SWEIONET

Kvist, E.

Swedish Environmental Protection Agency SWEIONET, National Focal Point to EEA, S-106 48 Stockholm, Sweden, Ebbe.Kvist@environ.se

Abstract

The birth of EIONET (European Environmental Information and Observation Network) coincided with the Swedish entry to the EU. These events trigged the SWEIONET project 1996 at the Swedish National Focal Point to the EEA (European Environment Agency) (residing at the Swedish Environmental Protection Agency). The aim was to develop an easy accessible and informative information package. The medium should be the Internet in connection and co-operation with EEA. Budget constrains were tight and developing time nine months. Five different sections of the web site were developed and launched in December 1996:

- Organisation. Policies and Sectors
- Threats to the Environment
- Nature in Sweden
- Ongoing activities
- EIONET resources in Sweden

The aim of the SWEIONET is to overbridge the gap between the different networks - on one side the existing national Swedish environmental monitoring, assessment and policy developing network - and on the other side the EIONET. The EIONET and the SWEIONET web servers should be complementary to each other. Together they could be valuable information resources for broad user groups including decision-makers and the general public.

At present the DPSIR-model (DPSIR, Environmental State of the Environment Indicator methodology: Driving Forces, Pressure, State, Impact, Response) is evolving, and in the "Threats to the Environment's" section of the SWEIONET, charts or indicators of the state of environment are presented. The aim with the presentations in the "Nature Categories" section is to show the great variety and beauty of Swedish nature. This gives the opportunity to illustrate that Sweden as a very long country shows a span in between alpine mountain regions in the north, over coniferous forests to mid European lowlands in the south.

The indicators show parts of the results of the monitoring network. It has been possible to benefit of the data gathered at remote institutes and to present the results using hyperlinking technique. Further rapid development of this feature is to be expected. Most of the obstacles to overcome are no longer of technical but of organisational character.

1 SWEIONET http:www.environ.se/sweionet/, background

1.1 EEA, EIONET and NFP

Sweden joined the European Environment Agency (EEA) in 1995 shortly before joining the EU itself. As a member of the EEA Sweden has actively taken part in building up the backbone network of the EEA - the EIONET. The EIONET can be characterised as showing a twin image:

- an institutional and personal network
- a telematic network

The National Focal Points (NFP) in each member state of the EEA are important components of the EIONET. They are appointed by governments and responsible for the organising of national contributions to the EEA (and vice versa) by submitting data and information. In that way the Swedish Environmental Protection Agency (SEPA) has been appointed as the Swedish NFP.

Around 1997 the EEA started the building up of the telematic EIONET. One of its aims was to make information easy available and to present information to experts, decision-makers and policy makers on the environment in order to assist, so that at the end of the day, better decisions have been made. One specific action in that direction was the introduction of the EEA web site in Copenhagen on the Internet.

1.2 Swedish EIONET activities

The main Swedish nodes of EIONET are situated within the Environmental Protection Agency itself, although many experts and external institutions and other agencies are connected to the institutional network as Main Component Elements (MCE).

1.2.1 Environmental monitoring

Most of the expert functions and managing of the environmental monitoring are administrated by SEPA. The execution of the programmes, however, is taking place at contractors. Some of them are also contracted to be "data hosts" for monitoring data.

1.2.2 Data on emissions and discharge to air, water and soil

Data on these issues are collected and processed by the Environmental Protection Agency often in co-operation with other agencies like Statistics Sweden. In one case an EIONET development is used for data processing, the CORINAIR software.

1.2.3 Dissemination of environmental data

Sweden has not yet published a state of the environment report, but has for many years presented reports on the result and status of many of the different environmental goals. Most often such reports includes not only evaluation but also assessment and proposals for actions for a better environment.

On the international scene Sweden is submitting data and information according to what is requested by different international agreements and legislation. Submissions are channelled either via SEPA or the government itself, in the latter case with SEPA most often being the producer.

1.3 SWEIONET initialisation and objective

The Swedish membership to the EU had created a need for Sweden to express Swedish views, experiences and circumstances abroad with regard to the environment. The birth of the telematic EIONET also called for a similar need.

In order to fill parts of those gaps and also in order to overcome some uncertainty on what should be presented freely to the general public within the frame of the telematic EIONET the Swedish NFP began its work with the SWEIONET project.

The aim became to develop an easy accessible package on environmental data and information. The instrument should be cheap and quick and easy to maintain. There-fore the environmental friendly Internet solution was chosen.

2 The SWEIONET project

2.1 Strategy for the SWEIONET web site

The Swedish NFP had a feeling that the overall message on Swedish environment should transmit a positive feeling and firstly focus on Swedish nature and its beauty and secondly on problems and possibilities how to overcome them. This approach might slightly differ from what an environmental agency usually follows: action plans and policy making including technical countermeasures or for nature, conserving actions, being the main instruments.

Another area of interest to focus on was the dissemination of statistical material on the environment. In earlier years Statistics Sweden was responsible for the producing of official statistics on the environment. This task, however, was transferred to SEPA a few years ago. SWEIONET was therefore a suitable instrument to help develop official presentations of statistical summaries like indicators etc.

It was decided that the SWEIONET web site should consist of five different sections:
- Organisation, Policies and Sectors
- Threats to the Environment
- Nature in Sweden
- Ongoing activities
- EIONET resources in Sweden

In the effort of reaching the international target group it became evident that the main language for the presentations should be English. However, it was also recognised that many individuals and institutions of interest in the south of Europe had only little knowledge of English and therefore text based key information should also be translated into French.

The Swedish Environmental Protection Agency had earlier by itself launched a web site in the Swedish language with a few translations into English. The information available on this site did not, but to a minor extent, cover the information intended to become available for the SWEIONET. It was therefore considered to be a good idea to present this information on a new web site for the NFP information. By doing so it was also easier to point out the new relationship between the NFP and the EIONET and EEA.

2.2 The development of SWEIONET

A decision to start the developing project was made in early 1996. It was decided to work in co-operation with EEA. Budget constrains were tight and developing time was limited to nine months with a launch on the Internet in late December 1996. The project team was populated with SEPA staff from many different divisions and sections, necessary to create efficient networking.

2.2.1 The Project team

The project leader was Ebbe Kvist, the NFP contact person. A core set of four key persons in addition to the project leader, formed an inner project team:

– Örjan Lindberg as the technical network expert (Swedish ITTAG member to EEA)
– Manuela Notter as the indicator and environmental monitoring expert
– Bernt Röndell as the expert on environmental statistics
– Maria Sjö as the technical www expert

Besides the project team a lot of contributors both inside and outside of SEPA were contacted. Altogether about 50 people brought about their different contributions.

2.2.2 The Project work

The main objects to collect and present on the SWEIONET web site were that kind of informative material that an agency like SEPA already has produced and published.

2.2.3 Nature information

Sweden is a long country (1557 km). The climate varies from warm temperate (nemoral) in the southern coastal areas to arctic-alpine in the Scandic mountain range, where valley glaciers occur at the highest levels. The aim has been to make presentations of different nature categories in the "Nature Categories" section thus to show the great variety and beauty of Swedish nature.

Different texts already written for different purposes were collected within SEPA and edited and translated. Pictures were chosen to add

good feeling to this section (e.g. Fig. 1). A few informative maps on for instance salinity in the Baltic and forest regions were also produced.

2.2.4 Environmental statistical data and text

To present data and statistics on the environment is to throw oneself into the very rapid development that currently takes place in this field. Data and information should mirror the development in important aspects to the environment and to the society as far as policymaking and decision making are concerned. Both the OECD and the Nordic Council of Ministers have initiated and carried out developments. The EEA has adopted the indicator idea and makes use of it in the report on the "European Environment, the 2nd Assessment", that was just presented last week (2nd of June 1998).

At present the DPSIR-model is evolving among evaluators and assessment makers. In the "Threats to the Environment's" section of the SWEIONET, charts or indicators on the state of environment are presented (e.g. Fig. 2, Fig. 3). The selection has been made to fit the present political agenda. Just recently this agenda has been changed from a problem oriented approach with 14 specified threats to the environment, towards a more object oriented evaluational approach. The objectives and the evaluational objects are still under development in the political corridors, but SWEIONET will eventually shift towards the new approach when the political decision is made.

Figure 1. From "Marine Environments Section": The Baltic coast at Haväng in Skåne. Photo: Ebbe Kvist.
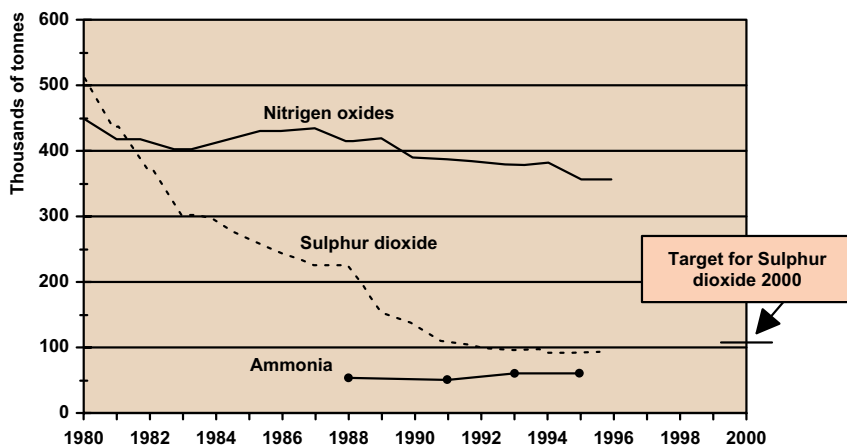
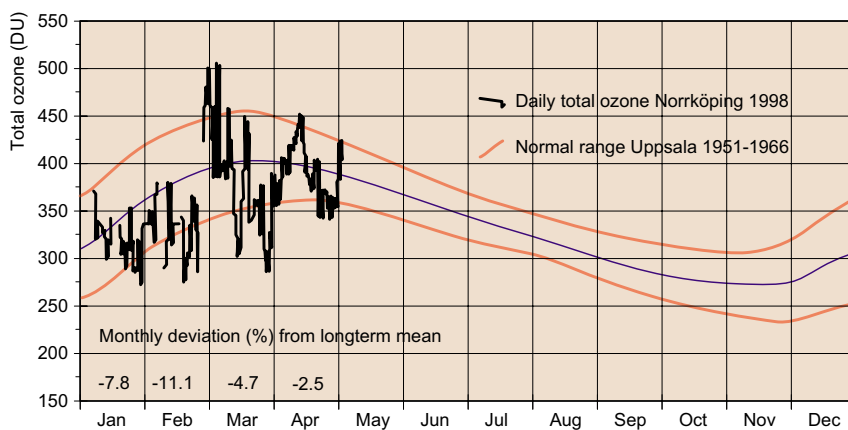Figure 2. From "Threats to the Environment Section": Acidification, emissions of acidifying substances

Figure 3. From "Threats to the Environment Section": Depletion of the Ozone layer. The chart, a result of the monitoring programme, is available and maintained on the EIONET member SMHIs web site.

Although SEPA has recognised the development work that has to be undertaken on environmental statistics in the years to come, the presentation of statistical material on SWEIONET put still another spell on the SEPA organisation. It became evident that frequent maintenance of the published material was necessary. Building up of the maintenance organisation is still going on. At the same time other actors in addition to

the EEA, are asking for contributions regarding the same or similar material. In these development activities, SWEIONET has become one of the driving forces.

2.2.5 Co-operation with external institutions and members of the Swedish EIONET

The SWEIONET project made contacts with different agencies responsible for major environmental issues such as Swedish Civil Aviation Administration, Swedish National Road Administration and the National Chemicals Inspectorate in order to find texts describing their environmental policies and to administrate links to their home pages.

Most Swedish MCEs (members of the Swedish EIONET) are data hosts and holders of environmental monitoring data. Data hosts are generally required to maintain data sets and make them available. This can be done on the Internet or in another medium if more appropriate. During the last few years such a development has taken place, although we have not yet fully reached the goal. During the SWEIONET development Swedish MCEs were contacted in order to get access to links and charts already published on the Internet. At the time of the development not many data hosts had made such data sets available in the form of charts on their web sites. However, it was in a few cases possible to present a few such charts using hyperlinking technique from remote institutes. They contribute considerably to the immediateness of the SWEIONET web site since they are

updated very often, sometimes on a daily basis.

3 Future developments

3.1 Information resources

The aim of the SWEIONET is also to bridge the gap between different networks – on one side the existing national Swedish environmental monitoring, assessment and policy developing network - and on the other side the EIONET. The EIONET and the SWEIONET web servers should be complementary to each other. Together they could be valuable information resources for broad user groups, including decision-makers and the general public. In order to achieve this goal the EEA also will have to develop its web site towards a more strict environmental information approach with direct pointers to relevant information, indicators and data. This development is already underway and might be one of the outcomes of the present annual work programme of the agency.

The indicators shown on the SWEIONET web site are partly results from monitoring activities. Further rapid development of the indicators is expected with regard to both domestic and international presentations. Presently EEA are developing a product known as the "Yearly Indicator Report". This report may consist of a set of core indicators within the DPSIR framework. Member states are supposed to contribute to the report, either by submitting

their data directly to the EEA or via other international bodies already recognised as recipients for national data. SWEIONET will seek to present (or link to) national Swedish data on the web as soon as the Swedish contribution is available. The SWEIONET vision in this respect comprise a public access to most Swedish data sets produced for the policy and decision makers at European level. In addition core data sets of only national interest should be available on the SWEIONET web server. The current political work in Sweden on environmental targets and objectives should end up in a Parliament decision this autumn on what indicators to be chosen for the evaluation process.

3.2 Metainformation

Accessibility to SWEIONET data is very important. One way of increasing the accessibility is to make use of metainformation. Already most of the SWEIONET pages are accompanied by metainformation, meta tags, in the head section of the HTML pages. Two separate approaches are followed.

The Swedish EnviroNet (SMN) approach requires an indexing with a specific indexing scheme with regard to environmental issues. The Dublin Core technique and format is used for this. In the future we hope to develop a link between the Swedish EnviroNet and the Catalogue of Data Sources (CDS) at the EEA. The SMN search tool is available at URL: http://smn/environ.se/miljonat/english/index.htm

The Nordic Web Index (NWI), an initiative among Nordic libraries, with an on-line Dublin Core meta-information generator, has been adopted by SWEIONET. Also NWI makes use of the Dublin Core format. Unfortunately there is a slight difference in standards between the SMN and NWI systems even at a basic description level. The NWI search tool is available at URL: http://nwi.lub.lu.se/?lang=en

The Royal Library (National Library of Sweden) has recently launched a web search project on top of the NWI with the aim of creating a database covering all Swedish quality web sites. The indexing technique is Dublin Core metadata and harvesting on the Internet via robots.

3.3 Information flow

It is essential to develop routines for information flow within the EIONET, with regard to environmental data from the monitoring programmes and the production of statistics on emissions and discharges. This is an organisational matter to be dealt with by SEPA.

The EIONET User Group has already presented a couple of pilot project with regard to information flow. At national level this implies that national reporting and evaluation systems must be ready to meet the demands from the EIONET. In addition to the EIONET, several other international fora are requesting pieces of information on various issues, at a steadily increasing activity. Besides the international requests the national system also puts forward specific demands.

In Sweden, the data hosts participating in the monitoring programmes are governed by contracts. Recently renewals of these contracts have been initiated. The crucial thing now, is to secure that requested information should be processed in suitable ways to fit into the web production. Articles on this must be forwarded into the contracts.

To be able to fulfil its task as an easy and quick core information provider for European decision and policy makers SWEIONET must rely upon its data and information providers, and so must other bodies including the Ministry of Environment. In fact then, SWEIONET becomes one of the bodies that request information. SEPA in particular will have to rearrange its statistical production and the methods of presenting results from the environmental monitoring. These processes have just begun. In the few years to come it could be estimated that the staff working on the production of statistical data must be increased considerably if the user demand is going to be met.

3.4 Technical aspects

The overall rule for further development is that SWEIONET not should be technology driven but make use of easy, cheap and easy maintainable tools. We do not feel there is a need to create the most fancy web site ever found. It is of much more importance that the information presented is correct, updated and easy retrievable. Of course this should not prevent us from present SWEIONET on the web with a nice layout, but fancy

technological solutions are not sought to be included *per se*.

We are hesitating to introduce frames as we think that maintenance costs might increase and additional problems at the user end might decrease user friendliness. Cascading style sheets, though, may be introduced as well as JavaScripts.

One technique that we would like very much to develop further is hyperlinking between nodes in the national network. It might also be possible to develop a database retrieval technique for disaggregated data sets like time series of emission data.

4   Obstacles and possible solutions

Most of the obstacles to overcome are no longer of technical but of organisational character.

For SWEIONET, the most important development for the future is to create information **provider awareness** so that the information flow in the Swedish part of EIONET will flow without obstacles. One part of this awareness creation could be that SWEIONET act as an information broker between users of information and data providers and different monitoring programmes.

The **slowness in administrative systems** with regard to the introduction of new routines and forms of presentations is a true problem. Even if you meet with an organisation having a high degree of adaptiveness, it takes a long time for a big organisa-

tion to reallocate resources and give new priorities. In addition **new competence** in web technology must be introduced to many people.

Now **administrative routines** must be introduced to secure the availability to data. Such routines must include proper contracting pro-cedures with regard to monitoring programmes, so that future contracts stipulate **accessibility to URLs** and means for their updating. Further the contracts should stipulate picture and chart **formats** and **layouts**, and solve questions on **copyright** issues.