

1997

GRID-Arendal Annual Report

A Greeting from the Norwegian Minister of Environment



In 1997 the Earth Summit +5 conference in New York and the climate conference in Kyoto marked the international environmental agenda. These two events, initiated by the United Nations, reminded us that considerably stronger action is needed to protect the world from the severe impacts of human activities.

The Norwegian government is firmly committed to make its contribution. Some of the immediate actions in 1998 will be a follow-up report to the Kyoto meeting, proposing a number of concrete actions to reduce emissions of greenhouse gases. We are also increasingly supporting local Agenda 21 activities.

We will continue our strong support to UNEP as the environmental conscience of the United Nations system and its role to monitor and assess the state of our planet. An important part of this support is our contribution to GRID-Arendal.

I am pleased to note that this joint effort between UNEP and the Government of Norway will grow further in 1998. A particular proof of this is the establishment of the UNEPnet Implementation Centre at GRID-Arendal, dedicated to the environment and sustainable development. I welcome this initiative, and in particular its focus on narrowing the information gap between industrialised and developing countries.

I appreciate the important role UNEP and GRID-Arendal are playing in making reliable information available for improved environmental decisionmaking in all countries.



Guro Fjellanger

The Year in Review

When UNEP launched the Global State of the Environment Report in January 1997, we were pleased to note that our contributions were well recognised. The Internet version and the Arctic inputs were prepared by GRID-Arendal.

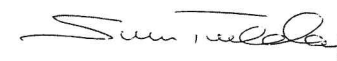
Under our expanding work in Central and Eastern Europe, we assisted in the establishment of a new GRID centre in Budapest, Hungary. It was opened in April by the UNEP Executive Director and the Hungarian Minister of the Environment.

The innovative work of our graphics section got recognition when the first AMAP State-of-the-Arctic Environmental Report was widely distributed in June at the Arctic Ministerial Conference in Alta, Norway, and also at the Special Session of the UN General Assembly in June.

In July 1997, when the UN Secretary-General, Kofi Annan, presented his plans for reforms in the UN system, he supported a strengthening of UNEP in several thematic areas. We were heartened by his recognition of UNEP for its environmental information work and for his specific mentioning of the global GRID system. As a unique foundation in Norway dedicated to supporting such tasks, we were encouraged that environmental information activities may now have an opportunity to become useful on a broader basis within the UN system.




Leif E. Christoffersen
Chairman of the Board

Svein Tveitdal
Director

A major milestone was the completion of several rounds of constructive discussions and reviews aimed at revising the GRID-Arendal Strategy. Approved by the Board in September, the new strategy document brings out clearly the supportive and innovative role which GRID-Arendal will continue to play towards UNEP very specifically, and the UN system more generally. While maintaining the geographical focal areas which have been emphasised since the beginning of GRID-Arendal in 1990, the strategy invites more activities at the global and regional levels, in accordance with UNEP priorities.

To help strengthen the global capacities of UNEP, GRID-Arendal has over the past couple of years provided technical services for the preparation of a modern communication system - UNEPnet. When the Norwegian Prime Minister, Thorbjørn Jagland, opened a new UNEPnet station at GRID-Arendal on September 3, it was also made known that UNEP had made the decision to locate the technical secretariat for this new global communications system with us here in Arendal.

The overall operational results have been good. We have continued to strengthen our financial position. We issued or made substantive contributions to 47 technical or project-related publications; we arranged nine international workshops and seminars; and there were surprisingly high responses to our World Wide Web Server. With over two million hits, and nearly twenty thousand data sets downloaded from our database, GRID-Arendal has become the major on-line provider of environmental information in the Nordic countries.

Once again, we give main credit to our productive and creative staff, to our able and wise Board members, and to the many contact points for GRID-Arendal in UNEP and other international and national agencies.

UNEP's mission statement

"UNEP's mission within the UN system is to provide leadership and encourage partnership in caring for the environment by inspiring, informing and enabling nations and people to improve their quality of life without compromising that of future generations."

GRID-Arendal's mission statement

"GRID-Arendal¹ aims to be an internationally recognised information centre providing decision-makers and the public with improved access to high-quality environmental information and supporting UNEP² in expanding the use of such information for awareness-raising, policy-making and action."

The role of GRID within UNEP

The global system of GRID centres is administered by UNEP under its programme for environmental information and assessment. This programme addresses the need to keep under review the state of the world's environment, to provide early warning of environmental threats, to improve access to multi-disciplinary information, and to enhance capabilities to use this information for decision-making, action-planning and policy-setting.



Arendal Town Hall

GRID-Arendal's purposes

The main purposes of GRID-Arendal are to help strengthen UNEP, and through it the UN system, in putting environmental information into practical use, and to serve as a working example of how a non-profit foundation with strong government support can make such a contribution. The main directions given to GRID-Arendal in the

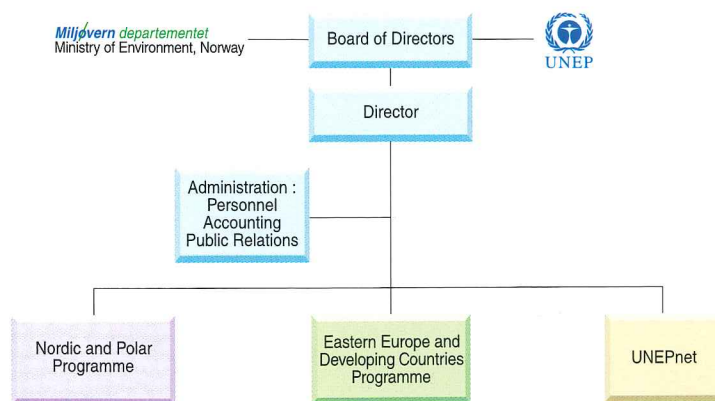
current joint agreement between UNEP and the Government of Norway are to focus on Norway, the Nordic countries with their adjacent seas, and the two polar regions, and to support global and regional UNEP activities in the field of environmental information.

Location

GRID-Arendal is located in the Longum Park Technology Centre in Arendal, a city on the southern coast of Norway. Longum Park represents a unique hi-tech co-location of 20 firms. GRID-Arendal's branch office for Nordic/Baltic activities is located at the Department of Systems Ecology, University of Stockholm, Sweden.

Organisation

GRID-Arendal was established in 1989 by UNEP and the Norwegian Ministry of Environment as a foundation subject to Norwegian laws and regulations.



GRID-Arendal is organised as a project-oriented institution focusing on three main areas of operation.

¹<http://www.grida.no>
²<http://www.unep.org>

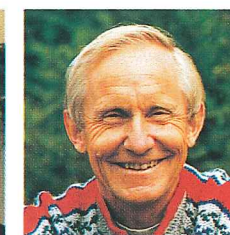
Board of Directors



Leif E. Christoffersen
Chairman of the Board



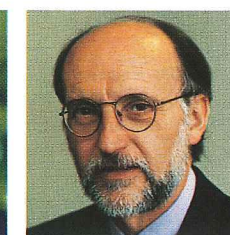
Hans Alders
Commissioner of the Queen
Province of Groningen
Netherlands



Øystein Dahle
Board Chairman
World Watch Institute Norden



Takahiko Hiraishi
Assistant Executive Director
Division of Environmental
Information and Assessment,
UNEP



Domingo Jiménez-Beltrán
Executive Director
European Environment
Agency



Lars-Erik Liljelund
Director
Dept. of Natural Resources
The Environmental Protection
Agency, Sweden



Hanne Petersen
Director
Dept. of Arctic Environment
National Environmental
Research Institute, Denmark



Odd Rogne
Executive Secretary
International Arctic Science
Committee



Anu Pärnänen-Landman
Environmental Co-ordinator
Dept. for Development
Co-ordination
Ministry of Foreign Affairs,
Finland
(Appointed December 1997)

Statement of Accounts 1997 in NOK

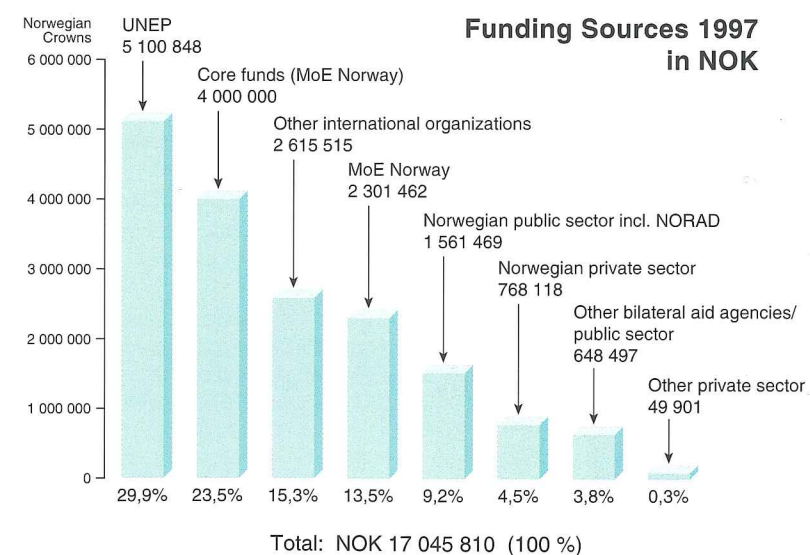
Balance sheet as per December 31

	1997	1996
Current assets	8 947 842	6 946 667
Fixed assets	394 803	371 255
Total assets	9 342 646	7 317 922
Short-term liabilities	4 391 425	3 064 433
Equity	4 951 221	4 253 489
Total liabilities and equity	9 342 646	7 317 922

Profit and loss account for the period January 1 to December 31

	1997	1996
Operating revenues	17 045 810	16 891 450
Operating expenses	16 621 865	16 381 758
Operating result	423 945	509 692
Net financial items	273 787	233 488
Result for the year	697 732	743 180

The statement of accounts has been audited by State Authorized Public Accountant Terje H. Holst, KPMG as, Arendal.



State-of-the-Environment Reporting

Scientific and Institutional Base

GRID-Arendal has over the last year intensified its participation in international groups dealing with SoE reporting and indicators. The 1997 highlights include:

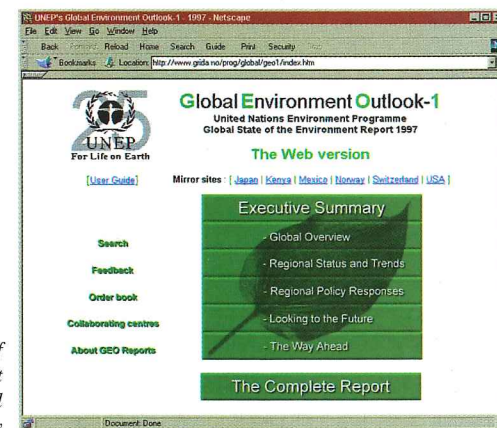
- participation in the OECD SoE Group and the EEA Expert Group on SoE Reporting
- co-organisation, with OECD and WHO, of the "Workshop on Information and Indicators for NEAPs and NEHAPs" for CEE/NIS
- discussions with UN/DPCSD on indicators of sustainable development for the preparation of the Sustainable Development Home Page²
- discussions with UNCHS (Habitat) on urban environmental indicators

An indicator component is incorporated into all GRID-Arendal's SoE projects and training courses. To assess and promote the harmonisation of SoE reporting in CEE/NIS, GRID-Arendal co-authored an overview of selected SoE reports and indicators used in the region³. GRID-Arendal prepared a chapter on the spatial dimension sustainable development indicators for SCOPE's report to UNGASS⁴. The EEA-funded project on European SoE reporting guidelines has started, with GRID-Arendal as a major contributor.

GEO-1: UNEP's Global State-of-the-Environment Report 1997

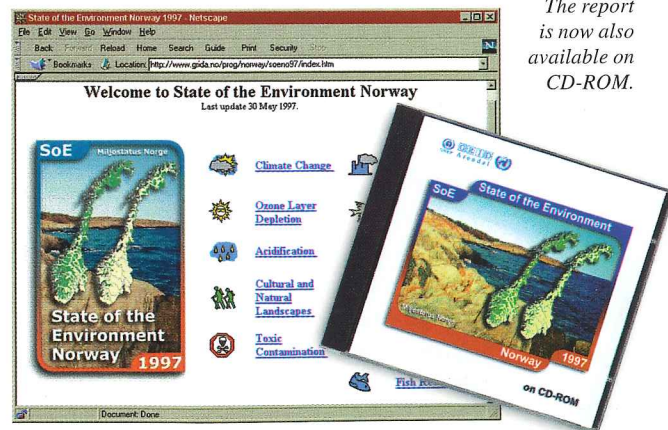
GEO-1 is the first output in UNEP's biennial GEO report series focusing on the global state of the environment. GEO-1 is based upon an international participatory assessment process involving a global network of 20 collaborating centres of scientific excellence, regional consultations, four scientific working groups, and UN participation through the UN system-wide Earthwatch Process.

GRID-Arendal prepared the sections on Arctic issues for GEO-1. The Internet version¹ of this publication - one of UNEP's most important in 1997 - was designed and prepared by GRID-Arendal in close co-operation with the GEO team at UNEP HQ. The Internet version was published simultaneously on six different UNEP web sites around the world.



The Internet version of GEO-1 was released at UNEP's Governing Council in Nairobi in January

SoE Norway: the most widely accessed environmental information about Norway on the Internet.



The report is now also available on CD-ROM.

SoE Norway - Norwegian Environment on the Internet

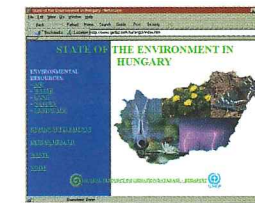
The third edition of the State of the Environment Norway⁵ was launched in May 1997, and is a revised and updated version of the SoE Norway 1995, which achieved 2nd place in the prestigious Princes' Award 1996 for the best presentation of environmental information in Europe.

SoE Norway 1997 offers the latest news about the environment in Norway, in easily understandable texts, graphics, colour pictures and map series.

It is produced in co-operation with the Norwegian Ministry of Environment, Statistics Norway, the Norwegian Mapping Authorities and the Norwegian Pollution Control Authority.

National SoE Reports Central and Eastern Europe

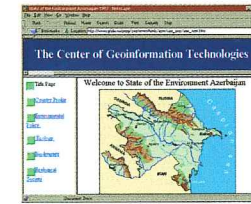
In 1997, under UNEP's ENRIN programme, GRID-Arendal continued to support the production of user-friendly electronic SoE reports on the Internet by countries in Central and Eastern Europe (CEE) and the Newly Independent States (NIS). Despite the relatively low accessibility of the Internet in the region, the approach raises considerable interest due to the cost-efficiency of electronic SoE production and its flexibility in terms of output dissemination (Internet, CD-ROMs, other electronic media, extracts on paper). Using the Norwegian report on the Internet as a model, eight CEE/NIS countries have prepared their national electronic SoE reports⁶.



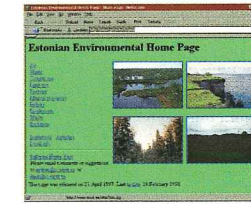
Hungary



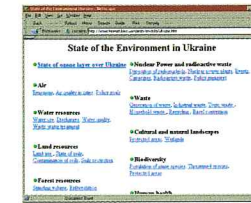
Latvia



Azerbaijan



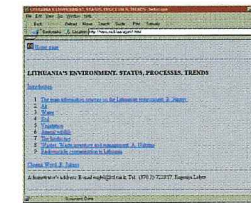
Estonia



Ukraine



Georgia



Lithuania



Poland

Examples of UNEP-facilitated national environmental home-pages in CEE/NIS.

Cities' State of the Environment on the Internet

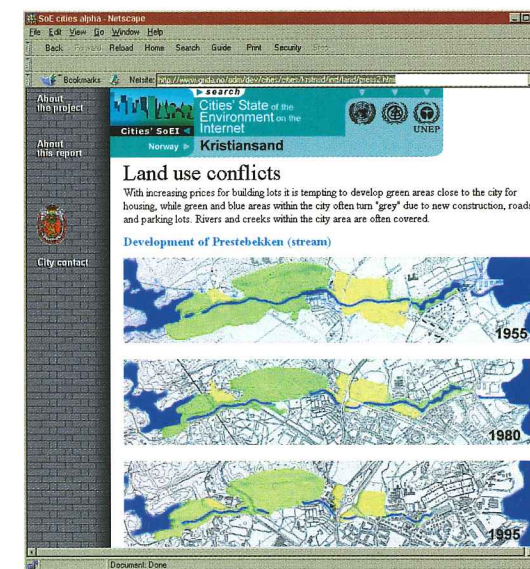
UNEP/GRID-Arendal has started a research project within the framework of Local Agenda 21 to facilitate access to environmental information for sound decision-making and general awareness-raising in cities. The project is supported by UNEP/HABITAT, the Norwegian Research Council, the Norwegian Industrial and Regional Development Fund and the Norwegian Ministry of Environment.

A complete package consisting of WEB templates, presentation tools, user interface, established networks between cities, and service activities will be developed.

The aim of the programme is that more than 500 cities will participate by the year 2002. More information about the programme is available on the Internet⁷.

Looking Ahead

Highlights in SoE-reporting in 1998 will include co-operation with NEPA on an SoE report for China, the preparation of CEE environmental infor-



A pilot version of Cities' State of the Environment for Kristiansand was presented at the Urban Environment Forum in Shanghai, October 1997

mation for the Aarhus Conference in co-operation with EEA, and the preparation of SoE reports on the national and local levels in South Africa.

¹<http://www.grida.no/prog/global/geo1/>
²<http://www.un.org/esa/agenda21/natinfo/>

³http://www.grida.no/prog/cee/soe_cee/
⁴<http://www.grida.no/prog/norbal/docs/gisisd/>
⁵<http://www.grida.no/prog/norway/soeno97/>

⁶<http://www.grida.no/prog/cee/enrin/>
⁷<http://www.grida.no/prog/global/citysoei/>

The Green Global Internet



the green global internet

UNEPnet¹ is the international environmental Internet developed by UNEP. UNEPnet builds upon the Mercure satellite communications system to reach developing countries and countries with economies in transition to enable their access to environmental information and competence.

Through UNEPnet/Mercure, UNEP offers its partners access to a global telecommunications network dedicated to the environment and sustainable development. UNEPnet/Mercure participants get access to all regular internet tools including electronic mail, World Wide Web, and efficient file transfer.

GRID-Arendal has been the responsible body within UNEP for the implementation of UNEPnet/Mercure. In December, GRID-Arendal signed a USD 3.15 million contract for the establishment of a UNEPnet Implementation Centre (UIC) in Arendal. UIC will be responsible for the operation and further development of UNEPnet until the end of 2001.

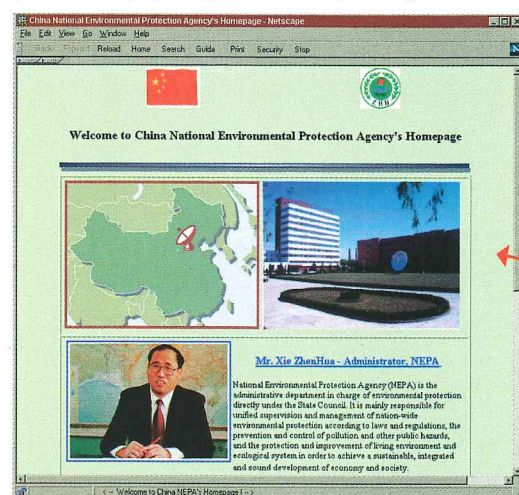
The development of the UNEPnet/Mercure project has been funded by six member countries of the European Space Agency (ESA): Austria, Belgium, Norway, Spain, Switzerland, and the United Kingdom. ESA has been responsible for the procurement and implementation of the system

through a group of European industrial contractors, including Newtec (Belgium), NERA (Norway), Softlab & Osiconsult (Austria), Andrew (UK), CIR/Swiss Telecom PPT (Switzerland), Alenia (Italy) and Indra (Spain).

Looking Ahead

Major activities in 1998 will be a full mobilisation of the UIC, training of staff at existing sites, application development, and a further expansion of the network to include additional countries.

The National Environmental Protection Agency of China (NEPA) homepage². A practical example using UNEPnet

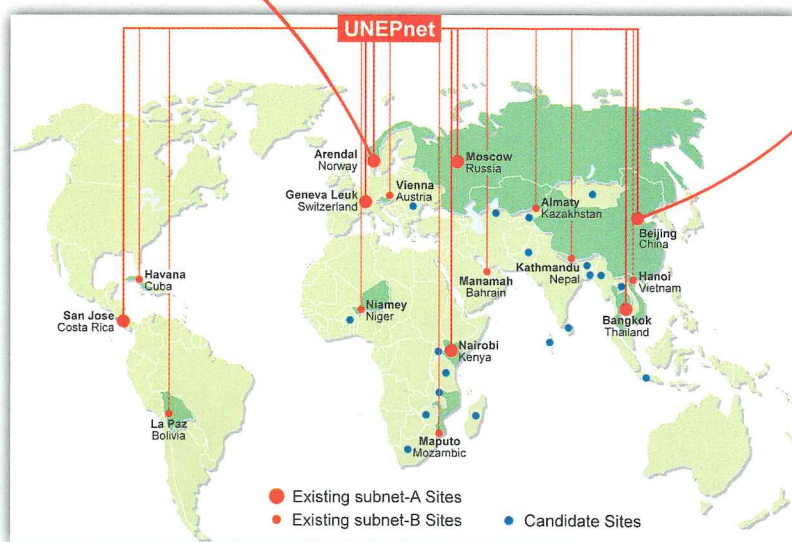


From the inauguration of UNEPnet/Mercure, Arendal, September 3, 1997.



[Per Lunden]

Through UNEPnet/Mercure, UNEP offers its partners access to a global telecommunications network dedicated to the environment and sustainable development



¹<http://www.centre.unep.net>

²<http://www.nepa.unep.net>

A prima Baltic BALLERINA

During 1997 BALLERINA¹, (BALTic sea region on-Line Environmental information Resource for INternet Access), has matured into a prima ballerina. For those in search of environmental information about the Baltic Sea region, the BALLERINA web site now provides a wealth of data and information about actors, initiatives, events, and state of the environment for the Baltic Sea, its drainage basin, and the Baltic countries.

The BALLERINA institutional network met in Riga in May and discussed and agreed on aspects related to the institutional set-up; the BALLERINA web site structure, content and services; and capacity-building needs in the Baltic Sea region. Despite its novelty, BALLERINA has become a model for other transboundary water regions of the world.

BALLERINA was in 1997 financially supported by the Norwegian Ministry of Environment, the European Environment Agency, the Swedish Ministry of Environment and the Swedish Environmental Protection Agency.

Supporting transboundary initiatives

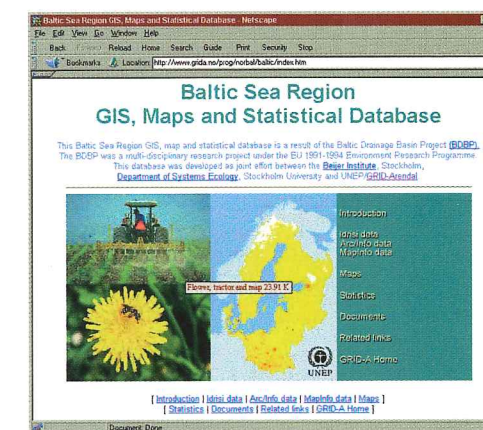
During 1997 GRID-Arendal has actively supported several Baltic policy and management initiatives including the VASAB 2010², Baltic 21³ and DaZaD⁴.

Looking Ahead

Main priorities in 1998 will be the further development of BALLERINA as an operational programme with secured funding.



The BALLERINA web site was officially launched in April 1997 and more than 40,000 page visits were made to this homepage alone by the end of the year.



Baltic GIS⁵, the most popular GRID-Arendal GIS and map database, has also been updated in 1997, and is currently being accessed by approx. 1,000 users per week.



Staff at the Environmental Unit in the Norwegian Mapping Authority

[Gro Paulsen]

Co-operation with the Norwegian Mapping Authority, Environmental Unit

The Norwegian Mapping Authority's Environmental Unit (SKMe) was established in 1994, and is co-located with GRID-Arendal at the Longum Park Technology Centre in Arendal. SKMe supports environmental management in Norway by securing, managing and presenting national environmental data.

SKMe works closely with GRID-Arendal on the State-of-the-Environment Norway project, but also co-ordinates databases and meta-databases, and contributes mapping/project services in general.

¹<http://www.baltic-region.net>

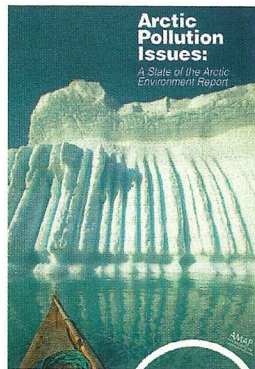
²<http://www.vasab.org.pl>

³<http://www.ee/baltic21/>

⁴<http://www.baltic-region.net/partners/dazad/>

⁵<http://www.grida.no/baltic/>

Support to the Arctic Council's Arctic Monitoring and Assessment Programme (AMAP)



AMAP's "Arctic Pollution Issues: A State of the Arctic Environment" Report.

In 1997 AMAP¹ completed its initial mandate to assess the effects of pollutants on the Arctic environment. The result of this assessment phase was the release of a report to Arctic Ministers of Environment. "Arctic Pollution Issues: A State of the Arctic Environment" was released at the AMAP International Symposium on Environmental Pollution of the Arctic, held in Tromsø, Norway in June and officially presented to Ministers a week later at the Arctic Environmental Protection Strategy Ministerial Conference in Alta, Norway.

AMAP's State-of-the-Environment Report is based on a fully referenced scientific document, the AMAP Assessment Report, which will be published early in 1998. Copies of the reports can be ordered from the Internet² or directly from the AMAP Secretariat.

GRID-Arendal has been responsible for the coordination of graphical production and has provided GIS, cartographic and graphical design support. All information used to create maps and graphics has been systematically stored in an internal database for future retrieval and use.

GRID-Arendal as UNEP's presence in Arctic Environmental fora

AEPS Ministerial Meeting

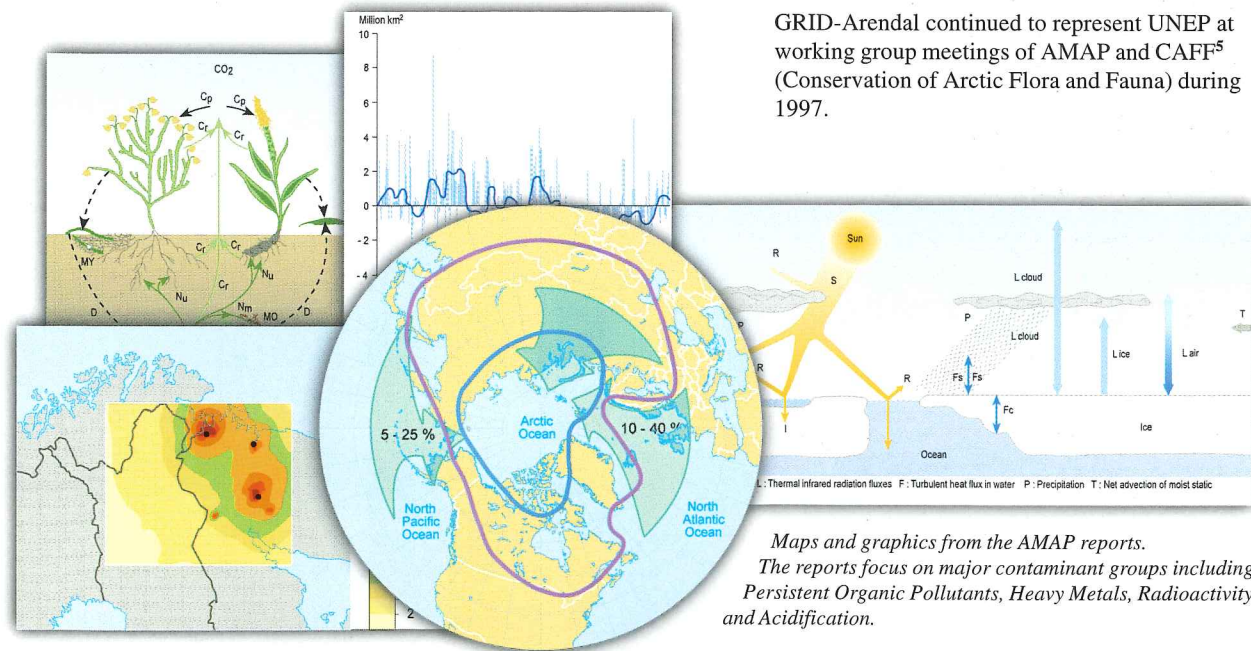
GRID-Arendal represented UNEP at the fourth and final Ministerial Conference of the AEPS. The Alta Declaration on the Arctic Environmental Protection Strategy and other relevant documents from the conference³, as well as UNEP's message⁴, can be read on-line. The conference marked the handing over of the AEPS to the newly formed Arctic Council. The environmental activities performed through the AEPS will continue under the Arctic Council within a broader framework of sustainable development.



Arctic Ministers and representatives signing the Alta declaration.

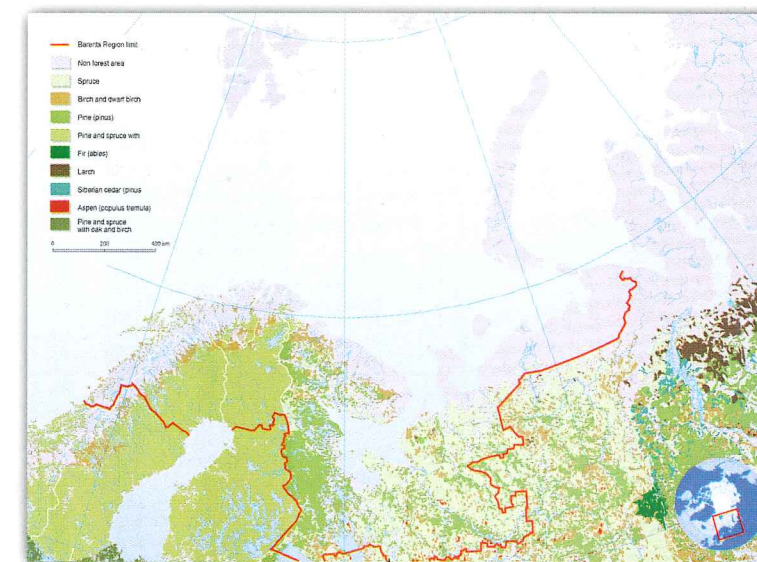
Arctic Council Working Group Meetings

GRID-Arendal continued to represent UNEP at working group meetings of AMAP and CAFF⁵ (Conservation of Arctic Flora and Fauna) during 1997.



Barents Environment Atlas project

In co-operation with the Svanhovd Environmental Centre, the Norwegian Polar Institute, and the Directorate of Nature Management, GRID-Arendal has facilitated the creation of an environmental atlas of the Barents region. GRID-Arendal's primary responsibility involved cartographic support for the project and led to the creation of a series of thematic maps. Map themes included: topography and bathymetry, protected areas, and population of metropolitan areas. The atlas will be published in the magazine Barentswatch (a leading publication covering Barents regional issues). The data will also be available through the GRID-Arendal database.

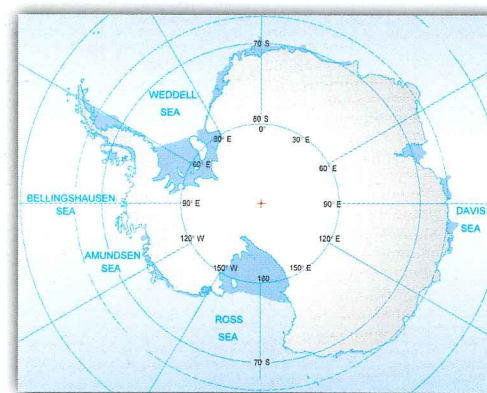


Forest types in the Barents Region.

GEO-2: The integration of Arctic and Antarctic environmental reporting

UNEP headquarters requested GRID-Arendal's support in co-ordinating the production of the Polar sections of the second Global Environment Outlook Report (GEO-2). This report will be a follow-up to the first GEO report published in January 1997 and will again be aimed at policy-makers concerned with regional and global environmental issues. GRID-Arendal will co-operate with GRID-Christchurch on Antarctic matters and the Fridtjof Nansen Institute on policy matters. GRID-Arendal's contribution will focus on Arctic portions of a state-of-the-environment chapter, a review of current policy responses and a review of international agreements and their impacts.

GRID-Arendal is well placed to continue its Polar support to UNEP through its involvement with the working programmes of the Arctic Council.

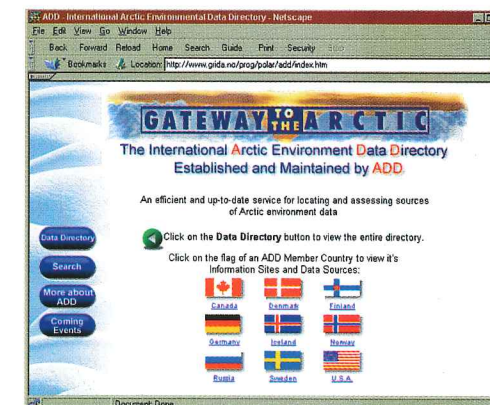


GRID-Arendal maintains an involvement in Antarctic issues through GEO-2 collaboration with GRID-Christchurch.

ADD The International Arctic Environment Data Directory

ADD⁶ is a network co-operation between major Arctic environmental data holders. The function of ADD is to make Arctic environmental data and information, and their sources, available to users via the Internet.

GRID-Arendal has hosted the chairmanship and secretariat of the ADD Council since its establishment in 1995. In October 1997, Director Svein Tveitdal handed over the ADD Council chairmanship to Dr. Bruce Molnia, USGS.



The new ADD homepage.

Looking Ahead

Polar activities in 1998 will include: support to AMAP, including the completion of graphical production for the AMAP Assessment Report and the development of an Internet site for AMAP's State of the Arctic Environment Report; continued support to CAFF; assistance to indigenous peoples' groups in the Arctic; the preparation of the Polar section in UNEP's second Global Environmental Outlook report, and further support to ADD.

¹<http://www.grida.no/prog/polar/amap/>
²http://odin.let.rug.nl/arctic/amap_order.html

³<http://www.grida.no/prog/polar/aeps/>
⁴<http://www.grida.no/inf/news/new41-97.htm>
⁵<http://www.grida.no/prog/polar/caff/>

⁶<http://www.grida.no/add/>

ENRIN



GRID-Arendal has continued to implement UNEP's ENRIN¹ (Environment and Natural Resources Information Network) programme in Central and Eastern Europe and the NIS. A regularly updated ENRIN overview is accessible on the Internet. Project brochures in English and Russian are also available.

Activities 1997

Ten seminars both in Arendal and in the region have been held with a total of 214 participants attending. Highlights have been the opening of GRID-Budapest in April, the Internet Seminar in Arendal in August, the start-up workshop on the electronic SoE report for the Aral Sea Basin in Bishkek in November, and the workshop on biodiversity information reporting in the NIS in Kiev in December.

GRID-Arendal staff working under ENRIN were on more than 30 missions in 1997. The aim of these missions was to visit the countries and regions, to have meetings with donors, and to attend international conferences and workshops.

The Ministries of Environment of Albania, Bosnia and Herzegovina, Tajikistan and Turkmenistan officially joined the programme in 1997. Representatives from ministries of environment of Albania, Belarus, Romania and Tajikistan have assessed their environmental information network according to UNEP's Terms of Reference. Focus has been put on compiling national electronic SoE reports. The reports of eight countries (Azerbaijan, Estonia, Georgia, Latvia, Lithuania, Hungary, Poland and Ukraine) are now available on the Internet.

Looking Ahead

Funding has been secured for 1998 activities focusing on: an electronic SoE report for the Aral Sea Basin (World Bank Trust Fund); an ENRIN feasibility study Azerbaijan (GTZ); and the establishment of GRID-Tbilisi (World Bank Trust Fund). In addition the programme will focus on the presentation of CEE environmental information for the Aarhus Conference in co-operation with EEA, and arrange/facilitate training workshops for electronic SoE reporting.

The high activity level of the ENRIN programme continued in 1997 as illustrated in this matrix

ENRIN Status Countries		1	2	3	4
Central Europe	Poland	█	█	█	█
	Czech Repub.	█	█	█	█
	Slovakia	█	█	█	█
	Hungary	█	█	█	█
South-	Romania	█	█	█	█
	Bulgaria	█	█	█	█
Balkan, Former Yugoslavia	Slovenia	█	█	█	█
	Croatia	█	█	█	█
	Bosnia-Herz.	█	█	█	█
	Yugoslavia	█	█	█	█
	Macedonia	█	█	█	█
	Albania	█	█	█	█
Baltic	Estonia	█	█	█	█
	Latvia	█	█	█	█
	Lithuania	█	█	█	█
CIS	Belarus	█	█	█	█
	Russia	█	█	█	█
	Ukraine	█	█	█	█
	Moldova	█	█	█	█
Caucasus	Armenia	█	█	█	█
	Azerbaijan	█	█	█	█
	Georgia	█	█	█	█
Asian Republics	Kazakhstan	█	█	█	█
	Kyrgyzstan	█	█	█	█
	Tajikistan	█	█	█	█
	Turkmenistan	█	█	█	█
	Uzbekistan	█	█	█	█

1. Agreement / Assessment / Workshop
2. Feasibility / SoE on the Internet (prototype)
3. Implementation
4. Operational Status

CGIAR Co-operation

The joint UNEP/CGIAR project implemented by GRID-Arendal has established long-term links between UNEP and the Consultative Group for International Agricultural Research (CGIAR²).



The main effort in 1997 was put into exploring different options for the establishment of a permanent structure for GIS collaboration in the CGIAR system. Concrete GIS projects were carried out both in-house and by commissioning agencies within and outside the CGIAR.

As a continuation of last year's effort to make the CGIAR's spatial data publicly available, another round was started to ask centres for information on their spatial data holdings. The obtained data was transformed to the UNEP meta-database/housekeeping tool's format.

Following the strong recommendations from TAC (Technical Advisory Committee) and the Norwegian donor to focus research on poverty, GRID-Arendal conducted a pilot study "Mapping indicators of poverty in West Africa".

Looking Ahead

During 1998, efforts will focus on finding a solution for a self-sustained consortium on spatial information within the CGIAR.

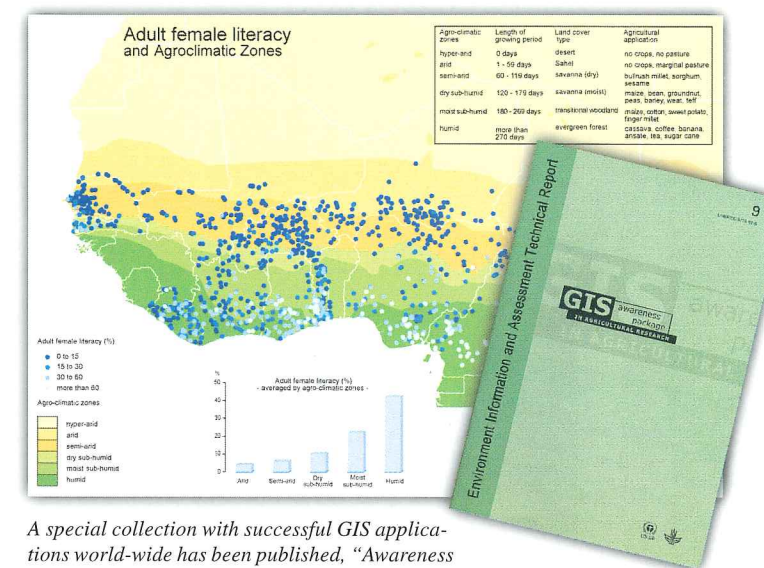
GRID-Budapest

GRID-Budapest³ was opened April 21, 1997 in the presence of the Executive Director of UNEP, Elizabeth Dowdeswell, and the Hungarian Minister of Environment and Regional Policy, Dr. Ferenc Baja. The establishment of GRID-Budapest was part of the ENRIN programme in Central and Eastern Europe and was implemented by GRID-Arendal. Funding has been provided by the governments of Switzerland and Norway.

From the opening of GRID-Budapest



[Morten Sørensen]



A special collection with successful GIS applications world-wide has been published, "Awareness Package on GIS in Agricultural Research".

The high interest of the CGIAR centres in the joint UNEP/CGIAR project, is reflected in the participation matrix below

CGIAR Participation		1	2	3	4	5
CIAT	Tropical Agriculture Colombia	█	█	█	█	█
CIFOR	Forestry Indonesia	█	█	█	█	█
CIMMYT	Maize - Wheat Mexico	█	█	█	█	█
CIP	Potato Peru	█	█	█	█	█
ICARDA	Dry Areas Syria	█	█	█	█	█
ICLARM	Aquatic Resources Philippines	█	█	█	█	█
ICRAF	Agroforestry Kenya	█	█	█	█	█
ICRISAT	Semi-Arid Tropics India	█	█	█	█	█
IFPRI	Food Policy USA	█	█	█	█	█
IIMI	Irrigation Sri Lanka	█	█	█	█	█
IITA	Tropical Agriculture Nigeria	█	█	█	█	█
ILRI	Livestock Kenya	█	█	█	█	█
IPGRI	Plant Genetic Resources Italy	█	█	█	█	█
IRRI	Rice Philippines	█	█	█	█	█
ISNAR	Service The Netherlands	█	█	█	█	█
WARDA	Rice Côte d'Ivoire	█	█	█	█	█

1. Arendal I workshop, 1992
2. Arendal II workshop, 1995
3. Requirement Study
4. Arendal III workshop, 1996
5. Arendal IV workshop, 1997

¹<http://www.grida.no/prog/cee/enrin/>

²<http://www.grida.no/prog/global/cgiar/>

³<http://www.gridbp.meh.hu/indexa.htm>

Workshop, Course and Seminar Activities

BALLERINA Conference Riga, Latvia - May 22-23

Eighty participants registered from ten countries participated in the First Annual BALLERINA Conference¹. This conference was jointly organised by GRID-Arendal with the Latvian Environment Data Centre, the Latvian Fund for Nature, and the Baltic Environmental Forum.

GIS Training in Climate Change Impacts Arendal, Norway - June 16-29

GRID-Arendal arranged and hosted a training course in GIS and mapping for four researchers from Cameroun, Antigua and Estonia. The training was a part of the project "Country Case Studies on Climate Change Impacts and Adaption Assessments", implemented by the Center for International Climate and Environmental Research (CICERO) and UNEP.

Internet for Environmental Reporting and Information Dissemination Arendal, Norway - August 25-29

GRID-Arendal hosted an introductory course in "Internet for Environmental Reporting and Information Dissemination", with 21 participants from Georgia, Azerbaijan, Uzbekistan, Latvia, Romania, Ukraine, Russia, Poland, Hungary and Thailand attending. Various participants were trained in how to effectively structure environmental information in an Internet format. The course was taught in collaboration between REC (the Regional Environment Centre) in Hungary and GRID-Arendal.

Inauguration Ceremony of UNEPnet/MERCURE Station and Executive Seminar Arendal, Norway - September 3

Fifty participants and guest speakers, including Norwegian Prime Minister Thorbjørn Jagland, Deputy Administrator of NEPA (China), Wang Yukiang, and UNEP/DEIA Assistant Executive Director Takahiko Hiraishi, participated. The Administrator for NEPA in Beijing, Xie Zhenhua, and the UNEP Regional Co-ordinator for Asia

and the Pacific, Surendra Shrestha in Bangkok, addressed the meeting over UNEPnet. The opening ceremony was followed by an Executive Seminar focusing on "The Role of Information Technology in Environmental Awareness-Raising, Policy-Making, Decision-Making and Development Aid". A report from the seminar is available in printed and electronic² form.

CGIAR Workshop "Arendal IV" Cali, Colombia - September 23-25

The annual workshop of the UNEP-CGIAR co-operation on the "Use of GIS in Agricultural Research" project, known as the "Arendal workshops", was held at CIAT. Ten of the 16 CGIAR institutes attended, together with representatives from national agricultural research systems (NARS), co-ordinators/directors of regional UNEP/GRID offices, and international experts.

ADD Council Meeting The International Arctic Environment Data Directory Sioux Falls, South Dakota, USA - October 14-16

Since its establishment in 1995, the fourth ADD Council Meeting was held October 14-16, 1997 at the EROS Data Center in Sioux Falls, South Dakota, USA. A Work Plan for 1998 was adopted, and it was agreed that GRID-Arendal shall continue to host the ADD Secretariat.

During 1997 the ADD Council had member representatives from Canada (The Canadian Polar Commission), Denmark (The Danish Polar Centre), Finland (The Arctic Centre), Germany (The Geophysical Institute of the University of Muenster), Norway (The Norwegian Polar Institute), Sweden (The Environmental Satellite Data Centre), Russia (The State Committee for Environmental Protection), USA (US Geological Survey), and the international organisations: AMAP (The Arctic Monitoring and Assessment Programme), CAFF (Conservation of Arctic Fauna and Flora), IASC (International Arctic Science Committee), IPA (International Permafrost Association), SCAR (The Scientific Committee on Antarctic Research), and UNEP (The United Nations Environment Programme).

State of the Environment of the Aral Sea Basin Bishkek, Kyrgyz Republic - November 27-28

The International Workshop "State of Environment of the Aral Sea Basin"⁴ (SoE Aral '97) brought together 55 persons from seven countries in the NIS region and international organisations interested in the state of the environment of the Aral Sea basin. The workshop was co-organised by the International Fund for Saving the Aral Sea (IFAS), UNEP/GRID-Arendal, and the Scientific and Information Centre "Aral" (SIC-Aral) at Kyrgyz-Russian Slavic University. The project is supported by the World Bank through the Norwegian Trust Fund.

Workshop on Streamlining Biodiversity Information Reporting in the NIS Kyiv, Ukraine - December 1-3

GRID-Arendal co-arranged this workshop together with the Ukrainian Ministry of Environmental Protection and Nuclear Safety, which was supported by RoE (UNEP's Regional Office for Europe). The workshop aimed to assist the Newly Independent States (NIS) in their efforts to coordinate internationally relevant biodiversity information gathering, and in applying modern methodology and technology to meet reporting requirements of various international conventions. Representatives from eight countries participated in the three-day meeting, which concluded with the formulation of the most evident common problems in the region with regard to reporting biodiversity information. Recommendations for the stakeholders were also produced.

Looking Ahead

A selection of planned workshops/seminars in 1998 include: training workshop in Bangkok for producing SoE China on the Internet; seminar in Moscow on Indigenous Peoples and the Environment of the Russian Arctic; metadata training workshop for ADD at GRID-Arendal; UNEPnet training workshops in Bangkok and Costa Rica; training workshop in Budapest on SoE reporting on the Internet; workshops at GRID-Arendal and in South Africa on the preparation of SoE South Africa on the Internet; and "Arendal V" for the CGIAR. With the aim of enhancing GRID-Arendal's professional capacity in this area, external European experts will hold a training workshop for GRID-Arendal project managers on organising and facilitating workshops.

¹<http://www.baltic-region.net/about/>

²<http://www.grida.no/prog/global/cgiar/htmlsreport.htm>

⁴<http://www.grida.no/prog/cee/enrin/htmls/soe-aral/>



Riga, Latvia - May:
BALLERINA Conference



Arendal, Norway - June:
GIS Training in Climate Change Impacts



Arendal, Norway - August:
Internet for Environmental Reporting and Information Dissemination



Arendal, Norway - September:
Inauguration Ceremony of UNEPnet/MERCURE Station and Executive Seminar



Cali, Colombia - September:
CGIAR Workshop "Arendal IV"



Sioux Falls, South Dakota, USA - October:
ADD Council Meeting



Bishkek, Kyrgyz Republic - November:
State of the Environment of the Aral Sea Basin



Kyiv, Ukraine - December:
Workshop on Streamlining Biodiversity Information in the NIS.

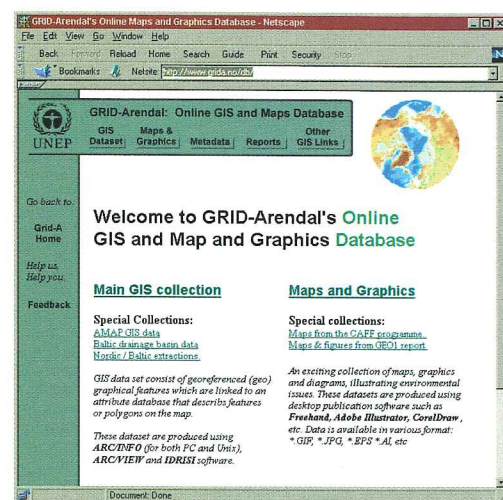
Database Development

1997 saw an important step in the development of GRID-Arendal's database¹ activities. On September 2, on-line access to maps, graphics and GIS data sets was launched. This simple Internet interface hides some clever development, which automatically creates web pages for the downloading of real data from GRID-Arendal's database. The application also allows in-house users, from their desktop, to document data sets into the database as they are produced.

International standards for metadata entry have been at the forefront of our consideration while developing the database application. This will ensure that our database is directly compatible with others produced in North America and Europe. This will continue to facilitate integration with other partners in the circumpolar metadata initiative, such as the International Arctic Environmental Data Directory (ADD).

Looking Ahead

Work will continue on two fronts: to make the database interface more intuitive and user-friendly, and at the same time making more data and information available.



GRID-Arendal's Online GIS and Map and Graphics Database

Selected Publications

Highlights:

UNEP. 1997. Denisov, N.B., Heberlein, C., Simonett, O. and Czarán, L. (Eds.). GIS in Agricultural Research: Awareness Package. UNEP/DEIA/TR.97-9.

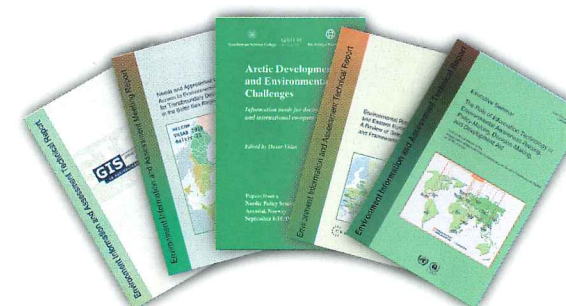
UNEP. 1997. Hägerhäll, B., Hägerhäll Aniansson, B., and Langaas, S. (Eds.). Needs and Approaches to Improve Access to Environmental Information for Transboundary Decision-Making in the Baltic Sea Region. UNEP/DEIA/MR.97-9.

GRID-Arendal/Fridtjof Nansen Institute/Scandinavian Seminar College. 1997. Vidas, D., (Ed.). Arctic Development and Environmental Challenges: Information Needs for Decision-Making and International Co-operation. ISBN 87-87711-14-1.

UNEP/CEU. 1997. Denisov, N.B., Mnatsakanian, R.A., and Semichaevsky, A.V. Environmental Reporting in Central and Eastern Europe: A Review of Selected Publications and Frameworks. UNEP/DEIA/TR.97-6, GA/205031-97/1, and CEU/50-97.1.

UNEP. 1997. Tveitdal, S., Bjørke, Å., Folgen, K. (Eds.). The Role of Information Technology in Environmental Awareness-Raising, Policy-Making, Decision-Making, and Development Aid. UNEP/DEIA/MR.97-11, GA/205045-97/1.

GRID-Arendal. 1997. Bjørke, Å (Ed.). State-of-the-Environment Norway 1997. CD-ROM. ISBN: 82-7701-006-0.



Scientific and Conference Papers:

Tveitdal, S. 1997. Information for Decision-Making and Public Awareness. In: The Global Environment - Science Technology and Management, Vol. 2, pp 1015-1027. D. Brune, D.V. Chapman, M.D. Gwynne, J.M. Pacyna (Eds.).

Langaas, S. 1997. The Spatial Dimension of Indicators of Sustainable Development: The Role of Geographic Information Systems (GIS) and Cartography. In: SCOPE 58,

Sustainability Indicators. Report from the project: Indicators of Sustainable Development. B. Moldan and S. Billharz (Eds.), Chichester: Wiley and Sons, pp 33-39.

Henry, D. and Reiersen, L.O. 1997. Environmental Information Needs for Decision-Making in the Arctic: Current Status and Availability of Information. In: Vidas, D. (Ed.) 1997. Arctic Development and Environmental Challenges: Information Needs for Decision-Making and International Co-operation. Scandinavian Seminar College. ISBN 87-87711-14-1.

Sørensen, M. and Tausnev, N. 1997. An Arctic Environmental Database for Europe and Asia. In: Disturbance and Recovery in Arctic Lands: An Ecological Perspective. R.M.M. Crawford, Ed., NATO ASI Series 2: Environment - Vol. 25, pp.63-69.

Denisov, N.B. 1997. Global Internet-Based Transboundary Waters Information Systems (TRAWIS). A Discussion Paper on Contents and Development, presented at the 7th Stockholm Water Symposium, August 10-15, 1997.

Project Reports:

Simonett, O., and Denisov, N.B. 1997. Comp. ENRIN Methodology Papers 1997.

Sørensen, M. and Denisov, N.B., 1997. Launching Workshop on Cities' State of the Environment on the Internet - Workshop Report. Arendal, December 17-18, 1996.

Henry, D. and Folgen, K., 1997. The International Arctic Environment Data Directory (ADD) Workshop Proceedings. "Arctic Environmental Information on the Internet: Implementing a Gateway to the Arctic". November 11-13, 1996.

UNEP. 1997. Simonett, O., Bournay, E., Ciba, A., Desforges, M., Estoppey, A., Heberlein, C., and Rekacewicz, P. Mapping Indicators of Poverty in West Africa. UNEP/DEIA/TR.97-8.

Denisov, N.B., comp. The Global Programme Methodology Papers. 1997.

Heberlein, C. and Shmurak, A. 1997. Reporting Biodiversity Information in the Newly Independent States (NIS) - Workshop Proceedings, Kyiv, December 1-3, 1997.

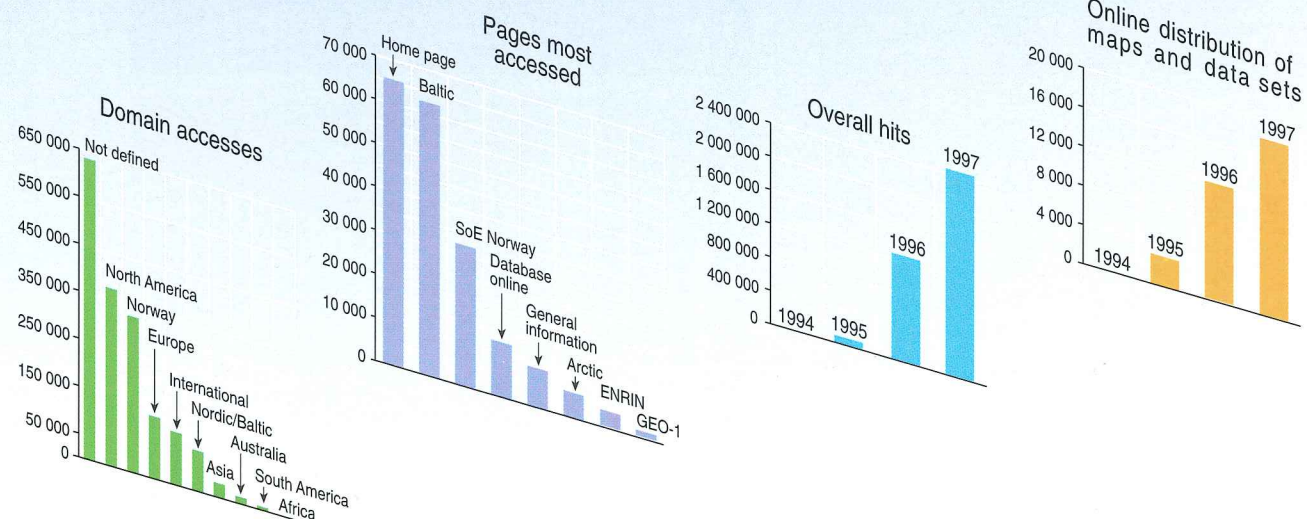
Contributions to other publications:

UNEP. 1997. Global Environment Outlook. New York: Oxford University Press. 264 pages. ISBN: 9-19-521351-3.

EEA/UNEP. 1997. "New Year Message: Water Stress in Europe - Can the challenge be met?". ISBN 92-9167-025-1.

AMAP. 1997. "Arctic Pollution Issues: A State of the Arctic Environment Report." ISBN 82-7655-060-6.

2.4 million hits and 28.000 GIS data sets, maps and graphics disseminated



¹<http://www.grida.no/db/>

For a comprehensive list of publications:
<http://www.grida.no/pub/>

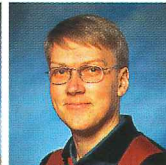
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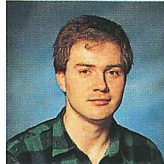
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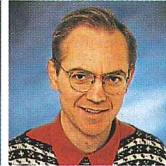
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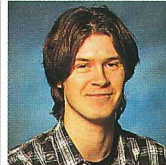
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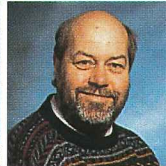
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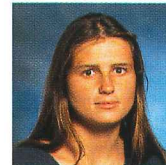
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Policy and Institutional Development Outlook 1998

In 1997 the "Nairobi Declaration on the Role and Mandate of UNEP" was crafted and agreed upon at the January GC meeting, guidelines were laid down by the UN General Assembly's Special Session on Rio implementation, and the UN Secretary-General made his proposals for UN Reform. These events, coupled with UNEP's new Executive Director Klaus Töpfer's plans for UNEP to move ahead constructively and rapidly under his stewardship, makes 1998 a good time for GRID-Arendal to identify where we can improve our contribution to UNEP in putting environmental information into practical use. High priority will be given to explore new options for doing so within this new policy framework.

Parallel to this, a major institutional development programme will be implemented, aimed at strengthening GRID-Arendal's management capacity and the quality of our products and services.

Message from UNEP Headquarters

The relationship between UNEP and GRID-Arendal has matured since the inception of GRID-Arendal in 1989. The vision of the founding partners, UNEP and the Government of Norway, has demonstrably borne fruit when one considers the variety of functions it now performs.



Daniel van R. Claasen

Daniel van R. Claasen
Chief, EIN/DEIA UNEP

From inception, UNEP was asked to monitor the state of the global environment, detect emerging environmental issues and alert the world community and mobilize preventative or corrective action. As stated by the 19th Governing Council, environmental assessment continues to be a primary function of the organization.

Assessing the global environment is complex. Global assessments require a high level of participation at all levels.

A collaborative framework is the basis of UNEP's refocused approach to the assessment of environmental issues of international significance. GRID-Arendal has become an integral part of this process, with particular importance in polar issues and in UNEP's information and assessment outreach to the countries of central and eastern Europe.

An operationally oriented concept demands that the right sort of data and information is available and accessible when it is needed. In 1997, UNEP's

Global Environment Outlook concluded that access to environmental information is still a major issue to be resolved.

Developing countries and countries with economies in transition (CITs) cannot be expected to contribute to the process unless they have the necessary institutional capacities to collect, manage, analyze and distribute the data and information for better national State of the Environment (SoE) assessments and reports, which are pre-requisite also for their own environmental management. International assessments will always be constrained if national capacities are not improved.

The UNEP environmental and information networking (ENRIN) project, established in 1993, was specifically designed to address this need. As an early implementing partner in the project, GRID-Arendal has been an important agent of change, contributing to the strategy, design and the not inconsequential achievements in the short time the project has been in operation.

UNEP continues to face challenges as it meets the demands for reform in the United Nations. The relationship with GRID-Arendal is a practical model of exemplary international cooperation. The Arendal model is a unique blend of a private foundation, backed by a government (Norway), and an international agency.

Together we have shown that comparatively small agencies implementing well designed and articulated programmes can make a difference. We hope that with you and with our other partners, we can improve on our performance in 1998.

Acronyms

ADD	International Arctic Environment Data Directory	GTZ	German Agency for Technical Co-operation
AEPS	Arctic Environment Protection Strategy	IASC	International Arctic Science Committee
AMAP	Arctic Monitoring and Assessment Programme	HABITAT	United Nations Centre for Human Settlements
BALLERINA	BALtic Sea Region On-Line Environmental Information REsources for INternet Access	ICAIR	International Centre for Antarctic Information and Research
BALTIC 21	Agenda 21 for the Baltic Sea Region	IFAS	International Fund for Saving the Aral Sea
CAFF	Conservation of Arctic Flora and Fauna	Internet	International electronic communication network
CD-ROM	Compact Disc-Read Only Memory	NARS	National Agricultural Research Systems
CEE	Central and Eastern Europe	NEPA	National Environmental Protection Agency of China
CGIAR	Consultative Group for International Agricultural Research	NIS	Newly Independent States
CIAT	International Centre for Tropical Agriculture	REC	Regional Environmental Centre
CICERO	Centre for International Climate and Environmental Research	RoE	Regional Office for Europe
CITs	Countries with economies in transition	SKME	Norwegian Mapping Authorities - Environmental Unit
DaZaD	The Zapadnaya Dvina/Daugava River Basin Co-operation	SOE	State of the Environment
DEIA	Division of Environmental Information and Assessment	TAC	Technical Advisory Committee
EEA	European Environment Agency	TRAWIS	Transboundary Waters Information Systems
ENRIN	Environment and Natural Resources Information Network	UIC	UNEPnet Implementation Centre
ESA	European Space Agency	UNEP	United Nations Environment Programme
GEO	Global Environmental Outlook	UNEPnet	The Global Internet for the environment and sustainable development
GIS	Geographic Information Systems	VASAB 2010	Vision and Strategies around the Baltic Sea 2010
GRID	Global Resource Information Database	WWW	World Wide Web



UNEP

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