



## DEWA/GRID-Europe Quarterly Bulletin No. 1 - 2005

Volume 7, Issue 1, May 2005

UNEP/Global Resource Information Database

### Environmental Issues in Disaster Preparation and Response

by Diana Rizzolio

The second World Conference on Disaster Reduction (WCDR) was held on 18-22 January 2005, in Kobe, Hyogo, Japan, to coincide with the commemoration of the 10th anniversary of the Great Hanshin-Awaji earthquake that occurred on 17 January 1995, killing more than 6,400 people and injuring more than 40,000.

On the occasion of the WCDR, UNEP published issue n.° 3 of its "Environment and Poverty Times" newspaper series. This issue looks at the relations between different environments - the social configuration, economic possibilities, institutional arrangements and political systems, the state of the environment, natural predispositions of an area, and how these influence the occurrence of disasters and their effects.

GRID-Europe was very much involved in the preparation of this publication, issued by GRID-Arendal and UNEP's Division of Environmental Policy Implementation, through the editorial team, the provision of six articles, and the compilation of information, data, maps and other GIS products.

Speaking at WCDR, UNEP's Executive Director Klaus Toepfer called for greater integration of environmental issues in disaster preparation and response, one of the main messages this "Environment and Poverty Times" issue offers. It shows many practical examples of how useful preventive action can be taken, and lays out why we must think "environment" at every stage of disaster management, be it in preparing, preventing, mitigating or reacting.

The "Environment and Poverty Times" is available from [www.environmenttimes.net](http://www.environmenttimes.net) ■



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### Asian Tsunami Disaster Task Force Support

by Pascal Peduzzi

As announced in the last GRID-Europe Quarterly Bulletin, following the earthquake and tsunami that devastated Indian Ocean coasts last December, GRID-Europe has been supporting the UNEP Asian Tsunami Disaster Task Force since 28 December 2004. During the first ten days, the tasks consisted of analysing satellite images, producing maps for staff in the field and reports on first evaluation of impacts. During this period GRID-Europe worked in coordination with UNEP-WCMC and UNOSAT in order to avoid duplication in the response and to exchange data and information.

After the emergency phase, different types of support were provided to the Task Force.

A team was quickly set up to produce maps and graphics for the UNEP report within an extremely tight deadline of five days. These maps can be viewed at [www.grid.unep.ch/activities/assessment/indianocean\\_crisis/maps.php](http://www.grid.unep.ch/activities/assessment/indianocean_crisis/maps.php). The report was launched in Nairobi in February 2005, during the UNEP Governing Council . It

can be accessed at: [www.unep.org/tsunami/tsunami\\_rpt.asp](http://www.unep.org/tsunami/tsunami_rpt.asp).

Ministries from countries affected by the tsunami expressed a need for geographical data. GRID-Europe responded to this request by providing 23 DVDs of data (the equivalent of 600 Gb of data). The DVDs were sent to the ministries of Indonesia (western part of Sumatra), Sri Lanka, Somalia, Maldives, Yemen, the Seychelles and Thailand. The data included 237 high resolution satellite images (before and after the event), elevation, bathymetry and other relevant vector information. This will help local authorities during the reconstruction phase.

Also, scientific research is being undertaken to better understand the role of natural defences (coral reefs, mangroves) in the reduction of impacts. Numerous articles mentioned that coral and mangroves have contributed to the protection of the coast. Although the impact-reduction role of mangroves is already well-known in the case of tropical cyclones, this has not yet been demon-

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## GC-23/GMEF and GEO-4 Global Consultation

by Ron Witt and Jaap van Woerden

The DEWA/GRID-Europe Regional Coordinator Ron Witt and Earthwatch/GEO Data Coordinator Jaap van Woerden participated in UNEP's 23rd Governing Council meeting, a global GEO-4 Consultation of governments and scientific stakeholders, and a number of internal meetings for DEWA held at UNEP Headquarters from 17-23 February 2005..

The GEO-4 "Intergovernmental, Multi-stakeholder Consultation" represented the first time that all governments and a large number of scientific institutions were invited, and many of these brought together, to provide their inputs on the design and contents of a comprehensive GEO report. Some 96 governments and 50 scientific bodies and NGOs participated in the Consultation, the major objective of which was to involve governments "up-front" in GEO-4, while strengthening the scientific basis for the fourth GEO assessment reporting process, and more directly throughout GEO-4's preparation.

The GEO-4 Consultation was very ably co-chaired by the Executive Director of the European Environment Agency, Dr. Jacqueline McGlade, and the Permanent Representative of Cuba to UNEP in Nairobi, Mr. Pedro L. Pedroso. At the Consultation, participants called for greater

government involvement in GEO, particularly in terms of strengthened capacity building for integrated environment assessment, more work and coordination on environmental data and indicators, and inputs to/review of the document.

A full-day DEWA programme planning and budget meeting was held on 18 February, to examine major activities (including regional inputs to GEO-4 and the 2005 Yearbook) as well as related budgetary requirements, progress on various DEWA strategies etc. The staff members attended the launches of the GEO Yearbook 2004 and the Asian Tsunami Disaster Report "After the Tsunami ~ rapid environment assessment" to which the GRID-Europe office made a major contribution in terms of analytic/cartographic work (see page one).

Ron Witt attended a separate "side meeting" on 20 February with senior DEWA and ROE staff, the head of the EEA and UNEP's Brussels office to discuss the memorandum of understanding between the European Commission and UNEP, as well as UNEP's evolving relationship with the EEA in the context of this MoU, and the full collaboration between the two agencies on UNEP's GEO-4 and the EEA's next pan-European report on state of environment for the Belgrade Ministerial Conference in September 2007. The exact alignment in

terms of timing for these two reports being issued should translate into even greater synergies between the two preparation processes, along with their contents and messages that are communicated therein, than in the past.

The 23rd session of UNEP Governing Council/Global Ministerial Environment Forum (GC-23/GMEF) took place from 21-25 February 2005, at the United Nations Office at Nairobi, Kenya. Over 1000 participants, including delegates from 136 countries, as well as representatives of UN agencies, international organizations, academia, non-governmental organizations, business and industry and youth organizations, attended the week-long gathering. Fifty-four of the 58 member States of the Governing Council were represented. The GC-23/GMEF concluded its work by adopting more than 11 decisions on issues relating to Small Island Developing States, chemicals management, UNEP's water policy and strategy, international environmental governance, gender equality and the environment, keeping the world environment situation under review, poverty and the environment, and strengthening environmental emergency response and developing disaster prevention, preparedness, mitigation and early warning systems in the aftermath of the Indian Ocean tsunami disaster. ■

## Asian Tsunami Disaster Task Force Support

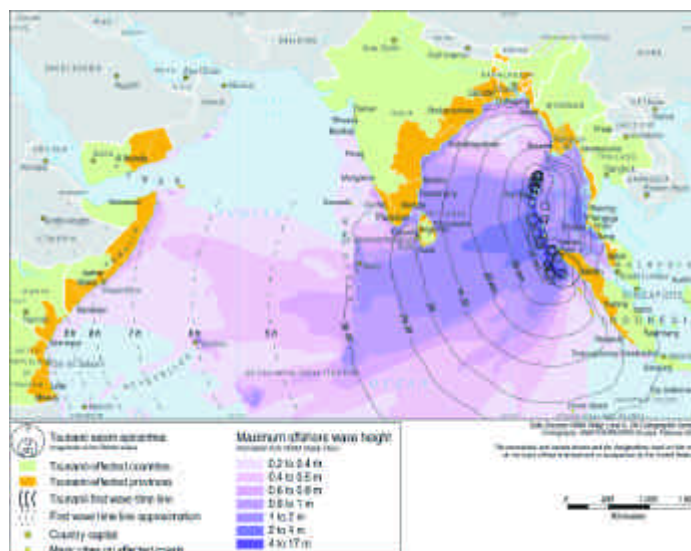
*Continued from page 1*

strated for tsunamis. To show the eventual role of natural buffers in the protection of coasts, it is important to take into account the bathymetry (water depth) and the shape of coastlines. Geographical Information System technologies and statistics are being used to identify potential links between impacts and presence/absence of mangroves and coral reefs. The level of impacts are measured either on site (through different studies) or via satellite image analysis. GRID-Europe benefited from the support of UNOSAT and USGS, who provided free access to numerous images for this project. The first results are expected by June 2005.

The scale of the disaster required a prompt and coordinated response. GRID-Europe had to adapt quickly in order to provide such support. Eight persons were involved in this activity, including a new staff member. While this had conse-

quences for the office's resources and on other projects, it demonstrates the capabilities of GRID-Europe to cope with such a crisis. Partnerships and collaborations

with other centres were reinforced (UNEP-WCMC, UNOSAT, WHO) and more importantly, the support in information to the population affected will help in their recovery. ■



Propagation of the tsunami map, available from GRID-Europe website.

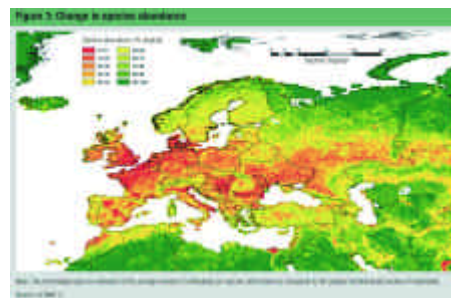
# UNEP Releases GEO Yearbook 2004/5

by Jaap van Woerden

Reviewing the state of the global environment and assessing environmental trends is the main focus of UNEP/DEWA's work. Out of this emerged the Global Environment Outlook (GEO) process some ten years ago, which is a consultative, cross-sectoral and multi-stakeholder global reporting process that is future-oriented and policy-based in approach. Throughout the years, GEO reports have provided comprehensive reviews of the planet's state of the environment, identified major concerns, trends and emerging issues together with their social and economic causes and impacts. A wide range of products has resulted from this assessment work, with each having its own purpose, process and identity, but unified by the participatory and consultative characteristics of the GEO approach. Besides the main, comprehensive GEO reports, many other products are now available, such as the GEO (sub)regional and national reports, technical reports on specific issues, and educational and training material.

Two years ago UNEP was requested to also prepare an annual report on recent environmental developments. The GEO Year Books highlight significant environmental events and achievements during the year in a visually and appealing volume, raise awareness of emerging issues from scientific research, investigate a selected topic of concern and presents key indicators of environmental conditions and trends. The first GEO Year Book was published in at the beginning of 2004, and the second report (2004/5) in February 2005 at the UNEP GMEF/GC meeting in Nairobi. The Yearbook presents recent global and regional environmental events, trends and indicators, new emerging issues, as well as a special feature focus - in the 2004/5 edition the links between gender, poverty and environment.

GRID-Europe has been closely involved in the GEO process and preparations of reports, databases and information tools since the publication of the first GEO report in 1997. In addition to coordination and preparation of contributions to the European sections, it provides wide-ranging support by way of core data sets collection, aggregation and harmonization of indicators and on-line dissemination using innovative web-based computer tools.



Changes in species abundance in Europe map, included in the GEO Yearbook.

Concerning the European region, the new GEO Yearbook highlights the European Union expansion in 2004 from 15 to 25 countries, leading to increasing political and economic integration. Recent international environmental agreements for regional seas, mountain areas and river basins are a further integrating force. Social and economic conditions, however, still vary significantly. Trends in energy, transport, waste, agriculture and tourism all over Europe are expected to have negative impacts on environmental components such as air, water, climate and biodiversity.

In the Yearbook, the set of GEO indicators gives a compact, illustrated overview of global trends in major issues related to the environment, depicting changes over the last years. The selected data are a mix of environmental pressures, states, impacts

and responses. The graphics incorporate the most recent year for which data are available. Compared to the first GEO Year Book 2003, indicators have been added for renewable energy supply, consumption of hydrochlorofluorocarbons (HCFCs) and methyl bromide, marine protected areas, freshwater quality and urban air pollution. The indicators for use of freshwater and forest cover were not included this year, because there are no new comprehensive data available.

The data - in the form of charts, maps or tables - are presented at the global, regional and, in a few cases, sub-regional level, based on the regional classification used in the GEO assessment. All data and documentation have been extracted from the GEO Data Portal, which holds the reference database for use in the GEO assessment and reporting process (<http://geodata.grid.unep.ch/>).

The Yearbook is available for download from UNEP website: [www.unep.org/geo/](http://www.unep.org/geo/)

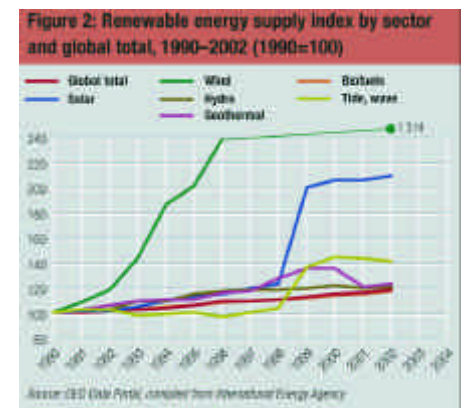
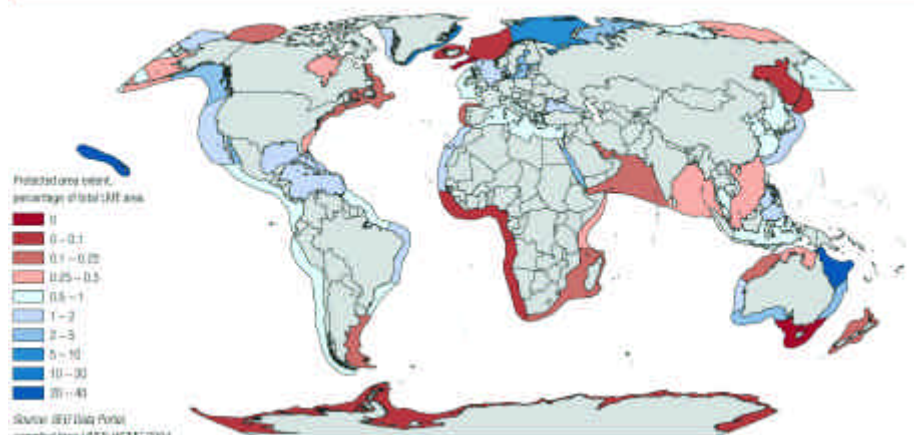
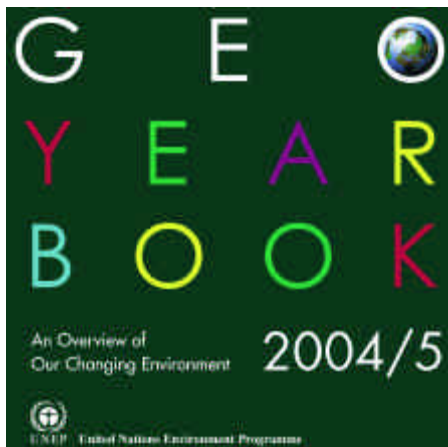


Figure 12: Protected areas coverage of Large Marine Ecosystems in 2004



Figures illustrating the GEO indicators, included in the Yearbook.



GEO Yearbook 2004/05 launched in February.

## Strengthening Access to Information on Environment and Sustainable Development

by Hy Dao, Stefan Schwarzer & Jaap van Woerden

In collaboration with the University of Geneva, and co-funded by the Geneva International Academic Network (GIAN), UNEP/GRID-Europe has begun development of improved and interactive capacity building material based on the GEO Data Portal. This widely used Internet Portal has been developed by GRID-Europe to enable access, display and analysis of key statistical and geospatial data sets in support of UNEP's 'flagship' Global Environment Outlook report series (GEO). GEO is a participatory process for environmental assessment and reporting, aimed at bridging the gap between science and policy decision-making. It is UNEP's practical implementation of its mandate to keep the global environment under review, and has resulted in many reports and other publications over the last ten years ([www.unep.org/geo](http://www.unep.org/geo)).

The e-learning activity builds on recognition of the essential role of Information and Communication Technologies (ICTs) for disseminating information on the environment and sustainable development for a wide range of audiences, and the need to build capacity, in particular in developing countries. The educational tool is very much in line with the call for strengthened national capacities for data collection, research, analysis, monitoring and integrated environment assessment proposed in UNEP's "Bali Strategic Plan for Technology Support and

Capacity-building". At the same time, it responds to the Declaration of Principles of the World Summit on the Information Society (WSIS), Phase I (Geneva 2003) and implements a concrete capacity-building activity related to the Plan of Action adopted in Geneva.

The main objective of the e-learning project is to demonstrate how ICTs can improve accessibility to data and information on environment and sustainable development for the general public, using innovative e-learning methods and tools.



The educational tool is available on GRID-Europe's website. [www.grid.unep.ch/wsiv/](http://www.grid.unep.ch/wsiv/)

The immediate outputs of the project are the following:

- one-minute promotional clip, highlighting the major themes and aspects covered by the GEO Data Portal;
- a 12-minute movie, with spoken explanations, showing in detail the use and the full functionality of the GEO Data Portal;
- an interactive exercise, in which the user her/himself can explore some of the capabilities of the GEO Data Portal, by means of listening to the spoken explanations, reading text, hands-on applications and verification of results via a questionnaire.

The material was distributed, tested and discussed during the PrepCom-2 meeting of the World Summit on the Information Society (Geneva, 17-25 February 2005). It has also been demonstrated for consideration as a practical tool to be used for UNEP's capacity building activities, as well as for masters and post-graduate courses at the University of Geneva. Based on practical experiences and comments received, further improvements will be made to the training material which then can be considered for use in various training activities in support of the work of UNEP/DEWA and the University of Geneva. ■

## ENVSEC Initiative Launches its New Website

by Diana Rizzolio

A Board meeting of the Environment and Security Initiative (ENVSEC)<sup>1</sup> took place at NATO Headquarters on 23 March. This was one of the regular board meetings held four times a year by the ENVSEC organisations, which discuss ongoing and future projects, as well as future directions that ENVSEC can take. This meeting was followed on 24 March by an information session in which representatives of NATO, the OSCE, UNEP and UNDP briefed members of the International Staff and of national delegations on the aim of ENVSEC and on the projects carried out under its auspices.

On this occasion, ENVSEC launched its new website. The website, summarising all the activities of the Initiative carried out by its members and providing all outputs, was prepared by GRID-Europe. It includes a section for each of the regions where the ENVSEC organizations are working, lists of all the

projects ongoing or projected in these regions, as well as reports, maps, satellite images and other relevant links.

The PHP programming language is used to speed updating procedures and to create page contents with a dynamic approach. The website is also linked to a MySQL database engine, a very popular Open Source SQL, which allows to build a database-supported website.

Website URL: [www.envsec.org](http://www.envsec.org)

1. The OSCE, UNEP and UNDP set up the Environment and Security Initiative in 2002 with the aim of identifying, together with regional stakeholders (such as governmental representatives and NGOs), environmental issues that are a threat to stability and peace and using environmental co-operation as a confidence-building exercise in vulnerable regions. Since 2004, NATO has become associated with ENVSEC through the collaborative programmes of the NATO's Security through Science Programme and the activities of the Committee on the Challenges of Modern Society. UNEP Regional Office for Europe represents UNEP in the Initiative. ■



The ENVSEC website - [www.envsec.org](http://www.envsec.org)

## A First Glance at the Mesopotamian Marshland Observation System

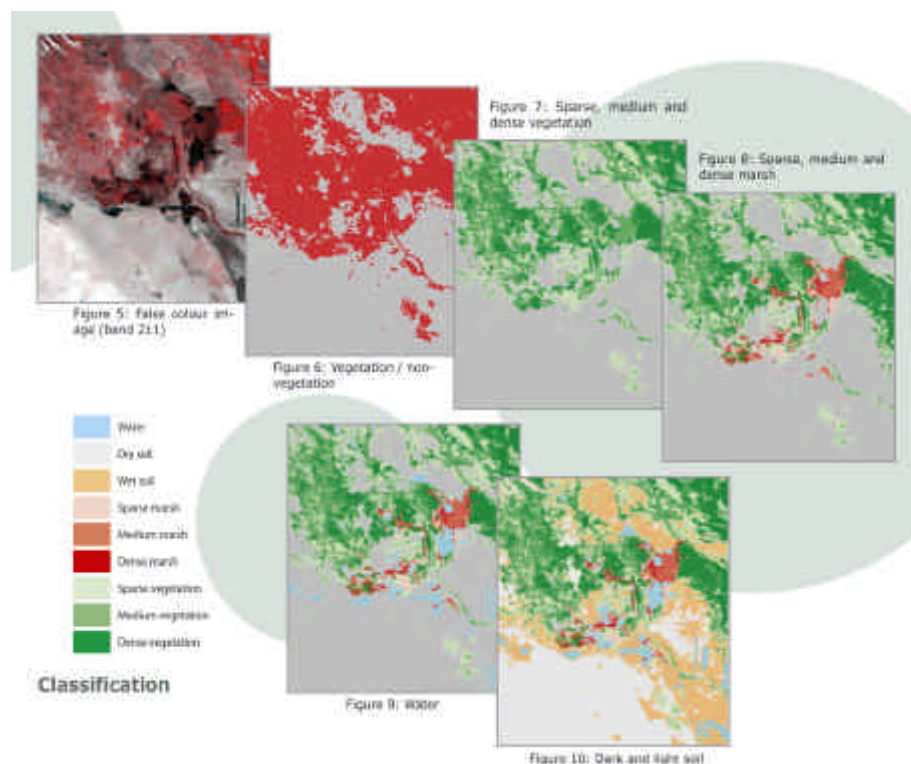
by Jean-Michel Jaquet

Since May 2003, remarkable and rapid environmental change has been taking place in the Iraqi Mesopotamian Marshlands. After over a decade of decline, in less than one year (May 2003 - March 2004), more than 20% of the original marshland area has been re-flooded.

During this critical phase, it is critical to monitor the distribution of the present re-flooding and the nature of the associated ecological changes taking place. Systematic assessment of ongoing changes is essential to achieve a better understanding of the dynamics of the recovery process and to help support decision-makers and stakeholders undertake efficient rehabilitation measures.

The Japanese Ministry of Foreign Affairs has provided funds through UNEP's Post Conflict Assessment Unit (PCAU) and engaged GRID-Europe to develop a Mesopotamian Marshlands Observation System (MMOS). This is a decision-making support tool to assist key stakeholders to pragmatically modify and adapt restoration plans in a timely manner, based on valid scientific information. The main goals of the MMOS are to:

1. Develop and implement a monitoring system to systematically acquire, analyse and exchange information about changes in the Marshlands ecosystem;
2. Develop information products and services based on the data gathered to support management of the restoration process; and
3. Evaluate the success of wetland restoration and its impacts on the regional environment, including that of the northern Persian Gulf.



Some outputs of the MMOS to be used in phase 2 of the project. NDVI was used to discriminate vegetation from non-vegetated surfaces.

Remote sensing offers a unique method to monitor, assess and empirically quantify the changes taking place on a near real-time basis so as to advise restoration actions as rapidly as possible. The benefits of satellite remote sensing surveillance is not only in terms of its cost-effectiveness, global perspective and timeliness, but also given the prevailing security situation it offers an effective and in certain cases the only means to monitor and assess ongoing changes.

During a first phase of the MMOS project, a team of GRID-Europe's Earth Observation Section explored the data sources available and the potential methodologies to extract pertinent information from satellite imagery. One of the MMOS

requirements being the provision of vegetation and inundation maps on a weekly basis, the team developed a novel approach based on object extraction and classification from MODIS imagery, using the eCognition software. The figure below shows the various steps followed to extract nine land cover classes at a resolution of 250 m.

These preliminary results are encouraging, and this approach will be applied on an operational basis to derive and archive land cover maps of the marshes (2003-2004), as well as weekly maps for 2005. Together with statistics on the water and vegetation surfaces, these maps will be delivered through a website to Iraqi partners and agencies active in the restoration of the marshlands. ■

## Calendar of Events

(April - June 2005)

### 10-14 April

First Carpathians Environment Outlook (KEO) Experts Workshop, Zakopane, Poland.

### 12-14 April

Regional Workshop on Environment Information Management, Skopje, Macedonia.

### 12-14 April

GEO Capacity Building Meeting at EEA, Copenhagen, Denmark.

### 19 April

15th DEWA/GRID-Europe Advisory Board Meeting, hosted by SAEFL, Bern.

### 25-26 April

2nd Meeting for the World Development Report. UN/ISDR, Geneva.

### 12-14 May

Sub-regional Conference on "Reducing Environment and Security Risks from Mining in South-Eastern Europe", Cluj-Napoca, Romania.

### 23-27 May

Committee on Earth Observation Satellite (CEOS), Global Observing Systems (G3OS), Integrated Global Observing Strategy (IGOS) and Geo-hazards Theme Meetings, International Environment House, Geneva.

### 25-27 May

Third Regional "GEO Ciudades" Workshop, Havana, Cuba.

### 30 May - 1 June

GEOLAND OLF Users-Providers Workshop, Arona, Italy.

### 5 June

World Environment Day 2005.

### 2-3 June

UNECE Working Group on Environmental Monitoring and Assessment (WGEM), Palais des Nations, Geneva.

### 15 June

Sustainability and Public or Private Environmental Management (SUPPREM) Presentation Meeting, University of Geneva.

### 20-24 June

GEO-4 Authors and Production Meeting at UNEP/DEWA Headquarters, Nairobi, Kenya.

## GRID-Europe's Latest Outputs

The Environment & Poverty Times No.3. UNEP Publication.

GEO Yearbook 2004/05. UNEP Publication.

E-Waste: the hidden side of IT equipment manufacture and use. Publication.

Les Déchets Electroniques, la face cachée de l'ascension des technologies de l'information et des communications. Publication.

Mesopotamian Marshlands Observation System - Products for phase 2. Publication.

UNEP's "South Asian Tsunami Task Force". Poster.

EnvSec Initiative. Website.



**Read GRID-Europe Early Warning Briefs,  
available at  
[www.grid.unep.ch](http://www.grid.unep.ch)**

