

Report

**Electronic
infrastructure
and tools
for streamlining
flows of
environmental
information
in Europe**

European Environment Agency

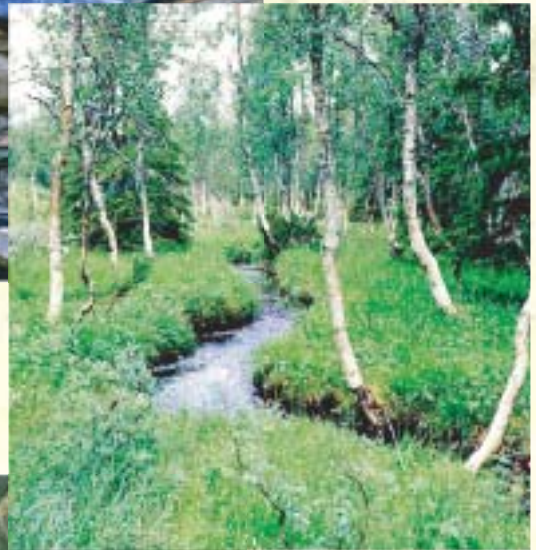


Reportnet - a shared information infrastructure to support environmental policy making in Europe

EEA and countries are collaborating on Reportnet because the flows of information from countries to the international level, and back again, is important to understand environmental progress. The flows are primarily linked to targets and measures defined in European Union legislation, international conventions and protocols.

Information is needed on issues such as the causes of pollution, the status of biodiversity, the environmental performance of sectors and the effectiveness of actions. Such information is used to describe trends and model futures, thereby helping countries and European institutions to formulate more effective policies.

Reportnet is currently focusing primarily on flows from member states to the EEA. The long-term vision is to develop an infrastructure allowing multiple users at national and international levels access to reported data.



Steadily increasing reporting obligations

Reporting obligations agreed between EU and international bodies and countries provide the framework for information flows. This framework has grown in Europe as the Commission and the Member States have agreed reporting requirements for separate laws or sectors, in most cases independently of one another. Member States are also required to respond to a myriad of non-legal (moral) obligations, mainly emanating from EEA, Eurostat, OECD and United Nations. Duplication of efforts, together with the lack of a transparent, need-based approach to information flows, have contributed to poor response rates to main reporting obligations.

Towards a balanced and efficient reporting system

EU's Sixth Environmental Action Programme (6EAP) recognises the need to revise the reporting system in order to achieve a clearer specification of policy-relevant information needs to increase transparency and to remove overlaps and duplications. The programme highlights that solutions enabling a more transparent and efficient flow should be enabled, and that suitable IT developments should be exploited.

Information flows and indicators

For the EEA and EIONET, most interest in information flows centres on the collection and organisation of data on the state of the environment, and associated driving forces, pressures and impacts. The data provided is used to produce and analyse indicators, including those for assessing the effectiveness of policies.

The EEA is currently developing, with countries, a core set of indicators covering:

- **Environmental issues:** water stress, air pollution, climate change, biodiversity and nature protection, soil and land issues, waste and material flows
- **Economic sectors and environment:** transport, energy, agriculture, tourism, fisheries

The indicators will be implemented gradually over the period 2004-2008, and will provide the main focus for information flows in Reportnet between countries and EEA.

How can different tools contribute?

Reportnet tools can contribute in several ways to more effective information flows;

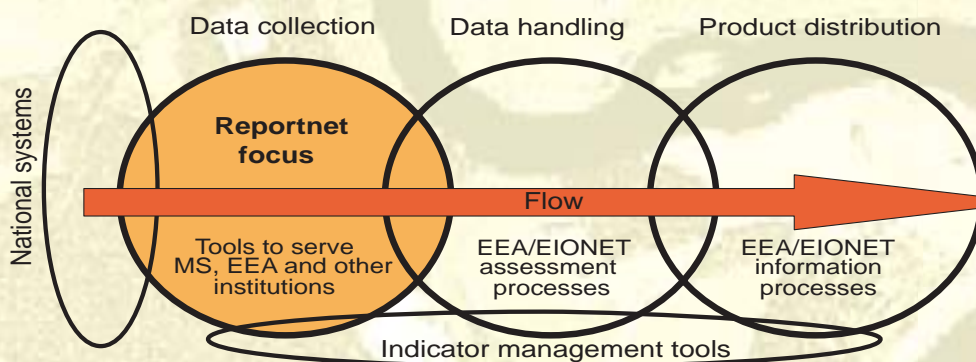
- it can provide a catalogue of reporting obligations to the countries' planning
- it can provide smart software to make data provision by countries easier, more comparable, quality assured and fully audited
- it can store information in one place for easy reference and for achieving over time
- and it can provide the means for countries to user other countries' information for their own assessment needs.

In these ways Reportnet contribute also to Europe's eGovernment activities in the environment sector.

Provide once - shared by many: a system for multiple use

Countries also report and work with Eurostat, DG Environment, other DGs, OECD, UN, and international conventions, being major users of reported data. They are also seen to have a shared interest in improving the reporting process.

For the future it will be a joint challenge for the European countries and the international institutions to maintain a coherent infrastructure for information flows. EEA and the member states work together to make Reportnet contribute to this challenge, making information available, so as to maximises it's multiple use and value.



Current EEA business processes. The Reportnet tools facilitates flow of environmental data from countries to the EEA assessment and information activities. The Reportnet tools can also serve data flows from countries to other institutions.

Reportnet users - needing streamlining and support

Reportnet addresses people active in the reporting chain from national to international levels.

Users can be classified in different groups based on their roles, such as data definers, data providers, reporting managers, data collectors, and actors organizing assessments and information provision. The tools are designed to meet both national and international needs.

Reportnet offers tools and services to facilitate the flow of data needed in European environmental policy development. The reporting obligations involve a series of actions in all European countries. The illustration shows in a generalised form actions from definition, through data provision and data collection to use of the data. There is a specific Reportnet focus on services for data providers and reporting managers, indicated in the line at the bottom of the illustration.

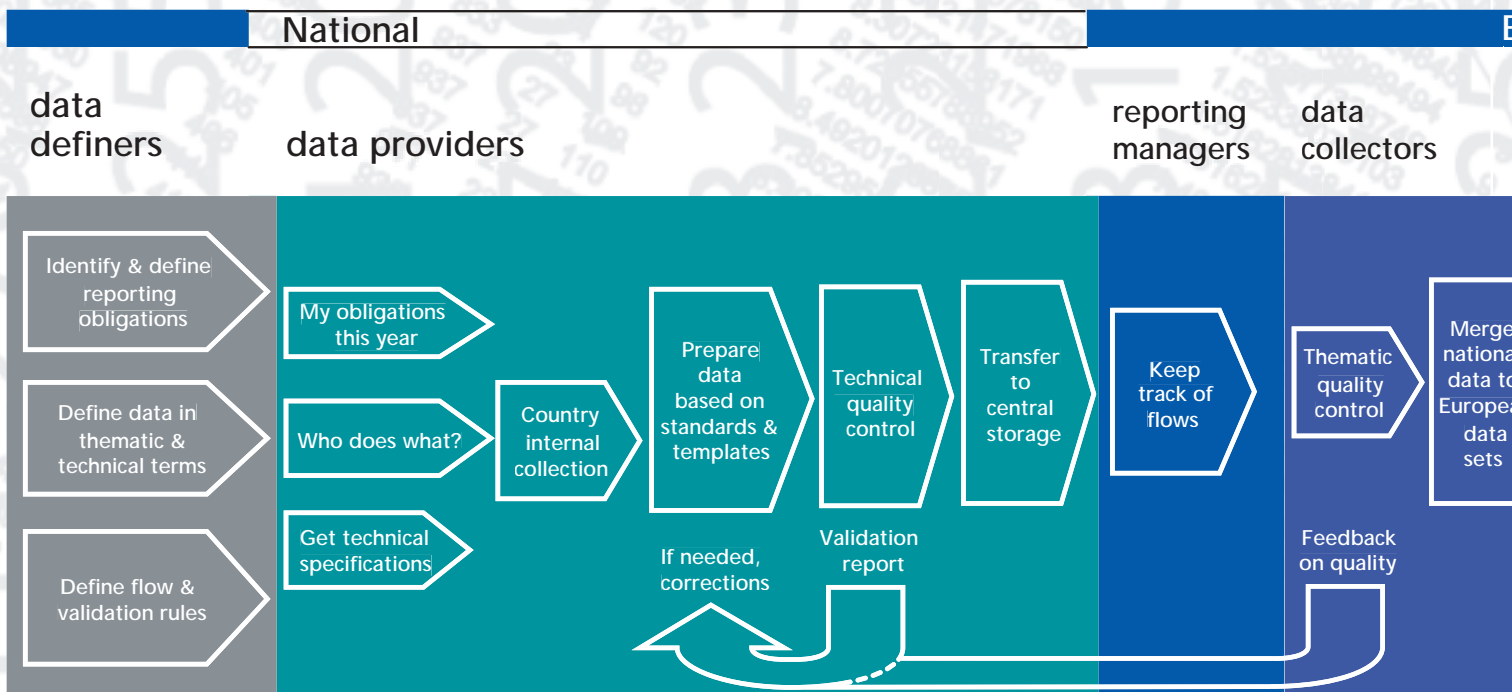
1. Data definers

Reporting obligations are agreed at national, European and global levels. In the work of defining obligations, committees and working groups may get help in Reportnet, where the overall picture of the existing obligations can be found. As Reportnet in addition contains standards, nomenclature and definition of elements and codes for existing requirements, this source material can be consulted and reused.

2. Data providers

The present focus of Reportnet is to facilitate and streamline data flows from providers at national level to the European level, but Reportnet tools will also be available for country-internal data flows. National providers need **structured information** about reporting obligations in order to coordinate data collection. Reportnet provides web overviews of obligations, detailed technical descriptions of data requirements, network contacts, and registries of information flows. Such products and services are used by National Focal Points (NFPs), the EEA's contact point in each country, in their contact with thematic institutions, the so-called National Reference Centres (NRCs).

The national institutions in the countries deliver a multitude of detailed thematic information.



The Reportnet tools

In order to ease the work, **standard data template files** are provided. Reportnet is also developing automated quality control tools, giving immediate validation reports back to the provider, thus alleviating the burden of tedious work.

A major contribution from Reportnet is the **standardised routing and storage** facility for deliveries - offered through the central data repository. Data providers need a common place to store the requested data, and a service immediately verifying that data are transferred.

3. Reporting managers

Reporting managers both at European and national levels need to keep track of the flow of data. There are specific tools for follow-up actions on reporting, describing what has been delivered, when and by whom. Specifically EEA and other data receivers use the tools.

4. Data collectors

The EEA and other international organisations receive the delivered data. The deliverables are thematically controlled, and providers contacted if discrepancies between the actual and expected content are observed. The data collectors merge national data into European data, supported by the definitions stored in Reportnet.

Views from two Reportnet users

Lucyna Dygas - Ciolkowska, National Focal Point, Poland:

"One address for all EEA reporting data as well as transparently established structure of deliveries are the advantages of the central data repository solution. Sorting, loading the data and keeping track of obligations and responses are undoubtedly helpful."

Barbara Clark, National Focal Point, Germany:

"I use the central data repository to deliver Germany's Eionet priority dataflows. I find it easy to use, although I want some improvements for how to add meta-information. The transparency and consistency provided is already a major plus. By using Reportnet tools I get linkage to the data itself and to products, such as the bathing water report. As a data reporter, I get to see what happens to my data. That is the motivation part, data providers need to see that the information does not just end up in a drawer."

"As other European and International organisations begin to use Reportnet as well, it will make life much easier for all players in the reporting scene and provide multipurpose reporting."

5. Assessment producers

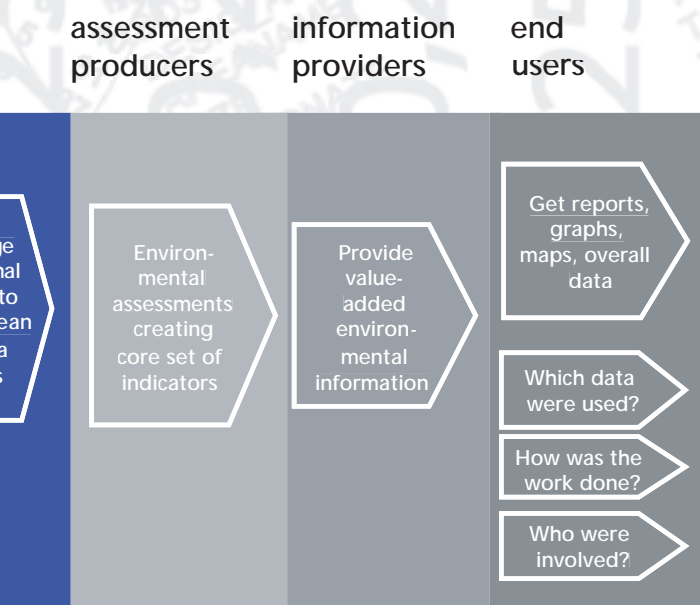
EEA and its topic centers (ETCs) are assessment producers at the European level, implementing the core set of environmental indicators. Reportnet contains tools to help secure harmonised specifications of such repetitive assessment methodology, and services for discovery and access of needed data. The indicators do not only depend on data delivered through Reportnet, but are to a large degree also based on other sources.

6. Information providers and end users

EEA is a major provider of European environmental assessments. The production of information products and the provision of these are not directly included in the Reportnet concept. EEA has other specific services, such as the Data service and the Reference centre, focused on information provision. EEA aims at to keep track of how the reported information is used, as the source data and its producers should be visible in the products offered to end users.

End users, such as policy makers or the general public can view publications and the environmental indicators on the EEA website. Data will be shown as summary graphical illustrations. Where datasets are freely available users can access these directly too. Key clients get tailored products.

European



Reportnet tools - interlinked web services to facilitate flows and use of information

The Reportnet tools include central web services with a set of intelligent data systems behind. Member states are active partners in the development, securing that tools are tailored to their needs.

The Reportnet tools provide national institutions with

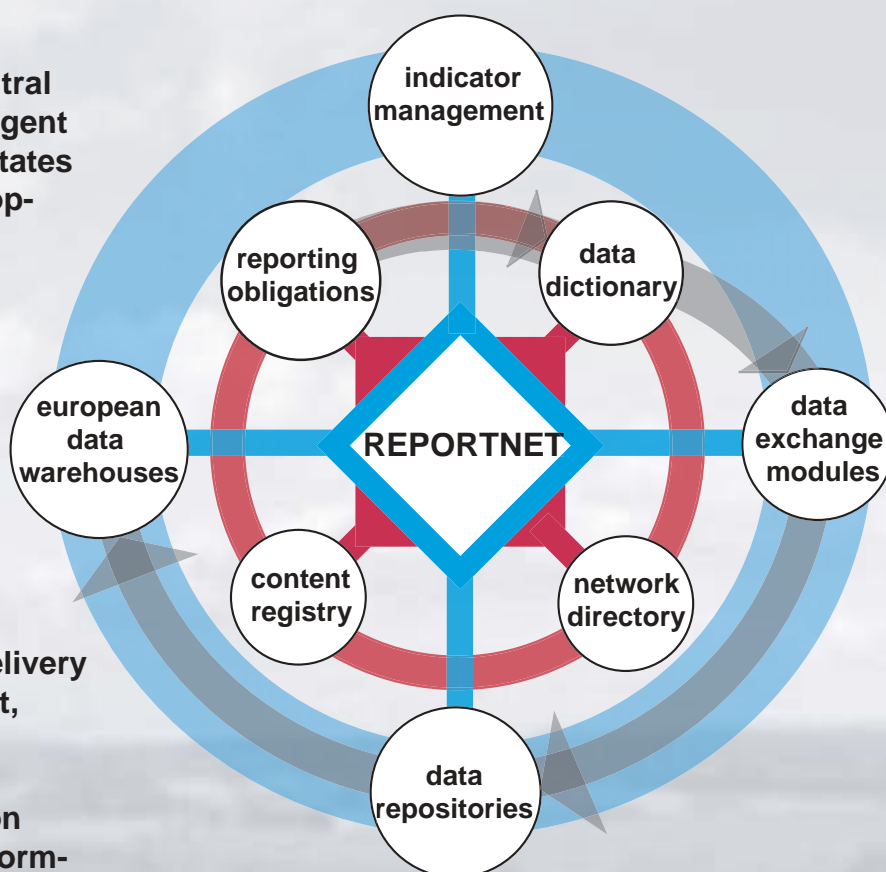
- the reporting obligations and the resulting activities
- data specifications clarifying technical requirements,
- data capture tools for easing the assembly of data,
- exchange tools for making delivery easy, efficient and transparent,
- validation tools for data files

Other tools provide overviews on delivered data and national performances, useful for reporting managers at both national and central levels.

The central data repository provided by Reportnet makes it easy for EEA, its topic centres and users from other environmental networks to access national deliveries.

Reporting Obligations Database (ROD) - legal basis and agreements for reporting

National organisations are kept informed about deadlines for expected deliveries in the Reporting Obligations Database (ROD). Views show deadline calendars per country, making planning and follow up of actions to fulfil obligations easier. ROD links further to the Data Dictionary, where details about the specific parameters are described.



Components of Reportnet and the main data flow. The inner (red) circle illustrates normative and metadata components, the outer ring the main 'real' data flow.

Network Directory (ND) - who is involved - roles

The Network Directory (ND) is a database that helps find people, organisations, and their role in the reporting chain - information providers, reporting managers, analysers, and disseminators at European and national levels are included here.

Data Dictionary (DD) - what is to be reported

The Data Dictionary (DD) is a central storage for the technical specifications of data requested in reporting obligations. It provides countries with detailed specifications of what to produce and report in a comparable way; data file structures, such as definitions of data sets, tables, data elements, allowable values and other technical

requirements. The tool, currently under development, also provide algorithms needed in data validation and serve as a reference for users.

Data Exchange Modules (DEM) - tools for checking and sending data

Countries make some deliveries using Data Exchange Modules (DEMs). These are partly smart electronic tools important in quality assurance, drawing on the data specifications in the Data Dictionary to check that the data being reported comply with the specifications required. They provide functionality for importing data in popular formats, or alternatively allow direct input. DEMs also package datasets, and upload or deliver them to national data repositories. DEMs currently exist in the field of air and climate change, but generic tools are planned.

Data Repositories (CDR) - places for storing data

The data repository is the location where the deliveries of data files from countries are stored. There is one Central Data Repository (CDR) in Reportnet and most countries upload information there. CDR is a content management system providing functions for uploads, downloads, versioning, and tagging with meta-information. National data repositories exist in a few countries.



The Central Data Repository has become a popular tool for many countries, offering tools for loading national data to central storage at EEA.

Content Registry (CR) - what has been delivered and is thus available

Deliveries to the international reporting system are kept track of through the Content Registry - audit trail. Information about the content (meta-information) is harvested and made available on the web. The CR also displays the content of the EEA Data Service and other EEA services.

Link to other sources - European Data Warehouses

Once national data have been merged into Pan-European data sets, they are stored in EEA's data warehouse - the Data Service. The data warehouse has authenticated datasets that can be used by data analysts for assessment of the environmental situation. The Data Service has a wide range of viewing facilities, enables downloading and links up to other European warehouses.

Indicator management - support tools

This component is a suite of actions for producing indicators. The strategic priority for EEA has been the structured approach for selection and documentation of indicators within each thematic field. Standardised forms are used in the definition process. Reportnet has not yet defined specific technical tools to facilitate indicator development, but will go into this matter in the coming years.

The technical architecture of the infrastructure

The Reportnet architecture builds on active use of the World Wide Web. The architecture is flexible, with a modular design based on open source software, easing management and adjustments, integration of different web services, connection to external networks, and allows distributed responsibilities. To assure interoperability, simple HTTP and SOAP protocols are used for communication. Common technical language is XML.

Standards - a prerequisite for effective handling

Standards are the essence of an information infrastructure. In order to achieve effective flows of data, specifications have to be followed in deliverables from the data providers. Reportnet builds on agreed European standards. EEA therefore participates in standardisation and shared infrastructure initiatives, e.g. INSPIRE for spatial data, as well as coordinating European work towards agreed definitions on environmental issues.

Reportnet

Reportnet is both an infrastructure and a set of web tool for assisting information flows resulting from reporting obligations. It is currently mainly being implemented for reporting to EEA, but the open system allows reporting also to other national and international organisations.

Reportnet builds on active use of the World Wide Web. The system eases integration of different web services and allows distributed responsibilities.

Reportnet secures that data reported are made quickly available for analysis, and in addition, if conditions allow for it, publicly available without delay.

It is a contribution to what is a shared challenge for European countries, their networks of institutions and EU institutions - to develop technical and organisational systems which facilitate streamlined, transparent and shared use of information.

EIONET

EIONET (European Information and observation network) is EEAs mature network consisting of administrative and scientific institutions at national level in more than 30 countries. Main focus is on agreements on classifications and standards, IT-solutions, definition of priority data flows, where countries are continuously benchmarked, and definition of indicators linking data to policy targets.

EEA

The EEA aims to support sustainable development and to help achieve significant and measurable improvement in Europe's environment, through the provision of timely, targeted, relevant and reliable information to policy-making agents and the public. Reportnet is an important infrastructure project contribution to fulfil EEA's objective.

www.eionet.eu.int/reportnet.html
www.eea.eu.int

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