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PREFACE

The Austrian Federal Ministry for Environment, Youth and Family, and the Austrian Federal Environment Agency held an international workshop, "Internet for Environmental Communication", May 30-31, 1996 in Vienna. The workshop was organised by the International Society for Environmental Protection (ISEP).

Attended by more than 40 environmental communication officers of governmental agencies and NGO services, coming from 20 European countries and Canada, the workshop served as a follow-up to an earlier workshop, "Environmental Communication Strategies", held in The Hague in September 1995.

The objectives of the workshop were:

- to strengthen contacts among environmental information specialists ("The Green Spider Network");
- to exchange ideas and experiences with respect to the Internet and available information resources;
- to learn of the latest techniques and systems employed on the Internet to make information available to target groups; and
- to explore information delivery systems under development by various information providers.

Single presentations and subsequent discussion dealt with the following main items: *Eleanor Zazulak* of the Canadian Treasury Board gave an overview on the development, experience and strategy of the Canadian Government with the use of the Internet. *Jane Keys* of Greenpeace showed how environmental Internet campaigning of NGOs is working, and *Kevin Grose* of the World Conservation Union presented the use of the Internet as a communication and information exchange tool within the IUCN.

Johannes Mayer of the Austrian Federal Environment Agency presented the WWW-Server of the Agency and demonstrated the online access to Austrian air quality data. *Andreas Tschulik* of the Austrian Ministry of Environment presented the structure of the Ministry's Server which offers information to the public according to the Austrian Federal Environmental Information Law from 1993. *Konrad Zirm* of the Austrian Ministry of Environment highlighted European Environment Internet Initiatives like the development of a Environmental Data Catalogue (Umweltdatenkatalog) in German speaking countries with an implemented Environmental Thesaurus. This project became the basis of the ongoing development of a European Catalogue of Data Sources including a European Environmental Thesaurus, initiated by the European Environment Agency (EEA) in Copenhagen. The European Topic Centre on Catalogue of Data Sources is located in the Land Niedersachsen in Germany in cooperation with ISEP as a Technical Secretariat in Vienna. *Werner Pillmann* presented ISEP's and CEDAR's strategy for the distribution of environmental information.

On the other hand, technical details of building up and using a Server were discussed. E.g., how to attract people to a Server without using heavy graphics, and basic questions like copyright, and data protection issues turned out to be of general interest. Other important items were how to handle large amounts of e-mail

messages in daily communication, and up to which level interaction and feedback from users of a public information system can be managed.

We hope that based on this Workshop a European information network of environmental communication officers has been started and will develop for the benefit of many environmental initiatives.

Werner Pillmann
(ISEP)

Vienna, August 1996

WORKSHOP PROGRAMME

Thursday, May 30, 1996

- 9.00 *Andreas Tschulik, BMU Vienna (A)*
Welcome and Introduction
- 9.15 *Johannes Mayer, UBA Vienna (A)*
Internet Communication between Government and Citizens: Introduction and Checklist for Discussion
- 9.30 *Eleanor Zazulak, Treasury Board, Ottawa (CAN)*
Practical Experience from Internet Use by National Governments
- 10.15 Discussion
- 10.30 Coffee Break
- 11.00 *Konrad L. Zirm, BMU, Werner Pillmann, ISEP, Vienna (A)*
The Principle of Free Access to Environmental Information
European Environmental Internet Initiatives (CEDAR, UDK, ETC-CDS, MERCURE)
- 12.00 Discussion
- 12.15 Short Introduction of all Workshop Participants
- 13.00 Lunch
- 14.00 Case Studies: Presentation and Splitting into Working Groups
- *D. Bennedbaek, H. Prestegaard, Danish EPA and DMU (DK)*
Strategies for Use of Electronic Publication in Danish Environmental Administration /
Electronic Communication Strategies of the Danish Ministry of Environment
- *A. Tschulik (BMU), J. Mayer (UBA), B. Wünschek (City of Vienna) (A)*
Presentation of Institutional Servers
- 15.30 Coffee Break
- 15.45 Case Studies: Presentation and Splitting into Working Groups
- *L. Mex-Joergensen (DK)*, European Environment Library Network
- *J. Mayer (A)*, Integrating Environmental Information Sources in Europe - a Networking Project on the WWW
- *B. Jansen (DK)*, The European Environment Agency - Web Server
- 16.45 - *W. Boch, CEC, DG XIII (B)*, Environment Telematics - An Overview on the European Commission's R & D Initiative
- 17.30 Discussion and End of Session

Friday, May 31, 1996

- 9.00 *Kevin Grose, IUCN, Gland (CH)*
Union-Link: IUCN's Strategy for Using the Internet

- 9.45 *Jane Keys, Greenpeace, Amsterdam (NL)*
Environmental Internet Campaigning of NGOs
- 10.30 Discussion
- 10.45 Coffee Break
- 11.15 *Ralf Kramer, Research Center Informatics, FZI Karlsruhe, Horst Spandl, LfU Baden-Wurtemberg (D)*
Making the Environmental Data Catalogue (UDK) and other Databases Available on the World-Wide Web
- 11.45 *Bernhard Lorenz, CEDAR, Vienna, (A)*
How to Build-Up a Web-Site - at the Example of the Central European Environmental Data Request Facility (CEDAR)
- 12.15 Presentation of Environmental Web Sites (REC, EEA/EIONET, etc.)
W. Bowman, I. Roussev, Regional Environmental Center, (H)
Using the REC Web Site for Environmental Information Retrieval
- 13.00 Lunch
- 14.00 Time for presentation of other Servers
- 14.30 Discussion in Working Groups and Feedback to Plenary Session
- Exchange of Experience: Environmental Public Relations via Internet (*Moderator: Jane Keys, Greenpeace*)
- How to Build-up a Web Site: Requirements and Implementation (*Moderator: Kevin Grose, IUCN*)
- 15.30 Feedback of Working Groups to Plenary Session
- 16.00 End of Workshop

THE INTERNET WORKSHOP HOMEPAGE

<http://www.ubavie.gv.at/info/sources/workshop.htm>

<http://www.ubavie.gv.at/info/sources/workshop.htm>



Federal Environment Agency - Austria

[[Environmental Information Sources in Austria](#)] / [[European and Global Information Sources](#)]

Internet Workshop Homepage (30/31 May 1996)

Europe

- [European Environment Agency](http://www.eea.dk) (<http://www.eea.dk>)
- [European Commission - DG XIII](http://europa.eu.int/en/comm/dg13/dg13.html) (<http://europa.eu.int/en/comm/dg13/dg13.html>)

Austria

- [Federal Ministry for Environment, Youth and Family](http://www.bmu.gv.at) (<http://www.bmu.gv.at>)
- [Catalogue of Data Sources \(UDK\)](http://udk.bmu.gv.at) (<http://udk.bmu.gv.at>)
- [Federal Environment Agency](http://www.ubavie.gv.at) (<http://www.ubavie.gv.at>)
- [CEDAR - Central European Environmental Data Request Facility / ISEP - International Society for Environmental Protection](http://www.cedar.univie.ac.at) (<http://www.cedar.univie.ac.at>)
- [City of Vienna](http://www.magwien.gv.at/ma53/) (<http://www.magwien.gv.at/ma53/>)
- [Environment, Air Quality Data \(MA22\)](http://www.magwien.gv.at/ma22/) (<http://www.magwien.gv.at/ma22/>)
- [Austrian Research Centre Seibersdorf](http://www.arcs.ac.at) (<http://www.arcs.ac.at>)

Belgium

- [Flemish Environment Information](http://www.mina.be/) (<http://www.mina.be/>)
- [Flemish Environment Agency](http://www.vmm.be/) (<http://www.vmm.be/>)
- [DGRNE - Walloon Region \(Biodiversity\)](http://www.biol.ucl.ac.be/ecol/SIBW.HomePage.html) (<http://www.biol.ucl.ac.be/ecol/SIBW.HomePage.html>)

Canada

- [Government of Canada's primary site](http://canada.gc.ca/main_e.html) (http://canada.gc.ca/main_e.html)
- [Environment Canada](http://www.doe.ca/) (<http://www.doe.ca/>)

Czech Republic

- [Ministry of the Environment](http://www.env.cz/) (<http://www.env.cz/>)

Denmark

- [Ministry of Environment and Energy](http://www.mem.dk) (<http://www.mem.dk>)
- [Danish Environmental Protection Agency](http://www.mst.dk) (<http://www.mst.dk>)
- [National Environmental Research Institute](http://www.dmu.dk) (<http://www.dmu.dk>)

Finland

- [Finnish Environment Administration](http://www.vyh.fi) (<http://www.vyh.fi>)

Germany

- [Federal Environment Ministry](http://www.bmu.de) (<http://www.bmu.de>)
- [FZI \(Computer Science Research Centre\), Univ. Karlsruhe](http://www.fzi.de/dbs/applAreas/eis.html) (<http://www.fzi.de/dbs/applAreas/eis.html>)

Italy

- [National Agency for New Technology, Energy and the Environment \(ENEA\)](http://www.sede.enea.it) (<http://www.sede.enea.it>)

Norway

- [Ministry of Environment](http://odin.dep.no/md/) (<http://odin.dep.no/md/>)
- [State of the Environment](http://www.grida.no/soeno95/) (<http://www.grida.no/soeno95/>)

Slovenia

- [Ministry for the Environment and Regional Planning - Geoinformation Centre](http://www.sigov.si:81/) (<http://www.sigov.si:81/>)

Sweden

- [Swedish Environmental Protection Agency](http://www.environ.se/) (<http://www.environ.se/>)

United Kingdom

- [Department of the Environment](http://www.open.gov.uk/doe/doehome.htm) (<http://www.open.gov.uk/doe/doehome.htm>)

International NGOs

- [IUCN - The World Conservation Union](http://w3.iprolink.ch/iucnlib/) (<http://w3.iprolink.ch/iucnlib/>)
- [Greenpeace](http://www.greenpeace.org/) (<http://www.greenpeace.org/>)
- [Regional Environmental Center for Central and Eastern Europe](http://www.rec.hu/) (<http://www.rec.hu/>)

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INTERNET COMMUNICATION BETWEEN GOVERNMENT AND CITIZENS: INTRODUCTION AND CHECKLIST FOR DISCUSSION

Johannes Mayer

Austrian Federal Environment Agency, Vienna

1. Information made accessible for active viewing & retrieval: www, gopher, ftp, telnet...

Sites with possibilities of online feedback from citizens

- Activities/programmes of your own institution (+ contacts)
- Public information (administrative & other, + contacts)
- Government publications (abstracts, full text, online ordering ...)
- State of the environment data

Some Advantages (with regard to printed or broadcasted information):

- Permanent possibility of easy and accurate update
- Little additional costs of electronic publication (once the site is installed)
- Permanently accessible information site (24 h/day)
- Considerable potential for reduction of "paperwork" and oral/written standard requests
- Direct links to other institutions & information can be included (www, gopher)
- Online answer facilities can be installed wherever required (www)

Some Disadvantages/Potential Problem Areas:

- Retrieved information may easily be reproduced (and perhaps changed) without your knowledge.
- Security devices required (due to external access to government computers)
- Restricted audience (cannot yet be accessed by all citizens).
- The citizen has to know/be informed that the site exists
- Personnel and other resources needed to install, develop and update information service.

2. Government information distributed to subscribers via electronic mailing lists:

- e.g. press information via electronic subscription list (US-EPA)

Advantages:

- Nearly no additional mailing costs (once the site is installed)
- Immediate transmission

- Mode of operation decided upon by the owner of the subscription list: one-way information, comments & requests accepted, moderated discussion, unmoderated (open) discussion

Disadvantages/Potential Problem Areas:

- Usually active interest (subscription) by the receiver needed (The potential receiver has to be informed on the existence and importance of the list)
- Restricted audience (cannot yet be used to reach all citizens)

3. Electronic addresses for requests & comments from citizens

- Addresses for general or specific information requests
- Call for comments on administrative or legislative proposals (USA)

Advantages:

- Direct and easy access & feedback of citizens to the gvt
- New instrument of public participation
- Full liberty for the administration of retaining or ignoring comments
- Possibility of electronic filing of all contributions

Disadvantages/Potential Problem Areas:

- Direct and easy access of citizens' and worldwide complaints to the government
- Restricted audience (risk of overestimating comments from a certain part of the population)

4. Electronic mail for administrative correspondence

Advantages:

- Nearly no additional mailing costs (once email access is installed)
- Immediate transmission
- Easy electronic filing

Disadvantages/Potential Problem Areas:

- Restricted audience (cannot yet be used to reach all citizens)
- No guaranteed privacy of communication (unless the message is encrypted)

THE GOVERNMENT OF CANADA ON THE INTERNET

Eleanor F. Zazulak

Treasury Board Secretariat, Government of Canada, Ottawa

Evolution of the Network

Although public awareness and use of the Internet has recently increased dramatically, the network has existed in one form or another since the late 1960's. The Internet in North America began in 1969 as a U.S. Department of Defence initiative to establish a communications network that would continue to operate in the event of a nuclear disaster. The result was the linking of military research establishments, universities and defence contractors in a network known as the ARPANET. The ARPANET was based on a common set of communication protocols, known as the Transmission Control Protocol/Internet Protocol (TCP/IP).

In the mid-1980's, the National Science Foundation (NSF) of the United States began to fund research and academic networks throughout the U.S. and to link these networks in a high-speed network known as the NSFNet. The NSFNet was based on the same TCP/IP protocols as the ARPANET.

At about the same time the NSF was evolving in the United States, national research and academic networks - NetNorth and CDNNet - emerged in Canada. Although not based on Internet protocols, these two networks provided a starting point for a Canadian Internet network, which eventually emerged as the CA*net.

CA*net is the Canadian backbone of the Internet. It connects ten regional networks, each originally established to provide networking capabilities to the academic and research communities, mainly universities and colleges, in each province. From 1987 to 1993, the National Research Council of Canada sponsored the CA*net, providing seed funding of \$2 million from 1990 to 1993. The CA*net is now funded by an industry/government/academic consortium called the Canadian Network for the Advancement of Research, Industry and Education (CANARIE).

Around the world, a similar pattern has emerged, with the linking of regional networks to national networks. The national networks have linked, primarily through NSFNet, into today's Internet - a global network of networks.

Estimates of Internet Users

There are estimated to be over 3.5 million computers world-wide. Of these, 380,000 are World Wide Web sites maintaining a repository of information exceeding 25 billion characters.

There are an estimated 48 million active Internet users around the world. The number is growing by about 200,000 users per month. In Canada, it is estimated that out of our population of 26 million more than 6.5 million individuals had access to the Internet at the end of 1995.

Given that Canada is a country 109 times the area of Austria containing 9.9 million square kilometres (the whole land mass of Europe in contrast, is 10.5 million square kilometres) and a population of 2.9 people per square kilometre, we have become a leader in communications technology out of necessity. Another example of the vastness of our country is the distance between the St. John, the provincial capital of

Newfoundland in the east, and Victoria, the capital of British Columbia in the west - over 5,000 kilometres covering 4 time zones. The world's longest national road, the TransCanada highway, joining these two capital cities is 7,307 kilometres in length.

Uses of the Internet

Use of the Internet within the Government of Canada parallels use by business and institutions outside government. Government employees use electronic mail to communicate with colleagues inside and outside of government. It is used to disseminate program information to client groups, industry and the general public by publishing it electronically. It is used as a consultation tool for public policy development; for educational and distance learning purposes by providing library services and information about government programs and services to schools and rural and remote communities.

Government-wide Internet Strategy

The Canadian government has done much in a short period of time to develop ways to use the Internet for communications, research and information dissemination. The Treasury Board Secretariat which is responsible for developing the management and administrative framework for the Government of Canada has, in co-operation with other institutions, adopted a government-wide strategy for its use of the Internet. As part of the strategy, a Primary Internet site called the Canada site was created to provide the public with a single access point to general information about Canada and to a range of federal government information and services. The public has the option of accessing the Canada site in their official language of choice - French or English. The Canada site also provides the users with direct access links to other levels of government including provincial and municipal.

The Canada site has been visited by over 2 million users since it opened on December 14, 1995. Of these over 578,000 were made in the month of February which was one of the coldest months on record. Perhaps Canadians stayed inside to surf the net rather than ski the mountains. 85% chose to access the site in English and 15% in French, 40% of the access was from within Canada, 35% from the U.S., 21% undefined and 4% from other countries.

Of this 4%, 1,900 hits were made from Australia, 1,700 hits from France, 1,605 from the United Kingdom, 1260 from Sweden, 710 from Switzerland, 623 from Finland, 450 from Germany, 371 from the Netherlands, 305 from Belgium, 291 from Italy, 250 from Ireland, 133 from Austria, 131 from the Czech Republic, 109 from Denmark and 44 from Slovenia.

The Government Telecommunications and Informatics Service (GTIS) of the Supply and Services Ministry, the primary supplier of telecommunications services for the government, was selected to host the Canada site. In addition to the Canada site, GTIS also hosts an internal Intranet service (Publiservice) that disseminates information relevant to public servants and links with institutional sites such as that of the Treasury Board Secretariat. The Treasury Board Secretariat (TBS) site provides information on administrative policy, budgets and information of government-wide interest such as the appointment of senior officials and salary scales.

GTIS purchases bandwidth from competing commercial carriers based on the aggregated requirements for the entire government and then redistributes this

capacity to individual institutions through the government telecommunications system called the Government Enterprise Network (GENet). GENet also provides institutions with a direct link to regional Internet nodes as an alternative to using a commercial Internet provider.

Other elements of the Government of Canada's Internet strategy includes a Guide to Internet use in the Government which provides guidance to public servants on the use and production of information sources on the Internet- the Guide is posted on the TBS site at <http://www.tbs-sct.gc.ca>; an interministerial Internet Advisory Committee which advises the TBS on the Internet strategy and GTIS on the Canada site and the provision of Internet services and acts as a forum on government-wide issues related to the integration of the Internet and Intranet into institutional communications strategies; home page and document identification guidelines; and information technology security including the recent adoption of public key encryption technologies to enhance Internet security.

Some Management Issues

Internal and external communications

Using the Internet effectively as a public information medium requires an understanding of its communications and marketing potential and an appreciation of client or user information needs. The availability and usefulness of government information is enhanced by a corporate culture receptive to the use of the Internet and knowledge of its clients expectations.

Presentation, style and accessibility

Internet users need ready access to clearly identified, logically presented federal government information. With the enormous growth of on-line information offered by federal institutions, it is in the best interest of hosts to adopt a common look and feel for presentation which ultimately assists the user and lends credibility to the federal government presence on the World Wide Web.

Guidance that provides the basic principles for site architecture, information design, corporate identity and universal accessibility are encouraged through the Guide. Site architecture addresses the manner in which the site is planned and organized from the point-of-view of the user. Information design defines the effective, coherent presentation of content which includes layout, typography and graphic standards with the intention of achieving particular objectives in relation to the needs of the users. Corporate identity clarifies the origin and authority of on-line documentation and helps unify the presentation of federal government programs and services. Universal accessibility ensures that sites are developed to serve the widest possible audience and broadest possible range of hardware and software platforms and that consideration is given to the needs of users with disabilities, particularly the visually impaired.

Official languages

As English and French have equal status in all federal institutions, an official language dimension is present whenever a public servant communicates with the public. Every employee has a vital role to play in meeting the institutional obligations

of the *Official Languages Act* in communications with and the provision of services to the public.

Federal offices must respect the spirit and intent of this legislation when using the Internet to provide information.

Offices must ensure that, when communications to the public are put on the Internet by another person or organization on their behalf, these communications respect all official languages requirements that would apply if these offices were providing them.

Copyright

The Canadian *Copyright Act* provides protection for creators of original literary, dramatic, musical and artistic works and for those works created for or published by the Crown, i.e., government publications. Therefore, when institutions are publishing material on the Internet two sets of issues regarding copyright must be considered - those related to the reproduction of works copyrighted by authors outside of government and those related to Crown copyrighted works.

If institutions incorporate material copyrighted by a private source, permission must be sought to reproduce it and ownership of the material must be stated clearly.

Generally, if institutions are disseminating Crown copyrighted material on the Internet, a notice should be included that states that the material contained therein may be used without permission, provided the user reproduces the material accurately and acknowledges the source of the work and the name of the author institution. Permission is still required when Crown copyrighted material is going to be reproduced for resale or redistribution.

Privacy and security

Institutions are to consider the security of information and institutional resources before connecting to the Internet. Security safeguards will differ, depending on whether the department is providing access to the Internet, including e-mail, or external access by the public to institutional information, or both. Institutions must take these considerations into account when assessing the level of risk and the protection necessary to deal with potential threats associated with world-wide Internet access.

From a security perspective, internal institutional systems containing personal information should be separated by a firewall or should be located on a physically separate server that the public cannot access via the Internet.

As computer and communications systems become faster and more complex, the use and development of new cryptographic systems which rely on public key cryptography are being implemented. Public key cryptography uses two keys instead of one, as is the case with conventional cryptography. One key is kept private and the other key is made public. The public key is used to encrypt a message, the private key can decrypt the message. With the invention of public key cryptography, another process known as a digital signature became possible. A digital signature is much like a hand written signature in that it provides proof that you were the originator of the message (authentication).

Provision of secure information and communications systems based on cryptography depends on the underlying key management system. The Government of Canada

public key infrastructure (PKI) will provide a uniform key management and key certification process for confidentiality and digital signatures across government. The Government of Canada PKI is the infrastructure that integrates other technologies into a seamless solution for secure institutional information management and electronic commerce, whether internal or external to government. PKI will provide solutions to privacy - keeping information confidential; access control - allowing only selected recipients access to the information; integrity - assurance that the information has not been altered; authentication - proof of the originator of the information; and non-repudiation preventing anyone from denying that he/she sent the information.

Search and retrieval

Full text search engines based on so-called Web crawlers are the Internet's primary search tool. These tools provide access to Internet information but much government information is not available on the Internet. To facilitate the search and retrieval function of all government information, the Government of Canada is piloting a modified version of the U.S. Government Information Locator Service (GILS) standard. GILS provides a common specification (metadata) for describing government information holdings that allows search engines to limit their search to catalogue information or to search text only after appropriate catalogue entries or document profiles have been found.

Examples of how the Government of Canada uses the Internet

The **Canada site** (<http://canada.gc.ca>) which is the single window access to the Government of Canada disseminates information about Canada, the nation, its people, environment and history. It also describes the role of the Prime Minister and Parliament in a short description on the Canadian system of governance. The Canada site also provides links to all other federal, provincial, and territorial government institutions.

The Internet is used to provide tourism information on **Canada's national parks** and national historic sites (<http://parkscanada.pch.gc.ca>).

Educational services and resources for students and teachers to stimulate learning are being offered through **SchoolNet** (<http://info.ic.gc.ca>). The SchoolNet program is a joint federal, provincial, territorial and private sector initiative. It was designed to provide Canadian students and teachers with electronic services which would develop and stimulate the skills needed in the new information age. SchoolNet will link Canada's 16,500 schools to the Internet by the end of the 1996-97 school year. Since October 1993, there have been over 1 million accesses to SchoolNet, representing a monthly growth rate of 65%. The Community Access Project also funded by the federal government will provide up to 1,000 rural communities across Canada with access to the Internet through schools, libraries or other community centres.

The on-line business information source "**Strategis**" (<http://strategis.ic.gc.ca>) gives Canadian firms access to commercial, entrepreneurial and economic information to help them do business globally. For example, Strategis contains a growing collection of business intelligence, strategic analysis, data and information resources for and

about Canadian industries and contains information on more than 35,000 licensable technologies from over 40 countries.

Environmental information is available through the **Green Lane** (<http://www.ec.gc.ca>). It provides interactive access to the environmental information of the Department of the Environment (Environment Canada) and its partners, across Canada and around the world. Over 222,000 requests were made to the site from January 1 to March 31, 1996. This represents an average 113.9 requests per hour or 2734.5 requests per day.

The Green Lane provides 24-hour, one-window access to the products, services, data, programs and policies of Environment Canada and its partners. Users are introduced to key environmental issues and topics such as atmospheric change, biodiversity, toxics and weather, as well as related information on environmental science, technology and socio-economics. Examples include:

The **Ecological Monitoring and Assessment Network** (EMAN) (<http://www.cciw.ca/eman/intro.html>) is a national network which brings together independent environmental monitoring and research activities to facilitate a holistic approach to ecological enquiry and ecosystem understanding. The network connects the Ecological Sciences Co-operatives operating across Canada. Although it is highly decentralized, EMAN acts as a co-ordinating body, supporting communication among its participants and providing strategic direction.

The **Great Lakes Information Management Resource** (GLIMR) (<http://www.cciw.ca/glimr/intro.html>) is an on-line resource that provides an index to Environment Canada's Great Lakes program information. Its purpose is to provide a forum for sharing information about the Great Lakes with the public, its partners and departmental staff. Air and water quality, natural resources, wildlife and weather forecasts are only a few of the topics a user can learn about through GLIMR. Although links are provided to related sites, GLIMR provides access to numerous information products including press releases, databases and fact sheets.

The **Weather Service** (<http://www.on.doe.ca/text/index.html>) provides continuously updated forecasts, charts and satellite images for all regions and major urban areas across the country. Compiled by the Atmospheric Environment Service, regular daily and extended weather forecasts for cities and regions across the country are posted and linked to the Green Lane home page. This supplements weather information available on radio and television including the 7 day a week, 24 hour weather channel and newspapers.

Hinterland's Who's Who (<http://www.ec.gc.ca/envcan/index.html>) is a highly recognized on-line listing of numerous Canadian wildlife species compiled and posted by the Canadian Wildlife Service. Each entry describes the appearance, life history and habits of a different Canadian bird or mammal, gives suggestions for further reading and includes photos and distribution maps. There are also links to related wildlife information such as endangered species and bird feeding.

"Globe Week Live" (<http://www.doe.ca>) was an on-line magazine published every day during the week of March 25-29, 1996 to profile Environment Canada's involvement in Globe '96 and related events. It is a new application of the Green Lane and the first of its kind for the Canadian federal government. Of its many notable features, users could access daily reports and photographs from the week's events, Ministerial speeches, press releases and an environmental conference calendar.

The **Canadian Biodiversity Information Network** (CBIN) (<http://www.doe.ca/ecs/biodiv/biodiv.html>) is the Canadian node of the Biodiversity Information Network which supports the International Convention on Biological Diversity. The Web site is not an official Departmental site, but rather it is organized by and contributed to by various government, non-government and private participants across Canada. Users of CBIN can link up to many sources of biodiversity information including publications, educational material, conference sites, species information and other organizations around the world.

The **Inquiries Service** (<http://www.doe.ca/prod/inqry-e.html>) is an on-line service that allows users to send specific requests for information or comments to departmental staff.

The **Canadian Environmental Protection Act** (<http://www.doe.ca/tandi/cepa/etitles.html>) is the national environmental legislation made available on the Internet for use and consultation by governments, industries and individuals.

To Understand and Use Information

The Green Lane goes beyond providing access to information. The Green Lane is designed to help users understand that the environment is a shared responsibility and through their personal decisions and actions, they can make a difference. Examples include:

The State of the Environment Report (<http://199.212.18.12/~soer/>) integrates scientific and socio-economic information on the condition and trends of the state of Canada's environment.

The National Pollution Release Inventory (<http://www.doe.ca/pdb/npri.html>) is a legislated inventory of pollutant releases and transfers in Canada.

Action 21 (<http://www.ns.doe.ca/action21/menu.html>) provides departmental information to users to help them take environmental action in their own communities.

To Participate in Government Activities

The Green Lane allows Canadians to make their voices heard by providing a public consultation forum through the Internet. Many of the features and products on The Green Lane allow users to become involved with and to make a contribution to government activities. Examples include:

Environmental Consultations Calendar (<http://www.doe.ca/consult/ecal.htm>) provides a full inventory of current and planned Environment Canada consultations.

Environmental legislation proposals such as the **Endangered Species Protection Act Legislative Proposal** (<http://www.doe.ca/cws/endspec/propose/endanger.htm>) are distributed on The Green Lane for comments.

EcoWatch (<http://www.cciw.ca/eman-temp/ecowatch/>) allows volunteers to provide information that monitors biodiversity changes.

Feedback Forms are available throughout The Green Lane to offer users a chance to comment or inquire about issues or products of interest.

Further information on any of the above services can be obtained from Jenifer Graves, Project Manager Tel: (819) 953-6296; Fax: (819) 953-1599, e-mail: gravesj@cpgsv1.am.doe.ca or Dave Harvey, Partnerships/Systems Integration Tel: (819) 953-3679; Fax: (819) 953-1599; e-mail: harveyd@cpgsv1.am.doe.ca Communications and Consultations Directorate, Environment Canada 10 Wellington St., Hull, Quebec K1A 0H3 CANADA.

THE PRINCIPLE OF FREE ACCESS TO ENVIRONMENTAL INFORMATION

EUROPEAN ENVIRONMENTAL INTERNET INITIATIVES

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Summary

The two „Environmental Decades“ 1975 - 1995 have enabled to establish various environmental legislative activities throughout Europe. The right to access Environmental Information reserved to administration has given a chance for the public to get an inside into the authorities data and knowledge about the environment. Some of the Austrian efforts to apply the Council Directive 90/313/EEC, to support NGOs especially in Central and Eastern Europe, funding inter alia the CEDAR and MERCURE programs, are presented. The recent intensive development of the popular Internet, WWW etc. has given a new chance to both the public and the environmental administration to communicate between each others. Activities directed by the Federal Ministry for Environment, Youth and Family and related programs executed by the International Society for Environmental Protection (ISEP) are presented.

1 Opening Environmental Information to the Public

1.1 International Aspects

Free access to environmental Information and Data was a long desired aim of the public in almost all European countries dating back to the Stockholm UN-Conference on the Human Environment in 1972 and before.

The US-Government with the Right to Know Act and other laws have demonstrated the way how administrations can treat the problem of public information in general.

It took almost one decade to realize a European legislation such as the Council Directive 90/313/EEC, freedom of access to information on the environment. A further step with a broader approach was introduced with the 5th Action Program of the European Communities and the implementation of the „Rio Declaration on Environment and Development“ (Earth Summit '92, 1992), including Agenda 21, Chapter 40 and others.

1.2 Austrian International Efforts for an active Public Information Policy

Austria as one of the environmentally minded countries in Europe has taken serious steps to

- support Central and Eastern European Countries for a break through in their environmental efforts after the fall of the iron curtain. At that time, Austria was one of the founding countries of the Regional Environmental Center (REC) in Budapest. In addition the partner institution Central European Environmental Data Request Facility (CEDAR)

was established in Vienna to support those countries with data and access to global Information Systems.

- Another important contribution was the decision to fund and to install together with five other European countries the first global Environmental Information Network MERCURE to be operated by the UN-Environmental Programme.

1.3 Austrian Federal Environmental Information Law

The Austrian Federal Information Act, coming into force in 1993 was one of the important steps towards an active information policy of the Federal Government, taking into account that the Council Information Directive had to be implemented into national law.

In addition to the general rules, the Act contains (§10) an obligatory Environmental Data Catalogue (Umweltdatenkatalog, UDK) as a metainformation system which allows the public an insight into the data- and information situation of authorities, executing federal environmental law. The number of such administration units owning or collecting data and information on a local, regional or federal level includes approximately 340 institutions.

2 Umweltdatenkatalog (UDK)

To satisfy the specific need to store, update and exchange metainformation by means of a special data base system, an international cooperation was developed to allow cost sharing and to prohibit „reinventing the wheel“. For this reason a cooperation between the Federal Ministry for Environment, Youth and Family and the Ministry for Environment in Niedersachsen (Lower Saxony, Germany) has been started and finally a negotiation between the German and Austrian Federal Ministries for Environment was established in 1993 to build a common UDK-system. The main task of this software development was provided from Niedersachsen (Hannover) whereas Austria had to coordinate an Environmental Thesaurus to be implemented in the UDK, utilizing the German UBA-Thesaurus.

2.1 Initiative of German speaking Countries (DACHL)

The countries Germany (D), Austria (A), Switzerland (CH) and Liechtenstein (L) have decided to cooperate intensively inter alia in the field of environmental Information. This led to the fact, that the UDK is being introduced in those countries. In addition to the German language, English, Italian and French are being introduced into the UDK system; This UDK-System finally was the trigger of the European multilingual Environmental Metainformation System just being under development.

2.2 Catalogue of Data Sources

As a consequence of the various international cooperation activities, the European Environment Agency (EEA) foster the development of a European Catalogue of Data Sources (CDS), carried out by the Land Niedersachsen (European Topic Center, CDS) in cooperation with ISEP (Technical Secretariat esp. for the Thesaurus development, see paragraph 6)

3 Internet and WWW the Public Information Platform

Applications such as the UDK, CDS, Thesaurus -collections and other environmental information systems found that the Internet would be an almost ideal carrier for its nation- and worldwide publication. More than two years ago, the Federal Ministry for Environment, Youth and Family has started to make intensive use of the Internet. The technical infrastructure for several Web-server systems has been installed at the International Society for Environmental on behalf of the Ministry.

Though, Austria was one of the first European countries that presented Environmental Data and Information by means of Gopher and Web-Technology in the Internet.

4 ISEP and the Role of NGO's

The *International Society for Environmental Protection* (ISEP) was founded in 1987 to establish a global platform for environmental information exchange. Funding for the Society is provided by its members - companies and research institutions - concerned with environmental protection, sustainable development, and related stress-reducing strategies for humans and ecological systems.

One instrument to foster environmental information transfer is conference organization. ISEP organized three ENVIROTECH conferences on waste management two international forums on ENERGY RESOURCES, on ENVIRONMENT-RELATED MARKET ECONOMY, on ENVIRONMENT-RELATED REGULATIONS and on DIOXINES AND FURANES. Two events focused attention to ISEP: the ENVIROTOUR conferences combined with an award, where "Strategies for Reducing the Environmental Impact of Tourism" and "Environmentally Sound Tourism - Towards a Change in Attitudes and Practices" were presented. A further conference ENVIROINFO scheduled for 1997, will address the collection and use of environmental data, public access to information, and international environmental legislation.

5 CEDAR

In 1991, ISEP was selected by the Austrian Federal Ministry for Environment, Youth and Family (Bundesministerium für Umwelt, Jugend und Familie, BMUJF) to develop and expand the Central European Environmental Data Request Facility. The CEDAR project of ISEP provides computing and Internetwork facilities to support international data exchange with the Central and Eastern European environmental community and the UNEP.

The in-house computer and telecommunications infrastructure supports:

- access/communications with remote network hosts and information providers (telnet, FTP, Gopher, World Wide Web)
- global database search and retrieval
- subscription lists, bulletin boards, and on-line querying of CEDAR in-house databases

In 1992, CEDAR started its cooperation with the *United Nations Environmental Program* INFOTERRA Network, UNEP's global information exchange program. Designated as the INFOTERRA Internet node and Regional Service Centre for Central and Eastern Europe, CEDAR is working with the Austrian National Focal Point

(NFP) at the *Austrian Federal Environmental Agency* and other regional & global NFPs to support environmental information dissemination.

The Gopher and (since 1994) World Wide Web Internet servers hosted by CEDAR (gopher://gopher.cedar.univie.ac.at and <http://www.cedar.univie.ac.at>) have been extraordinarily successful. The servers enable CEDAR to provide clearinghouse duties to a large, international audience. By installing and maintaining the servers, CEDAR acts as a world wide host system for a loose consortium of environmental information providers. There are only few comparable environmental servers in Europe, and the consortium's goal is to continually develop the material made available through the servers by encouraging others to contribute resources for the network community.

5.1 CEDAR support of projects

Several Projects were supported by CEDAR, e.g.:

Central and Eastern European EcoDirectory Project

In cooperation with an USAID-funded group CEDAR SUPPORTED the development of an "EcoDirectory" for librarians and information specialists in Central and Eastern Europe (CEE). CEDAR's contribution is to maintain the electronic versions administered by WWF U.S.A and the Wladislaw Poniecki Foundation and to update the contents with the help of the national coordinators.

International Organization of Information Specialists (IOIS)

The International Organization of Information Specialists was created to oversee the ongoing development of the EcoDirectory through technical and education-oriented committees. The IOIS also addresses regional network connectivity issues and training for the Internet.

CEED Database

CEED, the Central and Eastern European Environmental Expert Database, highlights regional experts, their institutes, research, and publications (including grey literature). This in-house database, compiled by CEDAR and the Regional Environmental Center (REC, Budapest) is a useful tool for CEE institutions and the general scientific community.

UN Environmental Program for the Danube River Basin

The Danube Information System (DANIS) provides information on experts, administrative activities, conferences, research projects, consulting services, and companies working in the Danube River Basin. ISEP, with the CEDAR project, is in charge of the collection of Austrian data for DANIS. The data coming from the riparian countries of the Danube will be standardized by the Center for Eco-Information & Terminology in Bratislava. The data will subsequently be processed by CEDAR and made available on the CEDAR WWW server.

HABITAT II

CEDAR is working with the United Nations Center for Human Settlements (UNCHS Habitat) to provide the dissemination of Habitat and Habitat II „The City Summit“

conference-related information. The Habitat II conference will take place between June 3-14, 1996 in Istanbul, Turkey, and electronic communication will play an integral role in allowing world-wide groups to participate. CEDAR is hosting the Habitat II network subscription list and documentation on the CEDAR server.

5.2 Creating, Hosting and Supporting Subscription Lists

CEDAR has set up subscription lists to allow communication between partners involved in environmental activities. Some Examples are:

INFOTERRA (INFOTERRA@cedar.univie.ac.at)

This is the publicly accessible subscription list of Infoterra announced in May 1994. It offers official United Nations Environmental Program press releases, conference announcements, information on network resources, and a world-wide discussion platform for individuals and groups interested in environmental issues. Currently there are 1400 direct subscribers.

ENVENG-L (ENVENG-L@cedar.univie.ac.at)

CEDAR is the host for this dedicated list on environmental engineering issues. Approx. 1400 subscribers.

EIA (EIA@cedar.univie.ac.at)

This list concentrates on environmental impact assessment (EIA) issues. It's a joint project with the UN Environmental Program. During its first month of operation, so far it attracted 600 subscribers.

HABITAT2 (HABITAT2@cedar.univie.ac.at)

This list will primarily target the global NGO environmental community. It will provide Habitat II conference announcements (e.g. PrepComs), UNCHS documentation, discussion of conference objectives and issues, daily dissemination of information during the conference, and the compilation of subscription list materials and related Habitat documentation for archiving on the Internet through the Gopher and WWW servers. (so far 500 subscribers of 900 expected).

ENVJOBS-L (ENVJOBS-L@cedar.univie.ac.at)

CEDAR is moderating this international list for the mediation of environmental jobs, which was established in response to discussions originating on the ENVENG-List. More than 5000 subscribers.

ENV-THES

Beginning with July 1996 a new list on Environmental Thesaurus and Terminology is planned. This might be a list of high relevance to these subscriber who are interested in the joint development of the Catalogue of Data Sources CDS within the European Union.

6 ISEP's Technical Support

6.1 WWW-UDK

A special item on CEDAR is dedicated to information from the Austrian Ministry for Environment, including documentation on the Environmental Information Law (since January 1993), which regulates public access to environmental data. Due to the Environmental law, the Environmental Data Catalogue (Umweltdatenkatalog - UDK) has been developed. Furthermore, the Ministry enhanced the UDK with an Installation for the World-Wide-Web based on tools and techniques developed for the Environmental Information System Baden-Württemberg (Germany) in the Forschungszentrum Informatik FZI, Karlsruhe (Kramer et al. 1995). On a special server ISEP hosts the Austrian Catalogue of Data Sources under <http://udk.bmu.gv.at> and periodically updates the UDK with new data, collected on behalf of the Austrian Ministry.

6.2 BMU-Server

Furthermore CEDAR acted as an information host for the BMUJF from 1993 to early 1996. Now the Federal *Ministry for Environment, Youth and Family (BMUJF)* operates its own Internet server at <http://www.bmu.gv.at>, technically supported by ISEP. An access has been given to the maintainers of various sections like "National Parks" and the "Austrian Council on Climate Change" of the BMUJF-server.

6.3 MERCURE

ISEP is designated to take over the operation of the Vienna based MERCURE Telecommunication B-Station to support access from CEE-Countries to the global UNEP-Network and to guarantee its functioning.

The System will start working this summer (1996) and will be fully operational with approximately 16 Stations worldwide in spring 1997. The main protocol will be TCP/IP and several gateways to the global Internet will be available.

7 European Topic Centre on Catalogue of Data Sources

In the end of 1995 the International Society for Environmental Protection (ISEP) has become the Technical Secretariat of the **European Topic Centre on Catalogue of Data Sources (ETC/CDS)**. This project has been initiated by the European Environment Agency (EEA) in Copenhagen, and is directed by the Ministry of Environment of Lower Saxony in Hannover, Germany. The following European countries are now actively participating in the project as consortium members or associated partners: Austria, Denmark (EEA), France, Germany, Italy, Netherland, Norway, Spain, Sweden, Switzerland.

The objective of the project is the building of a European Environmental catalogue of meta-data. As an important instrument for the environmental data catalogue, a multilingual environmental Thesaurus and an environmental Terminology for the uniform coding of the data are developed with technical support and coordination of ISEP.

The following task groups have been established:

- CB4: Terminology and Coding
- CB5: Multilingual Thesaurus
- CB6: Catalogue of Data Sources
- CB7: Organization, Meta Data Model
- CB8: Software Development
- CB9: Networking

ISEP is responsible for the contents of the task groups CB 4 and CB5, with the direction of the compartment CB 4, Terminology and Coding. Within in this activity ISEP is open for all cooperation and participation from other partners throughout Europe.

In order to be credible, a European terminology database and thesaurus must be endorsed by all countries, i.e. the efforts and investments of several individual countries have to be acknowledged.

The main goal for establishment of a terminology database is to support all EEA and EIONET activities by providing a standardised terminology and coding guidelines, thereby promoting the exchange of European environmental data and information. The terminology database will represent one of the major EEA achievements towards its main objective: to provide comparable and consistent information to the Community and the Member States.

The plan is to establish a database which will be installed by ISEP and will be available through WWW by gathering/compiling terminology from existing sources. Afterwards it should become an integrated part of EEAs and the ETCs workprogramme to maintain the database and to include topic-specific terminology.

The EEA requirement for a thesaurus is for a product supporting

- multilingual searching and querying the EEA/CDS
- all other indexing/classification activities of EEA /EIONET, including library documentation
- translation services

The classification scheme for the Thesaurus will support a hierarchical indexing of the CDS objects. The structure should reflect as far as possible the EIONET organisation (the responsibilities of the various ETCs) and structures already found usable by the EEA (the organisation of the Dobris report, etc.).

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ELECTRONIC COMMUNICATION STRATEGIES OF THE DANISH ENVIRONMENTAL ADMINISTRATION

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Summary

Strategies for use of electronic publication in Danish environmental administration, especially based on the strategies of the Danish EPA and electronic communication strategies of the Danish Ministry of Environment and Energy will be described. The new Danish national information policy and its influence on these strategies will be represented. An account is given of the Ministry's priorities relating to the national information policy plan "From vision to action". The homepages of the whole Ministry are found in

The Danish Environmental Administrative System

The Danish environmental administrative system is found in Figure 1. The regional and local authorities are responsible for direct environmental control of trade and industry, agriculture and farming, the open land etc.

Danish Environmental Protection Agency

The Danish EPA is one of the agencies of the Danish Ministry of Environment and Energy. Figure 2 shows the organization of the ministry. The main functions of the Danish EPA:

- Advising the Minister
- Guidance to and advising of counties and municipalities
- Preparation of parliamentary bills and statutory orders
- Supervision of the environment
- Appeal: The agency decides on complaints against the municipal councils' and county councils' decisions in individual cases.

The agency administers the Environmental Protection Act, the Chemical Substances and Products Act, pesticides etc.

Seen from a communication point of view all work done in the Danish EPA may be defined as information and communication activities. You may say that the Danish EPA is a knowledge institution.

Where to use the Internet

Figure 3 shows how to use the Internet in a knowledge institution.

- organized collection of information and knowledge
- current communication

- public relations, including electronic publication

Main objectives for the Danish EPA's external information activities

- Enable counties and municipalities to control according to existing laws and regulations
- Publish research results - appropriation for research and development at about 40 - 50 mill. pr. year = 12 mill DM
- Give guidance and advice to the population
- Show DEPA as an efficient and open agency
- Use information as a regulatory instrument

Danish EPA's annual information programme

Division of labour between the Danish EPA divisions and the Information Department

Once a year we examine the divisions' work programmes and define the annual information/communication strategies/plans for the divisions.

- The divisions are responsible for the information activities within their field
- The Information Department is responsible for the information quality
- Always use the best available tool, publication, meeting, conference, film, tv, brochure, etc.
- Define very narrow target groups and use the most appropriate information tool
- Find relevant partners for cooperation - trade, industry and organizations, other agencies (consumers), NGO etc.

How to use the Internet

In relation to external information activities we see the Internet as an extra dimension to the other information activities. It is a tool that makes it easier to reach/get in touch with certain target groups. And that is how we use it. It means that we will use the special facilities of the electronic elements and media, and not only copy the printed material.

The first target group is international cooperation. We have produced in English

- A homepage
- An electronic magazine, Danish Environment
- Reports for meetings
- Danish Environmental Administration, a book describing environmental protection in Denmark, with links to
 - Laws and regulations
 - The Danish aid programmes (100 mill. to Eastern Europe)
 - Systems export, export of environmental know-how. This publication has also been translated to Spanish and other languages (Chinese).

Later we will use Internet for national target groups. The annual information strategy 1996 contains several activities.

But perhaps the national strategies for electronic publishing will force us to change Danish EPA strategies.

In relation to organized collection of information and knowledge we have a library in DEPA for internal use only. Last year we examined the quality of the knowledge of the employees related to the daily work. 69% felt they had an incomplete knowledge base most of the time. So now we plan to establish a special Intranet system for the employees in DEPA. Based on the specific tasks and the employees in the single divisions, we will make relevant information systems/databases available for the staff for selfservice or services by the library staff.

National strategies for information in Denmark

Some facts about Denmark that make it easy to administer and manage the Danish society.

- The language is Danish; which is also to some extent spoken by the population in Greenland and in The Faroe Islands.
- It is a small country.
- The population is well-educated.
- We have a very good infrastructure: Mail system, public transportation, roads etc.

From the beginning of the computerization in the 1960's Denmark centralized the use of computers in the public sector. It was used for registration/recording of tax payers, licensing etc. In the 1970's for cataloguing and circulation of books in libraries etc. But it was never coordinated. However, in 1992 the first recommendations for a coordinated Danish information policy were published. The report defined the national information resources. Dorte Bennedbæk was a member of the small working group of experts behind these recommendations.

Until 1990 the computers and the network were not good enough and much too expensive.

In the beginning of 1994 a new group with a large number of members representing all aspects of the Danish society started preparing the strategy "The information society year 2000". The work was finished in October 1994, and it deals with the coordination of all aspects of information in the Danish society and the increasing use of IT, especially in public administration. The Ministry of Environment and Energy has decided to take the lead in the use of the Internet. The national strategies will influence our daily communication/information work because:

- A large number of Danish citizens, trade and industry, libraries, schools, universities etc. will have access to the net.
- From January 1, 1997 all Danish publications published by the state shall be delivered in an electronic form to a central electronic library. We still wait for the exact technical definition of a state publication. This will give a lot of problems and difficulties with copyright etc. and it might be expensive. DEPA publishes about 300 publications per year. Until now we have published 4 electronic books. It has cost us about 250,000 Danish crowns = 62.000 DM, and many hours of proofreading.

But is very important always to ensure that the target groups are reached by the most appropriate tools, and that strategies are used efficiently without overload of

information. But perhaps we will be able to reduce the number of printed books per year. Let's see.

The Danish national information policy "From Vision to action"

Statement to Parliament on "Info-Society 2000" and IT Political Action Plan 1996.

The Statement can be obtained from the Internet-server: <http://www.fsk.dk/fsk/>

The philosophy within the plan

is that correctly used, IT will be a source of:

- Economic development,
- Growing employment,
- Improved quality of life and a cleaner environment, -
- Contribute to a much more open and decentralised society.

It should support:

- Free access to information and exchange of information.
- Democracy.
- Personal development, one of the means being to support the individual in his working situation and in his leisure time.
- Openness in the public sector, making it more transparent, contributing to the promotion of efficiency and rationalisation in public institutions and enabling them to provide better services.
- Sustaining of the disadvantaged of society.

The Electronic Service Network of the Public Sector Policy:

- Public administration is to be interconnected in a comprehensive electronic service network
- Information already supplied by citizens and companies to one public institution and which can be transmitted electronically is not to be requested by another public institution.
- Citizens and companies wishing to communicate electronically with public authorities are to be given this option.
- Concurrently with the replacement of IT systems, public institutions are to change gradually from paper-based archives to electronic processing and filing over the coming years.

National Strategy:

- National IT-strategy
- State server and data base
- All state publications in electronic form from January 1, 1997
- HTML standard or Adobe PDF.

Internet Policies:

- Part of information policy
- Part of IT strategy
- Decentralized responsibility
- Variation in agency strategies
- Centralized guidelines, search facilities, maintenance etc.
- All employees will obtain free access.

Ministry of Environment and Energy Policy:

- News, pressservice
- Accessibility
- Information service
- Development of IT projects
- Revision of information strategy.

IT presentation:

- 2400 pc-workstations
- 11 public institutions and 26 state forest districts
- More than 150 locations throughout the country
- Nation wide network
- Also people working in developing countries.
- In 1995 the ministry made an EU tender for a new IT platform. Unisys A/S was given the order. The installation is now being carried out.

The electronic office project:**Software:**

- | | |
|---|-------------------|
| • Imaging and document storage: | Infolmage Folder |
| • Filing system and workflow management: | ScanJour / Oracle |
| • E-mail, calendar, fax and bulletin board: | MS Exchange |
| • Word-processing, spreadsheet, presentation: | Microsoft Office |
| • Full text search: | BRS search |
| • Optical character recognition (OCR): | Omnipage |
| • Internet Browser: | Netscape |
| • Server OS: | Windows NT |
| • Clients OS: | Windows 3.11 / 95 |
| • Transmission protocol: | TCP/IP |

Internet homepage: <http://www.mem.dk>

DEPA's English Internet homepage: <http://www.mst.dk/depa/index.htm>

Figure 1

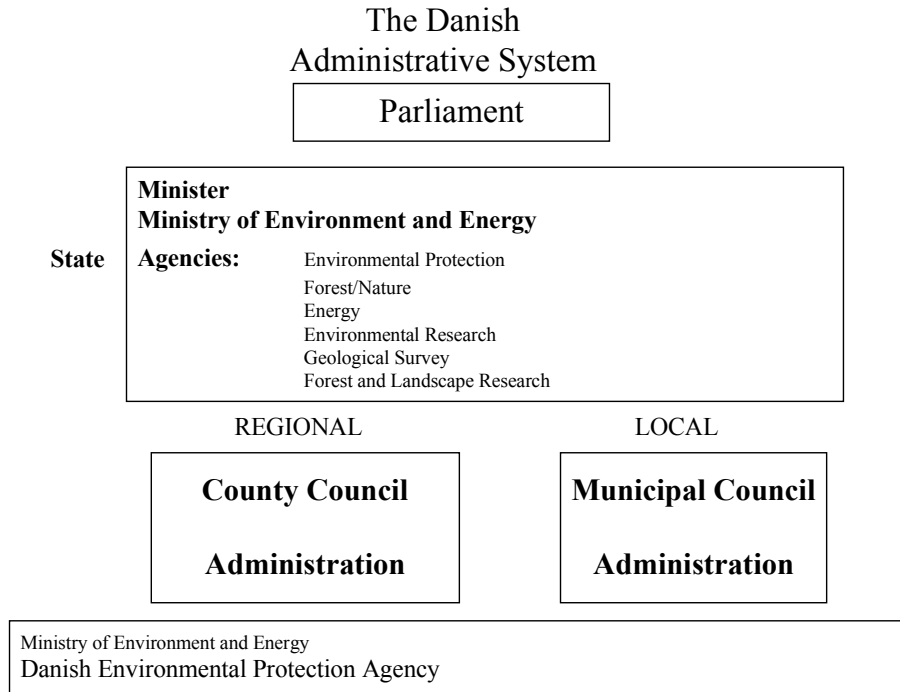


Figure 2.

Organization of the Ministry of Environment and Energy

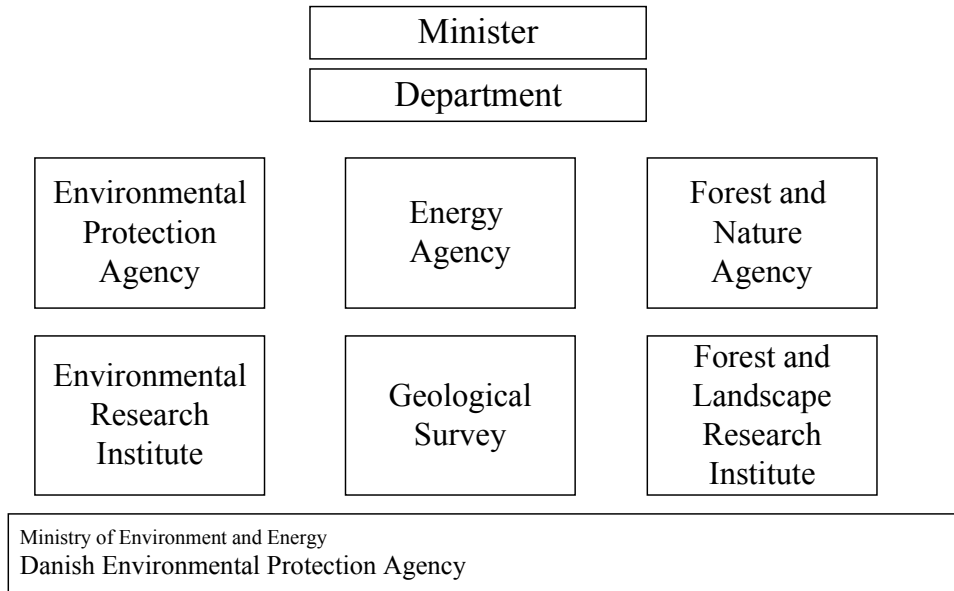
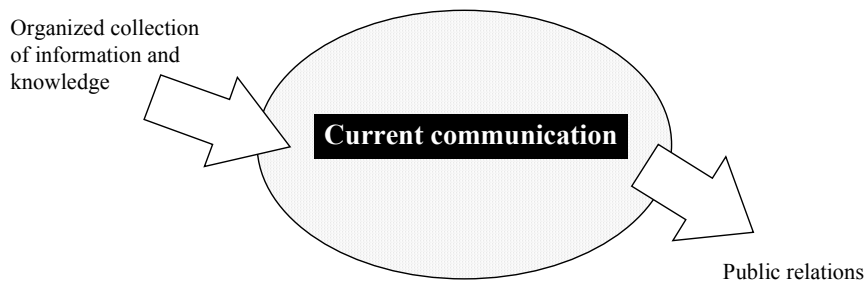


Figure 3

Danish Environmental Protection Agency

- How to use the Internet



THE INTERNET-ONLINE SERVICE OF THE AUSTRIAN FEDERAL MINISTRY FOR ENVIRONMENT, YOUTH AND FAMILY

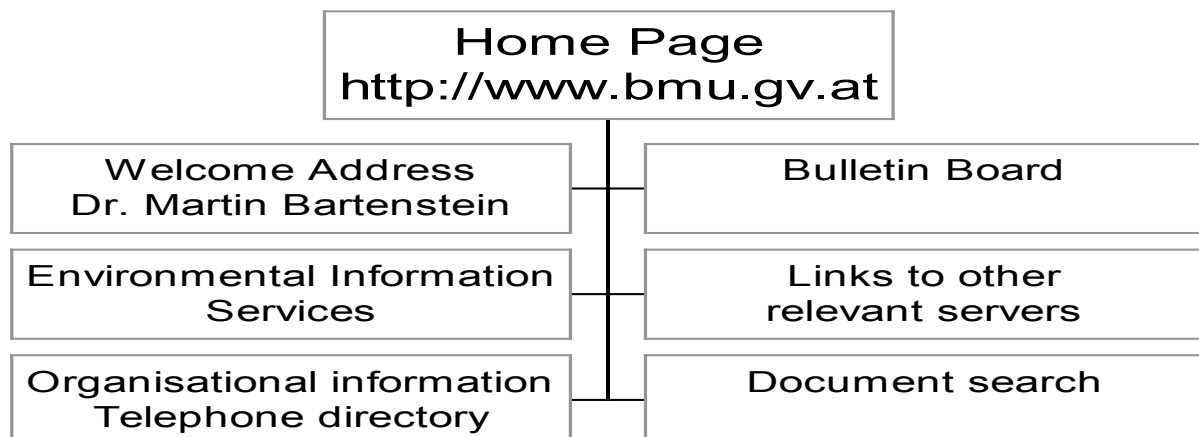
Andreas Tschulik

Federal Ministry for Environment, Youth and Family, Vienna

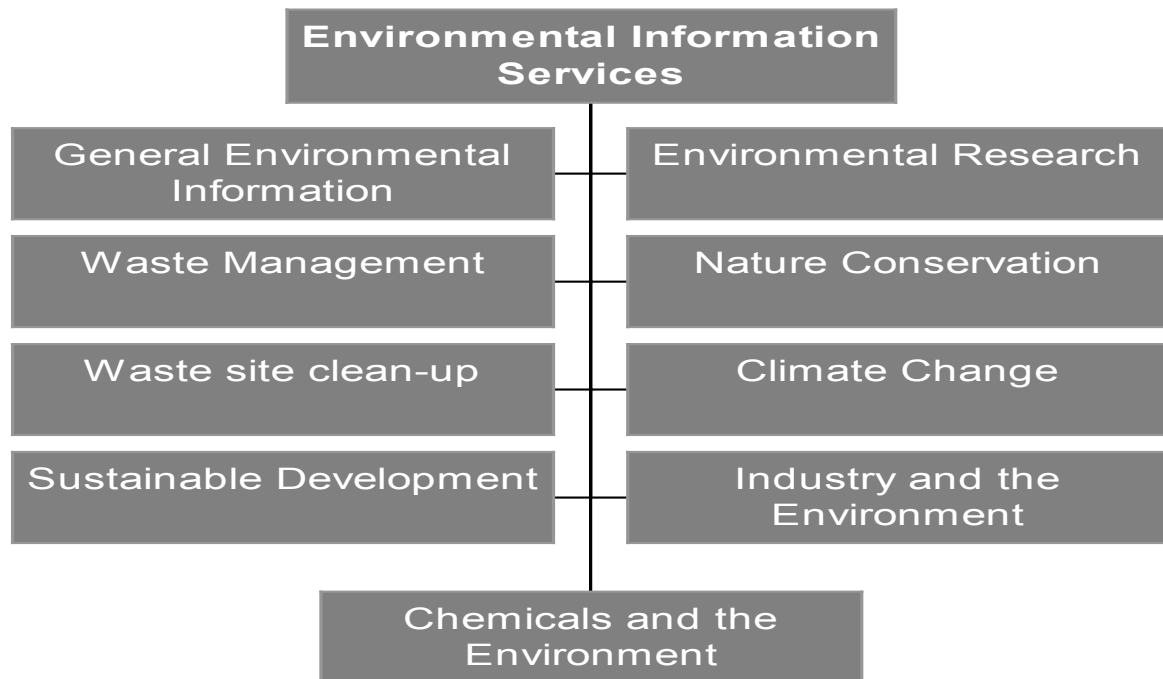
The Austrian Federal Ministry for Environment, Youth and Family recently updated, extended and redesigned its Internet-Online Information Services (<http://www.bmu.gv.at>). Information provided by the online service ranges from the Minister's press releases and the Ministry's publication offers to data about the state of the environment in Austria (in cooperation with the Federal Environment Agency) and surveys on specific topics such as nature conservation and national parks, sustainable development, economics and the environment, climate change, waste disposal or environmental research.

The Ministry's server is maintained by the environmental technology department together with the department for public relations. Furthermore, each department appointed contact person for organisational matters with respect to providing up-to-date information for any of the several topics, the Ministry is competent body for in Austria.

The Ministry's server is structured as follows:



Specific information about topics dealt with by the Ministry is documented in several single issue information blocks:



The single issue information is continuously updated and the server as a whole will be significantly extended in the near future.

EUROPEAN ENVIRONMENT LIBRARY NETWORK - EELNET (NICE Europe*) - A SCOPING STUDY

Lilian Mex-Jørgensen

National Environmental Research Institute (NERI), Silkeborg

Descriptors: Environmental library network, European Environment Agency (EEA), Internet, environmental resources, free access to information, information quality, citing electronic resources, search tools.

**Note of the Editors: NICE Europe (NICE = Network of Information Centers for the Environment) has finally been chosen as name of the network. Credits for this nice name go to Wouter B. Van Nieuwpoort from the Dutch National Institute of Public Health and Environmental Protection (RIVM).*

Summary

The project is a scoping study on the establishment of a European environment library network (EELNET) in order to support the library of the European Environment Agency (EEA) in Copenhagen. It is one of the Danish support projects that are part of the hosting agreement between Denmark and EEA.

The library/information centre contact persons have been identified via the 17 EEA National Focal Points. A questionnaire was forwarded to the library contact persons and the project report is mainly the result of surveying the answers.

The results of the scoping study has lead to the creation of a prototype of a common environmental pilot home page that is one of the core elements of the EELNET.

The common home page is a European environmental information window including listings of European and national state of the environment reports, news of common European interest, and links to selected and evaluated European environmental resources on the Internet. Further the common home page informs about the participating libraries, links the already existing library home pages, and interconnects the EELNET contact persons via a selected electronic conference.

The conclusion of the project report contains recommendations for co-operation, for information providing, for establishing home pages, and for extending the network to other related environmental libraries with a view to establishing a virtual European environment library network. The final report will be printed and forwarded to the EEA in July 1996.

Introduction

The project is one of the Danish support projects that is part of the hosting agreement between Denmark and the European Environment Agency (EEA).

The objectives of the project have been to describe, discuss, and plan the elements of a European environment library network, EELNET.

It is stressed that I have approached the project from a pragmatic angle.

The reason for suggesting the project was that I found that the establishment of an information unit at the European Environment Agency (EEA) would be highly dependent on an effective information network. I am very happy that the project was considered to be important and thus chosen as one of the Danish support projects to the EEA.

Methods and results

The elements of the European Environment Library Network, EELNET, are a combination of

- a group of contact persons
- an electronic EELNET conference
- a common home page prototype interlinking the contact persons, and
- access to environmental information and publications.

Contact persons

A contact person from 14 of the 17 EU countries has been identified via the EEA National Focal Points (NFPs). There are representatives from libraries of different size and administrative affiliations. In order to establish a useful network, the role and the tasks of the contact persons must be defined by reciprocal agreements. The contact persons are thus all willing within reasonable limits to co-operate on information delivery and inter library loans (ILL). The contact persons are expected to contribute to the contents of the common home page described below.

Electronic EELNET Conference

In order to facilitate communication a restricted electronic conference, the EELNET Conference, has been established. The conference is among other things expected to solve rush requests for information, to be a forum for discussion and exchange of (Internet) experience, and to be a complementary information source to the common home page. The study has shown that today only four of the participating contact persons use electronic conferences though it is a very convenient way of exchanging information.

Common home page - „European environmental information window“

A home page prototype, which is common to all 17 contact persons, has been created. The common home page is intended to be **the European information window** on selected environmental matters. The amount of information is overwhelming and the word „filtering“ is therefore a keyword as to common home page contribution. The contents of the home page must be short, selected, and sufficient to meet the users' need for environmental information of a certain quality.

The home page has been created as a pilot project with links to the National Environmental Research Institute (NERI) library pilot home page. The common home page with URL: <http://www.dmu.dk/LibraryNetwork/> is placed on the NERI server, but will be implemented on the EEA server later.

The common home page is a contribution to the idea of giving the European Community **free access to environmental information**. The home page media is very convenient for the dissemination of always-up-to-date-information. To the users this gateway will be an important tool when searching for reliable environmental information, in addition to the EEA home page which is well on the way to becoming an authority to consult.

The benefits to be gained by supplying information to the European environmental information window should be evident.

The common home page

- informs about the participating libraries or information centres,
- lists European state of the environment reports including national monitoring reports,
- lists new publications,
- supplies information of common European interest,
- contains links to recommended environmental information resources on the Internet.

Connection to the library home page of the participating partners will gradually be established. The survey has revealed that the libraries or information centres involved are at the edge of the home page era.

As the project is also ahead of the state of immediate interlinking of library home pages it is very likely that the libraries with no home page will be offered space on the EEA server for a transitional period. It has been decided which information is to be found on the common home page and which to be found on the individual library home pages.

The different co-operating partners are expected to transfer their information to the common home page (in a certain standard (html) format) and thus have their publications advertised in the European information window, but also at their own library home page when possible. Supplying of information to the common home page should begin in the near future when the final report has been forwarded to the EEA.

It is suggested to consider co-operation on the technical level with Environment Information and Observation Network, EIONET. All NFPs will have installed a server hopefully by the end of 1996/beginning of 1997 and they will be equipped with identical software products.

It appears to be a good idea to gather selected information under the headlines: „New publications“ and „Information of common European interest“. They will cover published as well as selected environmental information regardless of publication media. It will be even easier to keep an eye on new European initiatives when information can be found in one place only. Examples of information to be included are national initiatives on campaigns on different environmental topics, information on new national short video films describing environmental questions, contributions by the EEA, selected information on EU environmental legislation, etc.

Access to environmental information and publications

Some of the home page headlines described above are partly covering the last element to be described: access to environmental information.

It cannot be foreseen to which information the EEA Information Centre - and the participants - will need easy access. Depending on the type of information searched for, different sources should be consulted, e.g. personal networking, a common database, individual library/publication databases, common home page news, selected environmental resources on the Internet, etc.

Access to information and publications will partly be covered by an EEA library database containing - to begin with - state of the environment publications and related publications. The common home page will provide up-to-date information on

the environment. The libraries wishing to give access to own library or publication databases will do it from their own library home page.

The „Connection to environmental resources via the Internet“ is a selection of important links to environmental resources:

- **National Focal Points** (NFPs),
- **European Topic Centres** (ETCs),
- **EUROPA** (EEC WWW server),
- selected **European** environmental resources on the Internet,
- selected **global** environmental resources on the Internet,
- **translation** index,
- **directories** to the Internet,
- **servers** on the Internet,
- **other sites** of interest on the Internet,
- **search tools** on the Internet,
- **citing electronic resources**.

While selecting and gathering these resources I had hoped to find literature evaluating environmental resources on the Internet but unfortunately I did not find **the** answer.

To begin with it is therefore suggested that the decision as to the inclusion of environmental resources on the home page should be based on criteria such as updating frequency, reliability of the information provider, and accessibility (the ease of using/accessing the resource).

Information quality has been discussed for several years, but usually with respect to printed matter. The question of information quality on the Net, and how to evaluate it, is a relatively new field of investigation. In this context it should be remembered that information quality not only concerns what is found on the Net, but also what the EELNET participants as information providers present via the common home page.

The future

For a trial period of one year the 14 (of 17) contact persons will consolidate their knowledge on networking, work load, external requests, etc. It is evident that the continuation of the project depends on the willingness of the contact persons to participate and co-operate. It will then be decided how to continue the network. The final report schedules when to extend the network to recommended related libraries or information centres.

A detailed proposal on the project will be published in July 1996. At present a preliminary report has been discussed with 5 of the contact persons at EEA in Copenhagen. A draft report has been forwarded for comments to all the 17 libraries/information centres and their comments will be included in the final report.

WORLD-WIDE-WEB-SERVER OF THE AUSTRIAN FEDERAL ENVIRONMENT AGENCY

Johannes Mayer
Austrian Federal Environment Agency, Vienna

The online information services of the Austrian Federal Environment Agency can be reached via the Internet address (URL): <http://www.ubavie.gv.at/>

The site gives access to English and German summaries of the Agency's publications on all aspects of environmental protection and state of the environment monitoring. The full text of our publications is usually in German, if not indicated otherwise by an English publication title. The ordering information for the publications also contains an on-line order form.

Information notes (UBA-aktuell) and the monthly bulletin UBA-Info report on current projects and activities of the Agency (in German).

State of the Environment in Austria

A central part of our web-site is information on the State of the Environment in Austria (Umweltsituation in Oesterreich). Two highlights of the data by now available are on-line access to continuously updated data from the Austrian air quality monitoring stations or groundwater quality data from all 1700 sampling points within Austria; both menu points are explained in German and English.

Online Access to Austrian Air Quality Data

A pilot project for advanced telematics application is online access to Air Quality Data from Austrian Monitoring sites. On a Map of Austria our virtual visitors can choose an air pollutant (at present available: Ozone, Sulphur Dioxide or Nitrogen Dioxide) and a time span (last day, last three days, last week, last month) and then point to a monitoring site for obtaining a chart with an up-to-date representation of the air quality data requested (all data are half hour mean values).

This telematics application is based technically on the structure of the Austrian Ozone Monitoring network, which has been established by the Federal Environment Agency and the Provincial Authorities to establish a national alert system for high levels of tropospheric ozone concentrations in the summer months. Data can be retrieved for all continuously operating air quality monitoring sites in Austria connected to the network (about 120 sites).

Ozone information

During the summer months (from April to September), reports on the concentrations of tropospheric ozone (according to the Austrian Ozone Act) and ozone concentrations maps for Austria are available twice a day.

Austrian EMAS-Directory

An example of the environmental registers available on the Agency's web-server is the Austrian directory of the Community eco-management and audit scheme (EMAS) according to the EU Council Regulation No. 1836/93 of 29 June 1993. The objective of the scheme is to promote continuous improvements in the environmental performance of industrial activities by the establishment and implementation of environmental policies, programmes and management systems by companies, in relation to their sites. Important elements are the systematic, objective and periodic evaluation of the performance of such elements and the provision of information of environmental performance to the public.

National and International Environmental Information Sources

Due to the extremely fast development of on-line information sources on the Internet, adequate navigation tools are of steadily growing importance. Two pages accessible directly from the Agency's homepage offer a register of links to Austrian and International Environmental Information Sources.

On European level, the Austrian Federal Environment Agency is taking the initiative for a World-Wide-Web-project to **integrate environmental information sources in Europe**. The basic aims of this project are:

- to establish an integrated overview structure on existing electronic information sources on the environment in Europe, with direct access (links) to these sources
- to enlarge and continuously update the content of this structure in order to develop - as necessary complement to the CDS efforts - an easy-to-use and efficient navigation tool for searching and connecting to electronic environmental information sources in Europe
- to promote a policy of systematic integration of electronic Environmental information sources in Europe, by inducing closer cooperation and active networking between different initiatives of electronic information on the environment on both European and national levels
- to encourage and help national environment institutions within the EEA area to make an active use of the Internet for information on the environment (Note: within the project, national environment institutions yet without an own Internet service could be offered at least one free-of-charge, simply designed www-page, provisionally hosted by the co-ordinating institution and linked from their entry on their "national page". This would enable all participating institutions to present themselves on the Internet worldwide with their own information nearly from the beginning of the project, without any financial implications or technical problems. That easy access and its presentation to national decision makers should then encourage national governments to move forward in the development and acceptance of own information services on the Internet.)
- assisting, where necessary, national institutions less experienced in the use of the Internet in researching sources of environmental information within their own country

Management and Funding:

- Co-ordination by the Austrian Federal Environment Agency (or another experienced institution, e.g. ISEP) in co-operation with national contact partners in national environmental institutions from the European Environment Agency area and with REC (Budapest)

- application for EU funding contribution will be made in the next call for the Environment Telematics programme (december 96)
- official start of the project (if accepted for EU funding): mid'97

Future development (= possible transfers after the pilote phase):

- Those presentation pages of national government institutions provisionnally hosted by the co-ordinating institution (see note above) should be transferred to the national government's services, when their own Internet services are fully operational. This will assure a continuity in their presence on the net.
- All national overview pages - the update and linguistic management of which is much easier if done within the own country - should also be transferred to national environmental services able to manage them by their own. The international and thematic pages would remain on the central site of the network.
- Finally, the management of the www-service itself could either be continued by the co-ordinating institution or be transferred to the European Environment Agency or any another European institution. In theory, it would also be technically possible to have the server be updated at one site and be "mirrored" to another.

Federal Environment Agency Home Page

<http://www.ubavie.gv.at/>



Federal Environment Agency - Austria

Wir informieren über / Information available on

- die UMWELTSITUATION in ÖSTERREICH (the **State of the Environment in Austria**)
- österreichische **Umweltregister** / Austrian **Environment Registers**
- die **UBA-Info** (monatlich, über unsere aktuellen Arbeiten / monthly bulletin - in German)
- **Publikationen** des UBA / **Publications** (with English summary) and **Library** of the Agency
- **Aufgaben** des UBA / **About** the Agency
- **Umweltlinks in Österreich** und **weltweit** / **Environmental Information Sources in Austria** and **worldwide**

uba-aktuell / latest news

- Bereits 20 EMAS-Standorte eingetragen (23.8.96)
- Aktuelle Ausschreibungen der Europäischen Umweltagentur (22.8.96)

uba-aktuell **ARCHIV**

Zuletzt geändert: "uba-aktuell" / Last update: "latest news". *Copyright: Umweltbundesamt 1996*

Kommentare und Rückfragen bitte an / Please address comments and requests to: Michaela Stanek

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<http://www.ubavie.gv.at/info/sources/national/austria1.htm>



Federal Environment Agency - Austria

[[Zu diesem Verzeichnis](#) / [About this list](#)] [[European and Global Information Sources](#)]

Österreich - Umweltlinks / Austria - Environment

Bundesverwaltung / Federal Government

- [Bundesministerium für Umwelt](#) (Federal Ministry for the Environment)
[Umweltdatenkatalog UDK](#) (Catalogue of Data Sources)
- [Umweltbundesamt / Federal Environment Agency](#)
- [CEDAR - Central European Environmental Data Request Facility](#)
(under contract to the Environment Ministry)
- [Bundesministerium für Gesundheit und Konsumentenschutz / Federal Ministry of Health and Consumer Protection](#) - [Gentechnik](#) (Gene Technology)
- [Bundesministerium für Wissenschaft, Forschung und Kunst / Federal Ministry for Science, Research and the Arts](#) - [Gentechnik-Recht \(Österreich u. EU\)](#) (Gene Technology Legislation: Austria and EU)

Bundesländer und Gemeinden / Regional and Local Authorities

- [Stadt Wien / City of Vienna](#)
[Umwelt und aktuelle Meßwerte \(MA22\)](#) (Environment, Air Quality Data)
[Unsere Gärten \(MA42\)](#) (Municipal Parks)
[Unsere Wälder \(MA49\)](#) (Forests)
- [Niederösterreichische Umweltschutzanstalt](#) (Environment Institute of Lower Austria)
- [Vorarlberger Landesregierung](#) (Government of Vorarlberg)
[Natur- und Umweltschutz](#) (Nature and Environment Protection)
[Umweltdienst Vorarlberg](#) (Environmental Information Service)
- [Stadt Graz \(City of Graz\)](#)
[Umwelt und Gesundheit](#) (Environment and Health)
[Graz - Ökostadt 2000](#) (Graz - Ecocity 2000)

Internationale Organisationen / International Organizations

- [International Institute for Applied System Analysis - IIASA](#) - Laxenburg
- [United Nations Industrial Development Organization - UNIDO](#) - Vienna
[Environment and Energy](#)
[Biosafety Information Network & Advisory service - BINAS](#)
- [International Union of Forestry Research Organizations - IUFRO](#) - BOKU, Vienna

Forschung und Bildung / Research and Education

- [Vienna University of Economics / Wirtschaftsuniversität Wien \(WU\)](#)
[Interdisziplinäres Institut für Umwelt und Wirtschaft / Interdisciplinary Institute for Environmental Economics and Management](#)
- [Univ. für Bodenkultur \(BOKU\), Wien / University for Agriculture, Forestry etc. \(BOKU\), Vienna](#)

Institut für Waldökologie / Institute for Forest Ecology
Zentrum für Geoinformationswesen - BZG / Center for Geoinformatics
Institut für Angewandte Mikrobiologie / Institute for Applied Microbiology
Institut für Wasservorsorge, Gewässerökologie und Abfallwirtschaft / Institute for Water Provision,
 Water Ecology and Waste Management

- Universität Graz - Umweltsystemwissenschaften
- Interuniv. Forschungsinst. f. Agrarbiotechnologie (IFA), Tulln / Institute for Agrobiotechnology
- Austrian Research Centre Seibersdorf / Österreichisches Forschungszentrum Seibersdorf
- Joanneum Research, Graz (Hyper-G, English/German)
- Zentralanstalt für Meteorologie und Geodynamik - Umweltmeteorologie (Environmental Meteorology)

Politische Parteien / Political Parties

- SPÖ - Umweltbüro / Umweltdatenbank (Socialist Party - Environment Office/Database)
- ÖVP - Umwelt (Koalitionsabkommen) (Austrian People's Party - Government Programme Environment)
- Die Freiheitlichen / Freedom Party - Barentaler Environmental Debates
- Die Grünen im Parlament - Grüne Themen (Green Party - Green Issues)
- Liberales Forum - Ökologische Verantwortung (Liberal Party - Ecological Responsibility)

Nicht-Regierungs-Organisationen (Vereine) / NGOs

- Global 2000 Umweltschutzorganisation / Global 2000 - English pages
- Greenpeace Österreich
- ARGUS - Arbeitsgemeinschaft umweltfreundlicher Stadtverkehr (Working Group for Environmentally Friendly City Traffic)
- Birdlife Österreich - Landesgruppe Vorarlberg
- Verein umweltfreundlicher Energienutzung (Environmentally friendly energy use)
- Global Technology Development Center (GTDC)

Industrie und Gewerbe / Industries

- Wirtschaftskammer Österreich - Abteilung für Umweltpolitik (Federal Chamber of Commerce, Environmental Policy Department)
- Industriellenvereinigung - Abt. für Umweltpolitik (Industry Federation, Environmental Policy Department)
- Henkel Austria - Wichtige ökologische Maßnahmen (Important Environment Actions)

Dienstleistungen und Produkte / Services and Products

- kraftWerk (Consulting)
- Austrian country market - Biologischer Landbau (Organic farming), Biomobil, Freiland (Meat)
- OEKO NOMIA Umweltkommunikation und -sponsoring / OEKO NOMIA Environmental Communication and Sponsoring
- Geospace Satellite Images / Geospace Satellitenbilddaten
- Österreichisches Fernerkundungs-Datenzentrum / Austrian Remote Sensing Data Center

Bundesverwaltung (ohne Umweltbezug) / Federal Government (not environment-related)

- [Bundesministerium für öffentliche Wirtschaft und Verkehr](#) (Federal Ministry for Public Economy and Transport)
 - [Bundesministerium für wirtschaftliche Angelegenheiten](#) (Federal Ministry for Economy)
 - [Österreichisches Patentamt](#) (Austrian Patents Office)
-

WWW-Verzeichnisse Österreich (allgemein) / WWW-Directories Austria (general)

- [Information Services in Austria - Overview](#) (Eunet Austria/ACOnet)
 - [Herold's Gelbe Seiten im Internet](#) (Yellow pages Austria)
 - [Austrian Internet Directory - AID](#)
 - [Henkels WWW-Index of Austria](#)
-

Zurück zu / Back to: [Homepage](#)

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ENVIRONMENT TELEMATICS AN OVERVIEW OF THE EUROPEAN UNION RTD&D INITIATIVE

Wolfgang Boch

Commission of the European Communities, Brussels

Introduction

The Fourth Framework Programme (1994-1998) for Research, Technological Development and Demonstration Activities (RTD&D) of the European Union, addresses in the specific Programme on "Telematics Applications of Common Interest" a total of twelve application sectors (e.g. transport, health care, education and training), and among them a new sector, concerning the Environment.

Telematics deals with the application of information and communication technologies and services. Programme goals are: to promote the competitiveness of European Industry, to help improve the efficiency of services of public interest, and to stimulate job creation through the development of innovative telematics systems and services. The Telematics Applications Programme was granted a total budget of some 900 MECU.

The new action on the Environment in the exploratory phase, aims to investigate and demonstrate the potential of multi-media telematics solutions for protecting and improving the environment, and to support corresponding EU policies. The budget allocated to the Environment sector is 20 MECU.

Medium and long-term goals of the action are to contribute to the development of a competitive European market for telematics applications and services in the field of environmental management, and to improve the quality of life for European citizens through increased levels of protection, lowered impact of catastrophes, and better prevention and reduction of pollution.

Scope of actions

Environment Telematics concentrates on automatic warning systems and integrated monitoring of pollution levels in the atmosphere, rivers or sea. Applications and services are under development for various domains, such as urban areas, industrial plants, coastal areas or river basins. Research and demonstration activities address, in particular, the development of environmental management tools; also systems for improved decision making, through the interconnection and improved accessibility of environmental information networks and data bases. The prototypes are mostly based on existing information and telecommunication technologies.

The first call of proposals for Telematics Applications for the Environment was launched in December 1994 and closed in March 15, 1995. As a result, 18 projects have been retained and were adopted in the Commission Decision of 26 July 1995. Out of those, twelve projects will perform pilot demonstrations in numerous cities and regions across the Union. Table 1 indicates the cities and regions involved and their main applications. The projects started their work in January 1996 and will be completed in the course of 1998.

Environmental managers from public authorities from more than 25 European Regions and 20 European Cities are involved in the projects in the form of public-private partnerships/co-operations. The aim is to ensure an efficient implementation of the 'user-driven-approach', which has been stipulated as one of key objectives of the Telematics Applications Programme.

The pilot demonstration projects address amongst other things integrated air quality control, water quality monitoring, public environmental information services, catalogue of data sources, eco-auditing, and management of natural disasters, such as forest fires, floods and earthquakes. The applications are based on existing tools and technologies like, Geographical Information Systems, Data Base Management Systems, Multi-media Graphical Interfaces, Client Server Systems, Remote Sensing, Satellite Communication, ISDN, World Wide Web/Internet, etc.

The applications areas addressed can be roughly grouped into two domains: a) environmental monitoring, information and control systems for the purpose of improved reporting, planning, forecasting, and decision making; and b) global emergency management systems to improve prevention, risk assessment, risk analysis and crisis management for time-critical events, in the case of man-made and natural disasters. Furthermore, the development of European environment information services and applications are supported, in order to help implement the objectives of the European Environment Agency (EEA) and the Centre of Earth Observation (CEO).

Examples of projects addressing environmental information to the broad public

The **ENVIROCITY** project is based on an existing geographical information system, data base query technologies and the Internet-WWW. Work includes the standardisation of meta data and improving access by any "international user" to existing data, meta data and information sources directed at planning, reporting and citizens' decision making. The information sources will encompass environmental media, such as air, climate, soil, surface & ground water, but also socio-economic environment data and biotic (fauna & flora) information.

The project **TEMSIS** will inform citizens on the day-to-day changes on air quality and the quality of drinking water in their local environment. Environmental information will be disseminated in public places such as city halls, or to private homes via access the Internet. Furthermore, local authorities will use these systems to inform the general public living in their communes about potential environmental impacts of new planned industrial developments or on the impacts when enhancing or changing the transport infrastructure. Projects like TEMSIS and ENVIROCITY not only focus on improving the accessibility to environmental information (e.g. through inter-active info-kiosks), but also allow citizens to forward specific requests to their relevant administrations and authorities. Multi-media telematics systems will be implemented also to support the requirements of other users such as city planners, local environmental experts or traffic control experts.

The project **E.M.M.A** focuses on setting up an environmental monitoring and forecasting, information and warning system in metropolitan areas, with special emphasis on urban pollution control, particularly on forecasting pollution levels for a 24 and 48 hour time horizon, and on providing information to the general public. Consistent with the proposed directive of the European Commission on Ambient Air

Quality Assessment (94/0106), the project will put high attention on the development to 'Global Air Quality Indicators'. A user reference group with representatives of local, regional and national Environment Agencies, transport and health organisations has been set up to establish recommendations for 'Global Air Quality Indicators', and to foster the harmonisation between National and European approaches. The demonstrators under development will monitor, analyse and distribute environmental data and information in various user-friendly ways, utilising e.g. geographical information systems, and information networks, such as Internet or Local Area Networks.

Conclusion

Around Europe there is a growing awareness of the need better to control and manage the environment. The objective of 'sustainable development' requires the steady and continual growth and competitiveness of European products and services and the parallel improvement of the environmental quality of our industries, cities and regions.

Through the exploitation of advanced telematics (information and telecommunication) technologies & applications and the opportunities offered by the rapid development of a modern Information Society, pilot projects initiated under the Telematics Applications Programme will offer better services for citizens, environmental managers and decision makers. In their most effective form, environmental information services will give European citizens information that allows them personally to participate in environmental protection.

Applications exploiting the Internet facilities - for Environmental Communication to the public and between administrations- form an essential part in many of the Environment Telematics projects.

Further details and information on the projects implemented in the sector of Telematics Applications for the environment can be obtained from the following Internet Web address: <http://www.echo.lu/telematics>.

Note: Any views or opinions expressed are those of the author and do not necessarily comply with those of the European Commission.

Acronym	Title	Cities & Regions	Main applications
ARTEMIS	Testing Telematics for Environmental Emergency Management	Attica (GR), Jucar Basin (ES)	Environmental Emergency Management including industrial risks and floods
COSIMA	Contaminated Land Sites Management using Telematics	Amsterdam (NL), Bologna (IT), Cork (IE), Katowice (PL), Köln (DE)	Environmental Management Support for Contaminated Sites
DEDICS	Telematics for Fighting Environmental Disasters	Alpes-Maritimes (FR), Andalucia (ES), Crete (GR), Hessen (DE)	Environmental Emergency Management & Control, including forest fires, floods, industrial accidents
E-MAIL	Telematics-based Regional Environmental Planning	Corfu (GR), Fife (GB), Rhone-Alpes (FR), Toscana (IT)	Regional Environmental Information including soil, waste, water
E.M.M.A.	Air Quality Monitoring and Alert in European Cities	Genova (IT), Leicestershire (GB), Madrid (ES), Stockholm (SE)	Air Quality Monitoring and Warning System
ECOSIM	Urban Pollution Control Management	Athens (GR), Berlin (DE), Gdansk (PL)	Environmental Management Support for urban areas, including air and water quality
EFFECT	Environmental Forecasting for Enhanced Traffic Control	Göteborg (SE), Kent (GB), Leicestershire (GB), Volos (GR), Maidstone (GB)	Air Quality Management combined with traffic control measures
ENVIROCITY	European City Environmental Information Service	Antwerpen (BE), Lamia (GR), München (DE), Piraeus (GR), Vitoria (ES)	Public Environmental Information Services, including air, water, soil etc.
ENVISYS	Oil Pollution Alert and Monitoring	Aegean (GR), Andalucia (ES), Cyclades (GR), Galicia (ES)	Environmental Emergency Management for oil spills, forest fires and floods

Table 1: Telematics Applications for Environment Projects launched in 1996, cities and regions involved and main applications

Acronym	Title	Cities & Regions	Main applications
ITSAEM	Integrated Telematics for Environmental Data Delivery	Groningen (NL), Madrid (ES), Utrecht (NL)	Environmental Information System - for Administrations, supporting eco-auditing
RADATT	Rapid Earthquake Damage Estimate Tool	Chania (GR), Crete (GR), Lisboa (PT), Roma (IT)	Post disaster assessment using satellite imagery
REMSSBOT	Telematics in Regional Environmental Management	Alessandria (IT), Athens (GR), Piemonte (IT), Torino (IT), Vlaams Gewest (BE), Zeeland (NL)	Regional Environmental Management incl. development of meta data model
SIGMA	Environmental Management Support System	Galicia (ES), Noord-Brabant (NL), Sollentuna (SE)	Environmental Management Support for industrial areas, including air, water, waste, energy
STEM	Telematics for Land use Planning	Scotland (GB), Valencia (ES)	Tools for long-term land-use planning for crafters, farmers and foresting
TEMSIS	Transnational Environmental Management Information System	Saarbrücken (DE), Sarreguemines (FR)	Transnational Environmental Management and Information Systems, including air, water, land-use
WaterNet	Telematics for Water Quality Monitoring	Barcelona (ES), Hauts-de-Seine (FR)	Environmental Management Support for water quality monitoring and control
ECO-MANAGEMENT	Telematics for SME Environmental Management	25 SME's in 4 EU countries (DE, FR, GR, ES)	Telecounselling and tele-training for environmental management of SME's in plastics industry

Table 1 (contd.): Telematics Applications for Environment Projects launched in 1996, cities and regions involved and main applications

ZOBODAT - www.zobodat.at

Zoologisch-Botanische Datenbank/Zoological-Botanical Database

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