Formative Review of the Integrated Research on Disaster Risk (IRDR) Programme

The IRDR Description & Change Logic ('Theory of Change')

Prepared by Zenda Ofir, Review Panel Chair

18 April 2016

Key Aspects of the IRDR Programme

Main characteristics (envisioned)

- Ten year research programme - integrated; global; interdisciplinary; coherent; a learning mechanism
- Fit with global priorities; research priorities to evolve over time
- Building on other related initiatives - fill gaps, interact, cooperate
- Based on covering, or understanding coverage of all appropriate disciplines from all relevant hazards in all regions through survey, consultation, analysis, conclusions, exchange of research results, and bringing together programmes to achieve objectives
- Located within the wider context for disaster risk reduction (DRR) and relevant international frameworks
- Working on the interface between science, policy and practice
- Support movement from managing disaster to managing risk, within context of the Sendai Framework for DRR 2015-2030, global climate conventions, UN-Habitat III, the resilience movement and the 2030 Agenda with its SDGs.

Sponsors

- ICSU
- International Social Science Council (ISSC)
- United Nations International Strategy for Disaster Reduction (UN-ISDR)

Sponsors act jointly to

- establish governance arrangements
- appoint chair and members of scientific committee, and the Executive Director of the IPO
- receive and approve reports
- assist in promoting the programme, and mobilising resources.

Timeline for set-up of the programme

22 Feb 2010 – Letter of Cooperation signed between sponsors, CAST, CAS and CEODE in Beijing.

28 Feb 2010 – MOU between CEODE and ICSU for the establishment, administration and management of the IPO came into force

16 Nov 2010 – IRDR Constitution approved by sponsors

31 Oct 2011 – Conference on *Disaster Risk: Integrating Science and Practice* in Beijing, China, serves as kick-off IRDR.

IRDR Origins and Rationale

Origins

- ICSU Priority Area Assessment on Environment and its Relation to Sustainable Development (2003) and the ICSU Foresight Analysis (2004) identified "natural and human-induced hazards" as important emerging issue.
- Assessment of specially convened ICSU Planning Group on Natural and Human-induced Environmental Hazards in 2006 that, despite all existing or planned activities on natural hazards, an integrated research programme on disaster risk reduction, sustained for a decade or more, was an imperative.
- Sponsors endorsed Planning Group recommendations. IRDR established at the 29th ICSU General Assembly in 2010 as Interdisciplinary Body of ICSU
- Planning Group identified major programmes and projects in the field. IRDR was expected to explore these and other activities, through extensive consultation process and enter into agreements as to how they might become components of the whole as partners in research. New projects would be initiated to put in place priority elements needed to fully meet the objectives in 10 years.

Rationale for IRDR: The Problem

- Increasing cost of disasters everywhere means that reducing risk is not simply matter of economic growth and development.
- Recognition that DRM is a critical component of t he global poverty reduction agenda and efforts to adapt to climate change, and should be integral part of all international and national development drives.
- Great shortfall in current research on how science is used to shape social and political decision-making in the context of hazards and disasters. "A development problem … the widening gap between advancing S&T and society's ability to capture and use them."

Rationale for IRDR: The Solution and Intended Value Proposition of IRDR

- Generate more systematic and reliable information on such events, and leave a legacy of coordinated and integrated global data and information sets across hazards and disciplines, with unprecedented degrees of access.
- Establish an approach that integrates research and policy-making across all hazards, disciplines and geographic regions.
- Bring together the natural, socio-economic, health and engineering sciences in a coordinated effort to reduce the risks associated with natural hazards.
- Add value to existing situation through close coupling of all disciplines applied to the whole range of hazard types around the world.
- Go beyond the traditional, through a coordinated and multi-dimensional approach that considers the issues of natural and human-induced hazards and disasters from several perspectives - from the hazards to the disasters, and from the human exposures and vulnerabilities back to the hazards.

IRDR Vision, Mission, Aim and Objectives

IRDR Vision

- IRDR "envisages an integrated approach to natural and human-induced environmental hazards through a combination of natural, socio-economic, health and engineering sciences, including socio-economic analysis, understanding the role of communications, and public and political responses to reduce the risk."

Programme Mission

- To develop trans-disciplinary, multi-sectorial alliances for in-depth, practical disaster risk reduction research studies, and the implementation of effective evidence-based disaster risk policies and practices (*from new strategic plan)*

Programme Aim

IRDR seeks to

- address the challenges brought by natural and human-induced hazards
- mitigate their impacts, and
- improve related policy-making mechanisms.

Research Objectives

1. **The scientific characterisation of hazards, vulnerability and risk.**

   The identification and assessment of risks from natural hazards on global, regional and local scales, and the development of the capability to forecast hazardous events and their consequences is, of necessity, interdisciplinary. Understanding of the natural processes and human activities that contribute to vulnerability and community resilience need to be integrated in order to reduce risk. This objective addresses the gaps in knowledge, methodologies and types of information that are impeding the effective application of science to averting disasters and reducing risk.

2. **Understanding decision-making in complex and changing risk contexts.**

   Understanding effective decision-making as part of risk management—what is it and how it can be improved—calls for an emphasis on how human decisions and the pragmatic factors that constrain or facilitate such decisions contribute to hazards becoming disasters and/or may mitigate their effects.

3. **Reducing risk and curbing losses through knowledge-based actions.**

   Requires integration of outputs from the first two objectives and can only be achieved through implementing and monitoring informed risk reduction decisions, and through reductions in vulnerability or exposure. Processes of human adjustment or adaptation can be used to reduce vulnerability and increase resilience.

Strategic Goals, Cross-cutting Themes and Projects

Strategic Goals

Goal 1: Promoting integrated research.
Goal 2: Characterising hazards, vulnerability and risk.
Goal 3: Understanding decision-making.
Goal 4: Reducing risk and curbing losses.
Goal 5: Networking and partnership-building.
Goal 6: Supporting the science and policy dialogue.

IRDR Cross-cutting Themes

1. Capacity building, including mapping capacity for disaster reduction and building self-sustaining capacity at various levels for different hazards.
2. The development of case studies and demonstration projects.
3. Assessment, data management and monitoring of hazards, risks and disasters.

IRDR Projects or Working Groups

"To meet its research objectives IRDR initially established four core projects, comprising working groups of experts from diverse disciplines, to formulate new methods in addressing the shortcomings of current disaster risk research." (*from IRDR summary Mar 2015)*

1. **Assessment of Integrated Research on Disaster Risk (AIRDR)** - undertakes the first systematic and critical global assessment of integrated research on disaster risk
2. **Disaster Loss Data (DATA)** - intends to establish an overall framework for disaster loss data for all providers, nodes and networks for databases, and to conduct sensitivity testing among databases to ensure some level of comparability
3. **Forensic Investigations of Disasters (FORIN)** - aims to uncover the root causes of disaster through in-depth investigations that go beyond the usual reports and case studies conducted after disaster events.
4. **Risk Interpretation and Action (RIA)** - focuses on the question of how people – both decision-makers and ordinary citizens – make decisions, individually and collectively, in the face of risk.

Guiding Documents

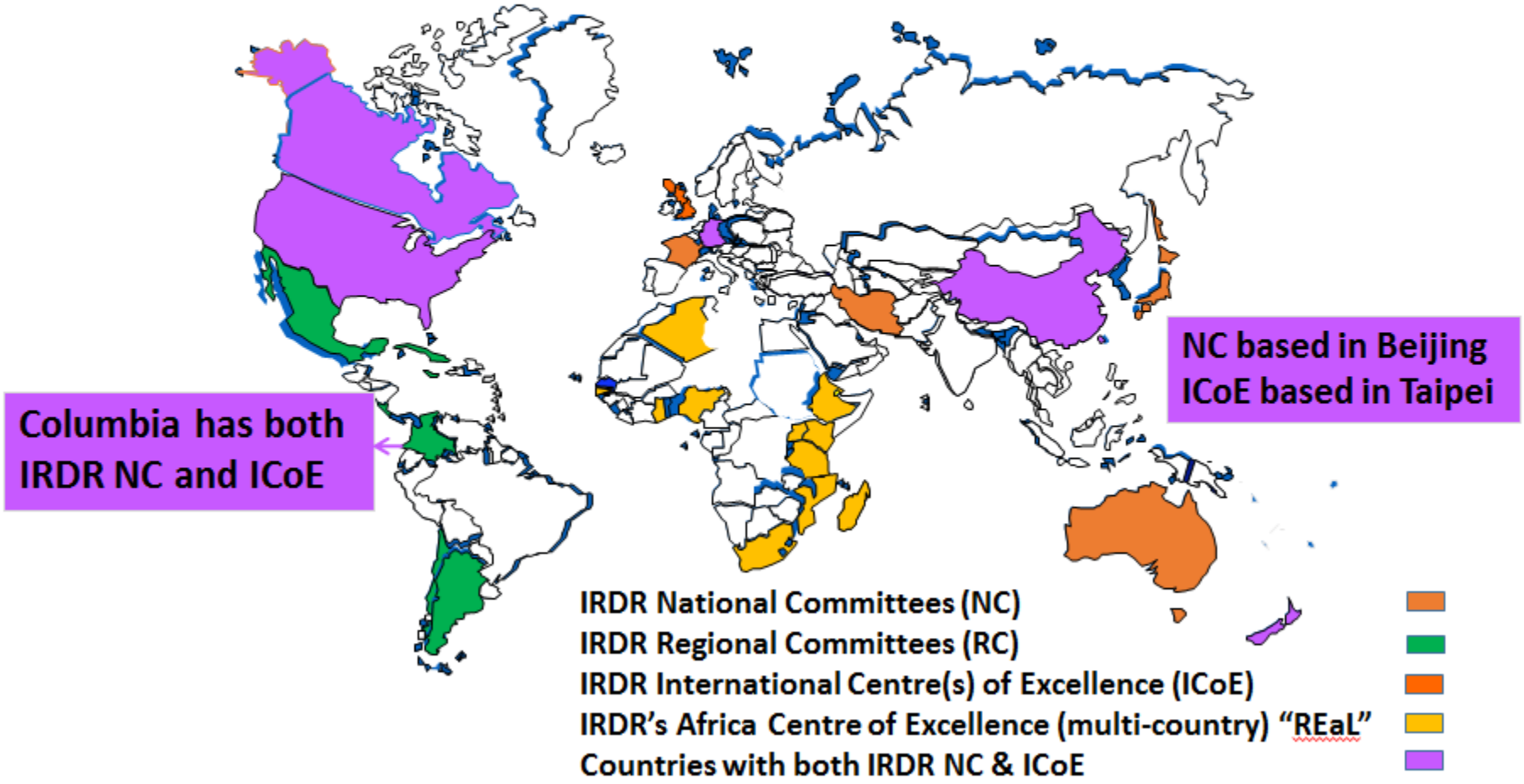
- ICSU's Science Plan for Integrated Research on Disaster Risk, 2008
- Constitution of the IRDR Programme
- (IRDR Strategic Plan 2013-2017)

Organisation and Components of IRDR

(primarily based on intent)

- **Scientific Committee (IRDR-SC)** – principal governing body, 15 members for 3 years, renewable for one term.
  - balance in regional experience, gender and disciplines; all academics; not paid; includes leaders of four projects.
  - *Ex officio members*: each sponsor, Director General of the host institution; IPO Executive Director acts as Secretary of the SC
  - receives and assesses meeting reports and annual report.
- **Officers of the IRDR-SC** – Chair and three Vice-Chairs (elected by SC)
- **International Programme Office (IPO)** supports the SC
  - Staff employed by CAST; ED reports to IRDR-SC Chair.
- **Host Institution of IPO:** Institute of Remote Sensing and Digital Earth (RADI) (previously Centre for Earth Observation and Digital Earth - CEODE).
- **Host Institution of RADI:** Chinese Academy of Sciences (CAS); differs from other Academies in that it manages laboratories.
- **Financial support for IPO (at establishment):** China Association for Science and Technology (CAST) through grant from Ministry of S&T.
- **Consultation Forum** – intended as initially informal platform for 3 years, with representatives of component and complementary programmes (also use other forums, e.g. IDRC, ISDR Global Platform); has not been constituted. Was intended to
  - express views on programme development
  - further dialogue among stakeholders and funders
  - exchange information
  - serve as vehicle for developing supporting coalitions and greater programme commitment.
- **International Centres of Excellence** designated by IRDR (8 to date)
  - at suitably qualified national host organisation
  - overseen by individual advisory board appointed by IRDR-SC in consultation with host institution.
- **IRDR National Committees** (10 to date)
  - to promote and support IRDR-related research initiatives of countries
  - to enhance links between national and international DR research programmes and activities.
  - to include researchers from natural, social, health and engineering sciences, as well as policy-makers and practitioners
  - to ensure close relationship with national platform for DRR where such a body exists.
- **ICSU Regional Offices** have hazards and disasters as a priority; integrate global IRDR programme with regional initiatives.

IRDR Network



IRDR International Centres of Excellence

- ICoEs provide regional and research foci for IRDR.
- Their research programmes embody an integrated approach to DRR that directly contributes to the IRDR objectives.
- They provide global contributions towards achieving the IRDR objectives by enabling regional scientific activities through geographically-focused contributions based on more localised inputs and by being visible centres of research to motivate participation in the IRDR programme.

1. **IRDR ICoE-Taipei**
   Home Institution: Academy of Sciences, **Taipei-China**
2. **IRDR ICoE in Vulnerability and Resilience Metrics (IRDR ICoE-VaRM)**
   Home Institution: Hazards and Vulnerability Research Institute (HVRI), Department of Geography, University of South Carolina, **USA**
3. **IRDR ICoE in Community Resilience (IRDR ICoE-CR)**
   Home Institution: Joint Centre for Disaster Research (JCDR), Massey University, Wellington, **New Zealand**
4. **IRDR ICoE in Understanding Risk & Safety (IRDR ICoE-UR&S)**
   Home Institution: Disaster Risk Management Task Force, Institute of Environmental Studies (IDEA), National University of Colombia, Manizales City, **Colombia**
5. **IRDR ICoE for Risk Education and Learning (IRDR ICoE-REaL)**
   Home Institution: Periperi U (Partners Enhancing Resilience for People Exposed to Risks) Consortium, Research Alliance for Disaster Risk Reduction (RADAR), Department of Geography and Environmental Studies, Stellenbosch University, **South Africa**
6. **IRDR ICoE in Risk Interpretation and Action (IRDR ICoE-RIA)**
   Home institution: Centre for Integrated Research on Risk and Resilience (CIRRR), Department of Geography, King's College London, **UK**
7. **IRDR ICoE for Disaster Resilient Homes, Buildings and Public Infrastructure (IRDR ICoE-DRHBPI)**
   Home Institution: Institute for Catastrophic Loss Reduction (ICLR), Western University, London, **Canada (new)**
8. **IRDR ICoE on Critical Infrastructures and Strategic Planning (IRDR ICoE-CI&SP)**
   Home Institution: Institute for Spatial and Regional Planning (IREUS), Department of Civil Engineering and Environmental Management, Stuttgart, **Germany (new)**

IRDR National Committees

IRDR National and Regional Committees' charge

- Support and supplement IRDR's research initiatives
- Help to establish or develop crucial links between national DRR programmes and activities within IRDR international framework
- Help mainstream integrated research into DRR efforts at national, regional and institutionalised bases to enhance coordination and cooperation among multi-stakeholders for the sustainability of integrated research
- Help improve capacity of countries and regions in DRR
- Focal points to promote IRDR-related research initiatives of host countries
- Focal points to enhance links between national and international disaster risk research programmes and activities.
- First Consultative Forum of IRDR National Committees held on 11-12 November 2014 at Welcome Trust, London, hosted by UKCDS.

IRDR National Committees

1. **IRDR Australia**. *Home Institution: Bushfire & Natural Hazards Cooperative Research Centre*
2. **IRDR Canada**. *Home Institution: S&T Working Group, Canada'S Platform for DRR*
3. **IRDR China**. *Home Institution: China Association for S&T (CAST)*
4. **IRDR Colombia**. *Home Institution:* National Committee of Disaster Risk Knowledge, National Unit for DRM of the Presidency of the Republic of Colombia
5. **IRDR France**. *Home Institution:* Scientific Council, Association Française Pour la Prevention des Catastrophes Naturelles
6. **IRDR Germany**. *Home Institution:* German Committee for Disaster Reduction
7. **IRDR Iran**. *Home Institution:* International Institute of Earthquake Engineering and Seismology . *(IRDR Iran is a group of eight Iranian research institutes and scientific associations)*
8. **IRDR Japan**. *Home Institution:* Science Council of Japan
9. **IRDR New Zealand**. *Home Institution:* Natural Hazards Research Platform
10. **IRDR USA**. *Home Institution:* Natural Hazards Centre, University of Colorado at Boulder *(IRDR USA is a 'centre of centres' taking advantage of the research capacities of university-based centres that specialise in different aspects of hazards and disasters and that represent diverse disciplines).*

ICSU/IRDR Regional Offices & IRDR Projects

ICSU / IRDR Regional Offices

"IRDR worked towards better alignment with the activities aimed at implementing ICSU ROs' regional science plans on hazards and disasters. As these efforts continue, and especially during the envisaged review of the respective regional science plans, ICSU hopes that harmonisation will help avoid duplication, promote cooperation and peer learning, and send consistent messages to the science community, funding agencies and other stakeholders, thus increasing their support." *(from website)*

ICSU Regional Offices

1. **ICSU ROA –** Regional Office for Africa / *ICSU ROA Consortium on Hazards and Disasters*
2. **ICSU ROAP –** Regional Office for Asia and the Pacific / *ICSU ROAP Natural Hazards and Risk Steering Group for Asia and the Pacific*
3. **ICSU ROLAC** – Regional Office for Latin America and the Caribbean / *ICSU ROLAC Scientific Steering Committee for Integrated Research on Disaster Risk in Latin America and the Caribbean.*

Finances

Administrative arrangements

- **Administrative and financial arrangements for IPO and programme of work set out in MoU signed 1 Jun 2010 between ICSU and CEODE.**
- **Running costs of IPO met by annual contribution from CAST.**
- **Costs of other IRDR activities met from various sources.**
- **Executive Director makes decisions on expenditure in line with annual budget approved by IRDR-SC.**
- **RADI responsible for administering IRDR finances on behalf of sponsors, in line with normal practices and procedures.**
- SC 14 Meeting Report: "ED manages the budget in consultation with the IRDR executive committee (EC). The ED brings the SC an updated budget; the SC approves an annual budget and should always have the budget as a reference. The ED brings major budget changes to SC's EC for budget approval. RADI approves expenses to move them through RADI's finance system. Consultation with the co-sponsors is sometimes helpful on the budget and HR issues. The finance governance agreement, once agreed, to be included in the employee manual."

Budgets and expenditures

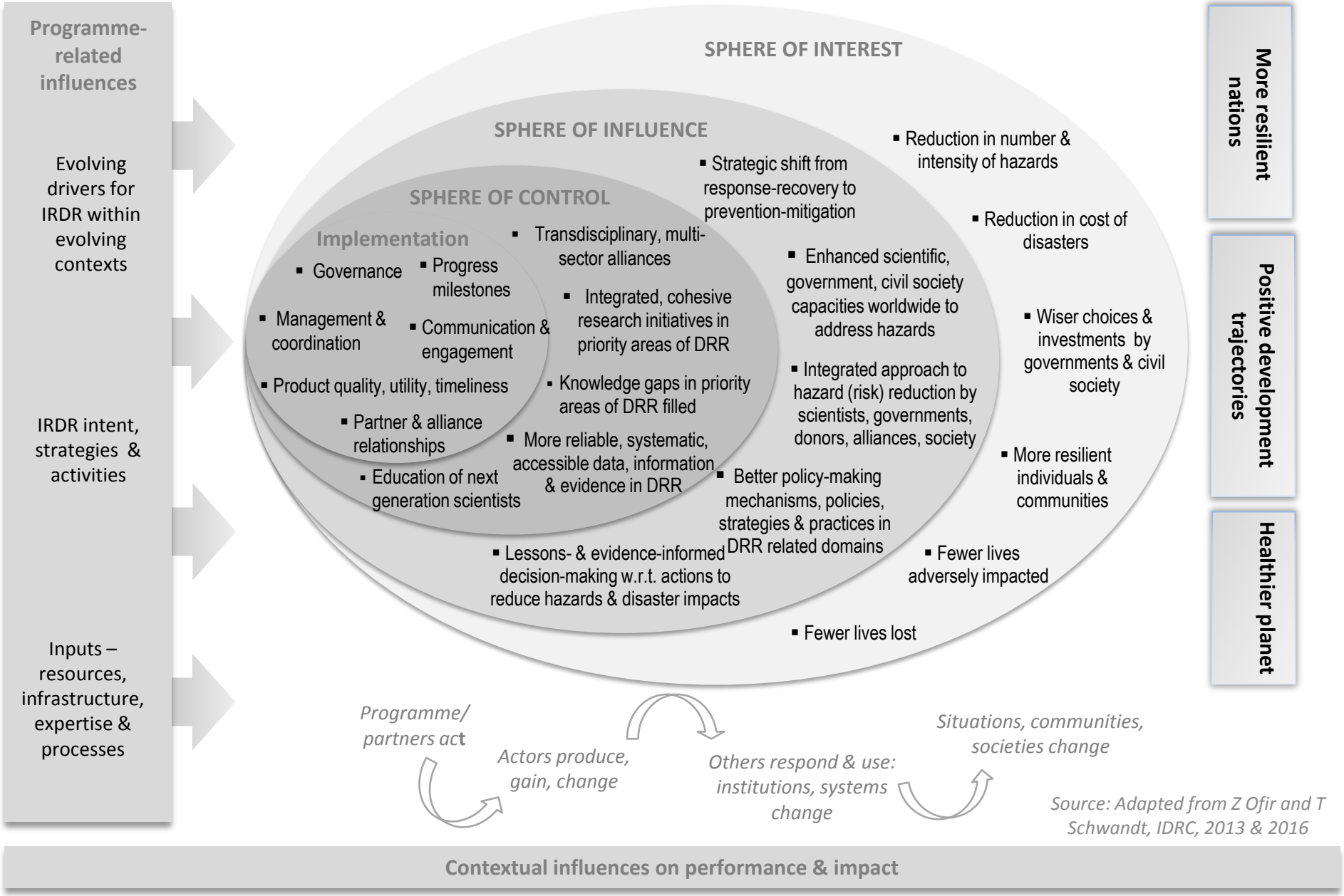
TBC

IRDR Change Logic Components

The change logic or "theory of change" spells out the logic (or hypothesis) through which change is intended to happen as a result of the programme intervention. In its comprehensive form it details the intended results (outputs, outcomes, impacts), the relationships between them, what is intended to lead to their achievement, and the underlying assumptions. The following are components of the change logic captured in various documents:

- IRDR has a strong commitment to development – of science, and of broadly-based capacity.
- Partners in this development are national and international development aid agencies and national and international science institutions and funding councils that support capacity building around the world.
- IRDR will bring an integrated approach to natural and human-induced hazards through a combination of natural, socio-economic, health and engineering sciences, including socio-economic analysis, understanding the role of communications, and public and political response to reduce risk.
- IRDR will address research gaps and enable interdisciplinary cohesion at the intersection of the sciences.
- IRDR will conduct coordinated, international, multi-disciplinary research that can guide more effective global societal responses to the risks associated with natural and human-induced environmental hazards.
- IRDR will determine how knowledge about hazards is, or can be, put to use. Understand public perception decision-making in the context of natural hazards, risks and uncertainty, and study human behaviour and cultural contexts for vulnerability analysis.
- Repository of information and data that had been acquired would be of continuing availability and value to the global community.
- IRDR will leave a legacy of enhanced capacity around the world to address hazards and make informed decisions on actions to reduce their impacts. This will include a shift in focus from response-recovery towards prevention-mitigation strategies; the building of resilience; reduction of risk; learning from experience; and avoidance of past mistakes.
- Through this enhanced capacity and shift in strategic approaches, future societies would benefit so that in 10 years there will be reduction in loss of life, fewer people adversely impacted, and wiser investments and choices made by governments, the private sector and civil society when comparable events occur.

Organising framework for IRDR contributions to development impact



IRDR Change Logic Outline

(*i.e.*, without assumptions and impact pathways descriptions)

Initial preconditions for IRDR success
(intersecting global, regional, national levels)

- Empathetic (global, regional, national) contexts
- Well-defined niche (timely, relevant & significant in science & application; informed by priority challenges, aligned with global conventions & trends)
- Benefits brought by ICSU brand & support
- Well-designed IRDR intervention
- Appropriate, sufficient, timely infrastructure, resources &financial flows
- Appropriate, sufficient scientific expertise & goodwill
- Architecture for implementation based on appropriate, productive relationships (partnerships, alliances)

Effective, efficient Implementation

Emergent preconditions for IRDR success
(intersecting global, regional, national levels)

- Good governance & management
- Engaged, boundary-spanning science & scientific scholarship
- Appropriate research foci (relevant, significant, timely)
- Incentivised, capable partners in the scientific & decision-making architecture
- Appropriate type of research (integrated, transdisciplinary, multi-sector, boundary-spanning, problem-solving, gap-filling)
- Incentivised, capable policy/decision-makers &other users of IRDR contributions
- Appropriate engagement & communication with potential users

Catalytic action