



**IRDR**

Integrated Research on Disaster Risk



**ANNUAL REPORT 2012**



# **Integrated Research on Disaster Risk ANNUAL REPORT 2012**



<b>Chapter 1 - Introduction</b>	<b>5</b>
<b>Chapter 2 - Events &amp; Activities</b>	<b>6</b>
<b>Chapter 3 - IRDR Working Groups</b>	<b>13</b>
<b>Chapter 4 - International Centre of Excellence and National Committees</b>	<b>15</b>
<b>Chapter 5 - International Programme Office Operations</b>	<b>22</b>
<b>Chapter 6 - Financial Summary</b>	<b>23</b>
<b>Chapter 7 - Scientific Committee Members and Ex-Officios</b>	<b>25</b>
<b>List of Acronyms</b>	<b>26</b>
<b>Annex 1 - Yogyakarta Declaration on Disaster Risk Reduction in Asia and the Pacific 2012</b>	<b>28</b>
<b>Annex 2 - Yogyakarta Declaration on Disaster Risk Reduction in Asia and the Pacific 2012 - Annex 10 - Statement of Scientifici, Academix and Research Stakeholders</b>	<b>33</b>



## IRDR Programme

The Integrated Research on Disaster Risk (IRDR) programme is a decade-long integrated research initiative co-sponsored by the International Council for Science (ICSU), the International Social Science Council (ISSC), and the United Nations International Strategy for Disaster Reduction (UNISDR). It is a global, trans-disciplinary research programme created to address the major challenges of natural and human-induced environmental hazards. The complexity of the task is such that it requires the full integration of research expertise from the natural, socio-economic, health and engineering sciences as well as policy-making, coupled with an understanding of the role of communications, and public and political responses to reduce the risk.

## Mission and Objectives

The IRDR mission is to develop trans-disciplinary, multi-sectorial alliances for in-depth, practical disaster risk reduction (DRR) research studies, and the implementation of effective evidence-based disaster risk policies and practices.

The programme is guided by three research objectives:

1. Characterisation of hazards, vulnerability and risk by identifying hazards and vulnerability leading to risks, and forecasting, assessing and dynamic modeling.
2. Understanding decision-making in complex and changing risk contexts by identifying decision-making systems, their contexts, and their interactions, and improving the quality of decision-making practice.
3. Reducing risk and curbing losses through knowledge-based actions through vulnerability assessments and the analysis of effective approaches to risk reduction.

Attainment of these objectives through successful projects will lead to a better understanding of hazards, vulnerability and risk; an enhanced capacity to model and project risk into the future; better understanding of decision-making choices that lead to risk plus how they may be influenced; and how this knowledge can better guide disaster risk reduction.

To support these objectives, IRDR will work with global, national, and local partners to develop and implement capacity building; develop case studies and demonstration projects; and carry out the assessment, data management and monitoring of hazards, risks and disasters.

The IRDR is governed by a 15-member Scientific Committee (SC) set up by and on behalf of the Co-Sponsors. Its responsibilities are to define, develop and prioritise plans for IRDR, to guide its programming, budgeting and implementation, to establish a mechanism for oversight of programme activities, and to disseminate and publicise its results.

The execution of IRDR programme promotion, coordination and related functions is undertaken by the IRDR International Programme Office (IPO). The IPO is located in Beijing, China and is hosted by the Center for Earth Observation and Digital Earth (CEODE) of the Chinese Academy of Sciences (CAS). Operational funds are provided by the China Association for Science and Technology (CAST).

### IRDR Events & Activities

#### **Research Scoping Workshop on Implementation of ICSU ROAP Programme on Hazards and Disasters in Asia and the Pacific (Kuala Lumpur, Malaysia, 28-29 February)**

The Workshop, convened by the ICSU Regional Office for Asia and the Pacific (ROAP), discussed the priority research activities ROAP will promote in the next three to five years and to scope specific activities it would undertake in the coming 12 months. It was agreed that ROAP would identify active research networks and teams with good records of producing scientific results that are widely adopted by decision and policy-makers for integrated research collaboration across disciplines and agencies. It was attended by IRDR SC member Chamhuri Siwar and Executive Director, Jane E. Rovins.

#### **2012 Advanced Institute on Forensic Investigations of Disasters (FORIN) (Taipei, China, 12-19 March)**

This workshop was organised and hosted by the IRDR ICoE in Taipei, in partnership with Global Change System for Analysis, Research and Training (START). See Chapter 4 for the complete review of this Advanced Institute (AI) under the report from the Taipei ICoE.

#### **ISDR Asia Partnership (IAP) Meetings in Preparation for the 5th Asian Ministerial Conference on Disaster Risk Reduction (Bali, Indonesia, 9-11 April and Yogyakarta, Indonesia, 6-10 August)**

Jane E. Rovins represented the IRDR at both meetings of the IAP, in preparation for the 5th Asian Ministerial Conference on Disaster Risk Reduction (AMCDRR) in October 2012. The IRDR leads the Scientific, Academic and Research Stakeholders group within the IAP. The meetings also focused on the Hyogo Framework for Action (HFA) review process roll out for the biennium 2011-2013, and the post-HFA processes.

During the second meeting, stakeholders also prepared a draft of the Yogyakarta Declaration and the stakeholders' addendum for the 5th AMCDRR.

#### **7th IRDR SC Meeting (Ravello, Italy, 9-11 May)**

The 7th IRDR SC meeting was hosted by the European University Centre for Cultural Heritage (CUEBC) and funded by ICSU. During the three-day meeting, SC members received updates on several key IRDR programme areas:

*Working Groups:* Co-Chairs provided updates on each Working Group's activities to date and those for upcoming months. The meeting agreed that there was an urgent need to identify and invite members to the Working Groups, while the IPO would work with each Working Group to develop work plans.

*National Committees (NCs):* Updates were received from existing NCs in China, Japan and New Zealand.

*International Centre of Excellence (ICoE):* The ICoE in Taipei provided the meeting with an update on the AI FORIN as well as other proposed activities. See Chapter 4 for the complete review of this AI under the report from the Taipei ICoE.

*IPO:* Discussions focused on the Strategic Plan, 2011 Annual Report, IPO staffing matters and the development of three databases: higher education, DRR researcher and grants databases. The IPO was charged with ensuring that these databases would not duplicate already existing activities.

*Co-Sponsors:* Updates were provided by ICSU, ISSC, UNISDR and CEODE on several of their current and upcoming major activities, which would intersect with IRDR programme activities.

*IRDR Partners:* Updates were received from the following IRDR partners: the Global Facility for Disaster Reduction and Recovery (GFDRR); and the Committee on Data for Science and Technology (CODATA).

It was agreed that the 8th SC meeting would be held in November 2012 in Chengdu, China. The summary report of the seventh SC meeting is available in the “Members Zone” section of the IRDR's website (<http://www.irdrinternational.org/members-only/>) or directly from the IPO.

### **Forum on Science, Technology & Innovation for Sustainable Development (Rio de Janeiro, Brazil, 11-15 June)**

The “Forum on Science, Technology & Innovation for Sustainable Development” was a major five-day event, prior to the United Nations Conference on Sustainable Development, Rio+20. Organised by ICSU, in partnership with the United Nations Educational, Scientific and Cultural Organization (UNESCO), the World Federation of Engineering Organizations (WFEO), ISSC, the Brazilian Ministry of Science, Technology and Innovation, and the Brazilian Academy of Sciences, the Forum focused on establishing the research, technology and policy agendas needed after Rio+20.

The programme consisted of several thematic sessions exploring a number of key topics. On Thursday, 14 June, the IRDR’s Executive Director, Jane E. Rovins, along with Badoui Rouhban, UNESCO’s Chief of Section for Disaster Reduction, served as co-convenors of the session, “Disasters: Interdisciplinary Approaches for Risk Reduction and Management.” The speakers were:

- Gretchen Kalonji, Assistant Director General for the UNESCO Science Sector.
- Walter Ammann, President/CEO, Global Risk Forum, Davos, Switzerland.
- Ana Maria Cruz, Visiting Adjunct Professor, Kyoto University, Uji Campus, Kyoto, Japan.
- Peter Höppe, Head of Geo Risks Research Department, Corporate Climate Centre, Munich, Germany.
- Allan Lavell, IRDR SC member, Costa Rica.
- Gordon McBean, Professor/Director, Institute for Catastrophic Loss Reduction, Departments of Geography and Political Science, the University of Western Ontario, Canada.
- Abdou Sane, Président du réseau des parlementaires sénégalais pour l'Habitat, la Sécurité, la Prévention et la Gestion des Risques de Catastrophes liées aux Changements climatiques, Sénégal.
- Kuniyoshi Takeuchi, Director, International Centre for Water Hazard and Risk Management (ICHARM), Japan and IRDR SC member.

The session provided an overview of experiences in DRR and the role that science and technologies play in DRR to reduce the vulnerability of societies. Two major topics discussed were new developments in risk management and integrating science and disaster risk (i.e. early warning). The session also discussed interdisciplinary approaches on building resilience to cope with the impacts of disasters, and also suggested best practices of disaster risk research to achieve sustainable development and human security.

## **Regional Workshop on Disaster Risk Management in Latin America and the Caribbean (Buenos Aires, Argentina, 3-5 September)**

The IRDR collaborated with the ICSU's Regional Office for Latin America and the Caribbean (ROLAC), the Argentinian National Council for Scientific and Technical Research (CONICET), National Academy of Exact, Physical and Natural Sciences (ANCEFN) and Ministry of Science, Technology and Productive Innovation (MINCYT) to organise the "Regional Workshop on Disaster Risk Management in Latin America and the Caribbean: Towards a project plan for integrated science and risk management for the region." The Workshop was attended by 51 expert scientists, representatives of international organisations, and early-career scientists from 10 countries in the Latin American and Caribbean (LAC) region. The Workshop's main objective was to promote integrated research on disaster risk and application among natural and social scientists in the region, and to build the capacity of technical, communication and information experts, risk managers and policy-makers in integrated disaster risk research applications.

In line with its objectives, and responding to the specific needs of the LAC region, the Workshop addressed the following themes in three working group sessions:

- Social vulnerability in the context of disaster risk;
- Trans-disciplinary tools for making scientific data useful to risk managers; and
- Institutional arrangements for risk management.

Based on the discussions emanating from these working groups, the Workshop recommended a plan of action towards an integrated project in the LAC region. This will involve the setting up of a steering group to guide the elaboration and implementation of such a long-term strategy and programme. This steering group will have close collaboration with the IRDR IPO and ICSU headquarters to develop the project proposal, which would also contribute to the implementation of the IRDR Science Plan (ICSU 2008). The Workshop was funded by a grant from the ICSU Annual Grant Programme to the IRDR IPO.

## **Global-Regional Integration Workshop on Natural Hazards and Disasters (Kuala Lumpur, Malaysia, 13-14 September)**

In recognition of the need to integrate the IRDR's Science Plan (ICSU, 2008) with that of ICSU's regional offices, ICSU ROAP organised a two-day workshop with the aim to develop a framework to harmonise the work on hazards and disasters at the global and regional levels in ICSU. Funding for the Workshop was provided by the Swedish International Development Cooperation Agency (SIDA).

Key recommendations and outcomes from the Workshop included that there is a need to properly align the implementation of regional science plans with the IRDR programme to avoid duplication of time and effort, promote cooperation rather than internal competition, and to send consistent messages to the science community, funding agencies and other stakeholders. Another is that a global framework for integrating the regional and global science plans needs to be adopted that focuses on natural and human-induced hazards, risk and vulnerability, as well as using an integrated approach that combines knowledge from natural, social and engineering sciences. The participants agreed that the basis of such a framework was already laid out in the IRDR Science Plan (ICSU, 2008), which complements the regional science plans. Finally, it was agreed that the IRDR SC and its IPO should have the overall strategic role of overseeing all ICSU activities related to DRR, with the ICSU Regional Offices focusing on project development and implementation. When possible, projects developed in the Regions need to be linked with the IRDR's Working Groups (AIRDR, DATA, FORIN and RIA). The IRDR IPO will work with the Regional Offices on fundraising for such projects. A report on the Workshop was prepared by ICSU and is available from the IRDR IPO.

## **5th Asian Ministerial Conference on Disaster Risk Reduction (Yogyakarta, Indonesia, 22-25 October)**

The AMCDRR is a biennial conference organised by rotation in different Asian countries since 2005. The event provides the opportunity for Ministers in charge of disaster management from the Asian region to exchange experiences on successful practices and innovative approaches in implementing the HFA's five priorities for action at the national and local levels.

One of the major outcomes of this year's conference was the “Yogyakarta Declaration Annex 10 – 24 October 2012: Statement of Scientific, Academic and Research Stakeholders for the 5th Asian Ministerial Conference on Disaster Risk Reduction” (see Annex 2). The IRDR, which leads the Scientific, Academic and Research Stakeholders group within the IAP, played an integral role in the drafting of Annex 10.

## **23rd International CODATA Conference (Taipei, China, 28-31 October)**

The Conference, themed “Open Data and Information for a Changing Planet,” brought together industry, research and academia stakeholders from around the world. The focus on open data was very timely as many organisations were actively considering the benefits and practicalities of open data.

On 29 and 31 October, members of the IRDR's Disaster Loss Data (DATA) Working Group, which held its ‘kick-off’ meeting in conjunction with the Conference (see Chapter 3), led and were involved in two special technical sessions—with approximately 30 attendees in each session—to introduce IRDR and its DATA project to the stakeholders in order to increase its transparency to the broader community:

### *Session 1: IRDR and the DATA Project to the Broader Community*

Chair: Sálvano Briceño (Introduction to IRDR and IRDR DATA)

Presenters: Angelika Wirtz (the Data Landscape) and Susan Cutter (the Need for Data)

### *Session 2: Global Perspectives on Disaster Databases*

Chair: Kuniyoshi Takeuchi

Presenters: Regina Below (EM-DAT - the Global Disaster Loss Database); Daniele Ehrlich, European Commission Joint Research Centre (JRC) (the Importance of Disaster Loss Data from the EU Perspective); and Adam Smith, National Oceanic and Atmospheric Administration's National Climatic Data Center (NOAA-NCDC) (Disaster Loss Data from a County Perspective)

These sessions provided the opportunity to discuss the current status of global disaster loss data, addressed the importance of data in disaster assessment, and identified the gaps and needs of disaster loss data at different scales and from different perspectives.

## **8th IRDR SC Meeting (Chengdu, China, 4-7 November)**

During the four-day meeting, SC members received updates on several key IRDR programme areas, including the following:

*IRDR Conference 2014:* The next IRDR conference will be held in early 2014 in Beijing. The meeting agreed that the outputs of the conference could influence other processes such as the post-HFA dialogues, and this could push the Working Groups to generate substantive products earlier.

*Working Groups:* Updates were provided on each Working Group's respective activities, including the development of work plans, past and upcoming workshops, the creation of a Community of Practice (CoP) for FORIN, and the opportunities for specific FORIN case studies and funding. The meeting also

explored the possibility of associating the outputs of the Risk Interpretation and Action (RIA) Working Group with FORIN topics, such as using the 2011 Christchurch earthquake disaster as a case study. The DATA Working Group Co-Chairs also summarised the group's 'kick-off' meeting held on 1-2 November (see Chapter 3). The Assessment on Integrated Research on Disaster Risk (AIRDR) presented their work plan.

*National Committees:* Updates were received on activities from the NCs in Canada, China, France, Germany, Japan, and New Zealand. The possible establishment of NCs in Australia, South Korea, Sweden, United Kingdom (UK) and the United States of America (USA) were also discussed.

*International Centre of Excellence:* The meeting was advised that a proposal to develop a small ICoE on social vulnerability and resilience at the University of South Carolina, USA, was underway. The ICoE-Taipei presented updates on their activities.

*IPO:* The meeting was presented with updates on several matters specific to the IPO, including the outline of the Strategic Plan and the website's events calendar. In following-up on the research databases discussed during the seventh SC meeting, the SC approved the scoping out of this initiative as several partners had shown interest in supporting their development. In relation to IPO staffing, the SC endorsed the hiring of a new Communications Officer and a Junior Science Officer.

*Co-Sponsors:* ICSU presented a new 10-year initiative called Future Earth, which will build on its existing global environmental change programmes to help develop a stronger and broader community. This initiative will see these programmes transitioning into Future Earth. Among other updates, the ISSC informed the meeting about its World Science Fellows Programme, launched at the beginning of 2012, which targeted interdisciplinary scientists in their early careers. The meeting was also informed that CEODE will be merging with the Institute of Remote Sensing Application, and the new name will be Institute of Remote Sensing and Digital Earth (RADI). The UNISDR informed the meeting of the preparations for the 2013 Global Platform for Disaster Reduction and reiterated the value of the IRDR's involvement to illustrate the role of integrated sciences in policy and practice.

The summary report of the eighth SC meeting is available in the "Members Zone" section of the IRDR's website (<http://www.irdrinternational.org/members-only/>) or directly from the IPO.

### **2012 IRDR International Roundtable Meeting (Chengdu, China, 6 November)**

The 2012 IRDR International Roundtable Meeting was held in conjunction with the eighth SC meeting. The meeting was organised by IRDR China, in collaboration with CAST, CEODE, the Institute of Mountain Hazards and Environment (IMHE), and the IRDR IPO.

The aim of the meeting was to exchange experiences on major disaster risk research, and science and technology for disaster mitigation, and the possibility of cooperation in IRDR FORIN studies of major natural disasters. The meeting was attended by IRDR SC and NC members, including those from IRDR China, IPO staff, and representatives from related Chinese research institutions and universities.

## **Advanced Seminar on Forensic Investigations of Disasters at the First IUGG GRC Conference on "Extreme Natural Hazards and Their Impacts" (Orange, USA, 8-11 December)**

The GeoRisk Commission (GRC) conference brought together scientists from developing countries and countries most vulnerable to various types of natural hazards, or faced extreme events in recent years, and provided the opportunity to exchange scientific knowledge about different natural hazards occurring in different parts of the world with different geological and geophysical environments. An advanced seminar on FORIN, co-sponsored by the International Union of Geodesy and Geophysics (IUGG), International Association of Hydrological Sciences (IAHS) and IRDR, was held during the conference. The seminar took place in two sessions and involved the presentation of and extensive discussions on 11 papers, and included a plenary discussion on the future work of FORIN:

### *Session 1:*

- Ian Burton - "Forensic Disaster Investigations and the Epidemiology of Disasters"
- Anthony Oliver-Smith - "Longitudinal Analysis in the Forensic Investigations of Disasters (FORIN)"
- Djillali Benouar - "A Preliminary FORIN Study of the 2001 Algiers (Algeria) Flood and Debris Flow"
- Kuniyoshi Takeuchi - "Summary and Findings of ICHARM/CTI Quick Forensic Investigation of GEJET"
- Roberto Barrios - "Post-disaster Community Resettlement and Reconstruction in Southern Honduras after Hurricane Mitch: Testing FORIN's Utility in a Central American Context"
- Emily Wilkinson - "From forensic analysis to action research: Using FORIN to strengthen resilience in volcanic areas"
- Luke Bowman - "Forensic Insight into the Root Causes of the 2009 Lahar Disaster at San Vicente Volcano, El Salvador"

### *Session 2:*

- Sálvano Briceño - Summary of the topic the previous day and preview of today's
- Anthony Oliver-Smith - "Case study: Haiti Earthquake"
- Ulrich Kamp - "The 2005 Kashmir Earthquake: Lessons Learned"
- Tina Kunz-Plapp - "CEDIM Forensic Disaster Analysis in Near-real Time: Methodological Challenges and Chances Applying FORIN Questions"
- Guido Lemoine - "Towards a common data collection framework in support to FORIN"
- Plenary Discussion: Prospects to Improve Theoretical FORIN Approach
- Discussion on the way forward (Chairs: Ian Burton and Anthony Oliver-Smith)

Overall, the seminar provided an opportunity for reporting and commentary on projects currently underway and proposed FORIN research. It was agreed that further research, seminars and workshops should be encouraged and promoted, and that those involved be invited to join a specific FORIN CoP and remain in contact through a listserv.

## List of Conferences Attended in 2012

The following table lists the various events the IRDR participated in, providing presentations on the IRDR programme, its activities and working groups:

January	International Consortium on Landslides (ICL) 10th Anniversary (Kyoto, Japan)
February	Workshop on Psychological Intervention After Disasters (Beijing, China) Research Scoping Workshop on Implementation of ICSU ROAP Programme on Hazards and Disasters in Asia and the Pacific (Kuala Lumpur, Malaysia)
March	World Water Forum (Marseilles, France) ICoE FORIN Advanced Institute meeting (Taipei, China) Planet Under Pressure (London, UK)
April	1st ISDR Asia Partnership (IAP) meeting (Bali, Indonesia) IPCC SREX Regional Outreach event (Beijing, China)
May	7th IRDR SC meeting (Ravello, Italy)
June	Forum on Science, Technology & Innovation for Sustainable Development (Rio de Janeiro, Brazil) World Conference on Disaster Management (WCDM) (Toronto, Canada)
July	2012 Understanding Risk Forum (Cape Town, South Africa) 37th Annual Natural Hazards Research and Applications Workshop (Broomfield, USA) IRDR China Annual Scientific meeting (Beijing, China) 3rd meeting of the Societal and Economic Research and Applications (SERA) working group of the World Weather Research Programme (WWRP)/IRDR (Melbourne, Australia)
August	2nd IAP meeting (Yogyakarta, Indonesia) 6th Australasian Hazards Management Conference (Christchurch, New Zealand) Global Risk Forum - IDRC Davos 2012 (Davos, Switzerland)
September	IRDR/ROLAC Regional Workshop on Disaster Risk Management in Latin America and the Caribbean (Buenos Aires, Argentina) IDRiM 2012 Conference (Beijing, China) SIDA - IRDR/ICSU meeting (Kuala Lumpur, Malaysia) ISEO 2012 (Kashgar, China) UNISDR 1st Partners Stock Taking Workshop (Incheon, Republic of Korea) Workshop for the Inventory of Risk Assessment Initiatives for National and Sub-National Levels, Asia Pacific, (Bangkok, Thailand)
October	9th Science and Technology in Society (STS) Forum annual meeting (Kyoto, Japan) 5th AMCDRR (Yogyakarta, Indonesia) 23rd International CODATA Conference (Taipei, China) International Association of Emergency Managers (IAEM) USA 60th Annual Conference & EMEX 2012 (Orlando, USA)
November	8th IRDR SC meeting (Chengdu, China) 2012 IRDR International Roundtable meeting (Chengdu, China) Scientific Seminar on Natural Disasters (Brussels, Belgium)
December	IUGG GRC Conference on "Extreme Natural Hazards and Their Impacts" (Orange, USA) Global Earthquake Model (GEM) Semi-Annual & Governing Board meeting (Pavia, Italy)

## IRDR Working Groups

The IRDR SC established four core Working Groups to focus on different aspects of disaster risk reduction to assist the overall IRDR programme meet its research, advocacy and networking objectives. The following is a summary of each Working Group's activities undertaken during the year in review.

### **Assessment of Integrated Research on Disaster Risk (AIRDR) Working Group**

Co-Chairs: Susan Cutter and Allan Lavell

The AIRDR Working Group will undertake the first systematic and critical global assessment of research on disaster risk. This is in furtherance of Goal 1 (promote integrated research, advocacy and awareness-raising) in the IRDR's Strategic Plan (2013-2017), to which AIRDR's activities are aligned. AIRDR was formally approved as an IRDR project in October 2011. The official announcement was made during the IRDR 2011 Conference, and its work plan was adopted in May 2012 during the 7th SC meeting.

The Working Group's first core committee meeting, funded by a grant from the UNISDR (see Chapter 2) was held in Broomfield, USA on 18-19 July. This meeting was attended by Susan Cutter, Allan Lavell, Ian Burton and Anthony Oliver-Smith. The outcomes of this meeting were a detailed work plan, a timeline for completion, and a proposed budget for the global assessment. The final AIRDR work plan was submitted to the IRDR IPO in August 2012.

### **Disaster Loss Data (DATA) Working Group**

Co-Chairs: Angelika Wirtz and Susan Cutter

The DATA Working Group brings together stakeholders from different disciplines and sectors to establish an overall framework for disaster loss data for all providers, to establish nodes and networks for databases, and to conduct sensitivity testing among databases to ensure some level of comparability. This is in furtherance of Goal 2 (characterisation of hazards, vulnerability and risk) in the IRDR's Strategic Plan (2013-2017), to which DATA's activities are aligned.

DATA was officially launched in November 2012, when the group held its 'kick-off' meeting in Taipei, China, in conjunction with the 23rd International CODATA Conference. The Working Group's meeting was held on 1-2 November, attended by 12 participants: Regina Below, Lucia Bevere, Sálvano Briceño, Susan Cutter, Daniele Ehrlich, Wei-Sen Li, Maria Patek, Kiyoshi Natori, Adam Smith, Kuniyoshi Takeuchi, Takashi Watanabe and Angelika Wirtz. The meeting focused on three broad areas:

- The current context of disaster loss data from global to local levels (needs, gaps, weaknesses, strengths and availability);
- Improvements in current disaster loss data and what data are needed to improve disaster risk management; and
- Data issues for disaster impact assessments.

The participants also made a site visit to the National Science and Technology Center for Disaster Reduction (NCDR) in Taipei, and were briefed on its activities in support of disaster management and emergency preparedness for the entire island. The meeting also identified three key issues for exploration that formed the basis for DATA's 2013-2014 work plan. DATA submitted its work and cost estimation plans to the IRDR IPO in November 2012. This meeting was funded in part by funds from the UNISDR and the IRDR ICoE in Taipei.

## Forensic Investigations of Disasters (FORIN) Working Group

Co-Chairs: Ian Burton and Anthony Oliver-Smith

The FORIN Working Group has proposed an approach that aims to uncover the root causes of disasters through in-depth investigations that go beyond the typical reports and case studies conducted post-disaster events. Thoroughly analysing cases, including both success stories and failures, will help build an understanding of how natural hazards do—or do not—become disasters.

In furtherance of Goal 4 (reducing risk and curbing losses through knowledge-based actions) in the IRDR's Strategic Plan (2013-2017), to which FORIN's activities are aligned, the Working Group submitted its five-year work plan (2012-2017) to the IRDR IPO in February 2012. FORIN's activities in 2012 included the organising of two workshops:

- *2012 Advanced Institute on Forensic Investigations of Disasters (FORIN)*: This workshop, held on 12-19 March, was organised and hosted by the IRDR ICoE Taipei. See Chapter 4 for the complete review of this AI FORIN under the report from the Taipei ICoE.
- *Advanced Seminar on Forensic Investigations of Disasters*: the second FORIN workshop for 2012 was held during the first IUGG GRC Conference on "Extreme Natural Hazards and Their Impacts." See Chapter 2 for the complete review of this seminar.

## Risk Interpretation and Action (RIA) Working Group

Co-Chairs: Richard Eiser and David Johnston

The focus of the RIA Working Group is on the question of how people—both decision-makers and ordinary citizens—make decisions, individually and collectively, in the face of risk. This is in furtherance of Goal 3 (understanding decision-making in complex and changing risk contexts) in the IRDR's Strategic Plan (2013-2017), to which RIA's activities are aligned.

The major activity for the Working Group during 2012 was the publication of a review article in the October 2012 issue of the *International Journal of Disaster Risk Reduction*:

*Eiser, J.R., Bostrom, A., Burton, I., Johnston, D.M., McClure, J., Paton, D., van der Pligt, J. and White, M.P. (2012). Risk interpretation and action: A conceptual framework for responses to natural hazards. International Journal of Disaster Risk Reduction, Vol. 1, pp. 5-16.*

The aim of the article is to recognise the importance of the need for a better understanding of human decision-making in the face of risk as a priority for DRR. It offers a critical overview of research and theory on the relationships between how people interpret risks, and the decisions they make as a consequence of such interpretations.

RIA also held a scoping meeting during the 8th SC meeting. The meeting strategically pointed directions for ongoing activities to focus on widening the network of researchers engaged in RIA-related projects and looking out for relevant funding opportunities.

## IRDR International Centre of Excellence

The IRDR ICoE is designed to provide regional and research foci for the IRDR programme. Its research programme embodies an integrated approach to disaster risk reduction that directly contributes to the IRDR Science Plan (ICSU 2008) and its objectives, as well as the IRDR Strategic Plan (2013 – 2017). The first IRDR ICoE was established at the Academy of Sciences located in Taipei, China. The following reflects the activities pursued by the Taipei IRDR ICoE during 2012.

### **Advanced Institute on Forensic Investigation of Disasters – Southeast Asia**

The AI FORIN was hosted and organised by the IRDR ICoE, in partnership with START. During the week the young researchers had opportunities to learn more about the skills to design, organise and carry out FORIN-related studies in their own countries. A total of 24 participants from research, education and practitioner communities from nine countries across South and South-East Asia participated in the AI, which involved educational modules on the FORIN analytical templates, interactive discussions, a visit to Taipei's NCDR, and a field trip to the Rinari Tribal Village. Participants were also required to conceptualise an individual or collaborative project, to which must be applied one or more of the FORIN-related research methodologies. These concepts, 11 in total, were then presented in plenary at the conclusion of the Institute. (For more information about the programme visit <http://irdr-icoe.sinica.edu.tw/activities.html>)

### **Advanced Institute on Data for Coastal Cities at Risk**

The 2012 Advanced Institute on Data for Coastal Cities at Risk, hosted and organised by the IRDR ICoE, in partnership with START, was held on 22-27 October. The sessions included educational modules, interactive exercises and field visits. Special attention to case studies was focused on Vancouver, Manila, Bangkok, Lagos, Jakarta, Hanoi, Ho Chi Minh City, Mumbai, and Taipei. The participants learned how to collect and use data for related coastal city studies in their own countries.

### **IRDR ICoE Helped the Establishment of the Center for Sustainability Science in Taipei**

In September, the IRDR ICoE helped the Academy of Sciences (Taipei) to establish the Center for Sustainability Science. The Center sponsors interdisciplinary research projects related to sustainability such as earth system science, green energy technology, natural disaster analysis, food security and safety, health issues, and the human dimension of sustainability science, to be carried out by researchers at the Academy.

### **IRDR ICoE Continues to Offer Visiting Scholar Programme**

The IRDR ICoE continued to invite senior scientists for short/long term visits, ranging from a few weeks to several months. Applications were also accepted from junior researchers with backgrounds either in natural or social sciences working in disaster-related fields, for up to one year's visit at an institute or department at the Academy and other partner universities. More information about the visiting scholar programme can be found at <http://irdr-icoe.sinica.edu.tw/visitor.html>.

## IRDR National Committees (NCs)

IRDR NCs support and supplement the IRDR's research initiatives, and help to establish or further develop crucial links between national DRR programmes and activities within the IRDR international framework. This section provides brief summaries on activities conducted by the IRDR NCs during 2012, provided by the NCs to the IPO.

### IRDR Canada

IRDR Canada is a partner in the MEOPAR and Coastal Cities at Risk projects (see Chapter 3 and 4 for updates). The IRDR IPO did not receive a report from the IRDR Canada for this Annual Report.

### IRDR China

#### Conferences

IRDR China organised three academic conferences in the field of disaster risk, expecting to make the best use of international science and technology resources to improve disaster prevention and reduction in China. The following is a brief account of these conferences:

*International Symposium on Earth Observation for Arid and Semi-Arid Environments (ISEO 2012) (Kashgar, Xinjiang, China, 20-22 September)*

IRDR China organised the session "Disaster Risk, Impact, and Mitigation" at the symposium. In attendance were specialists and scholars from China, the UK, Pakistan, Tajikistan, Kyrgyzstan, Mongolia and Taipei, China. Discussions on major natural disaster risks (such as drought, flooding, and earthquake), mitigation policies and strategies, disaster data and data sharing platforms were carried out. Topics included the drought condition in North China, water resource problem in the Beijing area, water resource monitoring and assessment methodologies, technology for monitoring and evaluating dust storms in North China, and the application of satellite data and data inversion.

*Symposium on Integrated Research on Disaster Risk (Chengdu, China, 6 November)*

The Symposium provided a platform for fruitful exchange of work and results in the field of integrated disaster risk research. Nearly 70 experts from related fields were in attendance.

*International Research on Disaster Risk Roundtable Meeting (Chengdu, China, 6 November)*

This meeting was convened to exchange experiences on major disaster risk research and science and technology for disaster mitigation, and to discuss the possibility of cooperation with FORIN studies on major natural disasters, as well as the regional and international cooperation mechanism. Nearly 100 foreign and Chinese specialists and scholars attended the meeting, enhancing the cooperation between China and foreign countries in the field.

#### Operational Updates

To promote the development of integrated research on disaster prevention and reduction in China, IRDR China began applying its work programme from 8 July as was needed by regulations for a study on the construction of disaster prevention systems in China. IRDR China's expert committee discussed and finalised the first series of the NC's programmes (2012-2014), subsidised by CAST, including IRDR China's 2012 Workshop held on 23 July. The Secretariat facilitated the logo design for IRDR China. The final design proposal was approved during this workshop.

The revised IRDR China's English-Chinese website, <http://www.irdrchina.cn/en/>, was launched in August. The website now has sections providing visitors with information on the IRDR China programme, IRDR research reports, disaster events, announcements, documentations, and disaster meta-data. It provides a platform for cooperation among specialists and scholars both in China and abroad.

IRDR China's Secretariat began translating the FORIN report, *Forensic Investigations of Disasters: The FORIN Project (IRDR FORIN Publication No. 1)*, thus providing academic support to Chinese scientists in disaster risk research.

## **Scientific Research**

### *Adapting to Climate Change in China (ACCC) Project*

The ACCC project is a Sino-UK-Swiss collaboration that brings together the UK Department for International Development (DFID), the Swiss Agency for Development and Co-operation (SDC), China's National Development and Reform Commission (NDRC), and the UK Department for Energy and Climate Change (DECC).

Xu Yinlong, one of IRDR China's experts from the Chinese Academy of Agricultural Sciences (CAAS), is the technical coordinator of the physical risk assessment component, and an important organiser/participant of this project. He and his team has made progress on the risk assessments of climate change impacts.

### *Study on the Catastrophe Risk Assessment Technologies and Their Application in Asia*

The "Study on catastrophe risk assessment technologies and their application in Asia," supported by the National Key Technology R&D Programme, funded by the Ministry of Science and Technology of China (NO. 2008BAC44B00), was designed to carry out a comprehensive study of the risk assessment of disasters in Asia in order to promote regional cooperation for disaster reduction. The project was undertaken by the research institutes of China Earthquake Administration, the China Meteorological Administration and the Ministry of Civil Affairs, with participation from the research institutes within CAS and universities from China. Chen Jianying and Wang Xiaoqing, IRDR China experts and the main project leaders, and more than 200 multi-disciplinary and multi-field participants have carried out the interdisciplinary and integrated researches for four years with the budget of US\$2.8 million. The acceptance of the completed project was organised by the Ministry of Science and Technology of China in September.

### *Evolution of Flood Risk in the Taihu Basin Area and the Integration and Application of Adaptive Technologies*

The kick-off of this project was held 23 September in Suzhou, China. The project was supported by the "Twelfth Five-Year" National Science and Technology Programme. Xiaotao Chen, a member of IRDR China's committee, was appointed Principal Investigator (PI) of the project. Significant progress is expected for the project during the "Twelfth Five-Year" programme period, through intersectoral and interdisciplinary co-operation, combining strong and complementary advantages on the basis of the international project entitled "Research on the technology of scenario analysis for flood risk." A system for analysing flood risk scenarios with self-owned intellectual property rights will be built, having the capacity to conduct quantitative analysis on climate change, sea level rise, and rapid urbanisation. The project will analyse and evaluate the effectiveness of the existing water management strategy for a relatively long time period. To suppress and mitigate flood risk and support sustainable development, the flood control system will be improved and the adaptation capacity and endurance capacity for climate change will be enhanced. Adjustment suggestions and countermeasures will be proposed and a demonstration mode will be formed.

## **IRDR France**

The Association Française pour la Prévention des Catastrophes Naturelles (AFPCN) is the designated IRDR NC in France. The IRDR IPO did not receive an update from IRDR France for this Annual Report.

## **IRDR Germany**

The German Committee for Disaster Reduction (DKKV) is the designated IRDR NC in Germany.

### **New Multi-Hazard and Multi-Risk Assessment Methods for Europe (MATRIX), 2011-2013**

Financed by the European Union (EU) under the Seventh Framework Programme (FP7), the Multi-Hazard and Multi-Risk Assessment Methods for Europe (MATRIX) project tackles multiple natural hazards and risks in a common theoretical framework. It integrates new methods for multi-type assessment, accounting for risk comparability, cascading hazards and time-dependent vulnerability. MATRIX identifies the conditions under which the synoptic view provides significantly different and better results or potentially worse results than established methods for single-type hazard and risk analysis.

DKKV's role is to secure the transfer from theoretical modelling methods and results to practical application. From the very beginning DKKV is active in involving National Platforms for Disaster Risk Reduction and Civil Protection Authorities, the European Commission and the UNISDR into MATRIX. A MATRIX Stakeholder Workshop, organised by DKKV, was held on 5-6 July in Bonn. One of the main objectives of the workshop was to identify requirements for information technology tools for multi-risk assessment from a stakeholder perspective. MATRIX facilitates the integration of multi-risk research into policy and practice through stakeholder interactions in its dissemination strategy.

### **Detecting Disaster Root Causes - a Framework and an Analytic Tool for Practitioners, 2012**

The Advisory Group of the HFA and the IPCC SREX on "Managing the Risk of Extreme Events and Disasters to Advance Climate Change Adaptation" stress that root causes and drivers of disasters need to be further analysed. Although natural hazards can trigger an event to become a disaster, there are other factors that determine whether an extreme weather event will lead to a disaster and cause extreme impacts. Therefore, an enhanced knowledge and information base is needed on vulnerability as well as on those factors and causes that actually lead to vulnerability and unsafe conditions. Detecting and understanding root causes of disasters will help agencies to avoid rebuilding vulnerability and high risk conditions. Hence, we have to broaden the focus from the analysis of symptoms of disasters and visible fragile conditions towards the identification of root causes.

The DKKV, with support from the Federal Foreign Office, commissioned the United Nations University-Institute for Environment and Human Security with a study to propose a framework to assess underlying drivers and root causes of disaster risk and to provide additional information to stakeholders involved in disaster risk management and humanitarian assistance, in order to prioritise efforts and intervention options to address these issues.

The analytical approach was based, to some extent, on the FORIN methodology, which analyses disasters from an ex-post perspective using a variety of methods (e.g. critical cause analysis, meta-analysis, longitudinal analysis, etc.).

### **12th Forum for DRR: Risk: Learning-Education-Living (Bonn, Germany, 13-14 November)**

DKKV's annual Forum dedicated one of the five core topics to integrated research on disaster risk, with presentations and discussions on:

- The uncertainty of weather warnings: how big is it, and how can it be communicated and used? Martin Göber (German Weather Service, DWD; part of a funded project with DKKV participation).

- CEDIM Near-Real Time Forensic Disaster Analysis, Michael Kunz (Karlsruher Institute of Technology).
- Efficiency of building precautionary measures for risk reduction in different flood situations Heidi Kreibich (German Center for Geoscience GFZ).
- Integrated case study analysis for warning optimisation (Tobias Heisterkamp (DKKV/ FU Berlin; project report).

### **Centre for Disaster Management and Risk Reduction Technology (CEDIM) Forensic Disaster Analysis**

CEDIM has set out to develop a method of near real-time forensic disaster analysis as a component of the IRDR's FORIN. The word "forensic" is applied here in the sense of scrutinising disasters closely by making use of the high potential of modern observational and analytical methodologies available in science, engineering, remote sensing and information technology. Results from these heterogeneous sources are the starting point for a comprehensive science-based assessment and judgment in near real-time, which includes the critical evaluation, the validation, appraisal and quantification of an event.

The near real-time approach is justified by the following considerations:

- Time criticality is important as many pieces of information emerge within the first days and may later get lost again due to the wealth of incoming new information.
- Interaction with the many actors is most intensive and open during these days.
- Potential user interest (emergency services, tourism industry, insurance industry, economic cooperation agencies, relief agencies, etc.) also peaks at this initial stage.
- Initial hypotheses (with little information after the first days) on loss evolution and implications can be tested in the following days.
- The near real-time approach may contribute to significantly speeding up our understanding of natural disasters within their respective socio-economic contexts.

The objective of CEDIM's forensic approach is to:

- Generate a portrait of the disaster, with the aims of revealing its main characteristics and tracking its evolution.
- Reveal the short and long-term impacts on regional and national scale.
- Estimate potential losses and their root causes.
- Contribute to the development of a framework for loss and future risk reduction.

### **IRDR Japan**

IRDR Japan was transmitted from the 21st session to the 22nd session of the Science Council of Japan (SCJ). The term of the 22nd session is 2012-2015. The status of the IRDR Japan NC was upgraded to a standing sub-committee under the Committee on International Affairs and the Committee on Civil Engineering.

### **Activities**

The agendas and activities of the IRDR Japan in this term are expected as follows:

- Formation of a sub-committee to include practitioners and policy makers
- IRDR as part of Future Earth Programme
- Contribution to post-HFA and post-MDGs
- Organisational formation for effective international DRR contribution
- DATA: impact loss, (GLIDE, national database?)
- FORIN: Quick FORIN study of GEJET by FORIN working group

## Meetings

The first meeting was held on 23 April. At the meeting, key areas of activities were discussed. The second meeting was held on 18 September. At the meeting, the establishment of a new informal sub-committee mainly formed by practitioners such as government sectors and international development organisations to discuss policy issues, was discussed and agreed. The new informal sub-committee was named “IRDR Policy Sub-Committee.” It was also agreed to invite Sálvano Briceño, the chair of the IRDR SC, to the IRDR sub-committee meeting in November 2012.

The third meeting was jointly held by IRDR Japan and the IRDR Policy Sub-Committee on 5 November. This meeting was held as a preparatory meeting prior to a discussion with Briceño. The fourth meeting was held with participation of Briceño and Fumiko Kasuga, the SCJ’s Vice President for International Affairs. At the meeting an IRDR international meeting in 2015 jointly held by IRDR Japan and SCJ was proposed.

## Summary of IRDR Japan members in related IRDR events and activities

- Participation at the seventh IRDR SC meeting in Ravello, Italy on 9-11 May. Takeuchi attended.
- Participation at the Forum on Science, Technology & Innovation for Sustainable Development in Rio De Janeiro, Brazil on 11-15 June. Kasuga and Takeuchi attended.
- Participation at the fourth International Disaster and Risk Conference (IDRC) in Davos, Switzerland on 26-30 August. Takeuchi attended.
- Participation at IRDR ICoE International Advisory Board in Taipei, China on 26-27 October. Takeuchi attended.
- Advanced Seminar on Forensic Investigations of Disasters at the First IUGG GRC Conference on "Extreme Natural Hazards and Their Impacts" in California, USA on 8-11 December). Nearly 80 experts attended from all over the world. Takeuchi attended as the chair of the GRC and presented the IRDR Japan FORIN activities.

## IRDR New Zealand

The Natural Hazards Research Platform (NHRP) is a new approach to research coordination funded by the Ministry of Science and Innovation (MSI). It was officially established in October 2009 as part of a programme of change to increase the long-term stability and effectiveness of research funding. The Platform is the coordinating body of IRDR New Zealand. For more information on the activities of the NHRP, please refer to the website <http://www.naturalhazards.org.nz>.

## Goals

The agreed goals of the NHRP are to:

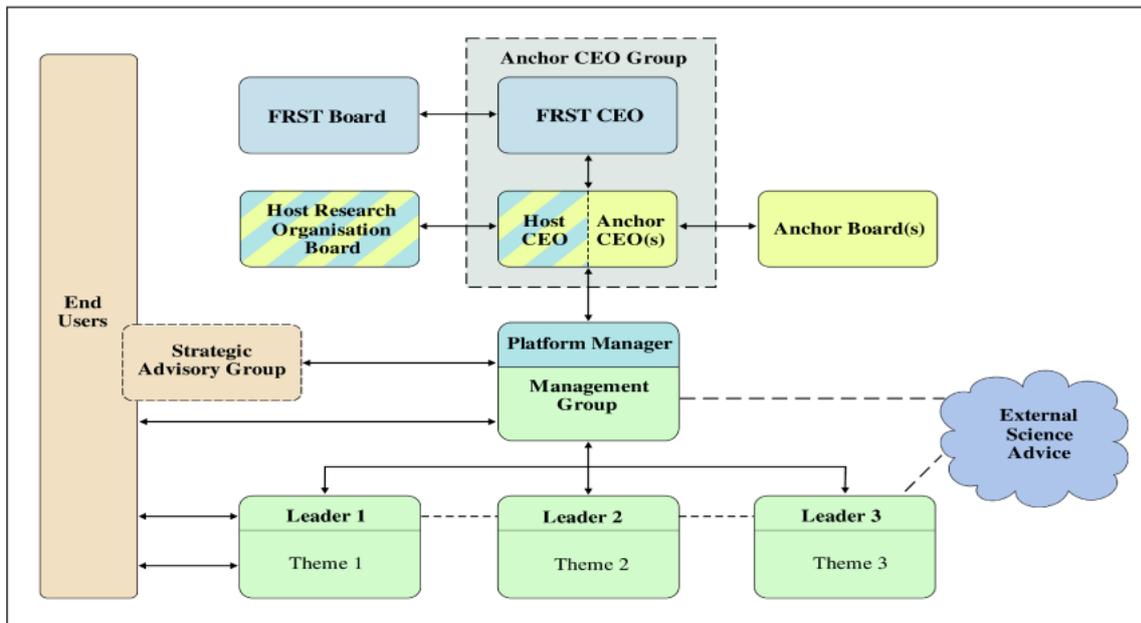
- Develop strengthened relationships between research-users and research teams.
- Develop strong collaborations between research organisations.
- Support integration across all disciplines of research relating to natural hazards.
- Align hazards research with the strategic needs of Government.
- Ensure research capabilities are maintained and developed over the life of the Platform.
- Improve transfer and uptake of knowledge resulting from the research.

## Platform Research Aim

The aim of the research both supported by and aligned with the Platform will be to directly contribute to improved economic, infrastructural and social resilience to natural hazards in New Zealand. The science capability supported by the Platform will also be available to assist decision makers during significant hazard events.

## Who is the Platform?

The Platform is essentially self-managed by senior researchers, with a management group formed from representatives of the key Platform members (currently GNS Science, NIWA, University of Auckland, Massey University, University of Canterbury, OPUS, and MSI (as observers and advisors). A number of other research groups (other universities and consultancies, and international partners) are involved as subcontractors or through alignment of research programmes. GNS and NIWA are 'anchors' of the Platform, with the majority of the \$14M/pa funding. The Platform is 'hosted' by GNS Science and the Platform Manager is Dr Kelvin Berryman (formerly Hazards section manager GNS Science). A Strategic Advisory Group of key research users, including government departments, EQC, lifeline utilities, and local government), provides advice to the Management group on research direction, and provides official endorsement of the research strategy. Strategic Advisory Group members are also expected to champion the Platform and facilitate the application and uptake of research outcomes.



## Current Research Themes

Research is currently organised into the following interim themes:

1. Geological hazard models (led by Gill Jolly).
2. Predicting weather, flood, and coastal hazards (led by Mike Uddstrom).
3. Resilient buildings and infrastructure (led by Richard Sharpe and Roger Fairclough).
4. Developing regional and national risk evaluation models (led by Andrew King).
5. Societal resilience: social, cultural, economic and planning factors (led by David Johnston).

A key principle of the new approach by the Platform is for greater cohesion and integration across areas of research, especially between the physical, engineering and social elements of hazards research. Research focus and grouping of research areas is likely to evolve as part of the development of the Platform Research Strategy.

## 2012 Contestable Funding Round

A contestable funding round was held in 2012 and the results are available on the Platform website, <http://www.naturalhazards.org.nz/NHRP/Funding>.

## Annual Report

Each year an Annual Report is produced, summarizing the year major achievements.

<http://www.naturalhazards.org.nz/NHRP/Publications/Natural-Hazards-Annual-Report>

### IRDR International Programme Office Operations

The IRDR IPO, located in Beijing, China, is hosted by CEODE and CAS, and headed by Executive Director, Dr Jane E. Rovins. The IPO staff consists of an Administrative Officer, Communications Officer, Science Officer, and Executive Assistant.

#### **IPO Staff Update**

In 2012, the IPO added an Executive Assistant and replaced the outgoing Communications Officer.

Ms Cuili “Tracy” Zhao was hired as the Executive Assistant in June 2012. As the Executive Assistant, Zhao’s main responsibilities include organising, planning and scheduling daily and weekly agendas for the Executive Director and liaising with the IRDR SC members and Chair, Co-Sponsors and other key partners.

Mr Yang Shu was hired from Canada and joined the IPO as the Communications Officer in November 2012. As the Communications Officer, Shu’s main responsibilities include developing the in-house information technology capacity and corporate image of IRDR; and the continued development of the IRDR website, and other electronic communication tools and materials. Additionally, Shu will contribute to producing regular publications and communications (reports, press releases, etc.), and assisting in organising IRDR events and other such events in which the IRDR participates.

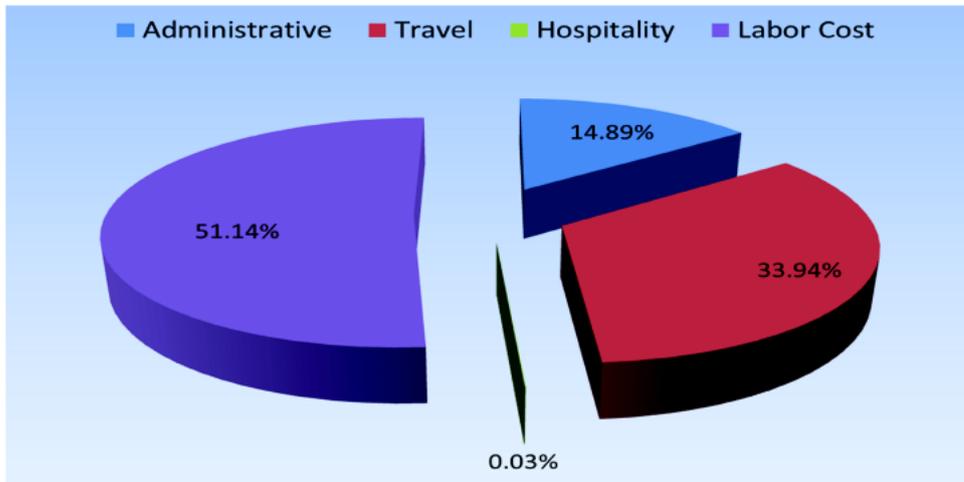
## IRDR IPO 2012 Annual Financial Statement

### Overview

The 2012 consolidated financial statements reflect the combined operations of the IRDR IPO. For the year ended December 31, 2012, the net income was 4,001,475.69 RMB (this total amount includes the balance of 2011); the total expenditures were 2,476,574.39 RMB in 2012 compared with 2,620,371.49 RMB in 2011; the balance for 2012 was 1,524,901.3 RMB, which will go to the 2013 budget.

### Total Expenses

The following chart summarizes total operating expenses by category:



The labour cost includes salary, social insurances and benefits for all IRDR IPO employees. Administrative expenses account for the cost of daily operation of the IPO. Travel expenses include transportation, per diem, and expenses for business-related travel for IPO operations, Science Committee meetings, and related events. Hospitality is the expenditure for meals and other costs of meetings and activities.

Grant	Amount	Amount in USD	Rate	Notes
<b>CAST Annual</b>	2,700,000 CNY	432,000	1 CNY = 0.16 USD	IRDR IPO Annual Operation
<b>2011 Roll-over</b>	1,301,476 CNY	208,236	1 CNY = 0.16 USD	Roll-over from 2011 CAST Annual Award
<b>ICSU Contribution</b>	30,000 Euro	39,600	1 Euro = 1.32 USD	7th IRDR SC Meeting
<b>UNISDR Contribution</b>	30,000 USD	30,000		AIRDR & DATA working group
<b>ISCU Annual Grant</b>	30,000 Euro	39,600	1 Euro = 1.32 USD	ROLAC Regional Workshop
<b>IUGG Grant</b>	17,000 USD	17,000		Advance Seminar on FORIN
<b>ICoE-Taipei</b>	10,000,000 TWD	300,000	1 TWD = 0.03 USD	IRDR ICoE Events
<b>CCAR Project</b>	500,000 CAD	500,000	1 CAD = 1.00 USD	2,500,000 CAN over 5 years (currently year 2)
<b>MEOPAR</b>	5,000,000 CAD	5,000,000	1 CAD = 1.00 USD	25,000,000 CAN over 5 years
<b>TOTAL</b>		<b>6,566,436 USD</b>		

## New Awards

The IRDR was, or partnered with organisations that were, successfully awarded the following grants during the year in review.

### **UNISDR Grant**

The IRDR was successful in its bid for a grant from the UNISDR, valued at US\$30,000, in support of activities associated with the AIRDR and DATA Working Groups. A total of US\$2,000 supported the convening of the scoping meeting of AIRDR's core committee, held on 18-19 July in Colorado, USA. In attendance were Susan Cutter, Allan Lavell, Ian Burton and Anthony Oliver-Smith. The remainder of the grant, US\$28,000, went towards DATA members' participation at the 23rd International CODATA conference on 29 and 31 October, and convening of the Working Group's first meeting on 1-2 November (see Chapter 3).

### **ICSU Annual Grant Programme**

The IRDR, in partnership with ICSU ROLAC and Argentina's CONICET, was successfully awarded an ICSU grant, valued at €30,000, to convene the "Regional Workshop on Disaster Risk Management in Latin America and the Caribbean."

### **IUGG Annual Grant Programme**

The GRC in partnership with the IAHS and the IRDR, was awarded an IUGG grant, valued at US\$17,000, to convene the Advanced Seminar on FORIN, which was held as a two-session seminar during the IUGG GRC Conference on "Extreme Natural Hazards and Their Impacts" (see Chapter 2).

### **Marine Environmental Observation, Prediction and Response (MEOPAR)**

MEOPAR will bring together a variety of national and international organisations from academia, all levels of government, insurance industry, oil and gas industry, marine technology firms and coastal community organisations. These partnerships will lead to risk assessment and response mechanisms and technologies. This is a CAN\$25 million grant, CAN\$5 million per year provided by the government of Canada. It is headquartered at Dalhousie University.

## IRDR Scientific Committee Members

The IRDR programme is governed by a 15-member Scientific Committee (SC) set up by and on behalf of the Co-Sponsors. Its responsibilities are to define, develop and prioritise plans for IRDR, to guide its programming, budgeting and implementation, to establish a mechanism for oversight of programme activities, and to disseminate and publicise its results. The Committee aims to include a balanced representation of relevant disciplines in the natural, social and engineering sciences, taking into consideration regional and gender balances. In 2012, three new SC members were approved by the IRDR Co-Sponsors to replace outgoing members Kin Sek Chan (Hong Kong, China), Allan Lavell (Costa Rica), Maria Patek (Austria) and Coleen Vogel (South Africa). Sálvano Briceño continued to serve as SC Chair.

### New Members

**ALCÁNTARA-AYALA**, Irasema (Mexico) Director, Institute of Geography, Universidad Nacional Autónoma de México (UNAM) - geomorphology, landslides

**BOSTROM**, Ann (USA) Daniel J. Evans School of Public Affairs, University of Washington – psychology, perception and communication of risk

**LWASA**, Shuaib (Uganda) Dept. of Geography, Makerere University, Kampala – urban land management, application of GIS

**ZLATANOVA**, Sisi (Netherlands) OTB Research Institute for the Built Environment, Delft University of Technology – remote sensing and GIS technologies

### Current members

*\* Scientific Committee Executive (Chair and Vice-Chairs)*

**BENOUAR**, Djillali (Algeria) Director, Built Environment Res. Lab., University of Bab Ezzouar – earthquake engineering

**\*BRICEÑO**, Sálvano (Venezuela) former Director of UNISDR Secretariat – environmental education, law, DRR

**CARDONA**, Omar Darío (Colombia) Integrated Disaster Risk Management, National University of Colombia – earthquake engineering, disaster prevention and risk mitigation

**\*CUTTER**, Susan L. (USA) University of South Carolina – geography, post-event field studies, FORIN WG Co-Chair, AIRDR WG Co-Chair

**FERRIGNI**, Ferruccio (Italy) Management of Urban and Regional Systems, University of Naples ‘Federico II’ – cultural aspects of disasters

**\*JOHNSTON**, David (New Zealand) Joint Centre for Disaster Research, Massey University – earth sciences, volcanology, disaster management, RIA WG Co-Chair

**OLIVER-SMITH**, Anthony (USA) Emeritus of Anthropology, University of Florida, Gainesville – social vulnerability, post-event studies, FORIN WG Co-Chair

**PELLING**, Mark (UK) Human Geography, King’s College, London – disaster risk reduction

**SIWAR**, Chamhuri (Malaysia) Institute for Environment and Development, LESTARI, Universiti Kebangsaan – agricultural and development economics

**\*TAKEUCHI**, Kuniyoshi (Japan) ICHARM – hydrology, civil engineering

**WIRTZ**, Angelika (Germany) Head of NatCat Service, Geo Risks Research, Munich Re – economic data on disasters, DATA WG Co-Chair

### Ex-Officio

The Ex-Officio members represent each of the IRDR co-sponsors and the IPO host organisation.

**GUO**, Huadong - CEODE

**HERNES**, Gudmund - ISSC

**MASKREY**, Andrew - UNISDR

**MOORE**, Howard - ICSU

# LIST OF ACRONYMS

<b>ACCC</b>	Adapting to Climate Change in China
<b>AFPCN</b>	Association Française pour la Prévention des Catastrophes Naturelles
<b>AI</b>	Advanced Institute
<b>AIRDR</b>	Assessment on Integrated Research on Disaster Risk (IRDR working group )
<b>AMCDRR</b>	Asian Ministerial Conference on Disaster Risk Reduction
<b>ANCEFN</b>	National Academy of Exact, Physical and Natural Sciences (Argentina)
<b>CAAS</b>	Chinese Academy of Agricultural Sciences
<b>CAS</b>	Chinese Academy of Sciences
<b>CAST</b>	China Association for Science and Technology
<b>CEDIM</b>	Centre for Disaster Management and Risk Reduction Technology (Germany)
<b>CEODE</b>	Center for Earth Observation and Digital Earth (China)
<b>CODATA</b>	Committee on Data for Science and Technology
<b>CONICET</b>	National Council for Scientific and Technical Research (Argentina)
<b>CoP</b>	Community of Practice
<b>CUEBC</b>	European University Centre for Cultural Heritage
<b>DATA</b>	Disaster Loss Data (IRDR working group )
<b>DECC</b>	Department for Energy and Climate Change (UK)
<b>DFID</b>	Department for International Development (UK)
<b>DKKV</b>	German Committee for Disaster Reduction
<b>DRR</b>	Disaster risk reduction
<b>EM-DAT</b>	Emergency Events Database
<b>EU</b>	European Union
<b>FORIN</b>	Forensic Investigation of Disasters (IRDR working group )
<b>FP7</b>	Seventh Framework Programme
<b>GEJET</b>	Great East Japanese Earthquake and Tsunami
<b>GEM</b>	Global Earthquake Model
<b>GFDRR</b>	Global Facility for Disaster Reduction and Recovery (World Bank)
<b>GRC</b>	Georisk Commission
<b>HFA</b>	Hyogo Framework for Action
<b>IAEM</b>	International Association of Emergency Managers
<b>IAHS</b>	International Association of Hydrological Sciences
<b>IAP</b>	ISDR Asia Partnership
<b>ICHARM</b>	International Centre for Water Hazard and Risk Management
<b>ICoE</b>	International Centre of Excellence
<b>ICSU</b>	International Council for Science
<b>IDRC</b>	International Disaster and Risk Conference
<b>IDRiM</b>	International Society for Integrated Disaster Risk Management
<b>IMHE</b>	Institute of Mountain Hazards and Environment (China)
<b>IPCC</b>	Intergovernmental Panel on Climate Change
<b>IPO</b>	International Programme Office
<b>IRDR</b>	Integrated Research on Disaster Risk
<b>ISEO</b>	International Symposium on Earth Observation
<b>ISSC</b>	International Social Science Council
<b>IUGG</b>	International Union of Geodesy and Geophysics
<b>JRC</b>	Joint Research Centre (European Commission)
<b>LAC</b>	Latin American and Caribbean region
<b>MATRIX</b>	Multi-Hazard and Multi-Risk Assessment Methods for Europe
<b>MDG</b>	Millennium Development Goals
<b>MEOPAR</b>	Marine Environmental Observation, Prediction and Response Network

<b>MINCyT</b>	Ministry of Science, Technology and Productive Innovation (Argentina)
<b>MSI</b>	Ministry of Science and Innovation (New Zealand)
<b>NC</b>	National Committee
<b>NCDR</b>	National Science and Technology Center for Disaster Reduction (Taipei, China)
<b>NDRC</b>	National Development and Reform Commission (China)
<b>NHRP</b>	Natural Hazards Research Platform (New Zealand)
<b>NOAA-NCDC</b>	National Oceanic and Atmospheric Administration's National Climatic Data Center (USA)
<b>RADI</b>	Institute of Remote Sensing and Digital Earth (China)
<b>RIA</b>	Risk Interpretation and Action (IRDR working group)
<b>ROAP</b>	Regional Office for Asia and the Pacific (ICSU)
<b>ROLAC</b>	Regional Office for Latin America and the Caribbean (ICSU)
<b>SC</b>	Scientific Committee
<b>SCJ</b>	Science Council of Japan
<b>SDC</b>	Swiss Agency for Development and Co-operation
<b>SERA</b>	Societal and Economic Research and Applications (WWRP/IRDR working group)
<b>SIDA</b>	Swedish International Development Cooperation Agency
<b>SREX</b>	Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation
<b>START</b>	Global Change System for Analysis, Research and Training
<b>STS</b>	Science and Technology in Society
<b>UK</b>	United Kingdom
<b>UNESCO</b>	United Nations Educational, Scientific and Cultural Organisation
<b>UNISDR</b>	United Nations International Strategy for Disaster Reduction
<b>USA</b>	United States of America
<b>WCDM</b>	World Conference on Disaster Management
<b>WFEO</b>	World Federation of Engineering Organisations
<b>WWRP</b>	World Weather Research Programme

**Yogyakarta Declaration on Disaster Risk Reduction in Asia and the Pacific  
2012**



**Fifth Asian Ministerial Conference on Disaster Risk Reduction  
Yogyakarta, Republic of Indonesia, 22-25 October 2012**

**“Yogyakarta Declaration on Disaster Risk Reduction  
in Asia and the Pacific 2012”**

**We**, Heads of Government, Ministers, and Heads of Delegation of countries in Asia and the Pacific, attending the Fifth Asian Ministerial Conference on Disaster Risk Reduction (AMCDRR): Strengthening Local Capacity for Disaster Risk Reduction in Yogyakarta, Republic of Indonesia on 22-25 October 2012;

*Concerned* with the increasing impact of disasters and climate change in Asia and the Pacific in the past two years;

*Noting* the Chair’s Summary of the Global Platform on Disaster Risk Reduction (DRR) in 2011 and the outcome document of Rio+20, which called on all stakeholders to accelerate the implementation of the *Hyogo Framework for Action (HFA) 2005 – 2015: Building the Resilience of Nations and Communities to Disasters*, and the achievements of its goals along with the Millennium Development Goals (MDGs), and to initiate consultations on a post-2015 DRR framework and development agenda;

*Considering* recent global and regional developments, which are expected to advance DRR in Asia and the Pacific, such as the Joint Statement of the United Nations (UN) and Association of Southeast Asian Nations (ASEAN), the UN-Pacific Island Forum Joint Statement on DRR, the Pacific Roadmap, the outcomes of the World Ministerial Conference on Disaster Reduction in Tohoku and the Sendai Statement on mainstreaming DRM for Sustainable Development;

*Recognizing* the role of science and the complementarity of DRR and Climate Change Adaptation (CCA) as policy goals and approaches to address risk, vulnerability, and the impacts of hazard events and climate change on people and society;

*Aware* of the responsibility of governments to reduce disaster risks and the need for the support of all stakeholders to ensure appropriate implementation of the recommendations of the AMCDRR;

*Acknowledging* the leadership of the Governments of the People’s Republic of China, the Republic of India, Malaysia, the Republic of Korea, and the Republic of Indonesia in hosting the AMCDRR successively, and the implementation of the activities called for by the Declarations of these Conferences, including the progress on the Incheon Declaration, Roadmap and Action Plan that emphasizes the importance of clear

national accountabilities in mainstreaming initiatives, scaling up of sound practices, and contributing towards a post-2015 DRR framework and development agenda; and

*Appreciating* the role of the President of the Republic of Indonesia as the Global Champion on DRR to promote DRR in the process of the High Level Panel of Eminent Persons on the Post-2015 Development Agenda.

### **CALL ON DRR STAKEHOLDERS TO:**

Participate fully in the consultations now underway worldwide to mainstream disaster risk reduction into the post-2015 Development Agenda and to provide input for the development of a new Post-2015 DRR framework.

*On integrating local level disaster risk reduction and climate change adaptation into national development planning:* Strengthen laws and regulations, institutional arrangements, and risk governance for DRR and CCA; link national development planning and financing with local development agenda; make use of existing regional and sub-regional resources for local capacity building; and increase the involvement of multi-stakeholders, especially the vulnerable groups including women, children, elderly and persons with disabilities, in planning and decision-making processes.

*On local risk assessment and financing:* Support local communities to have sufficient financing which - among other sources - could be obtained through public-private partnerships, and promoting investment in social and physical local infrastructure by establishing contingency budgets as sustainable reserves, and to explore the potential funding from philanthropic organizations; enhance existing capacity and resources for identifying risk and allocating sufficient financial resources for prevention, response and recovery; recognise the need to adjust priorities for greater public investment in prevention rather than response and recovery; develop schemes for micro-insurance and pooling of financial resources and risk; and to promote regional exchange and collaboration to enhance local resilience through bridging existing practical methodologies and practices in local risk assessment and financing; and enhance and support regional cooperation mechanisms and centers on disaster information management.

*On strengthening local risk governance and partnership:* Emphasize risk governance through improved participation, transparency, effectiveness and efficiency, and accountability, taking into account the multi-dimensional nature of risk, and that the majority of disasters are of small and medium size; respect and strengthen existing and/or establish inclusive institutions and platforms by involving key stakeholders in planning, budgeting and allocation of the resources, while considering local culture and practices; review and implement the development of inclusive policies and legal frameworks and related budgetary allocations to local authorities to build community resilience, particularly human capacity and capabilities; commit to disaggregate data and information to ensure the active contribution of risk-prone communities, particularly persons with disabilities, women, children and the elderly, and to meet their different needs; recognize that appropriate knowledge, information and innovation with effective feedback and complaint mechanisms can build sustainable partnerships at the local

level; explore new partnership modalities with the private sectors and the media; and support the scientific community to provide evidence-based DRR and incorporate DRR in the health sector.

*On building local community resilience:* promote, replicate and scale up successful community-based DRR and CCA initiatives at the national and local levels; develop common disaggregated targets and indicators for resilient communities that can be used by governments, civil society organizations and practitioners in developing disaster-resilient villages and communities; enhance the adaptive capacity of communities and local institutions to respond to emerging and future risks; support local level efforts for safe schools and hospitals in cost-effective manners and initiate the global programmes; and refocus development priorities towards building overall local resilience that includes natural, social and economic aspects as well as infrastructure capacities through community-based mechanisms.

*On a post-2015 DRR framework:* Identify accountability measures for more effective implementation, political commitment to deliver at all levels, awareness, education and public access to information, improved governance, the promotion of resilient investments, and the allocation of resources especially to build local capacity; and promote a bottom-up approach.

*On Reducing the Underlying Risk Factors:* Build and sustain capacities and legal mandates of national and local governments and the private sector to integrate DRR in land use planning and building disaster-resistant infrastructure; enhance investment in natural resource management, infrastructure development, livelihood generation and social protection at national and local levels; emphasize social protection in pre-disaster mechanisms with focus on the poor, women, children, persons with disabilities, and the elderly; ensure the protection of rights of children, women and persons with disabilities from disaster risk; and encourage child and youth participation in DRR and development processes at all levels.

*On the implementation of cross-cutting issues in the HFA:* Promote an inclusive multi-hazard approach that considers socio-economic vulnerability and exposure in risk assessments and reduction measures, gender, disability and age capacities and cultural diversity in planning and programming at all levels, and community and volunteer participation in national and local level actions.

**RESOLVED TO:**

Invite the Indonesian National Agency for Disaster Management (BNPB), host of the Fifth AMCDRR, in coordination with UNISDR Asia Pacific Regional Office (UNISDR AP) and members of the IAP to carry the messages of the Yogyakarta Declaration on DRR (hereinafter referred to as *this Declaration*) to the Fourth Session of the Global Platform on DRR in May 2013 and beyond;

Incorporate the recommendations of *this Declaration*, into policies, strategies, and action plans of Government, as appropriate, and report their implementation at the Sixth AMCDRR in 2014;

Call on international organisations, regional inter-governmental bodies and institutions, national organizations, National Red Cross and Red Crescent, and civil society organizations and their networks to support and accelerate the implementation of the HFA, in particular the national action plans on DRR, and the priority actions stated in the AMCDRR Declarations;

Facilitate national multi-stakeholder consultations and dialogue in order to contribute to the process towards a post-2015 DRR framework and development agenda;

Welcome the Stakeholders Declarations in Annexes 1-10 and Incheon REMAP progress report in Annex 11, as an integral part of *this Declaration* and in support of its goals; and

Express our sincere gratitude and appreciation to the Government and people of the Republic of Indonesia for their gracious hospitality in hosting and organising the Fifth AMCDRR and welcome the offer of the Kingdom of Thailand to host the Sixth AMCDRR in 2014.

**ADOPTED** on 25th October 2012, in Yogyakarta, Indonesia.

Annex 1	Statement of Child-Centered Organizations, Children, and Youth
Annex 2	Statement of Civil Society Organizations
Annex 3	Statement of Individuals and Organizations Concerned with Disability
Annex 4	Statement of Individuals and Organizations Concerned with Gender Issues
Annex 5	Statement of Mayors and Local Government Authorities
Annex 6	Statement of Media
Annex 7	Statement of National Societies of Red Cross and Red Crescent
Annex 8	Statement of Parliamentarians
Annex 9	Statement of Private Sector
Annex 10	Statement of Scientific, Academic and Research Stakeholders
Annex 11	Incheon REMAP Progress Report 2011-2012

**Yogyakarta Declaration on Disaster Risk Reduction in Asia and the Pacific  
2012 - Annex 10 - Statement of Scientific, Academic and Research Stakeholders**



## Statement of Scientific, Academic and Research Stakeholders

For

### The 5<sup>th</sup> Asian Ministerial Conference on Disaster Risk Reduction, 22-25 October 2012, Yogyakarta, Indonesia

We, Scientific, Academic and Research Stakeholders from countries in Asia and the Pacific

**Recognize** the efforts and declarations of the previous AMCDRRs and events thorough out the region.

Wish to make the following commitments and calls for action on behalf of scientific community in the region.

#### **We commit to:**

- 1. Research:** Promote, prioritize and advance research on natural, social, engineering and technology aspects of disaster risk in an integrated environment; enhance team efforts in hazard and disaster research, building on existing networks, universities and initiatives; and integrating various stakeholder needs on all levels.
- 2. Integration:** Ensure that disaster research programs, policies, and applications are integrated across disciplines, and contribute to enhancing policy-making and capacity building for the effective DRR and sustainability.
  - Actively engage and support scientific and technical communities to inform decision-making, and ensure policy is informed by both science and lessons learned.
  - Ensure research approaches have practical applications, are consistent with and actively engage stakeholders from all sectors and are sensitive to gender and cultural differences.
  - Identify and prepare scientifically informed multi-hazard risk assessments and scenarios.
  - Encourage cross-sectorial cooperation that makes best use of available information and technology in an open access environment.
- 3. Global Standards:** Develop and coordinate globally standardized open source information, disaster loss data, event documentation and analysis procedures, guidelines and frameworks for integrated and effective disaster risk management and sustainable development.
  - Promote the adoption of standard hazard, vulnerability and risk profiles for use by all stakeholders for integration into disaster-resilient development and sectorial planning.
- 4. Awareness:** Raise awareness of decision-makers and the public by promoting effective, integrated, demand-driven, evidence-based disaster risk initiatives and increased advocacy.
  - Improve understanding of integrated approaches to DRR with local, national, regional and global awareness-raising programs, training, and advocacy.
  - Raise awareness amongst decision-makers at all levels to commit to and apply policies, funding and legal means for integrated DRR initiatives.
  - Scale up advocacy with the wider public, mainly through the media and civil society organizations for the development of a culture of resilience, prevention and safety.
- 5. Education:** Promote a holistic, scientific-based approach in natural hazards and disaster risk education and training by promoting integration into curricula in schools and communities.

- 6. Increase Funding:** Motivate funding sources (public, private, humanitarian, development, scientific, etc.) to allocate priority funding to address the urgent need for applied and basic integrated research on disaster risks.
- Promote increased investment in integrated disaster risk reduction (DRR) research, and develop policy guidelines for integrating DRR into development.
  - Promote an increase in disaster management and humanitarian funding for integrated DRR research to ensure that DRR is fully integrated in strategies, and programmes.
  - Ensure that development funding sources follow-up the resourcing provided for DRR by disaster management and humanitarian agencies with the required integration of DRR in development sectorial funding.

**We call upon participants of the 5<sup>th</sup> AMCDRR to:**

- Increase by 25% integrated research-based capacity building activities.
- Support the Assessment of Integrated Research on Disaster Risk initiative of the Integrated Research on Disaster Risk (IRDR) programme to identify the state of research.
- Facilitate a 25% increase in bilateral/trilateral integrated research and academic cooperation in the hazard and risk arenas.
- Support a 50% increase in regional multidisciplinary hazard activities based on science.
- Develop an inventory of hazard, risk and DRR centers of research and capacity building.
- Support the development of a minimum standards for graduate programs including technical topics, teaching methods, and integration.
- Provide support for the development of an inventory of hazard, risk and DRR researchers by country, based on a common data fields.
- Halve the population without protection from natural hazards.
- Halve the population without access to the basic early warning for natural hazards.
- Provide support for and utilize awareness raising with measurable outcomes.
- Increase the number of cities, schools, and hospitals participating in the “Resilient Cities”, “Safer School” and “Safer Hospital” campaigns by 50%.
- Increase the number of science ministries, national science foundations, and national academies of sciences involved in hazard, risk and DRR research and application by 25%.
- Develop a regional assessment and inventory of graduate level hazard and DRR programs.
- By 2015, each country should have graduate level programs in integrated developed based on a sustainable framework and market research.
- Develop funded, regional post doc and graduate research programs in conjunction with established integrated graduate programs.
- Provide a 25% increase in support for national research and study of national hazards.
- Increase funding for trans-disciplinary hazard, risk and DRR research with emphasis given to application of research by 25% for international, bilateral, and trilateral funding.
- Enhance regional cooperation on disaster information management.

**In conclusion:**

Building on past declarations and issues discussed in the earlier conferences, it is essential that increased support for research and academia related to DRR be encouraged, supported and implemented across all geographic levels. This should be done in an integrated fashion to support sustainable development, augment existing activities and mechanisms as well as support new activities that adopt a trans-disciplinary approach.







**Integrated Research on Disaster Risk IPO**  
**c/o RADI, CAS**  
**B713, No. 9 Dengzhuang South Road**  
**Haidian District, Beijing 100094, P.R. China**  
**+86 10 8217 8917**  
**[connect@irdrinternational.org](mailto:connect@irdrinternational.org)**  
**[www.irdrinternational.org](http://www.irdrinternational.org)**