IRDR Mission, Achievements and Future Agenda

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An international research programme focused on

Integrated Research on Disaster Risk

Mission

To develop trans-disciplinary, multi-sectorial alliances for:

- in-depth, practical disaster risk reduction research studies
- the implementation of effective evidence-based disaster risk policies and practices.

Research Objectives

- Characterisation of hazard, vulnerability and risk.
- Effective decision-making in complex and changing risk context.
- Reducing risk and curbing losses through knowledge-based actions.
In total: 41 scientists from 24 countries served the Scientific Committee
IRDR Working Groups

- Disaster Loss Data
- Forensic Investigations of Disasters
- Assessment of Integrated Research on Disaster Risk
- Risk Interpretation and Action
- Disaster Risk Reduction, Climate Change and Adaption, Sustainable Development Goals
- Sendai Framework National Synthesis Reporting
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<th>Community-based Resilience, New Zealand</th>
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Some achievements of IRDR

• Science and Policy Dialogue and Interface
• Knowledge Products and Outputs
• New Partnerships for IRDR Mission
• IRDR Young Scientists Scheme
1. Science and Policy Dialogue and Interface
POLICY BRIEF: ACHIEVING RISK REDUCTION ACROSS SENDAI, PARIS AND THE SDGS

POLICY BRIEF: DISASTER LOSS DATA IN MONITORING THE IMPLEMENTATION OF THE SENDAI FRAMEWORK
Reflections from GP2019 and its Science and Policy Forum on integrated DRR research

- **Actionable data**, better communication, a better integration of existing and new data-driven and data facilitating technologies and methodologies are needed.

- Policies, mechanisms and regulations should be discussed and be able to **adapt** to technological development.

- Resilience and DRR science, policy and practice must be **systemic**, long-term and must integrate equity, justice and inclusion principles.
Current Hazard List

Methods
Meteorological and hydrological
Extraterrestrial
Geophysical
Environmental
Chemical
Biological

Infectious Disease
Radiation
Technological
Transportation
Societal
Other

Suggested exclusion - ROUTINE measures are in place to address these common hazards which may occur frequently.

Suggested hazard inclusion includes hazards where disaster risk reduction and management processes are used to address these hazards.

Suggested exclusion - where preparedness is not usually used to address these difficult problem hazards because of their complexity.
The Science and Technology Roadmap to Support the Implementation of the Sendai Framework for Disaster Risk Reduction 2015-2030

1. Context
1.1 Sendai Framework
The Sendai Framework for Disaster Risk Reduction 2015-2030 was agreed at the Third UN World Conference on Disaster Risk Reduction in Sendai, Japan in March 2015 and endorsed by the UN General Assembly in June 2015.
2. Knowledge products and Outputs
Contributions to IRDR Science Plan and UN Agendas

IRDR Working Paper Series

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ICoE on Transforming Development and Disaster Risk

Transformative Development Pathways

Prioritize Equity and Social Justice:
- Recognize subjectivities
- Ensure inclusion and representation
- Account for cross-scale interactions
- Promote transformative agendas

Articulation and Transparency of Trade-offs:
- Definition and negotiation of gains and losses
- Risk perception, weighting, prioritization
- Distribution of losses and gains
- Stakeholder participation and distribution of power
- Short- vs. long-term impacts and timing of interventions

Resilience Intervention Approaches
Decision Processes

Adaptive Governance
- Participation
- Polycentric institutions
- Self-organization and Networks
- Social Learning and Innovation

Equitable, Resilient and Sustainable Development
ICoE for Disaster Risk and Climate Extremes

Figure 5: The map (left) indicates the distribution of private condominiums and public flats in areas that are susceptible to landslides in Kuala Lumpur, where...

Figure 6: The map (left) indicates the distribution of hospitals, schools and other critical facilities in areas that are susceptible to landslides in Kuala Lumpur, where red zones are very highly susceptible to landslides and green zones are of lower susceptibility. The chart (top) shows the number of exposed critical facilities in each category, where VL=Very Low, L=Low, M=Moderate, H=High and VH=Very High.
Future scenarios and applications

- Active hazard warning and emergency response system for living environments
- Crowdsourcing supported disaster information system
- Disaster data quality assurance and control
- Disaster data standards and format
Working Group on Risk Interpretation and Action (RIA)

Community connection & response
- Linking communities with two-way communication network
- Pre-Impact assessment
- Local risk knowledge adopted
- Public awareness
- Risk perception
- Risk knowledge
- Risk interpretation
- Appropriate response in place
- Safe evacuation planning

Risk Communication
- Government-activated
- Public-activated
- Local community notified
- Tourism notified

Dissemination & notification methods
- sirens, sirens
- text messages
- internet
- phone box
- email, email
- media
- IF
- radio
- others

Warnings & other infrastructure products
- Watches
- Advisories
- Statements

Impact based forecasting/warning
- Hazard assessment
- Vulnerability information
- Impact & risk assessment

Institutional arrangement
- regulators framework
- mandate
- roles & responsibilities
- interagency collaboration
- conceptualization

Earth data observation
- local hydro-meteorological
- local seismic networks
- local tide gauge networks
- DART buoys
- AWS
- Doppler radars
- upper air observation

Data and information collection
- National Information Centre
- satellite sensors
- broadband and telephone
- global data
- regional data

Hazard detection
- hardware
- operating system
- data analysis software
- data integration software

Tonkin+Taylor
IRDR
World Meteorological Organization
International Science Council
3. New Partnerships
ICL SENDAI PARTNERSHIPS 2015-2025 FOR GLOBAL PROMOTION OF UNDERSTANDING AND REDUCING LANDSLIDE DISASTER RISK

IRDR will have two sessions in WLF5, Kyoto November 2020 on integrated research on landslides, and at UNESCO designated sites.
Less than 20% of all sites perform risk prevention and mitigation.
Current and Future Events

- Herrenhausen Conference “Extreme Events: Building Climate Resilient Societies” (October 9th until 11th 2019, Hanover, Germany)

- WCRP summer school on extremes and risk management (October 21th until November 1st 2019, Nanjing, China)

- Book on “Climate extremes and their implications for impact and risk assessment” edited by Jana Sillmann, Sebastian Sippel and Simone Russo, to be published in 2019 by Elsevier
4. IRDR Young Scientists
Evaluation criteria:
✓ toward integrated research
✓ strong relation to SFDRR four priorities
✓ level of innovation in the research
✓ gender and regional balance.

New book 2020 with Springer:
Integrated research on disaster risks: contributions from the IRDR young scientists programme
Mission of IRDR Young Scientists Programme and its Policy Recommendation

1. Investments in human capital particularly youth and young scientists in the implementation of DRR

2. Establish and Strengthen national and regional platforms for youth and young professionals in SETI for DRR, integrated with National and Regional Platforms for DRR

3. Ensure contribution of Youth, Young Scientists and Young Professionals in SETI for DRR are highlighted in all Sendai Priority Actions, acknowledging principles of inclusiveness

4. Undertake review and monitoring of contributions of youth and young professionals in SETI for DRR
Future Research Agenda of DRR

- Integrated, transdisciplinary approaches to understand non-linear, systematic, cascading risk.
- Encourage greater trans-generational collaborations. Invest more on DRR education and young generation.
- Mobilise data, information and scientific evidence at all levels of decision from local and community-based through to the global level to support DRR and resilience building.
- Engage more effectively with policy-makers, and decision-makers in the public and private sectors, providing relevant, actionable, systems-based insights.
IRDR will co-organise a **high-level science conference** in 2020 with UNDRR and its branches, ISC and its IBs to discuss the new research agenda, new partnership and new capacity for scientific community and its mission.
Thank you!

The human race has never before faced such large and complex threats.

#GAR2019