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COMMUNICATION FROM THE COMMISSION TO THE COUNCIL, THE EUROPEAN PARLIAMENT, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS

Towards a Shared Environmental Information System (SEIS)

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Towards a Shared Environmental Information System (SEIS)

(Text with EEA relevance)

1. **INTRODUCTION**

This Communication sets out an approach to modernise and simplify the collection, exchange and use of the data and information required for the design and implementation of environmental policy, according to which the current, mostly centralised systems for reporting are progressively replaced by systems based on access, sharing and interoperability. The overall aim is to maintain and improve the quality and availability of information required for environmental policy, in line with better regulation, while keeping the associated administrative burdens to a minimum.

In the first place, a set of principles are proposed on the basis of which the collection, exchange and use of environmental data and information should be organised in the future. A key step in the implementation of this approach will be to modernise the way in which information required in various pieces of environmental legislation is made available, through a legislative instrument to be proposed in 2008 which will probably take the form of a revision to the current "standardised reporting directive" 91/692/EC.

Such a revision will also provide an immediate opportunity to repeal a limited number of obsolete reporting requirements, and will also lead to further simplification and modernisation along the following lines:

- it will help to stimulate further streamlining of information requirements in thematic environmental legislation by providing a coherence and up-to-date overall framework;

- it is likely to stimulate similar developments in international conventions, which according to estimates are responsible for around 70% of environmental reporting requirements to which EU Member States are subject;

- it will encourage improvements in the way that data collection and exchange within Member States is organised.

This Communication also describes other accompanying measures, to be taken at European, national and local level that will be necessary to implement the principles set out below.

2. **PRINCIPLES UNDERPINNING THE SHARED ENVIRONMENTAL INFORMATION SYSTEM**

The principles upon which the Shared Environmental Information System (SEIS) is to be based are as follows:

- information should be managed as close as possible to its source;

- information should be collected once, and shared with others for many purposes;

- information should be readily available to public authorities and enable them to easily fulfil their legal reporting obligations;

- information should be readily accessible to end-users, primarily public authorities at all levels from local to European, to enable them to assess in a timely fashion the state of the environment and the effectiveness of their policies, and to design new policy;

- information should also be accessible to enable end-users, both public authorities and citizens, to make comparisons at the appropriate geographical scale (e.g. countries, cities, catchment areas) and to participate meaningfully in the development and implementation of environmental policy;

- information should be fully available to the general public, after due consideration of the appropriate level of aggregation and subject to appropriate confidentiality constraints, and at national level in the relevant national language(s); and

- information sharing and processing should be supported through common, free open-source software tools.

These principles are the product of several studies and expert reflection over several years, and are designed to ensure that environmental information is organised as effectively as possible, and in particular to ensure that the investments currently allocated towards monitoring and other information-gathering processes lead to the greatest possible benefits in terms of the use that is made of the resulting data. They recognise that, while there is a vast amount of data collected by public authorities across the EU (whether at local, regional, national or European level), this data is not always used efficiently, either because of the existence of such data is not widely known or because of a range of obstacles of a legal, financial, technical and procedural nature.

3. WHY IS SEIS NEEDED?

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

Europe has a long history of sharing environmental information. Environmental information systems have been used to good effect to underpin reporting by Member States on implementation of Community environmental legislation, and more recently to support various policy-driven indicator processes put in place by the EU and Member States. Today, however, we face new challenges relating to the 6EAP priorities—most notably adaptation to climate change, halting biodiversity loss and managing natural resources—which will require us to make even more effective use of existing information. Recent experience of forest fires, floods and droughts underline the demand for accurate environmental information to be made quickly and easily available.

Alongside the new challenges there are also new opportunities. In particular, technology is now making it possible to provide real-time data, allowing immediate decisions to be taken and, in some instances, to save lives. Provided that certain technical requirements are met—relating, for example, to harmonisation of formats and interoperability of data systems—data can increasingly be combined to perform the kind of integrated analyses on which good policy depends.

4. OZONE WEB: AN EXAMPLE OF WHAT CAN BE DONE

In 2006, 22 countries provided near real-time ozone values on a regular basis to European Environment Agency (EEA), while five others were involved in the project by undertaking the set-up procedure. The Ozone web project delivered an initial result in July 2006 when a pilot was published on the EEA website. A gradual increase in data provision continued until the end of the summer when around 700 measurement stations across Europe were providing data for the near real-time ozone website.

The site gives data providers, air quality experts, as well as EU-citizens the opportunity to have an overview of the situation at European level as well as follow the development of air quality in a specific region and inform users about local air quality information sites by linking to national and regional ozone websites. Comparison of air quality conditions across national and regional borders is facilitated.

For the general public, the EEA near real-time ozone website displays measured ozone levels in a map interface and provides background information on wider air quality impacts. The information on the EEA website is as recent as two hours old in many instances. If full EU coverage could be achieved the system could be used to provide information relating to summer ozone reporting to the Commission. The EEA plans to expand Ozone web to other pollutants but in order to work properly all Member States need to participate. A completed system therefore could provide information for the citizens, data needed by researchers, state of the environment information for the EEA and compliance information for the Commission.

Ozone web provides a current, real-world example of the kind of services that an open, shared environmental information system will enable, and thus provides proof of concept for the SEIS. However, it is limited to a single pollutant. This type of approach needs to be generalised a much wider range of environmentally-relevant information in order to underpin the integrated analyses that are required to address the challenges of the 21st century.

5. WHAT BENEFITS WILL THE SEIS BRING?

5.1. Simplification and efficiency

While the benefits of a political commitment around the principles set out above go beyond simplification *per se,* they provide the conceptual framework that is necessary in order to simplify current reporting and monitoring obligations.

As noted in the introduction, a key step in implementing the SEIS approach will be to modernise the legal provisions relating to the way in which information required in Community environmental legislation is made available. By doing away with paper reporting, the processes for making information available will be made simpler, more flexible and more efficient.

As also noted in the introduction, provided that such a proposal is accompanied by political commitment around the SEIS principles it will also lead to further simplification benefits in relation to (i) the content of information requirements in thematic environmental legislation, (ii) the content and procedure for reporting at international level, and (iii) more efficient organisation of data-gathering activities within Member States.

By enabling more efficient use to be made of available data, SEIS will facilitate further streamlining and prioritisation of the information requirements that are currently contained in thematic environmental legislation. This is likely to have knock-on effects in relation to the international conventions that are responsible for a large part of the reporting burden currently falling on national administrations, many of which have a geographical coverage similar to that of the EU. Finally, in terms of cost the analysis indicates that some of the greatest savings can be made by improving the efficiency of data-gathering activities within Member States. Greater harmonisation and prioritisation of monitoring activities organised at national and regional level is likely to be particularly effective in improving the cost-efficiency of current investments.

5.2.   Better regulation, better policy

While simplification is an essential part of the better regulation agenda, it must also be recognised that better regulation—and better policy more generally—depends on a high quality of relevant and timely information. Clearly, reductions in administrative burden must be designed in such a way that they indeed lead to an improvement, and not a deterioration, in the quality of public policy and regulation.

Political commitment around the principles set out above will help to achieve this by allowing available data to be harnessed effectively. Given that environmental data and information is of potential use to a great many players for many purposes, improving the mechanisms for collecting, exchanging and using the data can be expected to significantly increase in the use that is made of environmentally-relevant data, together with a significant reduction in cost for the users. This will improve the effectiveness of environmental policy across the entire agenda, including for example adaptation to climate change, protection of biodiversity, management of water resources, and prevention and management of environmental crises such as floods and forest fires.

5.3.   Empowering citizens

Alongside the benefits in relation to administrative simplification and better regulation, commitment to the principles set out above will also help to empower European citizens by making relevant, timely information available to them, enabling them to take informed decisions concerning their environment, including taking appropriate action in cases of emergency, and to influence public policy. Providing useful information that the public needs – and packaged in their own languages - will also help to foster a re-engagement of citizens with the European project.

6.   WHAT WILL SEIS COST?

When assessing the costs of implementing the SEIS principles, it is important to recognise that many relevant activities are already ongoing, and the main challenge—and the reason why a more formal political commitment around these principles is required—is to align these

activities more effectively. Some of the most important activities at European and national level are summarised in section 7.

Some further investment is likely to be necessary in order to achieve full implementation of the SEIS principles outlined in section 2, however. These can be categorised as follows.

- Ongoing efforts to implement the INSPIRE directive will need to be given increased political and administrative attention, and be adequately resourced, at both European and national level.

- Institutions, governmental or otherwise, involved in the collection and processing of environmentally-relevant data will have to review, and in some cases may have to change their organisational and business models to render their existing systems interoperable and link them to an integrated "system of systems".

- EU institutions and bodies will need to continue or reinforce efforts to update and streamline legislative requirements while ensuring that existing reporting systems, most of which currently take a centralised approach, are designed or adapted to be compatible with an increasingly interoperable distributed network.

- Further investments will be needed to create new data that is not currently collected but is found to be essential to support policy, or possibly to harmonise monitoring and data systems, although such investments will be offset by better prioritisation of data requirements and repeal of obsolete obligations.

7. CURRENT EFFORTS TO BUILD SEIS

Various initiatives contributing to implementation of the SEIS principles have been taken at European level, and with the engagement of the Member States, to address these challenges and to take advantage of the possibilities that evolving information technology offers. These include the following.

- In recent years the Commission has proposed or is working on several measures that achieve substantial streamlining of legislative reporting requirements. Measures already proposed include the thematic strategy on air pollution (CAFE). The review of the IPPC directive (96/61/EC) is looking *inter alia* at the coherence of its provisions (including reporting requirements) with those of directives on large combustion plants and waste incineration and a project has recently been launched to identify inter-linkages between monitoring and reporting requirements in various pieces of legislation in the fields of air pollution and climate change, and to provide concrete suggestions for streamlining.

- Ongoing developments in the context of thematic environmental legislation are increasingly recognising the need to adopt a more modern approach to the production, exchange and use of data and information. An example of this is the Water Information System for Europe (WISE), which was initially designed as a reporting tool in the context of the Water Framework Directive and is now being extended to integrate reporting data flows from a number of existing and upcoming water-related directives as well as water relevant statistical data by 2010.

- Directive 2007/2/EC establishing an infrastructure for spatial information in Europe (INSPIRE). This directive was adopted in March 2007 and contains provisions aiming to improve the accessibility and interoperability of spatial data. INSPIRE is based on similar principles to SEIS and successful implementation of this Directive will go a long way towards overcoming existing inefficiencies relating to the use and usability of spatial data stored by public authorities. It is important to recognise, however, that INSPIRE will not directly address data of a non-spatial or non-numerical nature, will not by itself guarantee organisational consolidation within Member States, and will not lead directly to an improvement in the quality and comparability of data.

- Directive 2003/4/EC on public access to environmental information (the Aarhus directive) gives citizens a right to environmental information held or produced by public authorities, including information on the state of the environment, but also on policies or measures taken, or on the state of human health and safety where this can be affected by the state of the environment. Applicants are entitled to obtain this information within one month of the request and without having to say why they require it. In addition, public authorities are obliged to actively disseminate environmental information in their possession.

- The Global Monitoring for Environment and Security (GMES) initiative aims to provide operational information services based on Earth monitoring data obtained from satellites and *in-situ* observations on water, air and land. These services will specifically address the needs of policy makers at all levels, from EU to local. GMES is initially focusing on the development of three "fast track services"—land, marine and emergency response—with preparations for implementing a fourth service on atmosphere having started recently. These fast-track services offer a good opportunity to consolidate and improve existing monitoring systems in Europe by helping to identify and address gaps in currently available data and information products and to ensure their sustainable, operational provision.

- Both the Community and Member States are full members of the Group on Earth Observation (GEO), which aims at building a Global Earth Observation System of Systems (GEOSS), and are therefore committed to the GEO principles of interoperability and data sharing. Initial activities in this area have focused on improving data access and data sharing, advancing the development of interoperability between systems through international standards and other interoperability arrangements, developing mechanisms for the sharing and use of data and information products, and developing detailed specifications and demonstrations of the underlying architecture and user-interface components.

- As part of the EU's maritime policy a European Marine Observation and Data Network will be set up to provide a common gateway for researchers and service providers of high quality marine data—geological, physical, chemical, biological—as well as of the human activity that has an impact on our seas and oceans.

- Various Commission-funded research and non-research activities focus on distributed open systems for environmental management. These include the research Framework Programmes, eTEN, eContent and more recently the CIP policy support programme. In addition, in the context of the IDABC Programme the Commission developed in 2004 a European Interoperability Framework, in close collaboration with Member States. This document defines a set of recommendations and guidelines with regard to organizational,

semantic and technical aspects of interoperability for Pan-European eGovernment Services (PEGS) so that public administrations, enterprises and citizens can interact across borders and across sector. A Commission Communication presenting a revised version of the document is planned to be adopted in 2008.

- The European Environment Agency of course plays a crucial role in collecting and providing environmental information, with the help of its European environment information and observation network (EIONET). EIONET is a network of some 900 experts from over 300 national environment agencies and other bodies dealing with environmental information in 37 European countries, as well as five European Topic Centres (ETCs) working on specific environmental themes. EIONET also benefits from an infrastructure for supporting and improving data and information flows (Reportnet), which integrates different web services and allows for distributed responsibilities. Reportnet has initially been mainly used for reporting environmental data to EEA, but is now also hosting some of the Commission's environmental reporting information.

In addition to these European initiatives, various initiatives at national, regional and local level are also helping to make SEIS a reality. Among these can be mentioned:

- a German Environmental Information Portal (PortalU) covering several hundred thousand web sites and data bases from public institutions operating at the Federal and Länder levels;

- the Irish North-South Share Risk Assessment Reporting Tool, involving an interactive map and database system for use by the public and specialist users alike;

- in Italy, an Environmental Information and Monitoring System (EIMS) being developed by the Agency for Environmental Protection and Technical Services and the regional Environmental Agencies Systems;

- in the Netherlands, the RIVM portal for environmental professionals launched in September 2007;

- also in the Netherlands, a recent review jointly commissioned by various governmental bodies concerning monitoring and reporting obligations and efforts relative to the environment, nature and water in the Netherlands in terms of international, European, national and inter-provincial regulation;

- Austria aims to have 100% electronic reporting and has already succeeded in reporting all data requested by EEA as part of its annual "priority data flows";

- an e-Reporting project of the Statistical Office of the Republic of Slovenia, whose software testing is expected to take place imminently;

- the UK Marine Monitoring and Assessment Strategy, adopted by the UK Marine Assessment Policy Committee in May 2006, which aims to shape the UK's capability to provide and respond to the evidence required for sustainable development within a clean, healthy, safe, productive and biologically diverse marine ecosystem.

8. WHAT ACTIONS ARE NECESSARY TO REALISE SEIS?

Political commitment around the principles set out in this Communication is the first step for implementing SEIS, since it will send a clear signal to the many players, inside and outside government, whose efforts need to be channelled towards an integrated project that will serve many different individual purposes. It will also help to avoid the risk that ongoing activities continue to be fragmented and therefore less effective than they could be in addressing the challenges described in this Communication. This leadership needs to be accompanied by concrete action within Member States to ensure adequate coordination of national information activities.

Ongoing activities at European, national and regional level, including those described in section 5, need to be reinforced and co-ordinated in line with SEIS. Within the Commission, priority will be given to the implementation of the **INSPIRE directive** and further development of the **GMES initiative**, as a basis for improving respectively the sharing of environment-related data and information within Europe and the provision of services to public policy makers and citizens. The success of both these activities in solving the problems they have been designed to address will be carefully monitored, along with the possible need to launch complementary initiatives. In this way, it will be ensured that SEIS, INSPIRE and GMES are mutually supportive.

As noted above, a key step in implementing SEIS, and especially to trigger the expected simplification benefits, will be to modernise the legal provisions relating to way in which information required by environmental legislation is made available. It is expected that this will be done by revising the **Standardised Reporting directive 91/692/EC**, which needs to be updated and brought into line with the SEIS principles. To this end, the Commission intends to come forward with a relevant legislative proposal in 2008, including a repeal of outdated provisions in the current standardised reporting directive. Although the current standardised reporting directive (SRD) applies only to relatively small proportion of reporting obligations in environmental legislation, the envisaged provisions in the revised directive to modernise the way in which the information is made available could cover essentially all of the more than 100 existing environmental reporting obligations. The proposed new directive will also set out the principles and objectives of the SEIS as legal obligations. The Commission will also take the opportunity of further amendments to environmental legislation to ensure that the SEIS principles are systematically integrated into existing reporting and monitoring provisions wherever possible.

The Commission will continue its efforts to streamline the content of information requirements in thematic environmental legislation and bring them into line with the principles set out in this Communication. Further analysis, building on ongoing work within thematic environmental policy and GMES, will be needed to clarify real data and information requirements and to develop the required legal and/or financial instruments. The Commission will also use its participation in relevant international fora to push for similar efforts in relation to international obligations. Member States will, for their part, need to support the Commission in pushing for streamlining in international fora, and take further steps to streamline and simplify data-gathering procedures at national and regional level.

The **European Environment Agency** (EEA) has a crucial role to play in implementing the SEIS and has been a leading proponent of many of the principles described in this Communication. As it continues to fulfil its mandate to provide timely and reliable environmental information, it will be essential for EEA to make SEIS the centre of its

strategy. The EEA's Reportnet tool needs to be taken up fully by the EEA member countries, and will need to be progressively adapted to be compatible with the emerging distributed European system.

In order to ensure adequate funding of the necessary infrastructure, **Community financial support** will be allocated for this purpose through the Research Framework Programmes, LIFE+, the Competitiveness and Innovation Framework Programme (CIP) and the Structural Funds. Since not all these programmes are designed to sustain operational infrastructures, the success of SEIS will also depend on adequate allocations from national and regional budgets towards the necessary actions and objectives as set out above.

A significant improvement in the availability of information and cost-effectiveness of investments needed to produce it will only come about if there is further harmonisation of existing monitoring systems and cross-thematic co-ordination of their planning and implementation in Member States. Examples of the need for cross-thematic co-ordination would include in-situ monitoring of freshwater, soil, land use and biodiversity in an ecosystem context, and the role of in-situ monitoring to validate space observation data. With this in mind, the Commission will publish a report within three years outlining which measures are most necessary and will, if necessary, come forward with appropriate legislative proposals.

While this Communication focuses primarily on developing SEIS within the EU, the above principles will also be promoted in the context of relations with third countries, in particular accession candidate and neighbouring countries, and efforts will be made to ensure that SEIS will be open to participation from these countries.

The Commission services will draw up in 2008, in collaboration with Member States and the EEA, a detailed implementation plan for achieving the objectives outlined in this Communication. This implementation plan will in particular provide further details on how SEIS will be put in place, taking full account of the associated costs and benefits. This will cover, in addition to the more technical aspects, issues relating to legal, financial, organisational, procedural and business model aspects to the extent that they are not already being satisfactorily addressed.