

Appendix

INTERNATIONAL INITIATIVES AT MODELLING RISK

This Appendix presents a review of international indicator projects dealing with risk and development. These projects are presented under four headings: Disaster Risk Reduction, Disaster Risk Reduction and Environmental Management, Environmental Management and Sustainable Development, and Sustainable Human Development. Every effort was made to ensure this list was a complete at the time of publication — apologies to any groups or individuals working on projects that have not been included.

A.1 Disaster Risk Reduction

Identification of Global Natural Disaster Hotspots

The Hotspots project aims to generate a global natural disaster risk assessment. Risks of human and economic losses will be estimated through spatial analysis by assessing the exposure of a global set of element at risk — people, infrastructure and economic activities – to all major natural hazards — droughts, floods, storms, earthquakes, volcanoes and landslides. The analysis will be based on the actual geographic distributions of these phenomena rather than on national level statistics. Risks of losses among the elements at risk posed by each hazard individually, will be aggregated across varying time scales to arrive at the aggregate, multi-hazard risk. A series of case studies will be undertaken as the second component of the Hotspots project to complement the global-scale analysis.

For more information please see the websites
www.proventionconsortium.org/files/hotspots2002/dilley.pdf and
<http://doherty.ldgo.columbia.edu/CHHR/Hotspot/hotspotmain.html>

HAZUS

Undertaken by the United States Federal Emergency Management Agency (FEMA), Hazards U.S. (HAZUS) uses Geographic Information Systems (GIS) technology to compute estimates of damage and losses that could result from earthquake events. To support FEMA's mitigation and emergency preparedness efforts, HAZUS is being expanded into HAZUS-MH, a multi-hazard methodology with new modules for estimating potential losses from wind and flood (coastal and riverine) hazards.

For additional information regarding HAZUS please visit the following websites:
www.nibs.org/hazusweb/ and
www.fema.gov/hazus/index.shtml

Tyndall Climate Change/Disaster Risk Index

The UK based Tyndall Centre for Climate Change Research uses data relating to natural disasters for the assessment of recent historical and current risk associated with climatic variability. Current risk associated with extreme climate events is used as a proxy for risk associated with climate change in the future. The data used is derived from EM-DAT with population data from the World Bank. The results of the risk study will be examined within the context of considerations of vulnerability. Once high-risk countries have been identified it will be necessary to examine the vulnerability of different population groups at a sub-national scale in order to target resources for capacity building; adaptation funds will be useless if they are not employed in a process driven fashion that takes into account the particular geographical, political, economic and social circumstance of the vulnerable groups in question.

For more information please see:
www.tyndall.ac.uk/publications/working_papers/working_papers.shtml

A.2 Disaster Risk Reduction and Environmental Management

Environmental Vulnerabilities Index

The South Pacific Applied Geoscience Commission (SOPAC) Environmental Vulnerability Index (EVI) is among the first tools being developed to focus environmental management at the same scale that environmentally significant decisions are made, and to focus these on outcomes. The method uses 54 indicators

to assess the vulnerability of the environment at the national scale. The EVI has been designed to reflect the status of a country's environmental vulnerability, the extent that the natural environment is prone to damage and degradation. It does not address the vulnerability of the social, cultural, or economic environment, nor the environment that has become dominated by these same human systems.

For more information regarding the EVI please visit the following website: www.sopac.org

Small Islands Developing States Index

Paragraphs 113 and 114 of the Programme of Action for the Sustainable Development of Small Island Developing States that was endorsed by the General Assembly in 1994 by resolution 49/122 call for the development of a vulnerability index for Small Island Developing States (SIDS). Accordingly, the UN Department of Economic and Social Affairs (UNDESA) undertook initial studies in 1996 in order to provide a conceptual framework for the development of a vulnerability index. This index is still in the development stage. In the Caribbean, ECHO has developed a Composite Vulnerability Index to compare losses to natural disaster events in the region. During 2002-2003, the Economic Commission for Latin America and the Caribbean/Caribbean Development and Cooperation Committee (ECLAC/CDCC) has explored potential methodologies for a social vulnerability index for Caribbean SIDS.

For further information regarding the Small Island Developing States Index, please visit the website: www.un.org/esa/sustdev/aboutsids.htm

For the ECHO Composite Vulnerability Index please see: www.disaster.info.desastres.net/dipecho/

The Water Poverty Index

The Water Poverty Index assesses communities and countries by water scarcity, examining both physical and socio-economic factors. The Index is based on the formulation of a framework that incorporates six variables: resources, access, capacity, use, environmental and geospatial. Of 147 countries with relatively complete data, most in the top half are either developed or richer developing countries.

For further information please visit the website: www.nerc-wallingford.ac.uk/research/WPI/

A.3 Environmental Management and Sustainable Development

Bellagio Principles: Guidelines for the Practical Assessment of Progress Toward Sustainable Development

These principles deal with four aspects of assessing progress toward sustainability. Principle 1 establishes a vision of sustainable development. Principles 2 through 5 deal with the content of any assessment and the need to merge a sense of the overall system with a practical focus on current priority issues. Principles 6 through 8 deal with key issues of the process of assessment, while Principles 9 and 10 deal with the necessity for establishing a continuing capacity for assessment.

For additional information please visit the following website: <http://iisd.ca/measure/bellagio1.htm>

Dashboard of Sustainability Indicators

The Dashboard of Sustainability was presented at the World Summit on Sustainable Development (WSSD) in Johannesburg. It is based on the UN Commission on Sustainable Development (CSD) indicator set and contains 19 social, 20 environmental, 14 economic and 8 institutional indicators. It includes data for over 200 countries. The latest version, RioJo, allows a comparison of the global situation at the time of the Rio Summit in 1992 with the current state of the world.

For more information please visit the IISD homepage: www.iisd.org

Ecological Footprint Accounts

Ecological Footprint Accounts document humanity's demands on nature. A population's Ecological Footprint is the biologically productive area needed to produce the resources used and absorb the waste generated by that population. Ecological Footprint Accounts calculate the combined size of these areas. The average world citizen has an Ecological Footprint of 2.3 global hectares (5.6 acres), the average German's is 4.7 global hectares (12 acres), and the average American's is 9.6 global hectares (24 acres).

For more information please see the website: www.redefiningprogress.org/programs/sustainability/ef/

Environmental Sustainability Index

The Environmental Sustainability Index (ESI) works towards the development of a measure of overall

progress of global environmental sustainability. Currently incorporating 142 countries, the 2002 ESI scores are based upon a set of 20 core indicators. The ESI tracks the relative success of each country in the five core components of environmental systems: reducing stress, reducing human vulnerability, social and institutional capacity, and global stewardship.

For more information please see the following websites: www.weforum.org, www.ciesin.columbia.edu, www.yale.edu/envirocenter

Millennium Ecosystem Assessment

The Millennium Ecosystem Assessment undertakes an analysis of the capacity of an ecosystem to provide goods and services important for human development. The fundamental unit of interest is the ecosystem itself. The approach taken is to assess the capacity of the system to provide various goods and services and then to evaluate the trade-offs among those goods and services.

For more information regarding the Millennium Ecosystem Assessment please visit the following website: www.millenniumassessment.org/en/about/index.htm

Pilot Environmental Performance Index

The Environmental Performance Index (EPI), launched in 2002, permits national comparisons on efforts to manage a narrow set of common policy objectives concerning air and water quality, climate change and ecosystem well-being. The EPI enables benchmarking of progress towards meeting immediate national policy objectives, facilitates judgements about environmental performance, and can be used to identify important differences in performance that may warrant intervention and investigation.

For more information please see the following websites: www.weforum.org, www.ciesin.columbia.edu, www.yale.edu/envirocenter

A.4 Sustainable Human Development

The Human Development Index

UNDP's Human Development Index (HDI) measures a country's achievements in three aspects of human development: longevity, knowledge and a decent standard of living. Although the HDI is a useful tool it is not

enough to measure a country's level of development. A fuller picture of a country's level of human development requires analysis of other human development indicators and information.

For further information please visit the following UNDP website: <http://hdr.undp.org>

The Human Poverty Index

UNDP's Human Poverty Index for developing countries (HPI-1) measures deprivations in the same three aspects of human development as the HDI (longevity, knowledge and a decent standard of living). The Human Poverty Index for industrialised countries (HPI-2) includes social exclusion. Many National Human Development Reports now break down the HPI by district level or language group to identify the areas or social groups within the country most deprived in terms of human poverty. The results can be dramatic, creating national debate and helping to reshape policies.

For more information please visit the following webpage: <http://hdr.undp.org/statistics/faq.cfm>

The Human Insecurity Index

The Index of Human Insecurity is a classification system that distinguishes countries based on how vulnerable or insecure they are. The index uses indicators of sustainable development, although parallels with indicators of human well-being and social indicators are evident.

For more information please visit the following website: www.gechs.org/aviso/avisoenglish/six_lg.shtml

Freedom House Index

Freedom in the World is an institutional effort by Freedom House to monitor the progress and decline of political rights and civil liberties in 192 nations and in major related or disputed territories. The Survey rates each country on a seven-point scale for political rights and civil liberties and divides the world into three broad categories: "Free", "Partly Free", and "Not Free".

For more information please visit the Freedom House homepage: www.freedomhouse.org

Transition Index

This index offers analysis of the transition to market economies and macroeconomic performance in Central and Eastern Europe and the Commonwealth of Independent States (CIS), drawing on the European Bank for Reconstruction and Development's (EBRD) experience as an investor in the region. Country-by-country assessments include macroeconomic tables, output and expenditure, and foreign direct investment. They also provide key data on liberalisation, stabilisation, privatisation, enterprise reform, infrastructure, financial institutions and social reform.

For more information please visit the EBRD homepage: www.ebrd.com

Human Rights Indicators

This project measures the commitment of governments to respect and fulfil human rights. Four factors are part of their assessment of commitment: an index measuring commitment to international and regional human rights standards by governments, an index of civil and political human rights violations by governments, an index approximating commitment to fulfilment of economic, social and cultural rights, and an index measuring in a preliminary way, commitment to gender equality by governments.

For more information regarding the Human Rights Indicators please visit the Danish Centre for Human Rights webpage: www.humanrights.dk/departments/PP/PA/Concept/Indicato/

AIDS Program Effort Index

The AIDS Program Effort Index (API) measures the amount of effort put into national AIDS programs by both domestic and international organisations. The API was implemented in 40 countries in 2000.

For more information regarding the API please visit the following website: www.tfgi.com/Api_final.doc