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GEO-4: Process & Linkages With Belgrade Report

by Ron Witt

Following on the successful GEO-4 European Regional Consultation held in Geneva in June 2006, the third quarter of the year remained a busy one in the ongoing production schedule of the fourth Global Environment Outlook, at both regional and global levels.

Most of the summer months were set aside for the revision of the ten draft chapters, by the Chapter Lead Authors (CLAs) and, in the case of Chapter 6 "Regional Perspectives", the team of Regional Lead Authors from all seven UNEP regions. Finally, in late September, the Chapter 6 re-drafting meeting was held at UNEP's International Environment House in Geneva, to complete the preparation of draft two of Chapter 6.

While most of the regional authors' teams came to the meeting on 19-21 September with largely re-drafted texts, further re-writing

and harmonization between the seven regional sections in particular was necessary. The roughly 20 participants first discussed progress made since the respective Regional Consultations held in June-July, and then set about the task of further revising their sections based on a full set of criteria and guidelines to improve and streamline the regional texts. Some of the criteria used were homogeneous introductory and concluding sub-sections for all regions; similar use of the DPSIR framework for all issues analysed; the addition of regional maps and major indicators directly up-front in the regional sections, and identical formatting of sub-headings.

For the European region, at least three other assessment processes have also been ongoing, simultaneously to the intensive work on GEO-4. One is the preparation of Europe's inputs to the GEO Yearbook 2007 (DEWA-Europe also has the responsibility of preparing the Indicators chapter); another

is the drafting and review of version one of the Carpathians Environment Outlook (KEO) report with lead authors of the seven Carpathian countries.

The third major ongoing activity during this period was the preparation of the Belgrade Report for the next pan-European Environmental Ministers' Conference which is taking place in October 2007. While UNEP is not participating in the drafting of the Belgrade Report as such, it has maintained close consultation with the European Environment Agency (EEA) since the early planning stages. During his visit to the EEA in Copenhagen in late September, DEWA's Regional Coordinator was asked to assist in UNEP's review of the first draft of the Belgrade Report as well, currently in progress. The EEA and UNEP will collaborate on the launch of both GEO-4 and the Belgrade Assessment Report at appropriate times and venues during 2007. ■

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From Earth Observation to Environmental Monitoring and Modeling

Division of Early Warning and Assessment
Office for Europe

11 ch. des Anémones
1219 Châtelaine
Switzerland

Tel. + 41 22 917 8294

Fax + 41 22 917 8029

Web: www.grid.unep.ch

E-mail: infogrid@grid.unep.ch

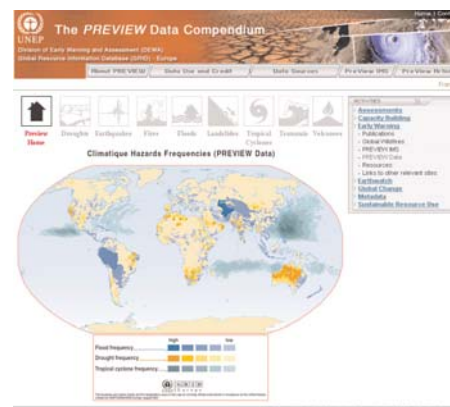
Editors: Diana Rizzolio, Ron Witt

Natural Hazards & Vulnerability Data On-line

by Pascal Peduzzi

The Project for Risk Evaluation, Vulnerability, Information and Early Warning (PREVIEW) is a UNEP/DEWA/GRID-Europe project initiated in 1999. It aims to help identify risks related to natural hazards in a quantitative way, and includes a collection of data sets for several hazards (drought, earthquakes, fires, floods, landslides, tropical cyclones, tsunamis and volcanoes). Some of these hazards were further modelled using Geographical Information Systems (GIS), as in the case of Tropical Cyclones, which were modelled in order to produce asymmetric wind speed profiles, earthquakes, droughts and floods.

The data collection gathered past hazard events from 1979 to 2005. Data sets were then compiled to produce maps of average frequencies (based on a 21-year period) as well as average number of population exposed to drought, earthquakes, floods, landslides and tropical cyclones. The generation of this data collection benefited from a significant number of data producers (too numerous to be listed here, but found on



Preview Data Compendium Portal

DEWA/GRID-Europe's website), support from UNDP and ISDR, as well as a connection with WMO for the tropical cyclones and IRI for drought modelling.

The PREVIEW Data Compendium has been designed to ease the dissemination of global data sets related to human risks from

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Carpathians Environment Outlook Project Update

by Ana Pricăpetu

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), focusing on environment and socio-economic status and trends, current policy responses in the region, emerging environmental issues, alternative policy measures and development patterns into the future, as well as policy options. 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 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.) and other sub-processes underway to produce the KEO Report by mid-2007.

Most recently, the third KEO Steering Group (SG) Meeting was held at the office of the Carpathians Framework Convention Interim Secretariat (staffed by UNEP/ROE) in Vienna on 6-7 July 2006, and provided an opportunity to examine all aspects of progress made on the KEO reporting process since the previous SG meeting (7-8 July 2005), and discuss early phases of chapter drafting with the six Chapter Lead Authors (CLAs). The meeting was attended by 14 participants: eight SG members,

including representatives of UNEP's Division of Early Warning and Assessment (DEWA) European office and Regional Office for Europe (ROE) staff; regional governments (Hungary, Poland, Romania and Slovakia), NGOs and other partners (CERI, DAPHNE, GRID-Warsaw), five CLAs (who joined the SG members for discussions on KEO drafting progress during Day Two) and the KEO Secretariat. Several aspects/topics relating to the implementation of the KEO reporting process were reviewed during Day One, focusing in particular on links with the UNEP-led (and ROE-managed) Carpathian Framework Convention (CFC) and its Vienna-based Interim Secretariat, and the new Carpathians CADSES Project prepared and led by the latter (which will assist KEO with co-financing), the status of data collection and integration work by the KEO Lead Data Centre (LDC) UNEP/GRID-Warsaw; organizational aspects, including planning for the KEO Regional Consultation to be held in October 2006; and other issues relating to the preparation and launch of the report by mid-2007.

The second day of the meeting was the first opportunity for the SG members to meet five of the six KEO lead authors, each of whom presented progress to date on his (sub-)chapter, duly constituted Chapter Working Group and any problems that have been encountered to date. Finally, a lengthy discussion was held on the KEO indicators list in order to better focus data collection during the summer period, so that the first draft will be supported by key underlying data and indicators.

Following the KEO SG with CLAs meeting in Vienna, significant progress has been

made in several areas. Firstly, the list of indicators was thoroughly reviewed by CLAs and the number of mandatory indicators reduced. The KEO Lead Data Centre has recently finalised the work on the geographical scope of the Report, and the results have been communicated to all NFPs. The data collection work has been finalised in Poland and the Slovak Republic, and data were delivered to the KEO LDC. Hungarian, Romanian and Czech data were also partially delivered.

Furthermore, the first draft of the KEO Report, which was produced during the first two-thirds of 2006, was reviewed in a Regional Consultation (to be held on 18-20 October 2006, in Banska Bystrica, Slovak Republic), by a large group of stakeholders from the entire Carpathian region: governmental representatives, NGOs, the private sector (agriculture, industry, tourism, etc.), academia and youth. During and after this Consultation, significant inputs, comments and recommendations concerning all KEO draft chapters including thematic aspects, were obtained from Carpathian countries' representatives, in order to improve the quality of the assessment. Additionally, practical issues were considered in order to proceed towards the KEO Draft Two version.

It is anticipated that the KEO Report will be ready for publication by mid-2007. It 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/among the seven Carpathian countries for environmental reporting purposes, and better information for environmental decision-making in this special region. ■

Natural Hazards Data On-line

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natural hazards. This unique collection of data sets has been used to produce the Disaster Risk Index (DRI) published in the UNDP/BCPR report "Reducing Disaster Risk" in 2004, as well as for generating UNDP/BCPR country profiles. The PREVIEW data for tropical cyclones and volcanoes were used in the ProVention Consortium / WorldBank / Columbia University project: Natural Disaster Hotspots: a global Risk Analysis. The PREVIEW mapping application is also being used and supported by the UN International Strategy for Disaster Reduction (UNISDR) for generating their country profiles.

These data sets are now available on-

line for research and non-profit purposes at: www.grid.unep.ch/activities/earlywarning/preview/data

Hazards events, frequencies and physical exposure for seven different hazard types are ready for download with 24 refined data sets. Nearly 300 files for forest fires and tropical cyclones are also available for direct download. The website also provides links to direct data producers; for example, near real-time data for earthquakes and monthly updated data on forest fires.

These data sets allow to link poverty and low development with the level of risk. For instance, they show that although least-developed countries represent together 11% of the physical exposure to hazards, they account for 53% of casualties. On the other

hand, while the most-developed countries represent 15% of the physical exposure to hazards, they only account for 1.8% of the victims. Similar exposure leads to drastically different levels of casualties. Other results can be found, including scientific publications also available through the PREVIEW Data Compendium website www.grid.unep.ch/product/publication/early-warning_articles_reports.php

If these data sets are useful to identify countries most at risk from natural hazards, they are intended for global scale analyses only. They can be used to visualize where more detailed data should be collected for risk reduction measures. The data can be viewed using PREVIEW-MAP www.grid.unep.ch/preview. ■

The TACIS Project: EECCA Indicators Compendium and Data Compilation

by Ron Witt

Launched by the European Commission in 1991, the TACIS (Technical Aid to the Commonwealth of Independent States) Programme provides grant-financed technical assistance to 12 countries of Eastern Europe and Central Asia, and mainly aims at enhancing the transition process in these countries. As part of a EEA TACIS project and as a companion product to the next pan-European environmental assessment being produced by the EEA and partners for the Ministerial Conference on Environment to be held in Belgrade, in early October, GRID-Europe is preparing an "EECA Indicators Compendium".

GRID-Europe is the lead institution for this activity/output of the EEA TACIS project under an existing contract totaling €90'000. The initial work began with the collection of relevant data from international (and national) sources by a joint EEA-UNEP consultant during the summer of 2006. Following this activity, a series of three "mini-workshops" on

the indicators development, a related UNECE draft "Guidelines for the Preparation of a Core Set of Indicators (CSI)" methodology document, and the draft Belgrade Report were organised and held in three EECCA sub-regions during October 2006.

The geographic coverage of these three workshops was as follows: Dushanbe (five Central Asian countries); Kyiv (four Eastern European countries); and Tbilisi (three southern Caucasus countries). Eleven of the 12 EECCA countries participated in these "mini-workshops" and a total of some 30 persons were trained and involved in discussions on several preliminary indicators, the draft CSI methodology "Guidelines" document, as well as on the first version of the Belgrade report. Staff from UNEP, the EEA and UNECE served as workshop organizers and trainers, with local entities supporting and participating.

An "EECCA (Core Set) Indicators Compendium" is to be produced by July 2007, to accompany the Belgrade Report. An initial teleconference took place among

the project participants on 11 Jan. 2007. During this discussion, it was decided to modify plans for preparation of the Indicators Compendium.

Up until the end of February 2007, the preliminary version of the 15 Indicators selected are under preparation, along with draft "assessments" (evaluations of their political import, utility and what 'story' they tell about the environmental situation in the EECCA countries). The 15 indicators/evaluations are being prepared by a combination of staff from the lead centre DEWA/GRID-Europe, GRID-Arendal and the EEA itself via a joint consultant.

The next steps will be to hold an "on-line consultation" on the preliminary indicators and their evaluations, with relevant persons from the 12 EECCA countries providing feedback, from late March to late April. After this, the preliminary indicators will be further refined and improved (until end of May), and when finalized prepared in the form of a publication. The work is slated to conclude by early July 2007. ■

From Earth Observation to Environmental Monitoring and Modeling

by Anthony Lehmann

The DEWA/GRID-Europe "Earth Observation" recently assumed by Anthony Lehmann after the semi-retirement of Jean-Michel Jaquet has been renamed.

First, it appeared important to reinforce the commitment of GRID-Europe to sustainable development by integrating the word "Environment" in the name of one unit, as it complements the name given to the "Socio-Economic" unit. Second, the aim was to emphasize the capacity not only to "observe" but also to "monitor" through time. Finally, some new predictive capacities are included by enlarging the scope of the group to different "modeling" techniques. This is a reasonable challenge, as it is clear that even with the best means and will, UNEP will never be able to monitor all crucial environment issues in space and time. Therefore, the use of modeling approach will bring new opportunities not only to assess environmental changes, but also to predict them across space and time according to various scenarios.

A good example of this approach is given by the Habitatp European Interreg project (www.habitatp.de) that aims at monitoring alpine habitats within 11 national and regional parks from 5 countries. It is based on high resolution color infra-red photo-interpretation and a hierarchical interpretation key. A secondary aim was to explore how the resulting

maps could help identifying Natura 2000 habitats that the different national parks and partners ought to monitor according to European legislation. This challenge was met by integrating an expert model on habitat distribution that was implemented with an original and simple method consisting of multiplying two matrices. A first matrix (M1) is built by sampling variables such as altitude, slope and aspect underneath each photo-interpreted polygon. A second matrix (M2) contains the expert knowledge on habitat distribution. The multiplication of M1xM2 returns a matrix containing the polygon IDs as rows and score of suitability for each habitat in each column. This simple modeling approach allowed incorporating expert knowledge into the translation from a photo-interpreted land cover into likeliness maps of Natura 2000 habitats distribution (Delarze and Lehmann, 2006). The approach is of course generalizable to any such translations, as for instance from the result of a satellite land cover map into some land use information.

A second example of modeling use might come from the Lake Balaton project (see previous issue) and its equivalent Lake Geneva Lemano project. In both cases, the aim is to develop indicators of sustainability and/or vulnerability of a lake and its watershed (Ganty, 2006). The use of an hydrological model to predict water quality and quantity along a river network, based on topography,

land use and climate drivers is thought to bring a solid conceptual framework to underpin the development of indicators. The advantage being that scenarios of land use and climate change are automatically integrated.

Balaton and Lemano projects: Modeling water quality and quantity from climate, demographic and land use drivers to derive Driver Pressure State Impacts Response indicators of sustainability (from Wisser 2004).

A last example of the interest of integrating models into the GRID toolbox comes from the MetaFunction European project (www.metafunctions.org). Here the challenge is to interpret the observed patterns of distribution of genomic functions found in oceanic communities of water and sediment bacteria. By linking these observations to environment data extracted from a global oceanographic database we become able to fit statistical models such as those proposed in the Generalized Regression Analysis and Spatial Prediction package (www.cscf.ch/grasp). These models should not only allow interpreting the observed patterns but also to predict them across the Ocean space.

In conclusion, with the new Environmental Monitoring and Modeling unit, the commitment of GRID-Europe to sustainable development is reinforced while its modeling capacities will be strengthened. ■

Calendar of Events

(April-June 2007)

20-23 April

SITG Days
Versoix, Switzerland

23-27 April

2007 ESA ENVISAT Symposium
Montreux, Switzerland

2-4 May

UNEP/GEO Global and Regional Data Portals Workshop (CATHALAC)
Panama City, Panama

8 May - 14 October

Réagir Exhibition
Botanical Garden, Geneva, Switzerland

21-25 May

IEA/GEO Methodology "Training of Trainers" Workshop
UNEP Headquarters, Nairobi, Kenya

22 May

International Day for Biological Diversity

23-25 May

GEO-4 'Sign-off' Meeting
EEA, Copenhagen, Denmark

5 June

World Environment Day (WED)

11-13 June

UNECE Working Group on Environmental Monitoring and Assessment (WGEMA), 8th Session
Geneva, Switzerland

17 June

World Day to Combat Desertification and Drought

www.unep.org

United Nations Environment Programme
DEWA/GRID - Europe
Ch. des Anémones 11, CH-1219 Châtelaine
Tel: +4122-9178294
Fax: +4122-9178029
infogrid@grid.unep.ch



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Measuring Vulnerability to Natural Hazards Towards Disaster Resilient Societies - Edited by Jörn Birkmann - GRID-Europe contributed to this compilation of state-of-the-art vulnerability assessment

SDR Database Access Application - Database

