EEA Briefing

November 2011

Shared environmental information system (SEIS)

Summary: Europe is in the process of building a Shared Environmental Information System (SEIS) to improve the collection, exchange and use of environmental data and information across the continent. To create the integrated web-enabled, system, existing information systems and processes must be modernized and simplified. EEA is a leading proponent of SEIS, plays a crucial role in collecting and providing environmental information, and manages or participates in many on-going European and global initiatives contributing to the implementation of SEIS principles.

Who needs information about Europe's environment?

Across Europe, from Ireland to Kazakhstan, environmental data and information are widely collected, analysed, exchanged and used for multiple purposes. One use is to help European policymakers better develop and implement environmental policies, and then to assess whether they are working or not. To do this, they need quality and timely information on the state of Europe's environment (SoE), trends, pressures and drivers. Another is to help national authorities prepare for emergencies such as floods, or to manage accidents such as toxic or oil spills.

In the EU, the public authorities of Member States have many legal obligations to report environmental data and information. This includes, for example, information on lake water quality which countries report to the European Environment Agency (EEA) – in turn, EEA assesses the information for different products such as its recent *European environment – state and outlook 2010* report (SOER 2010). Other European public authorities also report their environmental information, for example, to UN bodies.

Environmental information is needed to empower citizens, so they can effectively influence public policy, and make informed decisions about the environment and how they consume. Furthermore, as the environment is a public good, they have a right to widely available information, such as air quality in their neighbourhood. European businesses also use environmental information, for example, to track their impacts on the environment; predict future supplies of resources needed for operations; or as an incentive to develop innovative solutions for environmental problems.

Simplifying and modernizing through 'SEIS'

Over the years, it was observed that the collection, exchange and use of data and information could be improved. Users often hit barriers in their attempts to find, or even understand, what they needed. EU policymakers in particular have faced and voiced many challenges in accessing information necessary for evaluating their policies.

In February 2008, the European Commission (EC) proposed a solution through its Communication entitled 'Towards a Shared Environmental Information System (SEIS)'. SEIS is now a collaborative initiative of the EC, and the EEA and its 'Eionet' (European environment information and observation network) of 38 countries. In fact, its implementation is now at the centre of the EEA's 2009-2013 Corporate Strategy and daily operations. EEA is also actively spreading SEIS beyond Eionet, especially to its European neighbours and Central Asia, and globally.

SEIS aims to create a decentralized but integrated and web-enabled, Europe-wide environmental information system -- based on a network of public information providers that share environmental data and information. This can be achieved by simplifying (or "streamlining") and modernizing existing information systems and processes, thereby improving quality, availability, accessibility and understanding.

SEIS is based on seven 'principles'. Information should be:

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

A key goal of SEIS is to maximise and expand use – information is often created to serve one purpose, but the truth is, there is usually lots of potential for other uses, and applying SEIS principles makes that easier. For example, information about floods, while needed to mitigate potential flood impacts, is also extremely valuable for insurance companies and homebuyers, to assess risks for buildings and other properties.

To make SEIS possible, a key condition is a shift from limited access to information to sharing it, as openly and freely as possible. An added benefit will be a reduction in the administrative burden of public authorities – for example, electronic systems could automatically replace much of the human resources now devoted to exchanging information -- and the associated cost savings from improved efficiencies.

Figure 1: SEIS is also about shifting the approach -- from individual countries or regions reporting data to specific international organizations, to their creating online systems with 'services' that make information available for multiple users – people *and* machines.
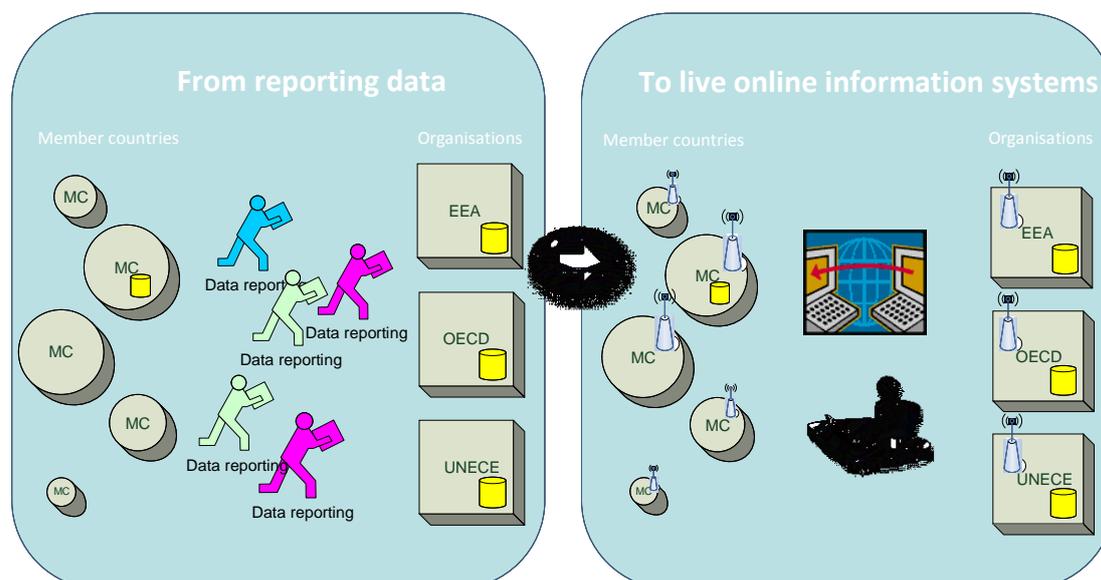
Clearly, SEIS needs to take advantage of, and foster the development of, modern information and communication technologies (ICTs), such as the internet and satellite systems. This includes ICTs providing real-time data which can be used for immediate decisions – from national governments managing emergencies, to citizens planning their day by being informed about local weather or traffic conditions.

SEIS is happening now, with significant EEA support
EEA is a leading proponent of SEIS. It plays a crucial role in collecting and providing environmental information with the help of Eionet. Eionet includes some 900 experts from over 300 governmental organizations in 38 European countries. Its 'Reportnet' infrastructure, which integrates different web services, was initially used for reporting environmental data to

the EEA, but it is now also hosting some of the EC's requirements for environmental reporting. One recent success is that Sweden, Norway and Slovenia now use Reportnet for almost all their European and international reporting requirements (e.g. EU- and UN-related).

Since 2007, EEA has conducted around 50 'SEIS Country Visits' to member and cooperating countries and European neighbours, to explain SEIS, its benefits, encourage implementation and identify existing SEIS-compliant activities at the national or regional level. Some conclusions to date are:

- Some countries are fairly advanced in implementing SEIS, while others need to take significant steps.
- Most are up to date with the new opportunities offered by modern ICTs.
- Some countries have a need for better cooperation between their institutions.
- The benefit of having access to European information within a national context is still often vaguely recognised within countries.

A recent EEA success story with SEIS was the completion of the 'SENSE project'. SENSE has established an automated process where interested countries report online their state of environment (SoE) information from national websites to the EEA's SOER web pages for 'Country assessments'.

In the area of reporting and assessment, SEIS was most recently applied to *Europe*'*s environment — An Assessment of Assessments* in support of the 2011 UNECE 'Environment for Europe' Ministerial Conference in Astana, Kazakhstan. The assessment, prepared by EEA, analyses more than 1 000 environmental assessment reports that were identified and recorded in a dedicated virtual library, with the support of experts across 53 UNECE countries and international organisations. The two thematic areas covered by the assessment and conference are: water and related ecosystems and green economy.

EEA also manages or participates in many on-going European and global initiatives contributing to the implementation of SEIS. For example:

- Initiative to build an **IN**frastructure for **SP**atial **I**nfo**R**mation in **E**urope (INSPIRE): Aims to improve the accessibility and interoperability of spatial data.
- **W**ater **I**nformation **S**ystem for **E**urope (WISE)**:** Integrates reporting data flows from many water-related directives as well as water-relevant statistical data.
- The Biodiversity Information System for Europe (BISE).
- EEA portal for sharing ozone information (OzoneWeb): Links national and regional ozone websites informing users with real-time local air quality data.
- SEIS-ENP: EEA is implementing an EU-funded project (2010-2014) to extend SEIS to 16 European neighbours to the east and south (Algeria, Armenia, Azerbaijan, Belarus, Egypt, Georgia, Israel, Jordan, Lebanon, Moldova, Morocco, Palestinian Authority, Russian Federation, Syria, Tunisia and Ukraine).
- **G**lobal **M**onitoring for **E**nvironment and **S**ecurity (GMES) initiative: Aims to provide information services based on Earth monitoring data obtained from satellites and *in-situ* observations of water, air and land.
- Eye on Earth (EoE): A 'global public information service' for creating and sharing environmental information, and a good practice for implementing a SEIS for Europe. EEA's vision is that anybody in the world, be they an institution, scientist or business, will be able to use EoE for their information needs.
- The **G**roup on **E**arth **O**bservations (GEO), a global partnership which includes the EC and its Member States, is coordinating efforts to build a Global Earth Observation System of Systems (GEOSS).

The EC expects to publish an official implementation plan for SEIS in 2011.

For more information on SEIS:
- EEA: SEIS explained; Animation on SEIS
- European Commission/DG ENV