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# Current Trends in *e*Environment and its Role in *e*Democracy

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**Abstract:** The Ad hoc Committee on *e*Democracy of the Council of Europe (CAHDE) was established and started its work at September 2006. Its second plenary meeting was held in Strasbourg on October 2007, where the *White paper of eEnvironment* (Electronic access to Environmental information) was presented. Its fundamental ideas were prepared during discussion on the workshop *Seamless Access to Environmental Information in the EU - Building an Integrated Information Space for the Environment* of the conference EnviroInfo 2007 in Warsaw. The *e*Environment basis is the Aarhus Convention, which is implemented in the European Community and supported by the EU Directives: 2003/4/EC (*Public Access to Environmental Information*); 2003/35/EC (*Public Participation*); 2003/98/EC (*Re-use of Public Sector Information*) and 2007/2/EC (*Infrastructure for Spatial Information in the European Community*). The *e*Environment is going to be one of the fundamentals of *e*Democracy. The Communication COM(2008) 46 final (*Towards a Shared Environmental Information System (SEIS)*) will provide the basis for any citizen to be informed about environmental matters and to use this information for active participation in decision making. Further, it will be develop a *Single Information Space for Europe in the Environment (SISE)* specified in the Experts Consultation Workshop at Brussels on 15 February 2008. The SISE together with the SEIS will provide some sort of integrated information space in which environmental data and information will be combined with knowledge for a decision support of environmental protection and sustainable development. This will enable a deeper vision of *e*Democracy and it allows for different types of environmental data and information processing that is not currently possible. Thus, *e*Environment fully supports the principles of *e*Democracy and its new trends will be further discussed in detail in the paper.

**Keywords:** *e*Environment; Environmental information; Aarhus Convention; *e*Democracy; *e*Government; INSPIRE; GMES; SEIS; SISE.

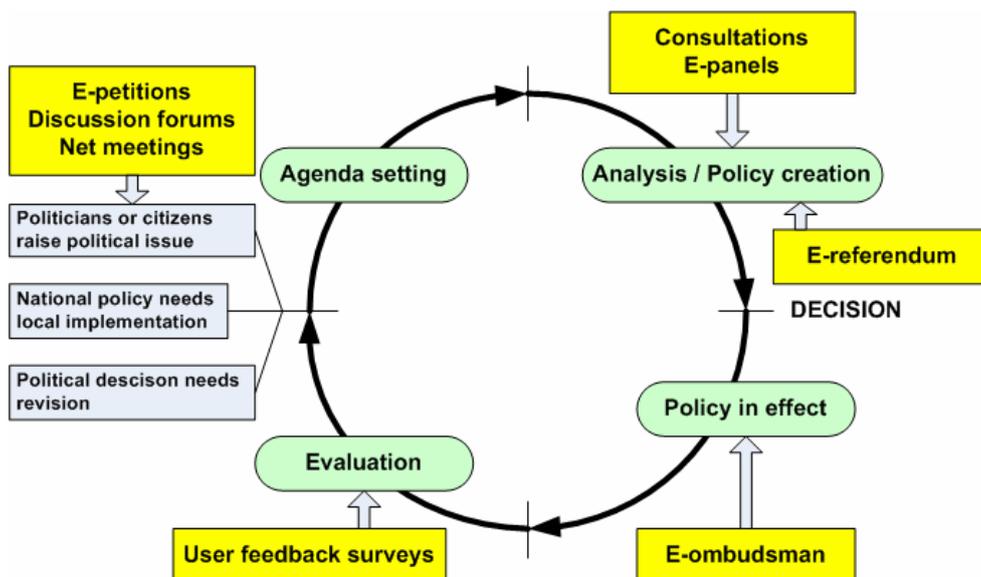
## 1. INTRODUCTION

The *Ad hoc Committee on eDemocracy of the Council of Europe* (CAHDE) was established by decision of the Committee of Ministers of EU and started its work at September 2006. The committee CAHDE is primarily an intergovernmental body, whose members are delegated by the 46 Member States of the Council of Europe, and by relevant international organisations (e.g. EU, OSCE) and authors of the paper participate in the expert group of CAHDE.

The four themes set out by the Council of Ministers Recommendation of *e*Democracy Rec(2004)15 establishes the main goals for *e*Democracy as being:

- strengthening the participation, initiative and engagement of citizens in national, regional and local public life;
- improving the transparency of the democratic decision-making process and the accountability of democratic institutions;
- improving the responsiveness of public authorities;
- fostering public debate and scrutiny of the decision-making process.

The political decision making process can be expressed by the following iterative stage model, see Figure 1. This model also shows how eDemocracy applications can be applied to the different stages.



**Figure 1.** The model of political decision making process in E-Democracy.

eDemocracy strives to simplify processes between public institutions, the legislative, citizen and businesses regarding exchange information, communication and transactions in many sectors using information and communication tools and technologies (ICT). It simplifies bureaucracy, makes decision and law implementation more transparent and supports public participation in many ways.

The *White paper of eEnvironment* (Electronic access to Environmental information) [Nagy, Legat, and Hrebicek, 2007] was presented at the second CAHDE plenary meeting, which was held in Strasbourg on 8 and 9 October 2007. Its fundamental ideas were prepared during discussions on the workshop *Seamless Access to Environmental Information in the EU - Building an Integrated Information Space for the Environment* (Chair: Dr. Thomas Pick) of the 21. International conference EnviroInfo 2007 in Warsaw. They are based on the following considerations [Nagy, Legat, and Hrebicek, 2007]:

- *Control effect:* An effective legal protection for citizen requires that the decision relevant information is available for them. Access to environmental information provides each individual with the possibility to control the compliance with environmental law and to point out deficits in the implementation. Hence, the right to access environmental information leads to a decentralized and effective control of governmental activities by the public.
- *Participation effect:* The right to access the environmental information increases transparency and allows a better public participation in governmental decisions. Therefore, access to environmental information is an important step to participation and democratisation of the environmental legislation.
- *Education effect* (awareness effect): Knowledge regarding the state of the environment is not limited to public authorities; hence this leads to an increased

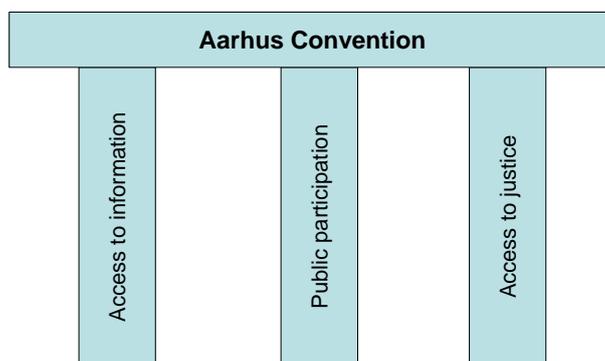
public acceptance of measures (policies, legislation, plans, programs, etc) for the protection of the environment. This leads to a better awareness of environmental issues in the general public.

- *Prevention effect:* The general right of publication of environmental information should discourage potential polluters of the environment, because this bears the risk of publication of their activities.
- *Standardization effect:* The International Conventions and European Directives dealing with access to environmental and spatial information provide EU-wide comparable principles regarding access to environmental information. This facilitates pan European activities to protect the environment from pollution and prevents competitive distortion.

## 2. eENVIRONMENT IMPLEMENTATION

### 2.1 Legal background

eEnvironment is going to be one of the fundamentals of eDemocracy. It issues also from the Aarhus Convention [UNECE, 1998], which grants the public rights and imposes on Parties and public authorities obligations regarding access to information and public participation and access to justice (the 3 pillars of the Aarhus Convention, see Figure 2).



**Figure 2.** The Aarhus Convention and its 3 pillars.

This provides a good opportunity for the eEnvironment implementation to be an integral part of pan European eGovernment services. Next to legal implementation there are lots recent developments in technically implementing eEnvironment and the 3 pillars of the Aarhus Convention [Nagy, Legat, and Hrebicek, 2007]. With it's 3 pillars the Aarhus Convention establishes a number of rights of the public (individuals and their associations) with regard to the environment which in the last 5 years have been cast into legal rights for all citizens of Europe.

On European level there is following legislation, which enables to implement the White paper of eEnvironment ideas:

- Directive 2003/4/EC on *Public Access to Environmental Information*. It requires Member States to progressively make available the environmental information held by public administration bodies and disseminate it to the public. Thus, this Directive represents the implementation of the two pillars of the Aarhus Convention (access to information and access to justice).
- Directive 2003/35/EC *providing for public participation in respect of the drawing up of certain plans and programmes relating to the environment and amending with regard to public participation and access to justice Council Directives 85/337/EEC and 96/61/EC*. It provides members of the public with opportunities to participate on the permitting and ongoing regulation of certain categories of activities within Member States. Such opportunities are provided through access

to information, justice, and through consultation on certain key documents. This Directive is the legal implementation of the second and third pillars of the Aarhus Convention (public participation and access to justice), acknowledging that effective public participation in decision making enables the public to express, and the decision-maker to take account of opinions and concerns which may be relevant to those decisions, thereby increasing the accountability and transparency of the decision-making process and contributing to public awareness of environmental issues and support for the decisions taken.

- Directive 2003/98/EC on *Re-use of Public Sector Information*. According to the Directive, public sector bodies collect, produce, reproduce and disseminate documents to fulfil their public tasks and that making this information available to the public should e.g. allow European companies to exploit its potential and contribute to economic growth and job creation. The Directive establishes a minimum set of rules governing the re-use and the practical means of facilitating re-use of existing documents held by public sector bodies of the Member States. It shall ensure that these documents shall be re-usable for commercial or non-commercial purposes without competitive distortion.
- Directive 2007/2/EC *Infrastructure for Spatial Information in the European Community (INSPIRE)*. It is related to the first pillar of the Aarhus Convention (access to environmental information) and lays down general rules aiming at the establishment of an infrastructure for spatial information in the European Community. It is designed to assist policy-making in relation to policies and activities that may have a direct or indirect impact on the environment. The INSPIRE Directive is addressed to public authorities and the general public as users of spatial environmental information. In the context of this Directive *infrastructure for spatial information* means metadata, spatial data sets and spatial data services, network services and technologies as well as agreements on sharing, access and use of data. It furthermore means coordination and monitoring mechanisms, processes and procedures, established, operated or made available in accordance with this Directive. The Directive applies to spatial data held by or on behalf of public authorities and to the use of spatial data by public authorities in the performance of their public tasks.
- Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions COM(2008) 46 final *Towards a Shared Environmental Information System (SEIS)*. It sets out an approach to modernise and simplify the collection, exchange and use of the environmental data and information required for the design and implementation of environmental policy. The current, mostly centralised systems for reporting will be 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.

## 2.2 Barriers of eEnvironment in data and information management

There are main barriers of eEnvironment regarding availability of the collected environmental data and information are due to a range of underlying drivers of a legal, financial, technical and procedural nature:

- *Lack of interoperability and thus “connect ability” and sharing potential between the data and information systems*: many of the collections of data, information and documents, reports etc are sitting in isolated databases and systems, whose existence is not widely known and cannot talk to each other (i.e. are not interoperable). This is often due to the fact that they are mostly custom-built based on protected company standards, designed in isolation without provisions for interoperability with an integrated framework and platform. It is clear that this situation entails a considerable waste of resources to “reinvent the wheel” as available data, information and functional elements and tools are not shared and

accessible to others [Ráček and Hřebíček, 2006] [Štefaník, Hřebíček and Ráček, 2007], [Vögele, 2007].

- *Electronic access to environmental information and electronic Reporting* (the use of Internet) *not yet a reality*: Although there are currently several EU and Member State activities to modernise environmental reporting towards electronic-Reporting systems seeking to benefit from the capabilities offered by the modern ICT [Büchtele and Ennóckl, 2005], much monitoring and reporting data is still not reported electronically, while built-in delays in the reporting systems often result in a paper-trail of data that are several years old and obsolete when published or submitted in reports. This decreases enormously the possibility to use efficiently this data for policy decision making and formulation [Vogel, 2008].
- *Lack of comparability and quality of data*: This is a particularly serious problem for both Member States and EU Institutions and bodies, since it limits the usability of the data, prohibits efficient assessment of data and their efficient conversion to information tailored to the users needs, increases considerably the time and the labour needed for duality assurance as well as re-engineering of data and information in order to render them comparable [Vogel, 2008]. The cause of these shortcomings have been identified as resulting from diverging definitions and data collection practices and methodologies, a lack of common standards, insufficient inter-operability between monitoring systems and lack of coordination of monitoring programmes between levels of government and across borders [Hlaváček, Hejč, and Hřebíček, 2007].
- *Data access and sharing restrictions*: The existence of policies and businesses models prohibiting wider accessibility and sharing of environmental related data and information owned by public authorities (but also by research institutions and consortia) and their impact for policy makers, citizens and businesses has been recognised in many forums, reports and media (e.g. GMES, GEO, INSPIRE, Aarhus convention) [Pick, 2007], [Krammer and Legat, 2008].

In order to overcome the above barriers and meet the EU policy objectives of the Lisbon and the European i2010 strategy [i2010, 2005], the IDABC Programme (Interoperable Delivery of European eGovernment Services to public Administrations, Business and Citizens) has shifted its priorities not only to equip organisations of the public sector with ICT but also to promote building such common infrastructures and pan-European eGovernment services [Pillmann, Geiger, and Voigt, 2006], [Hřebíček, Hlaváček, and Zálišová, 2007].

### 2.3 The role of SEIS in eEnvironment

According to the Communication COM(2008) 46 final the SEIS will provide the knowledge base required to design, implement and evaluate the environmental and other policies that are needed to achieve sustainable development and are underpinned by reliable, scientifically sound, up-to-date and generally *fit-for-purpose*, data and information covering all elements of the DPSIR (Driving forces, Pressures, State of the environment, Impacts and Responses) framework. The general objectives of the SEIS are:

- to secure a clear political agreement around a set of principles on which the SEIS is to be based;
- to continue rationalising the *knowledge base* through the assessment and streamlining of existing reporting requirements within environmental legislation while implementing information and communication technology solutions for electronic reporting;
- to establish and implement data and information sharing agreements in addition to an efficient ICT infrastructure to facilitate the discovery, assessment, access and sharing of environment-related data and information;

- to reinforce and, where necessary, establish monitoring infrastructures and surveys for the collection and archiving of *fit-for-purpose* environment-related data that are cost effective and flexible but can be sustained over the long term.

#### 2.4 The role of EEA and EIONET in eEnvironment

The *European Environment Agency* (EEA) together with the Commission will play the most important role in overcoming above barriers of eEnvironment. EEA particularly 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) of EEA working on specific environmental themes. Based on input from the EIONET partners the EEA has identified a set of priority annual data flows. These data in the areas of air quality, air emissions, inland waters, marine and coastal waters, contaminated soil, nature conservation and land cover, are used to update the core set of environmental indicators, which form the basis of EEA reports and assessments.

REPORTNET is EIONET's infrastructure for supporting and improving data and information flows and has helped modernise the collection of information and reporting systems [Pillmann, Geiger, and Voigt, 2006]. The system 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. The open system also allows for deliveries to be made to other national and International organisations. However to date the information is often uploaded in the form of reports in word processing or spreadsheet format and not structured in connected databases. This makes it difficult to efficiently retrieve, integrate and analyse the information in order to efficiently inform policy and decision making.

As part of the REPORTNET, the EEA has created since 1998 a Reporting Obligations Database (ROD) and a Central Data Repository (CDR). There are our experiences with REPORTNET tools: Hřebíček, Pitner and Ráček [2004] developed environmental data models for reporting obligations of the Czech Republic to CDR, as well as they analysed how these obligations are met in practice ROD information tools of the EEA. However ROD has a delay with respect to its development plan and also large dynamic changes, which bring the necessity to change developed environmental data models for reporting obligations of the Czech Republic. REPORTNET will therefore need further development for it to be able to serve as an fully effective tool for a coherent simplified reporting system and provide timely availability of data, information and documents, and this will require agreement on its use by all Member States.

#### 2.5 The role of FP7 and development of SISE

The 7th Research Framework Programme (FP7) objective “*ICT-2007.6.3: ICT for Environmental Management and Energy Efficiency*”, [FP7, 2006], introduced a *Single Information Space for the Environment in Europe* (SISE) in which environmental institutions, service providers and citizens can collaborate or use available information without technical restraints. [Schoupe, 2008]. This will be a platform also for eEnvironment. The aim of the SISE is: an ICT research vision for real-time connectivity between multiple environmental resources which would allow seamless cross-system search; as well as cross-border, multi-scale, multi-disciplinary data acquisition, pooling and sharing. Furthermore, it would allow for service-chaining on the Web, thereby stimulating data integration into innovative value-added Web services. Typical topic for this session will include ICT research for Environmental application and services, open semantics and standards, data interoperability and Web communities, data visualisation and modelling including risk assessment, SISE deployment models, and the consolidation of a existing networks to build a European Research Area in the field of ICT for environmental sustainability.

### **3. CONCLUSIONS**

The SEIS together with new FP7 research projects for the SISE [Schoupe, 2008] will provide some sort of an integrated information space in which the connection of eEnvironment with eDemocracy will support of environmental protection and sustainable development.

The cost and benefits of implementing a connection of eEnvironment with eDemocracy will depend on the timescale over which it happens, and the precise measures that are taken to achieve it. However, the potential benefits of such a system can nevertheless be expected to be considerable. Improving the mechanisms for collecting, exchanging and using the data can be expected to significantly increase the use that is made of such data, together with a significant reduction in cost for the users. [Vögele at all, 2007]. Improvements in the access and interoperability of data systems will also reduce the need for reporting requirements, leading to a streamlining of data requirements and data flows, including the phasing out or repeal of outdated or redundant reporting requirements.

Other benefits include better legislation, more efficient EU-level analyses, efficiency gains in relation to the achievement of international policy commitments and evaluation obligations, empowerment of citizens through the widespread availability of information, increased availability of data for use by researchers, and better profile for the EU in various global forums. Updating the standardised reporting directive will bring about immediate simplification benefits, will in addition help to trigger further streamlining within Member States and compliance with the SEIS and SISE principles. Citizens in particular stand to benefit from the increased transparency and availability of information that makes full use of the rapidly evolving ICT for the support of eDemocracy.

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