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

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ICSU
International Council for Science

ISSC
international social science council

# ICSU - a long history

- ICSU 75th Anniversary in 2006, but roots back to 1899

- A membership organization with:

  - 29 International Scientific Unions
  - 114 National Members covering 134 countries

- Establishes interdisciplinary bodies in key areas

- Limited finances but unique worldwide access to intellectual resources

# ICSU Strategic Plan

- three-year consultation involving scientists across the world to identify societally important priorities where science can and should be making a major contribution

- the process itself resulted in a total of 13 separate expert reviews, reports and statements

- identified Natural and Human-induced Environmental Hazards as key area

**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

## 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.


DIVERSITAS
an international programme
of biodiversity science


GLOBAL
IGBP
CHANGE


WCRP
World Climate Research Programme


IHDP


Earth System
Science Partnership


INTERNATIONAL POLAR YEAR
2007-2008

## Sponsors of IRDR

- International Council for Science (ICSU)
- International Social Science Council (ISSC)
- UN International Strategy for Disaster Reduction (UNISDR)

## 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
- Earthquakes – tsunamis – volcanoes – floods – storms (hurricanes, cyclones, typhoons) – heat waves – droughts – wild-fires – landslides – coastal erosion
- 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

# Partners in IRDR

- National, regional and international science institutions and organizations
- International associations of scientists
- National and international development assistance agencies and funding bodies

# 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.

# 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.

# Value-added of IRDR

- an integrated approach to research on disaster risk

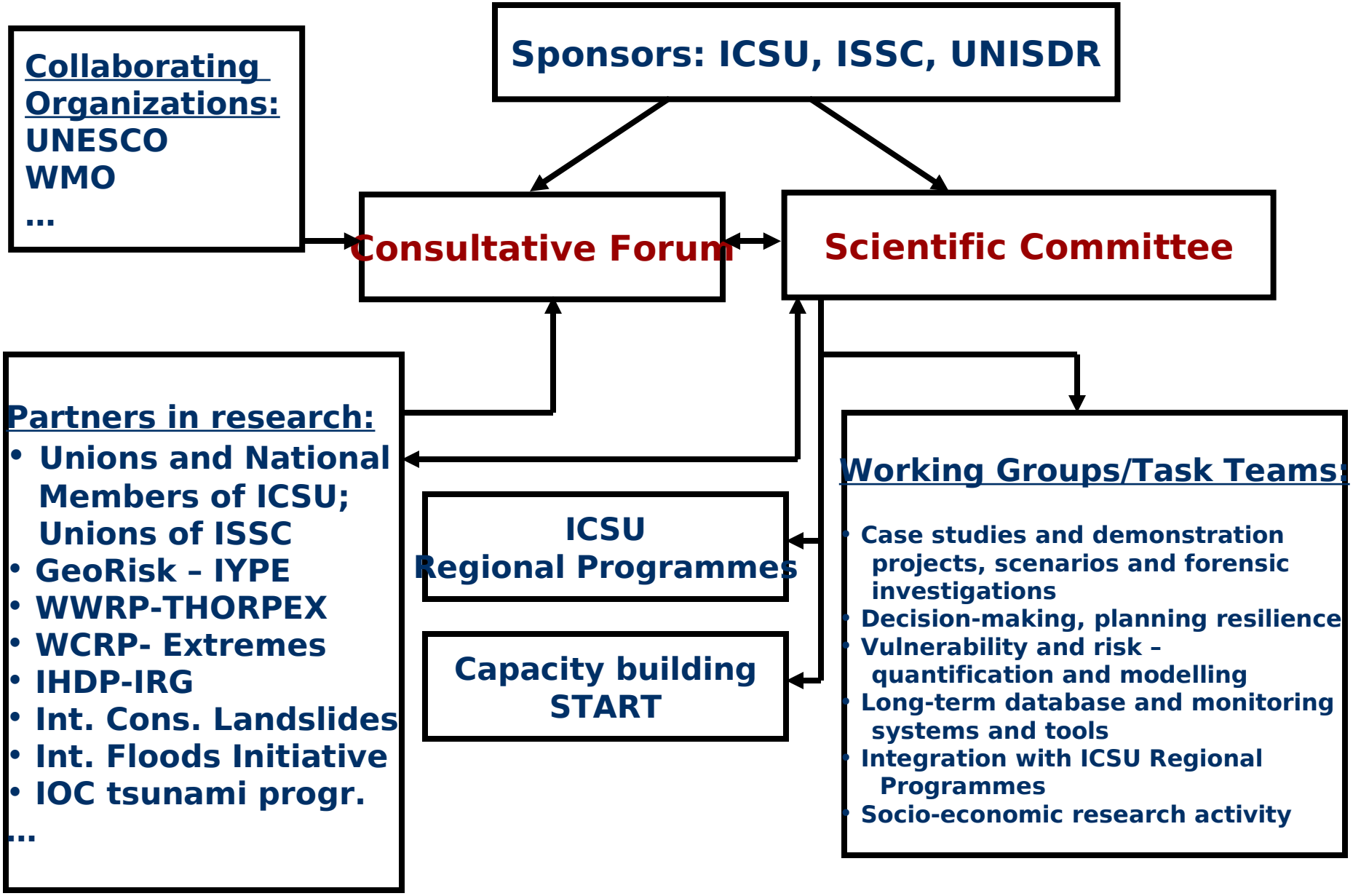
- through international, interdisciplinary collaborative research, bringing together the natural, social, medical and engineering sciences

# 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.

## 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
Capacity building START
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:**
**www.icsu.org/Gestion/img/ICSU DOC DOWNLOAD/2121 DD FILE Hazard report.pdf**

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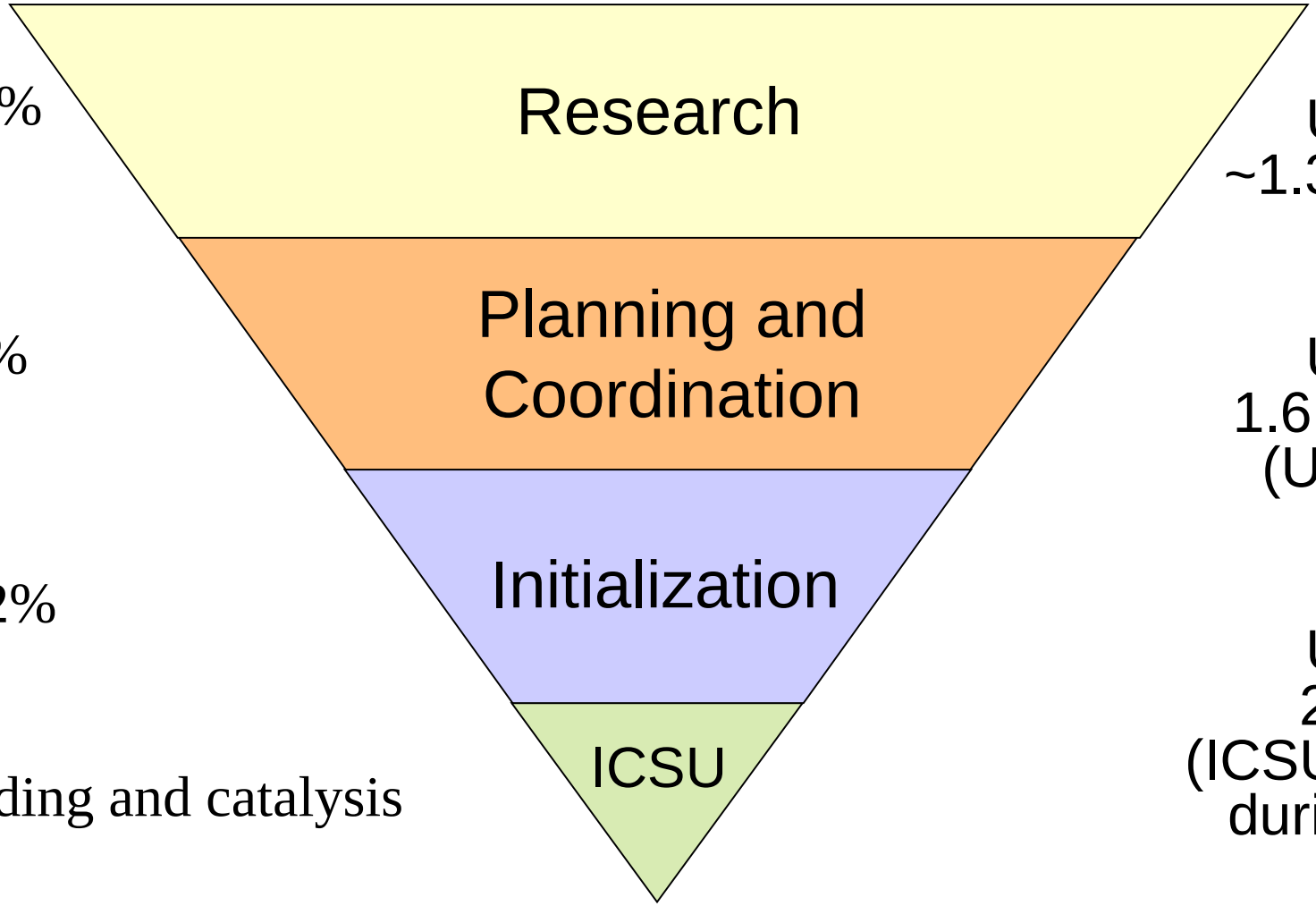
International Council for Science

ISSC
international social science council

# Financing of IPY 2007-2009

- 100%
- 0.1%
- 0.02%
- Seeding and catalysis



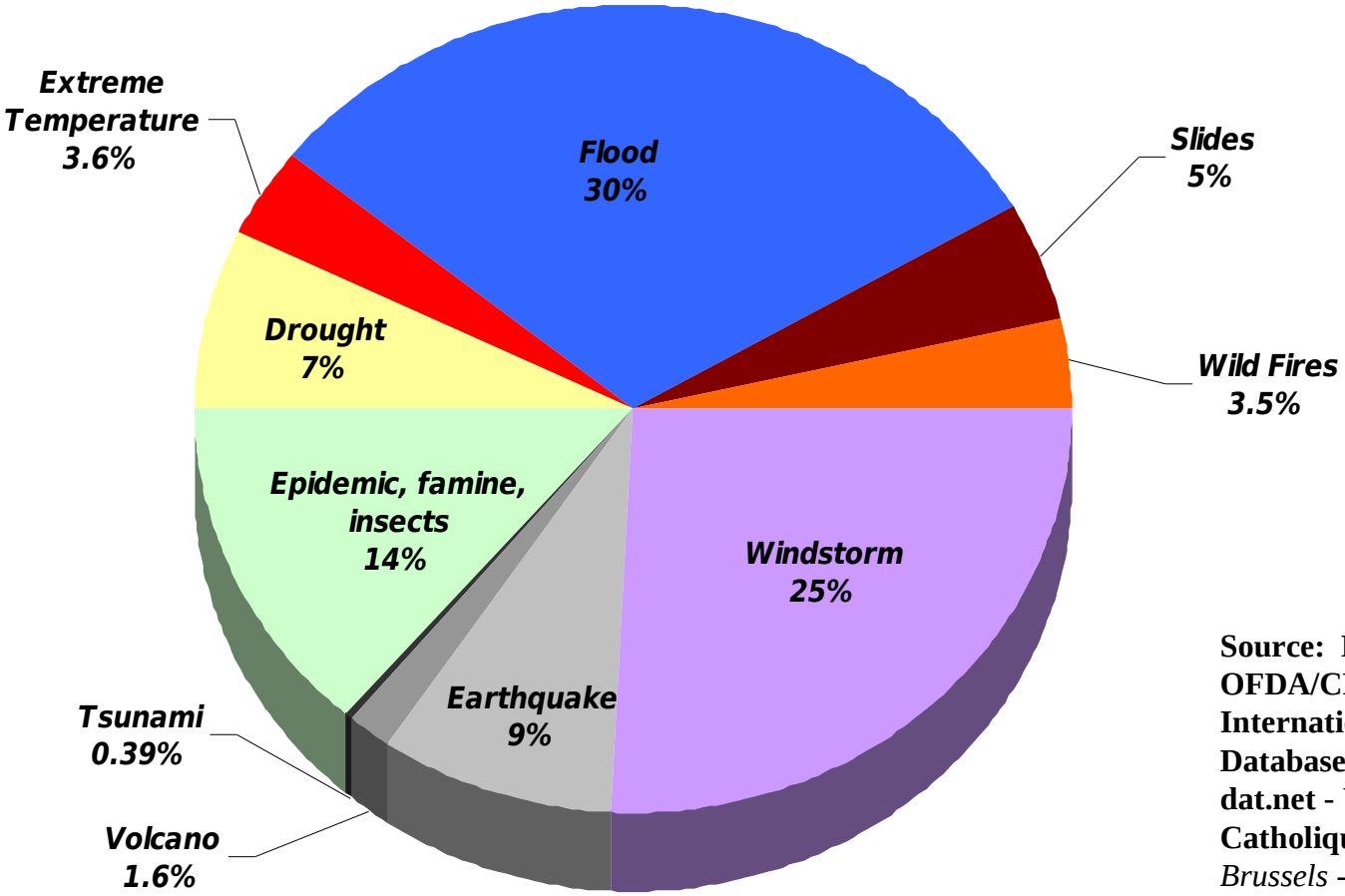

US$ ~1.3 billion

US$ 1.6 million (UK + )

US$ 250k (ICSU, WMO) during IPY

# Disasters caused by natural hazards (1980-2005)

## Nearly 90 % of disasters were caused by weather-, climate- or water-related hazards




**Source: EM-DAT: The OFDA/CRED International Disaster Database - www.em-dat.net - Université Catholique de Louvain - *Brussels - Belgium***