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"One Planet - Many People", an Atlas Calling for Action

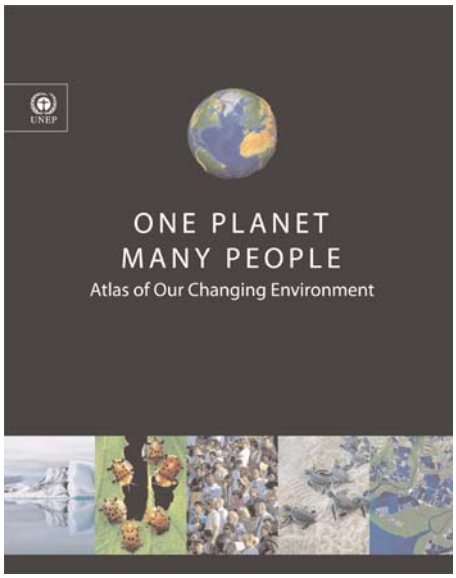
by Pascal Peduzzi

Images can say more than a thousand words! In the case of the ozone layer, satellite images were used as visual evidence and contributed to the success of the Montreal Protocol. Can we use the same process for other types of environmental issues? This idea motivated UNEP to produce an atlas showing images "before and after" changes on earth. These very powerful images of earth surface changes are compiled in the publication "One Planet Many People, an atlas of our changing environment".

The huge growth of greenhouses in southern Spain, the rapid rise of shrimp farming in Asia and Latin America and the emergence of a large peninsula at the mouth of the Yellow River are among a string of curious and surprising changes seen from space. They sit beside the more conventional, but no less dramatic images of rain forest deforestation in Paraguay and Brazil, rapid oil and gas development in Wyoming, United States, forest fires across sub-Saharan Africa and the retreat of glaciers and ice in polar and mountain areas.

In 1961, humanity was using 49% of renewable resources on an annual basis. In 2001 this proportion increased to 121%. How can it be higher than 100%? Because we are using our capital rather than the interest; i.e., using more timber than forest growth, thus leading to overall deforestation, catching fish at a rate faster that they can reproduce, etc. This can be seen with many types of resources.

There are two causes for this overuse of natural resources; first, the world population is four times what it was in 1900 (6.4 billion as compared to 1.6 billion). Secondly, personal consumption of many products (more and bigger, less energy-efficient automobiles) continues to grow.



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Cities from Space

by Diana Rizzolio

World Environment Day, commemorated each year on 5 June, is one of the principal vehicles through which the United Nations stimulates worldwide awareness of the environment and enhances political attention and action. The World Environment Day (WED) theme selected for 2005 was "Green Cities", along with the slogan "Plan for the Planet!".

The environmental challenges confronting our urban centres continue to mount. Mega-cities and slum areas are expanding throughout the developing world, and access to clean water, basic sanitation and adequate shelter lags further and further behind. Meanwhile, cities and towns in the industrialized world are struggling with rising levels of traffic, air pollution, noise and solid wastes.

What can we do about these problems? How can European cities take the lead in pioneering green solutions? These were some of the subjects discussed during the International Environment House WED roundtable that examined success stories and lessons.

On this occasion GRID-Europe presented five posters illustrating global changes (1970s-2000s) of five cities (Bucharest, Geneva, Kiev, Port-au-Prince and Teheran), based on analysis of Landsat images. These posters, produced for the Geneva Environment Network (GEN), were displayed and discussed during the WED events in Geneva.

The five posters, produced in English and French, are available for download on GRID-Europe website.■

One Planet Many People: an Atlas Calling for Action

Continued from page 1

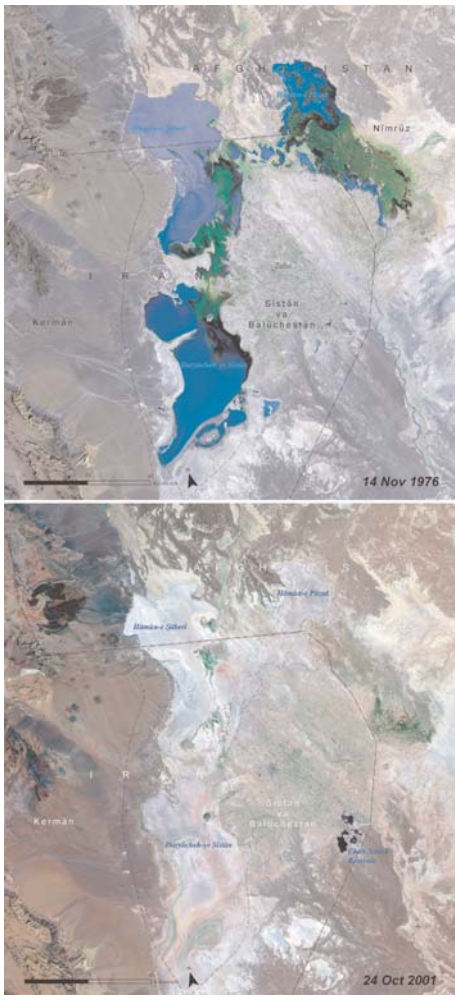
But if all the people of this world consumed as Europeans currently do, we would need the resources from 3.4 planets, and if as North Americans we would need 6.8 planets. The problem is that we have only one. In the past, other civilisations have disappeared or needed to migrate, this time the change is global: 72% of our oceans are overfished, already 50% of the continental land is modified, the remaining wilderness being in Sahara, northern Canada, northern Siberia, central Australia and in the Amazon.

Not only is our development not sustainable, but the rates of change are accelerating: 40 000 km^2 of annual deforestation during the 1980s, 160 000 km^2 now.

When a flood, a hurricane, an earthquake or a tsunami occurs, much of the media focus on such disasters and funds are made available, but “slow onset” hazards, such as pollution, deforestation, and overfishing, are occurring gradually and remain unnoticed, because the situation is very similar to what it used to be yesterday and tomorrow will not be very different. There is a false sense of security, "this is not an emergency, I can deal with it later on". The problem is that we never deal with it.

In 332 pages, the Atlas explains many processes leading to environmental degradation. With pairs of satellite images, the changes are made visible: desiccation of seas, lakes, extensive deforestation, impacts from global warming, but also several positive changes. Researchers hope that the Atlas will have an impact on governments, private business, non-governmental organizations and private individual by highlighting how globalization and other forces are driving local and regional change.

One Planet Many People, an Atlas of our changing environment. To order it and see examples: www.grid.unep.ch/atlas ■



Iran s Lake Hamoun is fed primarily by water catchments in neighboring Afghanistan. In 1976, when rivers in Afghanistan were flowing regularly, the amount of water in the lake was relatively high. Between 1999 and 2001, however, the lake dried up and disapeared. The dry phase of Lake Hamoun is a striking example of how competition for scarce water resources can transform a landscape.
Changes in water policies and substantial rains in the region saw a return of much of the water in Lake Hamoun by 2003.

ENVSEC Reports Highlight Environmental and Security Risks

by Diana Rizzolio & Ron Witt

The role the environment plays in causing and/or helping to resolve conflict is being given increased attention in the world today. Through the Environment and Security Initiative (ENVSEC), the United Nations Environment Programme (UNEP), the United Nations Development Programme (UNDP), and the Organization for Security and Cooperation in Europe (OSCE) in association with the 'Security through Science' programme of the North Atlantic Treaty Organization (NATO), are conducting a wide variety of assessments and projects aiming at addressing such issues, in different parts of Europe and Central Asia. The ENVSEC assessments take links between environment and security as a starting point for developing cooperation and tangible actions.

On the occasion of the conference on the Aarhus Convention on public involvement in environmental decision-making, in Almaty, Kazaghstan, in May 2005, ENVSEC launched an in-depth assessment report of the environmental and security situation in the Ferghana Valley. This one-year process carried out in close collaboration with the three countries (Kazakhstan, Kyrgyzstan & Uzbekistan), identified several 'clusters' of issues on the environment-security interface. GRID-Europe contributed to this publication through the collection of information, the management of the project website and the production of maps, from which the final illustrations were produced. A work programme will be carried out by ENVSEC partners and the countries sharing the Ferghana Valley.

Another region where the ENVSEC partners are very active is South Eastern Europe. A sub-regional conference on mining was held in Cluj-Napoca (Romania) in May 2005, with high-level participation of Mr. Klaus Toepfer, UNEP Executive Director, Mrs. Sulfina Barbu, Minister of Environment and Water Management of Romania, and Mr. Miklos Persanyi, Minister of Environment and Water of Hungary. The objective of the Conference was to draw up an action programme to reduce environment and security risks from mining in the region, including further assessment and pilot projects at high-risk sites, and endorse guidelines for sustainable mining and closure of mines.

Two ENVSEC reports were presented during the conference. "Mining for Closure - policies, practices and guidelines for sustainable mining and closure of mines", was prepared with research and cartographic support from GRID-Europe, and the "Rapid Environmental Assessment of the Tisza River Basin (TRB)" that was entirely prepared by GRID-Europe.

ENVSEC project work is now beginning in a fourth sub-region, the Western NIS (Belarus, Moldova and Ukraine) with country visits by partners and the exploratory assessment phase.

More information on these publications and projects is available through the ENVSEC website, maintained by GRID-Europe: *www.envsec.org*. ■

Carpathians Environment Outlook (KEO)

by Ron Witt & Ana Priceputu

The "Carpathians Environment Outlook" (KEO) project was initiated in early 2004 by UNEP's Division of Early Warning and Assessment (DEWA)/GRID-Geneva and the Regional Office for Europe (ROE). The KEO report is a sub-regional examination and synthesis of the environmental situation in the greater Carpathian region, serving as an integrating document, facilitating close collaboration between the Carpathian countries and supporting the full implementation of the Framework Convention on the Protection and Sustainable Development of the Carpathians. KEO is being carried out in a "bottom-up", collaborative and consultative style, similar to its parent products, UNEP's Global Environment Outlook (GEO) assessments at the global level.

The first KEO Experts Workshop was held in Zakopane, Poland on 11-13 April hosted by and in collaboration with GRID-Warsaw, in order to provide an opportunity to convene, discuss and finalise plans for the content of the KEO report, and define the role of national representatives and others in the process. Participants at this "brainstorming" event came from all seven Carpathian countries (Czech Republic, Hungary, Poland, Romania, Serbia and Montenegro, Slovak Republic and Ukraine), as well as prominent regional NGOs and relevant UNEP offices. During the meeting, they were able to complete the proposed contents of the report, analyse possibilities and limitations in data gathering and processing, select indicators to be used for each of the themes covered in the KEO, specify national inputs to the writing process, and define near-future activities and plans.

After opening/welcoming remarks delivered on behalf of the Polish Dep. Minister of Environment (Dr. Witkowsky) by the Director of GRID-Warsaw, Mr. Baranowski, the first half-day was devoted to informing the national participants about UNEP's process for integrated environment assessment (IEA/GEO), the variety of regional reports developed under this framework and the KEO project itself, as well as providing a general view of the CFC implementation process. In the afternoon, presentations were made by all of the participating countries on their reporting activities and potential contributions to the KEO. Information on proposed KEO organisation at the national level (focal person, responsibilities, data collection, Landsat data processing, written contributions to the various KEO chapters, etc.), specific "burning issues" (local/regional) in the Carpathians, and data availability and reliability was provided by each of the national representatives.

On the following days, a series of detailed discussions on the content of the KEO Report took place, addressing a number of significant issues and elements to be considered in the reporting process, indicators to be used, data requirements, etc. In addition, certain administrative and practical issues, including the funding situation, near-future plans and a general timetable were considered, and a specific set of activities to be carried out in the near-future was identified. Various opportunities to reach out to potential new donors willing to contribute to the project (including Carpathian country governments) were discussed and are being considered, since all the participants underlined their strong interest and support for the KEO process.

Following this major preparatory step, a second KEO Steering Group Meeting has been organised at the office of the Carpathians Framework Convention Secretariat (staffed by UNEP/ROE) in Vienna on 7-8 July 2005. During this meeting, the participants will discuss the current status of the project, achievements following the 1st KEO Experts' Workshop, as well as near-future actions such as the organisation of the data collection, analysis and integration; development of the KEO Information System; establishment of the KEO secretariat and chapter working groups, etc.

The first draft of the KEO Report is to be prepared by the end of 2006, and it is fully anticipated this document will provide greater knowledge about the unique ecology and related environmental and human problems of the broad Carpathian region, along with an operational network of national focal points within and among the seven Carpathian countries for environmental reporting purposes and others and, not least, better information for environmental decision-making in/for this unique region. ■

KEO Experts Workshop in Zakopane, Poland, April 2005.

Bathymetry and Environmental Parameters Role in the Impacts from Indian Ocean Tsunami

by Pascal Peduzzi & Bruno Chatenoux

Following the tsunami that wreaked havoc in the North Indian Ocean coasts on 26 December 2004, a quick rehabilitation of infrastructures was needed to restore the livelihood of local populations. A thorough understanding of factors leading to higher exposure to tsunami is essential for improving coastal management in order to rebuild the near-shore infrastructures in a safer way.

To this end GRID-Europe staff carried out a spatial and statistical analysis to identify which geophysical and biological configurations could potentially lower the impacts from tsunamis. Near-shore bathymetry (water depth), the orientation and elevation of coastlines, the distance from epicenter and other key geomorphological parameters, presence of mangroves, coral reefs and type of fringing vegetation were extracted using GIS technologies and correlated with distance of impacts as recorded by remote sensing or ground-truthing.

An internal report including the methodology and the results was provided to the UNEP Asian Tsunami Disaster Task Force and presented during the "Special Task Force Meeting" on 23 June 2005. The findings were merged with other researches undertaken by WCMC. The final results will be published by the end of the year 2005 by UNEP/WCMC. ■

GEO-4 Production gets underway

by Ron Witt

While already since mid-2004 a number of meetings had taken place to plan the GEO-4 report and receive inputs from the various stakeholders, it was not until mid-2005 that the first "GEO-4 Authors and Production Meeting" was organised at UNEP Headquarters in Nairobi, Kenya. During the week of 20-24 June, nearly 200 representatives of scientific institutions, governments, civil society, private sector and youth, UN agencies and UNEP staff met to thoroughly discuss and plan various aspects of GEO-4, including all ten chapters in the form of preliminary outlines, and the related processes for managing such a complex document of 500+ pages. The DEWA Regional Coordinator~Europe was named to lead the Chapter 6 "Regional Perspectives" Working Group discussions for UNEP (and the European sub-group thereof), while the GEO Data Coordinator informed most Chapter Working Groups (CWGs) on GEO data/indicator-related issues, liaising with and instructing them on the GEO Data Portal, as well as presenting this in a plenary session. Both Ron Witt and Jaap van Woerden also participated in daily meetings of Chapter Lead Authors (CLAs) and UNEP staff that served to keep the overall process 'on track' and anticipate/sort out any perceived problems that emerged.

While the plenary sessions at the beginning and end of the week served to orient the participants (of whom a large number were entirely new to the GEO process) and summarise what was accomplished, the real working sessions took place in CWGs 2 through 10. Most of these daily discussions were led by their CLAs and overseen by a DEWA staff member, and focused on deriving detailed chapter outlines, identifying the length of various sections and who would be selected to do the drafting work, both from among the CWG participants and other experts not yet involved. In these tasks, the CWGs were largely successful, as well-developed draft outlines were prepared for most chapters by the end of the week, in a few cases running to more than 10 pages, and some including detailed time schedules, authors' names and length by chapter (sub-) sections.

Through presentations of the GEO Data Portal, the need for all contributors to use the common GEO core database was underlined in the plenary session and Working Groups, calling for harmonized and efficient use of authoritative core data sets in GEO-4 analysis and reporting. Suggestions for further improvement and extension of the GEO Data Portal for use in GEO-4 were raised and discussed, including the need to add quantitative scenarios and connect with available trends, and complement the global-regional entry point with data at lower-scale levels in support of decentralising the GEO process, down to the level of countries, cities and river basins and other ecosystems.

Informal side meetings were held related to the subjects of GEO Indicators with a sub-group of the GEO DWG, GEO Capacity Building efforts and the new Training Manual, and with UN-Habitat's Global Urban Obervatory (GUO) on issues related to cooperation on GEO Cities reporting, and supporting data systems and tools.

In the meantime, contracts for work to be performed on GEO-4 by GEO Collaborating Centres (CCs) were prepared, finalised and signed with European CCs including the European Environment Agency (Copenhagen), Central European University (Budapest), Moscow State University and the Regional Environmental Centre for Central and Eastern Europe (Szentendre, Hungary). These assure the very best quality of scientific and policy-related information being incorporated in GEO-4 and that these CCs could begin drafting work on their relevant chapter portions of GEO-4 during the third quarter of 2005.

Future GEO-4 meetings will take place to prepare the first draft of European inputs to the "Regional Perspectives" Chapter 6 and Chapters 2 to 5 on Air, Land, Water and Biodiversity in September 2005, and the second GEO-4 Production and Authors' Meeting also in Nairobi in March 2006.

Also in the background, production work on the "GEO Yearbook 2006" to be released at UNEP's Special Session of the Governing Council, and Global Ministerial Environment Forum in Dubai in February 2006 got underway as well, with the hiring of a consultant for the drafting work and discussion of critical issues to be covered in this annual report. ■

Conclusion of the Global Flood Modeling Project

by Christian Herold

GRID-Europe began a project supported by the World Bank through the Swiss Consultant Trust Fund, aiming at proposing a methodology for a global flood hazard model. In order to enhance a global hazard map in December 2004 achieved in a previous project, such as the World Bank Hotspots project or UNDP Disaster Risk Index (DRI) project, the selected approach must allow locations of flood-prone areas inside water basins, rather than just highlighting exposed basins. The aim of this preliminary regional study was to estimate potential for modelling at a global scale.

The scope of the paper released in Spring 2005 was to describe an exploratory analysis on the feasibility of global flood hazard modelling, which would enable further studies of human vulnerability The method chosen was inspired by local peak-flow magnitude estimations realized in the U.S. After determining (by GIS-processing) for each HYDRO1k level 4 basin a set of hydro-morphometric and climatic values and the coordinates of a corresponding gauged or ungauged outlet station, peak flow magnitude for gauged stations are estimated using log-Pearson type III distribution, following the directions of Bulletin 17B from USWRC's Hydrologic Subcommittee. Estimates of peak-flow magnitude for ungauged stations are then obtained by statistical means, performing several regressions on the basin variables. Peak-flow magnitude estimates enable the computation of corresponding flooded areas using Manning's equation and GIS-processing. This "regression method" was processed on two test zones situated in North and South America.■

Hundred-Year Return Period Peak Flow Magnitude for South American Continent

GEO-Cities - Gaining Momentum

by Stephane Kluser & Jaap van Woerden

Workshop participants and UNEP staff in front of La Havana "Capitolio", CITMA headquarters.

Late in May, GRID-Europe staff participated in the "Third GEO-Cities Regional Workshop", in Havana, Cuba. The workshop was organised by UNEP's Regional Office for Latin America and the Caribbean (ROLAC) and the Division of Early Warning and Assessment (DEWA-LAC), as well as the Ministry of Science, Technology and Environment of Cuba (CITMA).

The GEO-Cities initiative started in 2000 in response to calls by UNEP's Governing Council and Global Ministerial Environment Forum (GC/GMEF), the Initiative for Sustainable Development in the Latin America and Caribbean region (LAC), the LAC Forum of Ministers (WSSD), and the Millennium Development Goals (Goal 7 on Environmental Sustainability). The GEO-Cities initiative extends the Global Environment Outlook assessment and reporting process down to the city level. The major objectives of the GEO-Cities project are: 1) to establish an integrated environment assessment process that acknowledges the links between environmental conditions and human activities; 2) to contribute to local capacity training on integrated assessments on the state of the urban environment; 3) to establish a consensus on the most critical environmental problems in each city and to make it possible to formulate and implement urban strategies and plans to help cities improve urban environmental management; and 4) to promote the creation of networks of institutions in each city assessed

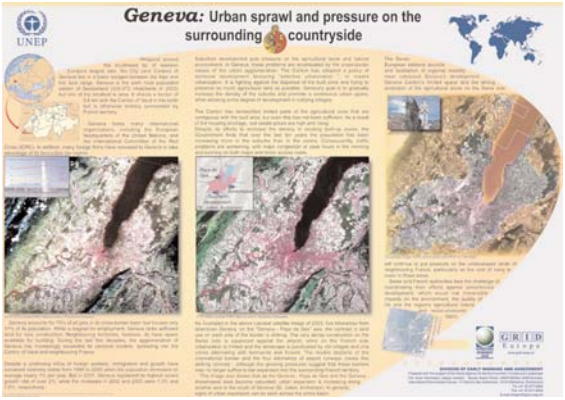
After the initial seven pilot cities in 2000, 28 more cities were added gradually until the end of 2003. Today, the GEO-Cities project in LAC includes more than 30 cities. In Africa, Asia and the Pacific and Europe, discussion and consultations are currently underway to initiate similar environmental reporting for selected cities, possibly including Nairobi, Lusaka, Dakar, Dhaka, Kathmandu and Shenchen (China).

Taking the opportunity of having many representatives for each city where the process was already being implemented, the objectives of the workshop in Havana were to discuss the project's advances and impacts, as well as the lessons learned. Working in groups, the participants reviewed GEO-Cities methodology, the structure of the GEO-Cities reports and the basic “basket” of indicators. The participants and partners were also informed about the latest Urban Environment Strategy being implemented by UNEP/ROLAC and UN-HABITAT/ROLAC in the LAC Region, and received information updates on project management and data base use.

The workshop provided a valuable opportunity to bring together coordinators of GEO-Cities projects in the LAC region, representatives of international organizations that are partners in the project, as well as various representatives from other regions that have shown an interest in preparing their own GEO-Cities reports.

Discussions were also initiated to support the GEO-Cities initiative with improved availability of core data sets and indicators. The Pilot UrbanInfo tool being developed through UN-HABITAT's Global Urban Observatory was reviewed. This system builds on the wider DevInfo system initiated by UN(DP). Connections to UNEP's GEO Data Portal were also explored and discussed with relevant participants. ■

WED Cities from Space Posters



Calendar of Events

(October- December 2005)

6-8 July
Steering Group meeting of the Carpathians Environment Outlook (KEO) project
UNEP/ROE Carpathian Framework Convention interim Secretariat, UN Vienna Interantional Centre, Austria

29-31 August
Training on Envirocat 04-05 - SAEFL
Innsbruck, Austria

12-15 September
Global/Regional and GEO Scenarios Meeting
Bangkok

19-21 September
GEO-4 European drafting, revision and integration working meeting - GEO-4 European Collaborating Centers
REC, Szentendre, Hungary

29-30 September
UNEP.Net meeting
Nairobi, Kenya

29-30 September
Environment and Security Advisory Group and Management Board Meetings (UNEP,UNDP, OSCE & NATO)
UNDP Regional Office, Bratislava, Slovakia

30 September
Conference on Remote Sensing for the Swiss Commission
University of Geneva
International Environment House, Geneva

3-5 October
GRID Centresí Evaluation Meeting
UNEP, International Environment House, Geneva

4-6 October
GEO-4 "Establishing Partnerships with MEAs for Mutual Benefit" Meeting
CMS Secretariat, Bonn, Germany

11-13 October
S-DEV Geneva 05
Palexpo, Geneva

13 October
Workshop on "Data Analysis and Modelling in Environmental Sciences towards Risk Assessment and Impact on Society"
FacultÈ des GÈosciences et de l'Environnement
University of Lausanne

16-23 October
Consultation on GEO Data Portal Development in Latin America & Caribbean Region
San Jose, Costa Rica

GRID-Europe s Latest Outputs

One Planet, Many People: Atlas of Our Changing Environment. UNEP Publication.

Environment and Security: transforming risks into cooperation. Central Asia - Ferghana / Osh / Khujand area. ENVSEC. UNEP, UNDP, OSCE & NATO Publication.

Tourism Expansion : Increasing Threats, or Conservation Opportunities?. Early Warning brief.

Tourisme en Expansion : Menace Croissante ou Occasion de Mieux ProtÈger l'Environnement?. Early Warning brief.

Mapping Disastrous Natural Hazards Using Global Datasets. Published in ìNatural Hazardsî. Article.

Bucharest: population dispersion and air pollution. Poster.

Geneva: urban sprawl and pressure on the surrounding countryside. Poster.

Port-au-Prince: urbanisation, deforestation and water shortage. Poster.

Kiev: urban growth and waste management. Poster.

Tehran: Impacts of urban expansion on water resources. Poster.

Hazardous industrial sites, water pollution and mining "hot spots". Map.

Read GRID-Europe Early Warning "Briefs", available at www.grid.unep.ch

GREEN CITIES
PLAN FOR THE PLANET!
WORLD ENVIRONMENT DAY
5 JUNE 2005