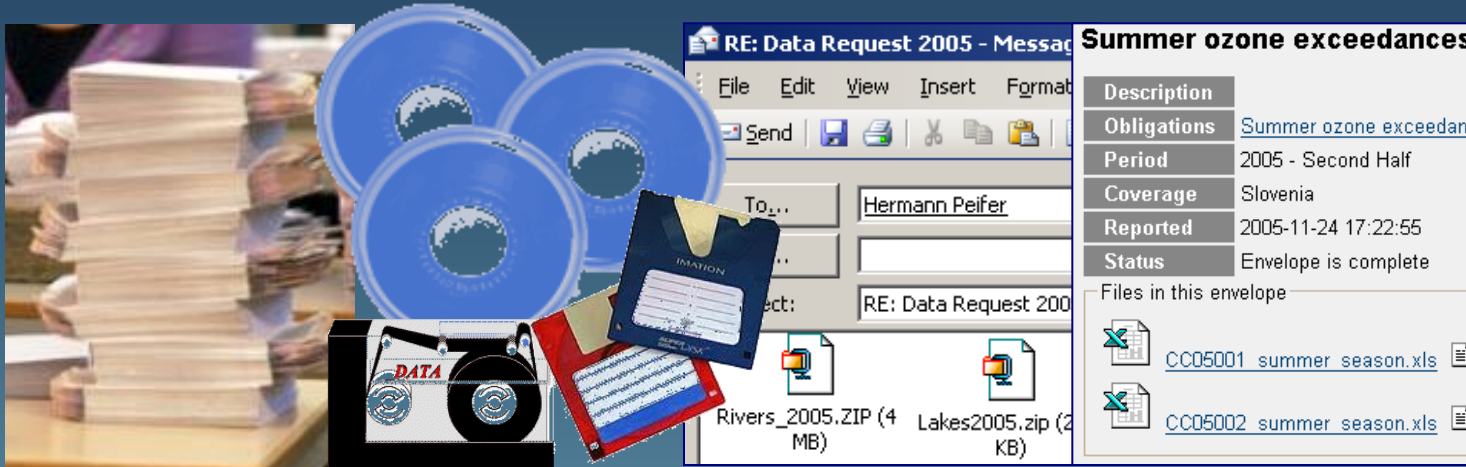
For web (mapping) services  
For data specifications



# Chapter

## Evolution of data and its exchange

# Evolution of data reporting



**Regular mail  
Fax**

**Tapes  
CD-ROM  
Floppy disks**

**Email  
with  
attachments**

**Reportnet:  
centralised  
web-based**

**Towards  
data  
sharing**

**80's**

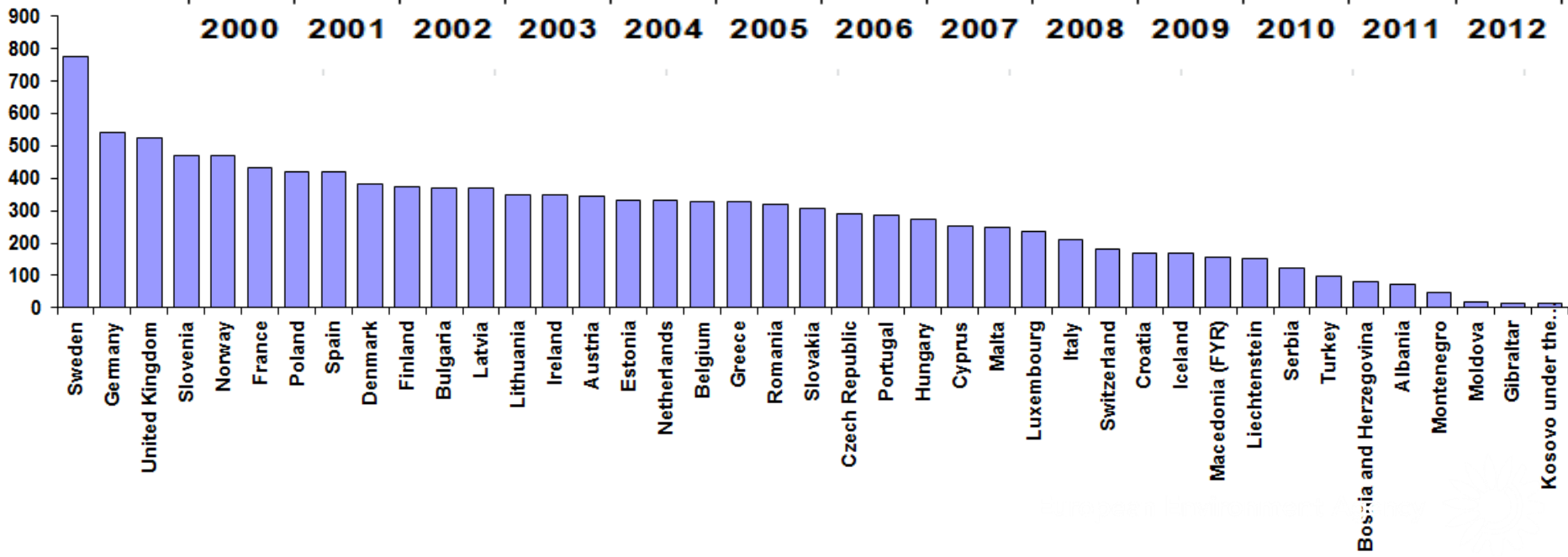
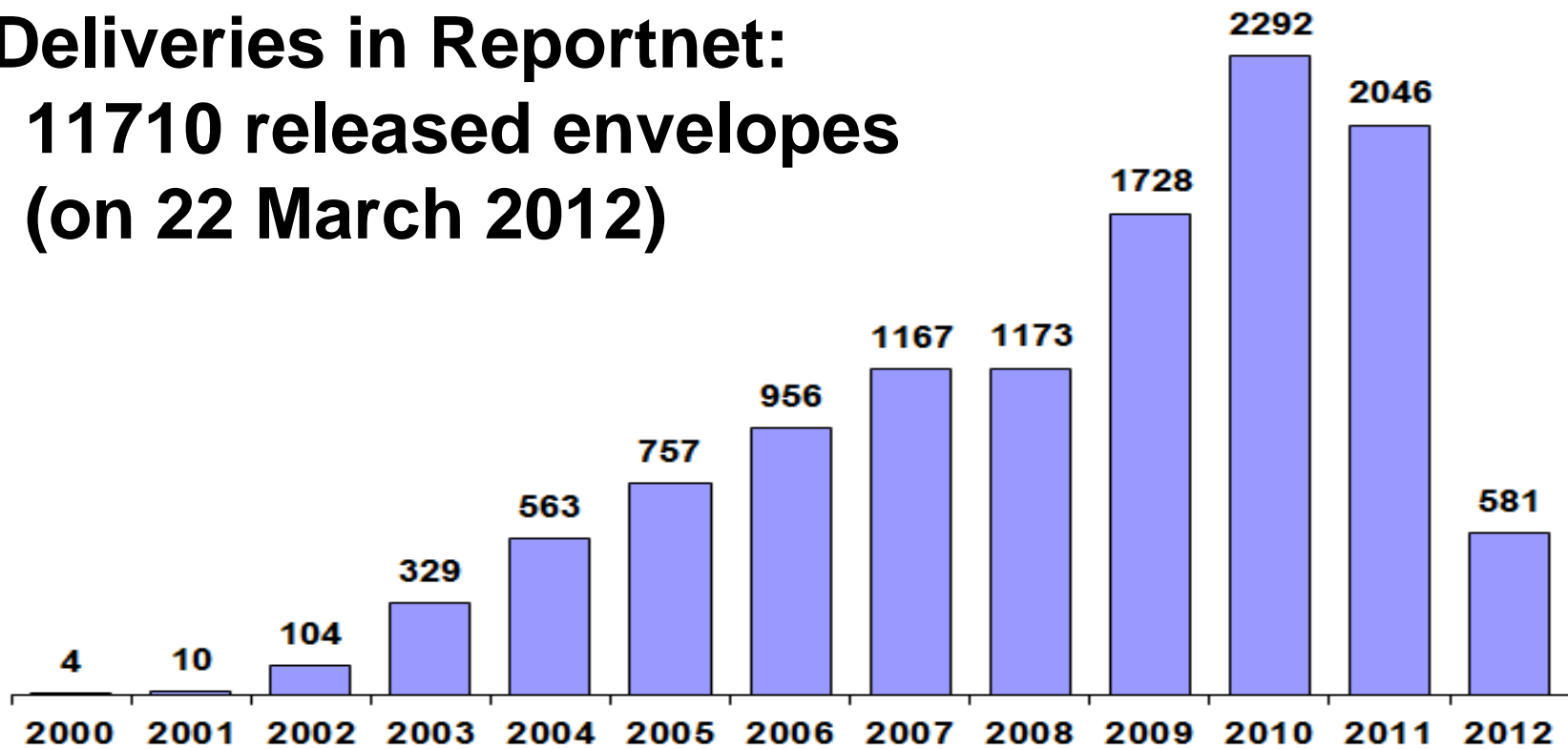
**90's**

**21<sup>st</sup> century**

**Paper based reporting >> Electronic data reporting**

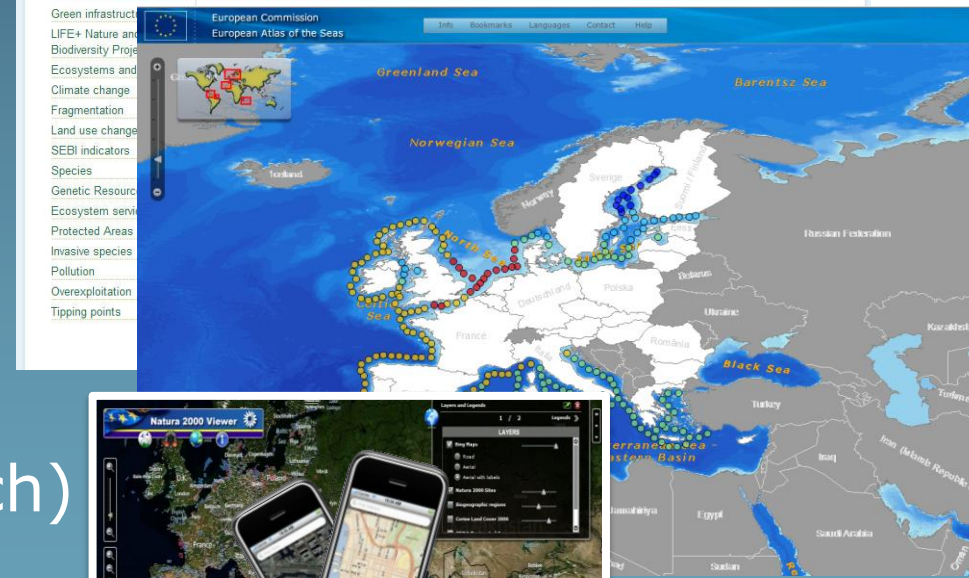
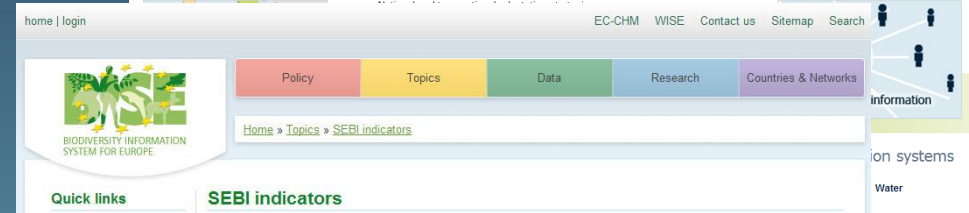


# Deliveries in Reportnet: 11710 released envelopes (on 22 March 2012)



# Growth in geospatial data Updated and new platforms

- Climate adaptation platform
- Water IS - WISE
- Biodiversity IS – BISE including Natura2000
- Hosting of MARATLAS
- Web services
- Sensor Web
- Mobile applications (NatureWatch, NoiseWatch)



# Web statistics - use of web applications

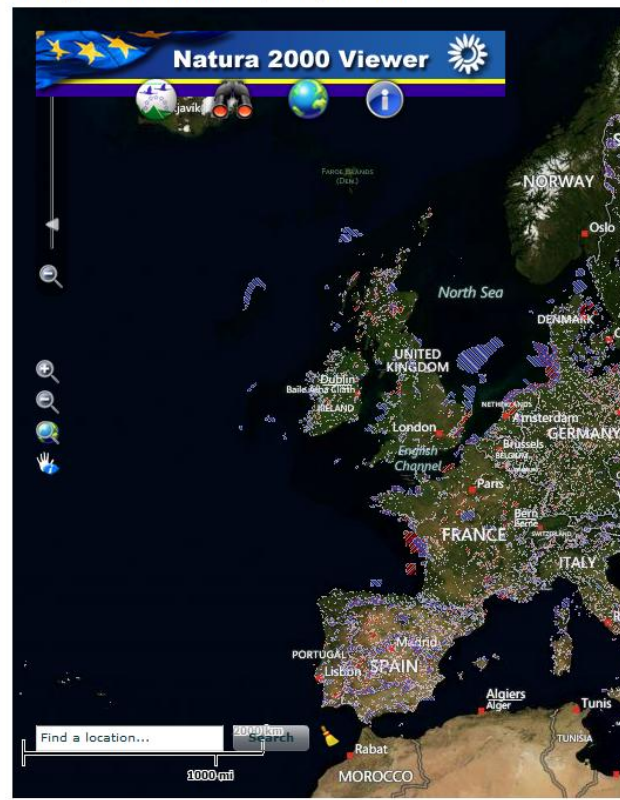
## Web applications – the most visited in 01.01.2012 to 14.06.2012

Natura2000 (page viewed #: 4.819)

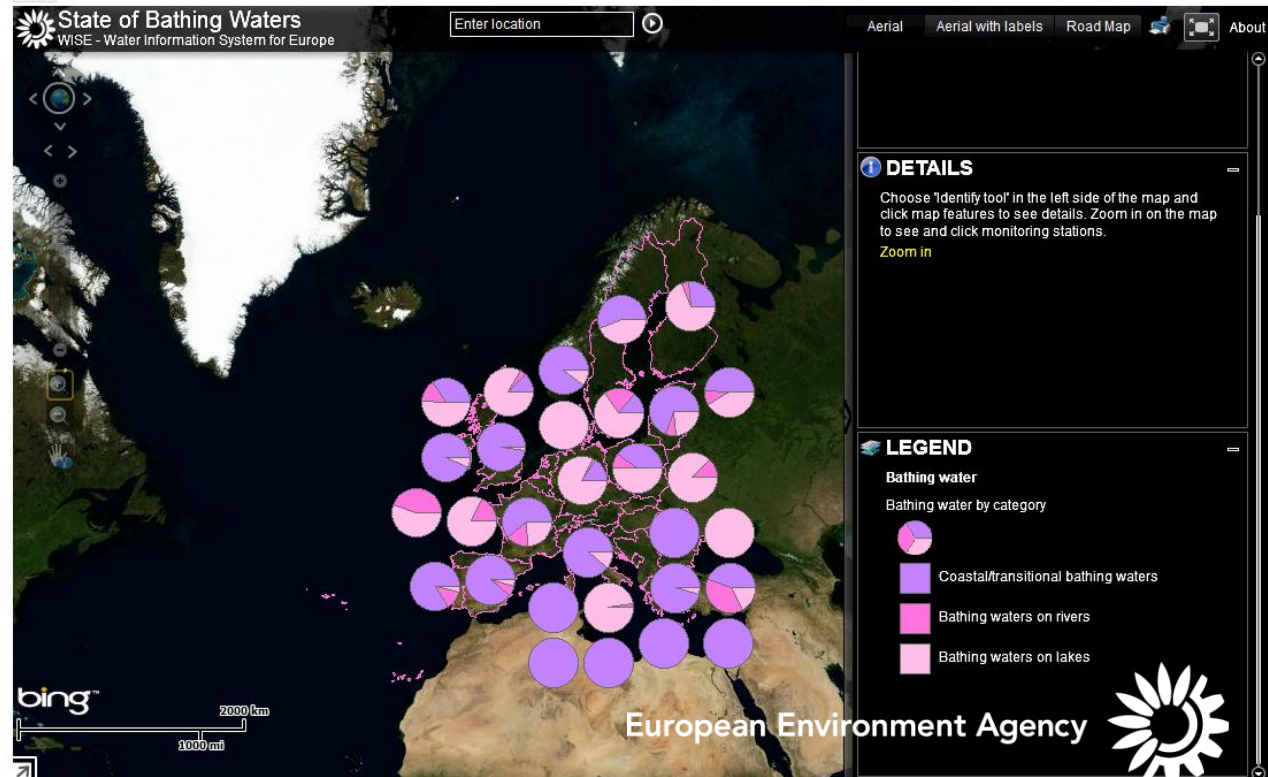
Bathing waters  
(page viewed #: 62.423)

### Natura 2000 European protected areas – interactive map

Ecological network of European protected areas



### State of bathing waters



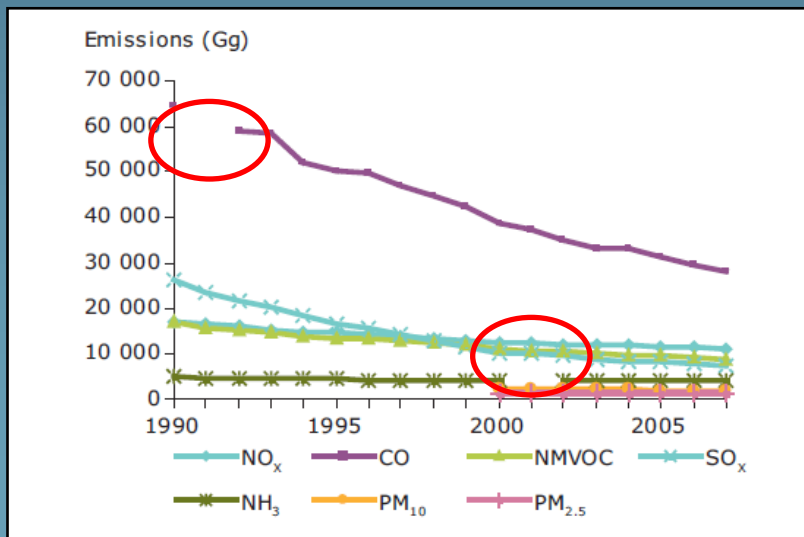
# Chapter

## Gap filling and data analysis tools

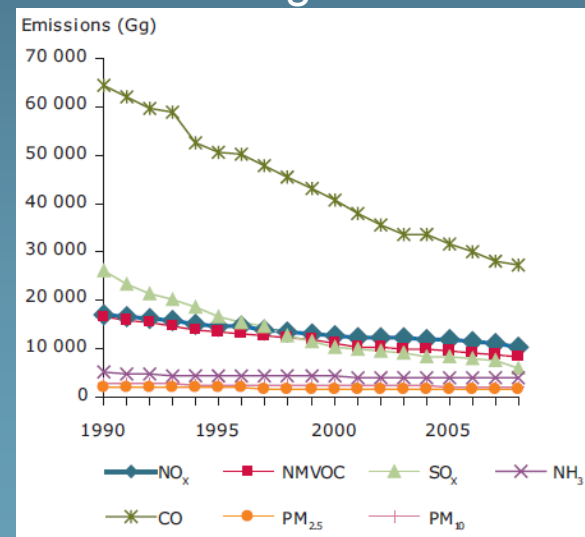
# GAP filling - introduction

- Example: Emission data reporting (Directive 2008/50 EC on Ambient Air Quality)
  - It is a requirement of the EMEP Reporting Guidelines that submitted emission inventories be complete as possible
  - In previous years, the EC inventory was partially gap-filled
    - official data reported by Member States under other reporting obligations (e.g. the NEC Directive and EU-MM) was used to fill gaps
- ⇒ But EC inventory was still incomplete for certain pollutants including at 'National Total' level

before



after



# Why is gap-filling needed?

## Most frequent problems observed:

- submissions (the whole national inventory) are not provided for the most recent year and/or other years;
- historical data is not updated/recalculated which results in inconsistent time series;
- emissions of some pollutants (e.g. fine particulate matter  $PM_{2.5}$ ) are not provided for either a single year/more subsequent years/the entire time series;
- some sectoral emissions are missing (NE, IE ) for a year/more subsequent years/the entire time series;
- sectoral emissions are missing and only national totals are provided



# Gap filling - summary

- More complete EU-27 inventory
- Better compliance with EMEP guidelines
- Gaps for CO and NH<sub>3</sub> filled
  
- Now possible to report trends for HMs and POPs
- Technical support/understanding of the gap-filling from TFEIP/EIONET experts – no criticism/objections to the trialled procedure.
- No gap-filling possible if countries don't report anything e.g. POPs
- Overall positive – MS agreement that the gap-filling should continue in future



# Data analysis tools

Spatial analysis tools (incl. spatio-temporal)

- GIS methods, GIS software (ESRI, GRASS ...)

Statistical packages (R Project)

Database analysis tools (OLAP cubes)

Hydrological and other models (NOPOLU)



# Chapter

## Emerging trends





# Open government - Open data

The screenshot displays the Open Government Partnership (OGP) website interface. At the top left is the OGP logo, a black rectangle with the text "Open Government Partnership" and a colorful bar below it. To the right are navigation buttons: "ABOUT" with an information icon, "COUNTRY COMMITMENTS" with a checkmark icon, and "NETWORK" with a speech bubble icon. A search bar with a magnifying glass icon and a "SUBMIT" button is located at the top right. The main heading "COUNTRY COMMITMENTS" is centered above a map of Europe and the Middle East. The map features numerous green location pins, with two pins in Eastern Europe (Poland and Romania) highlighted in orange. Map controls include a compass, zoom in/out buttons, and a map style selector (Map, Satellite, Hybrid). The map is powered by Google and includes copyright information for 2012 Tele Atlas.





# New ways of sharing - citizen science - EoE



Sharing is everything

HOME

GET STARTED

LEARN MORE

CONTENT PROVIDERS

BLOG

LOGIN



Watch us on YouTube



## FEATURED

Explore environmental maps and apps. Contribute your observations. Create and share.

OVERVIEW

AIR

WATER

NOISE



## WaterWatch - Bathing water quality for Europe

