IRDR
Integrated Research on Disaster Risk
addressing the challenge of natural and human-induced environmental hazards

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Key question:

• Why, despite advances in the natural and social science of hazards and disasters, do losses continue to increase?

Key assessments:

• Although there are many existing or already planned activities on natural hazards, an interdisciplinary research programme on disaster risk reduction, sustained for a decade or more and integrated across the hazards, disciplines and geographical regions, is an imperative. The value-added nature of IRDR: close coupling of the natural, socio-economic, health and engineering sciences.

• The focus on risk reduction and the understanding of risk patterns and risk-management decisions and their promotion require consideration of scales, from the local through to the international level.
New factors:

Globalization, population growth, widespread poverty, particularly in hazardous areas, and a changing climate will cause the risk associated with natural hazards to be even greater in the future, with more people and communities at risk.

In urban regions, the complex infrastructure that makes life and economic activity possible, the concentration and centralization of economic and political functions, social segregation and complex spatial and functional interrelationships, all contribute to the vulnerability of populations to disruptions caused by hazards.
Sponsors of IRDR

• International Council for Science (ICSU)
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• International Social Science Council (ISSC)
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• UN International Strategy for Disaster Reduction (UNISDR)
Partners in IRDR

- National, regional and international science institutions and organizations

- International associations of scientists

- National and international development assistance agencies and funding bodies
Research focus of IRDR

- **Mitigation** – actions taken before or after a hazard event to reduce impacts on people and property
- **Preparedness** – policies and procedures designed to facilitate an effective response to a hazard event
Scope of IRDR

- Geophysical and hydrometeorological trigger events


- Space weather and impact by near-Earth objects

- Effects of human activities on creating or enhancing disasters, including land-use practices; climate change (increases in extreme events)

  not technological disasters, warfare
IRDR Objective 1:

Characterization of hazards, vulnerability and risk

1.1: Identifying hazards and vulnerabilities leading to risks
1.2: Forecasting hazards and assessing risks
1.3: Dynamic modelling of risk
IRDR Objective 2:

Effective decision-making in complex and changing risk contexts

2.1: Identifying relevant decision-making systems and their interactions
2.2: Understanding decision-making in the context of environmental hazards
2.3: Improving the quality of decision-making practice
IRDR Objective 3:

Reducing risk and curbing losses through knowledge-based actions

3.1: Vulnerability assessments
3.2: Effective approaches to risk reduction
IRDR Cross-cutting themes:

- Capacity building
- Case studies and demonstration projects
- Assessment, data management and monitoring
Strong commitment to development

- Development of science
- Development of broadly-based capacity for disaster mitigation
The legacy of IRDR

• An enhanced capacity around the world to address hazards and make informed decisions on actions to reduce their impacts.

• Societies to shift focus from response-recovery towards prevention-mitigation, building resilience and reducing risks, learning from experience and avoiding past mistakes.

• Coordinated and integrated global data and information sets across hazards and disciplines, with unprecedented degree of access.
The outcome of IRDR

• When comparable events occur in future, societies benefit from reductions in: loss of life; people adversely impacted; and property and economic loss, through wiser choices and investments made by civil society.
Value-added of IRDR

• an integrated approach to research on disaster risk

• through international, multidisciplinary collaborative research
Mechanisms for guidance and oversight of IRDR

- Scientific Committee
- Consultative Forum
Collaborating Organizations: UNESCO WMO ...

Sponsors: ICSU, ISSC, UNISDR

Consultative Forum

Scientific Committee

Partners in research:
- Unions and National Members of ICSU;
- Unions of ISSC
- GeoRisk – IYPE
- WWRP-THORPEX
- WCRP- Extremes
- IHDP-IRG
- Int. Cons. Landslides
- Int. Floods Initiative
- IOC tsunami progr.
- ...

ICSU Regional Programmes
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ICSU Regional Programmes

Working Groups/Task Teams:
• Case studies and demonstration projects, scenarios and forensic investigations
• Decision-making, planning resilience
• Vulnerability and risk – quantification and modelling
• Long-term database and monitoring systems and tools
• Integration with ICSU Regional Programmes
• Socio-economic research activity
IRDR Science Committee

CARDONA, Omar Darío  National University of Colombia, Manizales, Colombia – earthquake engineering and risk mitigation

CHAN Kin Sek, Raymond  Civil Engineering and Development Department of Hong Kong, China – civil engineering, landslide mitigation

CUTTER, Susan  University of South Carolina, USA – hazards & vulnerability

EISER, Richard  University of Sheffield, UK – perception of risk

JOHNSTONE, David  Massey University, New Zealand – earth sciences, disaster management

LANG, Michel  CEMAGREF, Lyon, France – hydrology, flood risk mitigation

LAVELL, Allan  FLACSO, Costa Rica – social and developmental aspects of risk and disasters

McBEAN, Gordon  Institute for Catastrophic Loss Reduction, University of Western Ontario, Canada – CHAIR

MODARESSI, Hormoz  BRGM, Orléans, France – geohazards, remote sensing

PATEK, Maria  Vienna, Austria – avalanches, torrents

RENN, Ortwin  University of Stuttgart, Germany – environmental sociology

SPARKS, Steven  University of Bristol, UK – volcanology, hazard management

TAKEUCHI, Kuniyoshi  ICHARM, Japan – hydrology, civil engineering

VOGEL, Coleen  University of the Witswatersrand, South Africa – geography, environmental studies

WIRTZ, Angelika  Geo Risks Research, Munich Re, Germany – economic data on disasters

+ ICSU, ISSC, ISDR ex officio
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IRDR Science Plan at: