



DEWA/GRID-Europe

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GEO Year Book 2006 Released

by Jaap van Woerden

The GEO Year Book 2006 is the third annual survey of the changing global environment, produced by UNEP in collaboration with many world experts in environmental research and action. The report was presented at the Ninth Special Session of UNEP's Governing Council/Global Ministerial Environment Forum in Dubai, February 2006. DEWA/GRID-Europe leads the environmental overview section for the European region, plus the chapter on GEO Indicators.

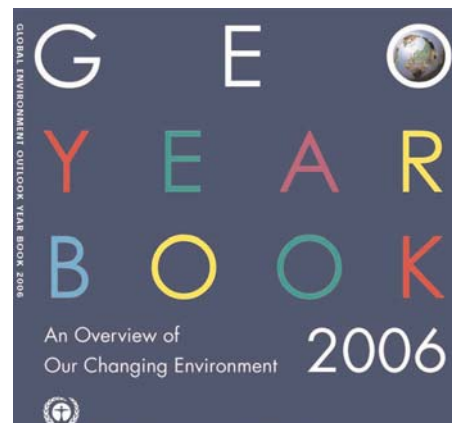
The Year Book, part of UNEP's Global Environment Outlook (GEO) work, is intended to provide a bridge between science and policy, drawing attention to new emerging challenges, highlighting impor-

tant environmental issues and presenting global and regional overviews and trends.

The 2006 Year Book highlights the linkages between environmental well-being, vulnerability and poverty; records recent findings on the value of ecosystem services; and describes new research findings on polar and ocean changes that may prove a turning point in our awareness of, and add urgency to our response to global change.

This year, a special feature focus analyzes the environmental, socio-economic and public health impacts of energy-related air pollution. The emerging scientific and policy challenges of crop production in a changing climate, and fish and shellfish farming without damage to marine ecosystems, are examined in detail.

The core set of GEO Indicators present



GEO Yearbook 2006 - An Overview of Our Changing Environment. Cover.

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Global Risk Identification Programme

by Pascal Peduzzi, Hy Dao & Christian Herold

Following the success of the Disaster Risk Index developed by UNEP/GRID-Europe for UNDP and published in the report "Reducing Disaster Risk: a challenge for development", a new collaboration with UNDP/BCPR has been initiated with UNEP/GRID-Europe staff. This new project: Global Risk Identification Programme (GRIP) also involves the ProVention Consortium, the Swiss Development Agency and UNDP, as well as other partners.

Background

Accurate, comparable and appropriately-scaled information on disaster losses, hazards, vulnerabilities and risks is fundamental for designing and implementing effective policies and programs that reduce disaster risks. Risk identification provides the evidence base for disaster risk management applications and decision-making.

Significant progress has been made by the international community in recent years in improving the quality and accuracy of global disaster data collection and in developing indicators and indexes of dis-

aster risk. Important initiatives have been launched, both within the framework of ISDR Working Group III and with the support of the ProVention Consortium, involving a wide range of international and regional organisations and academic institutes. These include the UNDP/UNEP Disaster Risk Index, ProVention World Bank/Columbia University Disaster Risk "Hotspots" Project, Inter-American Development Bank Indicators of Disaster Risk Management in the Americas, the Global unique disaster identifier number (GLIDE) initiative and the ongoing development of global and national disaster loss databases, such as CRED's EM-DAT and DesInventar.

Organisations active in disaster risk identification have decided to establish an inter-institutional framework to support and coordinate activities to promote systematic improvement and application of risk information. Thus, a global program has been created for assessing, identifying and analysing information on disaster risks and losses, the GRIP.

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Update on Carpathians Environment Outlook Progress

by Ana Priceputu and Ron Witt

The Carpathians Environment Outlook (KEO) report is a sub-regional examination and synthesis of the environmental situation in the greater Carpathian region, that includes parts of seven countries (the Czech Republic, Hungary, Poland, Romania, Serbia & Montenegro, the Slovak Republic and Ukraine). The project was initiated in early 2004 by UNEP's Division of Early Warning and Assessment (DEWA)/GRID-Europe and the Regional Office for Europe (ROE). Since then, a number of significant events and sub-processes have taken place (workshops and meetings of KEO NFPs, Steering Group, etc., designation of the KEO Lead Data Centre at GRID-Warsaw, selection of KEO Chapter Lead Authors, finalization of the KEO indicators list, delimitation of the geographical scope, etc.).

The original idea to produce this report came in an official request of the Czech Minister of Environment in March 2003. Further on, the KEO 'Kick-Off' Meeting, held for exploratory purposes at the Ministry of Environment and Water in Budapest, Hungary, emphasized the interest of Parties to the Carpathian Framework Convention (CFC) in preparing such a report. The uniqueness of the KEO relies on its integrative nature. KEO is not meant to be a composite of seven national reports, but a geographically integrated report on the state and

trends in the Carpathians environment, retrospectively over 30 years, and forward to 2050.

Most recently, the first KEO Chapter Lead Authors (CLAs) Orientation Session was organized by DEWA/GRID-Europe and held on 27 February 2006, at UNEP's International Environment House in Geneva. The six KEO CLAs were invited for in-depth discussions on all aspects of the KEO report and its drafting/preparation, including the formation of Chapter Working Groups, data & indicators, etc. The meeting was essential to the progress of the project, providing an opportunity for the newest KEO project members (CLAs) to familiarize themselves with each other and the UNEP staff leading the process, as well as with the entire KEO process and its requirements, and to develop a near-term action plan regarding their immediate responsibilities.

The meeting was opened and chaired by Ron Witt, DEWA Regional Coordinator for Europe, who briefly mentioned the major rationale for organizing such a meeting, and emphasized that it would facilitate communication among the members of the KEO authors' team and the KEO Secretariat, Steering Group et al. Discussions focused mainly on the selection of indicators to be used within the report and data supporting these indicators. Two sources of information will be used in creating the KEO database (national - collected by NFPs, and from inter-

national projects/sources; e.g., - Landsat data & mosaics of the region, CORINE Land Cover, etc.). It may also be possible to fill some gaps in national data with information provided by international sources. Several potential problems in receiving data from participating countries were identified (i.e., excessive number of indicators, delays in data collection due to problems at the national level, certain countries not being able to provide particular data sets, etc.), as well as possible solutions to counterbalance these delays. Finally, after updating the deadlines for project deliverables, the KEO CLAs thanked the Secretariat for organizing this event, which was valuable to them as first-time participants in the KEO process.

The next KEO event will be a combined Steering Group Meeting with all of the KEO CLAs scheduled in July 2006, to examine the work in progress, in particular the drafting. The first draft of the KEO Report is to be prepared by September 2006, and reviewed in a Regional Consultation Meeting, by a large group of stakeholders from the region. It is anticipated that this document will provide greater knowledge about the unique ecology and related environmental and human problems of the Carpathians, along with an operational network of experts within and among the seven Carpathian countries for environmental reporting purposes, and better information for environmental decision-making in/for this special region. ■

Global Risk Identification Programme

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Objective and activities

The main objective of GRIP is an improved evidence base for disaster risk management to enable the application and prioritisation of effective disaster risk reduction strategies at the national, regional and global scales. The program will add value to, and improve coordination between, a number of ongoing international initiatives, providing an active network where international organisations and UN agencies, international financial institutions and donors, governments, regional organizations, research institutes, the private sector and NGOs can share knowledge, information, expertise and resources.

The GRIP provides a framework to support and guide two key parallel programs of activities: 1) Loss Estimation, to provide a more comprehensive and accurate accounting of disaster-related costs and losses (e.g. economic losses; relief costs, GLIDE implementation; disaster databases); and 2) Risk

Estimation, to improve the availability of information and analyses on disaster risks and risk factors (e.g. hazard characterisation and data; vulnerability assessment; risk indexes). Resulting data, methods and analyses will be made available through a coordinated knowledge management program intended to inform the design of disaster risk management and capacity building activities in high-risk countries.

Next steps

The preparatory phase is being implemented through a UNDP project supported by ProVenture, UNDP and the Swiss Agency for Development and Cooperation. A number of key organisations, including World Bank, Inter-American Development Bank (IADB), Columbia University, Centre for Research on the Epidemiology of Disasters (CRED), UNEP, United Nations Office for the Coordination of Humanitarian Affairs (OCHA) Relief Web, the Norwegian Geotechnical Institute, Asian Disaster Reduction Center

(ADRC) and Network for Social Studies on Disaster Prevention in Latin America (LA RED), have been major contributors in taking forward the GRIP idea to establish a formal program and network.

A technical workshop was held on 4-6 January 2006 at Columbia University (New York). This workshop gathered a wide community of risk experts and gave insights of methodologies to be applied during the GRIP phases. UNEP/GRID-Europe will work actively in order to identify tools and projects in risk reduction, as well as in designing a method for high-risk country selection. The latter was presented during the steering committee held in Bangkok on 4 February 2006.

The next steps include the contacts and final selection of countries where the GRIP will be implemented, including several missions during May-June 2006. The UNEP/GRID-Europe team will then support high-risk countries in risk identification projects, and will also participate in the update and maintenance of global data sets. ■

GEO-4 Report Drafting Process in High Gear...

by Ron Witt

Having completed the so-called "zero-order" (baseline) drafting work for most of GEO-4's ten chapters by the end of the year 2005, the first quarter of 2006 saw the first serious editing and revision work take place, through the UNEP GEO core team of staff, chapter lead authors (CLAs) and other close partners/participants in the entire GEO-4 process.

During the months of January and February, all of the zero-order draft chapters were posted to UNEP/DEWA's on-line webtool for document management, the GEO-4 'wiki', and announcements were made to the various CLAs and their Chapter Working Groups (CWGs) to begin the review process. For example, many of the draft chapters run to a far greater length than the final permissible number of pages, and one of the first efforts was to reduce the sheer amount of material produced. Substantive issues such as the 'red lines' running throughout the draft report (human well-being, international environmental governance, and the ground-breaking Brundtland Report as a baseline) were examined. Also, matters of style in terms of use of graphic materials (charts, graphs, maps, photos, etc.) and format of references were also taken into consideration, in order to provide better overall harmonization, both in appearance and content of the initial document.

However, all of this work was preliminary to the Second GEO-4 Production and Authors' Meeting (PAM-II) convened at

UNEP Headquarters in Nairobi, Kenya, from 6-10 March. This large gathering of well over 200 persons involved in the preparation of the draft GEO-4 report was all but entirely devoted to working sessions in which all ten CWGs met under the guidance of their CLAs and DEWA coordinator (one UNEP staff member is assigned to oversee the work for each of the chapters), with the main goal of progressing toward the "first draft" version of the document. Typically, these CWGs consisted of about 25 persons, though some were far smaller (Chapter One) and some far larger (Chapter 6 on "Regional Perspectives" with some 40 persons, and Chapter 9 "The Future Today (Outlook)"). Also, the week of PAM-II provided numerous opportunities for discussions between chapter representatives, both to assure relevant cross-chapter fertilization and elimination of potential overlaps. In particular, it allowed for those chapters with a regional dimension (Chapters 6 & 9) to give specific inputs, for example, on air-land-water-biodiversity issues (global Chapters 2-5); of interlinkages between environment and development (Chapter 7), human well-being (Chapter 8) and policy implementation (Chapter 10) to these other chapters, in order to provide greater integration and a richer meaning to the text.

Just before the GEO-4 PAM-II was held, UNEP hosted a meeting of the GEO Fellows, who represent another new dimension of the GEO process in this reporting cycle. Young professionals from all corners of the world were invited to a



GEO-4 PAM-II in Nairobi 6-10 March 2006. Chapter 6 Working Group.

thorough two-day session of orientation on the entire GEO process at UNEP Headquarters, during which most members of the GEO core team took part. These persons are assisting in many aspects of GEO-4's preparation; at least two "fellows" are assigned to each of the ten chapters. From DEWA/GRID-Europe, GEO Data Coordinator Jaap van Woerden participated in the GEO Fellows' Orientation, and educated them about and use of the GEO Data Portal.

The first draft of GEO-4's ten chapters was finally completed in mid-April 2006, with this new version posted to the wiki for all reviewers, and in anticipation of the Regional Consultations with governments and other stakeholders in early summer (the GEO-4 European Regional Consultation is scheduled to take place in Geneva on 21-23 June).

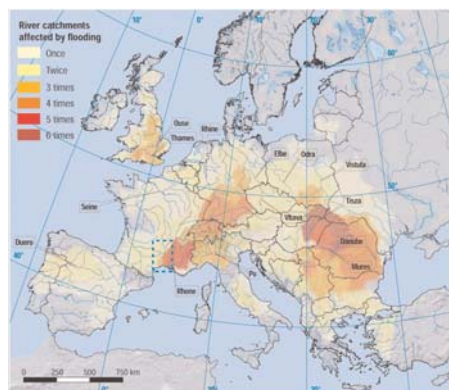
Future editions of the "Quarterly Bulletin" will feature additional articles about GEO-4's ongoing preparation, with the report scheduled to be published in September 2007. ■

GEO Year Book 2006 Released

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global headline trends in major environmental issues, such as climate change, biodiversity, forests and governance. Together, they present a snapshot of humanity's progress in sustainably managing our planetary habitat.

In Europe, consumption, wastes and land use practices are putting great pressure on the regional and global environment. Current policy approaches are improving the situation, but environmental and social impacts and costs are not yet adequately addressed and accounted for. Despite a wide range of policy responses,



Recurrent flood events in Europe between 1998 and 2002. The 2005 floods occurred more or less in the same regions. GEO Yearbook, page 21.

the ecological footprint in large parts of Europe remains very high. Progress in recycling is offset by increasing consumption and waste generation, while inadequate land management and planning continues to threaten ecosystems and societies. Incorporating environmental costs and benefits in prices of goods and services can influence behaviour, raise resource efficiency and reduce environmental damage. Last but not least, the costs of policy action need to be carefully weighed against the costs of postponement or inaction.

Visit: www.unep.org/geo/yearbook/yb2006/ ■

EU Metafunctions Project : presentation of first results at Poznan meeting

by J.-M. Jaquet, A. de Bono & G. Giuliani

UNEP/GRID-Europe participated in the second METAFUNCTIONS partners meeting in Poznan (Poland) on March 22-24.



The METAFUNCTIONS project, coordinated by the Max Planck Institute for Marine Microbiology, Bremen (Germany) began on 1 October 2005. This project is pooling expertise in bioinformatics, computer science, geographical information systems and marine sciences to develop a data-mining system that correlates genetic patterns in genomes and metagenomes with contextual environmental data. (See Quarterly Bulletin No.4 - 2005 for details)

GRID-Europe will be contributing to the METAFUNCTIONS project through its work on this novel data-mining system.

During the meeting, GRID-Europe presented:

- A new type of database suitable for environmental information collecting, storage and processing.
- A first version of the web-based application: the Metagenomes-Mapserver (MgMS).

The Metagenomes-Mapserver is an internet-based GIS application to retrieve, analyze and visualize information from the "Environmental/Genomic Database", through processing selected environmental GIS data sets.

The database core of the METAFUNCTIONS project is split in two components: a metagenome/sequence part, managed by the Max Planck Institute and the other partners, and a GIS part (Geographic Information System) for which GRID-Europe is responsible. This GIS layer itself will be composed of selected environmental data layers, or "environmental descriptors".

Environmental descriptors constitute the stratum representing physical, chemical, geological and biological parameters (e.g. ocean water temperature and salinity, concentration of pollutants, nutrients and organic matter, etc.). They will constitute a base for data visualisation and analysis in the "Metagenomes Mapserver".

To be coherent with metagenomic samples typology, oceanographic data are split in two categories pertaining to the water column and the bottom sediment. Data will be stored in two separate databases. Water column data include observed profile data sets and objectively analysed climatology data sets (grids).

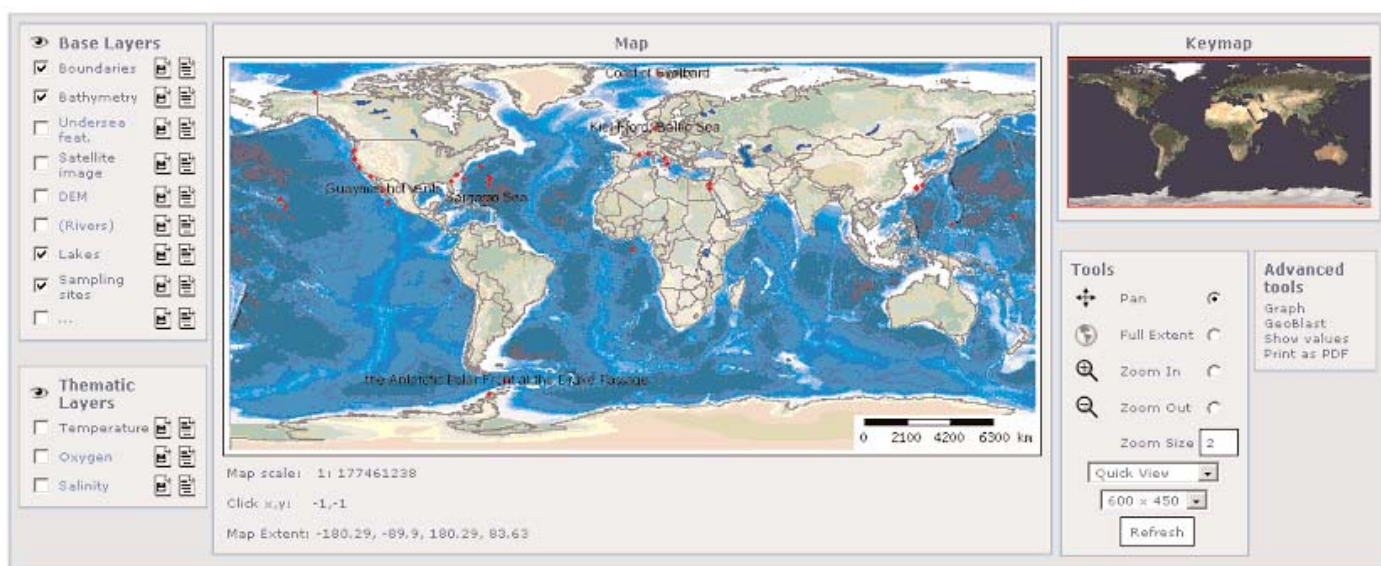
Environmental descriptors will be drafted at different scale (global to sam-

pling site size) including time series sequences. They are characterized by four-dimensional regionalised variables having geographic, depth and time coordinates (x, y, z, t).

Among the total set of these descriptors, there exists a subset (as yet unknown) which exerts a significant impact on the marine genomes and metagenomes. Before attempting a correlation analysis with metagenomes descriptors, this significant subset must be transformed into a final subset of uncorrelated factors, to maximise information and minimise redundancy.

Whereas the space representativity of the environmental descriptors is not a serious issue, their temporal integration deserves more consideration.

MgMS, fully based on Open Source applications (PostgreSQL, PostGis, PHP), will allow scientists around the world to access integrated genomic and ecological data, and clearly visualise the results of their analyses. With this preliminary version (internal use only), it is possible to visualise and download selected layers, create graphs, perform first analysis queries, produce PDF reports, and generate and download meta-data (ISO19115 standard). ■



MgMS main window (prototype)

What's new in ENVIROCAT in 2006?

by Jean-Philippe Richard

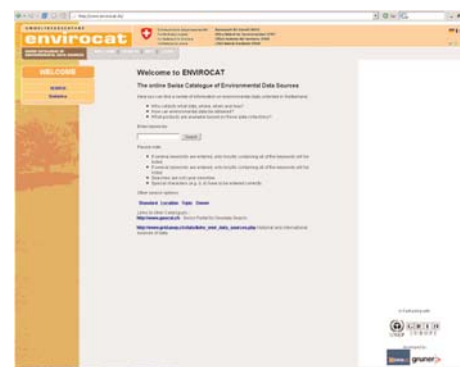
GRID-Europe has been working on the Swiss Catalogue of Environmental Data (ENVIROCAT) since 1998 (called CH-CDS before its complete rebuild in 2004). This Federal Office for Environment (FOEN) project is included in the Swiss environmental monitoring process. The tool facilitates the establishment of an environmental network where all aspects from the legal basis, data collection and data management, to environmental reporting, are covered and interlinked.

The application hosted and maintained by GRID-Europe is evolving each year. The new version has just been launched. Essentially, this new version allows the metadata authors to translate their metadata, upload and store directly the data described by the meta-data on the server, and to include a direct link to the geospatial meta-data still described in the Swiss geographic Catalogue (www.geocat.ch).

In addition, a new element type 'Indicator' has been included. This reinforces the capacity of ENVIROCAT to follow the Swiss environmental monitoring process, completing information still existing about legislations, databases, data sets, surveys, projects and products.

Currently, ENVIROCAT offers approximately 1 800 environmental meta-data (data 30%, Experts 25%, Documents 18%, Organisations 13%, Laws 5%, Surveys 4%, etc.). Some 14 cantonal administrations, 10 federal offices, three city and numerous external partners such as UNEP/GRID-Europe are part of the meta-data network providers. The application is visited by an average of about 900 visitors per month, who have made around 6 500 queries to the system since the beginning of 2006.

A workshop organised by FOEN for the ENVIROCAT partners will take place in Bern at the end of May to present the new features of the application, project



ENVIROCAT Portal

progress and to discuss the requirements of an environmental data access system from the user's point of view, and the on-line environment. ■

Environment and Security Mapping

by Diana Rizzolio

Where conflicts occur, environmental cooperation may pave the way to broad solutions. Working together on solving environmental problems is often the simplest way to longer-term, more systematic and fundamental cooperation to solve security problems. UNEP has been involved since 2002 in such environment and security projects with other partners.

Mapping has played an important role in illustrating the activities of UNEP and its partners in working with environment and security issues. The success of the UNEP maps led the Institute for Environmental Security (IES), in The Hague, to contract UNEP/GRID-Arendal to illustrate the publication of the results of three EnviroSecurity Assessments, carried out as practical prototype case studies of globally significant flash-point areas. GRID-Europe assisted GRID-Arendal in the creation of around 25 maps, done during the first quarter of 2006, illustrating three pilot case studies focusing on the Mataven area in the Colombian Guyana Shield Region, the Great Lakes region of Africa and Kalimantan, Indonesia.

Colombia is a country where (some indigenous) communities have been driven off their lands by guerrilla and paramilitary warfare and the cultivation or the eradication

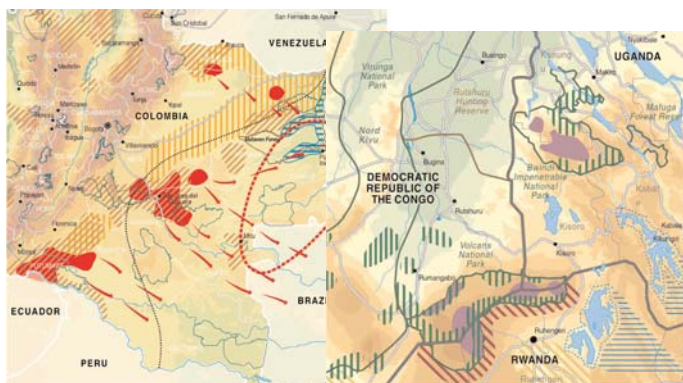
of illegal crops. Forest restoration and compensation for ecosystem services may help to decrease conflicts.

The Great Lakes region is a war zone where ongoing conflicts mix with the aftermath of the Rwandan genocide, power struggles in the Eastern part of the Democratic Republic of Congo, the control over precious and strategic minerals, such as diamonds, gold and coltan, and the illegal trade in timber and protected species.

Forest fires in Kalimantan, Indonesia, are posing direct threats to local communities and nature. Haze and smog threaten the health of neighbouring countries, and the situation is generally a threat to global climate security because of the enormous emissions of greenhouse gases. ■



Indonesia, Threats to Biodiversity.



Mapping environment and security issues in Colombia and in the Great Lakes region.

Calendar of Events

(June - September 2006)

5 June

World Environment Day

5-9 June

UNEP/DEWA Programme Planning and Management
Nairobi, Kenya

7-9 June

Workshop on Marine Genomics Europe Exploratory
Bremen, Germany

21-23 June

GEO-4 European Regional Consultation
Geneva

26-30 June

UNEP/DEWA Regional Coordinators meeting
Nairobi, Kenya

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**Read GRID-Europe
Environmental Alert Bulletins,
available at www.grid.unep.ch**

GRID-Europe's Latest Outputs

GEO Yearbook 2006 - An Overview of Our Changing Environment. UNEP Publication.

Fires density and peat areas in Borneo. Map produced for the Institute for Environmental Security (IES).

Protected areas in Borneo. Map produced for the Institute for Environmental Security (IES).

Land cover in Indonesia. Map produced for the Institute for Environmental Security (IES).

Indonesia, Threats to Biodiversity. Map produced for the Institute for Environmental Security (IES).

Population movements and environmental pressures. Map produced for the Institute for Environmental Security (IES).

Principal basins of the Great Lakes Region. Map produced for the Institute for Environmental Security (IES).

Land use at the Rwanda/Uganda/Democratic Republic of the Congo border. Map produced for the Institute for Environmental Security (IES).

Environmental pressures at the Rwanda/Uganda/Democratic Republic of the Congo border. Map produced for the Institute for Environmental Security (IES).

Colombia, a country under high surveillance. Map produced for the Institute for Environmental Security (IES).

Armed guerilla groups and war in Colombia. Map produced for the Institute for Environmental Security (IES).

Areas of coca cultivation in Colombia, 2000-2004. Map produced for the Institute for Environmental Security (IES).

Colombia, threats to the Matavén Forest. Map produced for the Institute for Environmental Security (IES).

Colombia, vulnerable ecosystems. Map produced for the Institute for Environmental Security (IES).

Lake surface water temperature retrieval using advanced very high resolution radiometer and Moderate Resolution Imaging Spectroradiometer data: Validation and feasibility. Oesch, Jaquet, Hauser & Wunderle. Article published in the Journal of Geophysical Research, Vol 110, C12014, 2005.

WORLD ENVIRONMENT DAY • 5 June 2006
DESERTS AND DESERTIFICATION



DON'T DESERT DRYLANDS!