

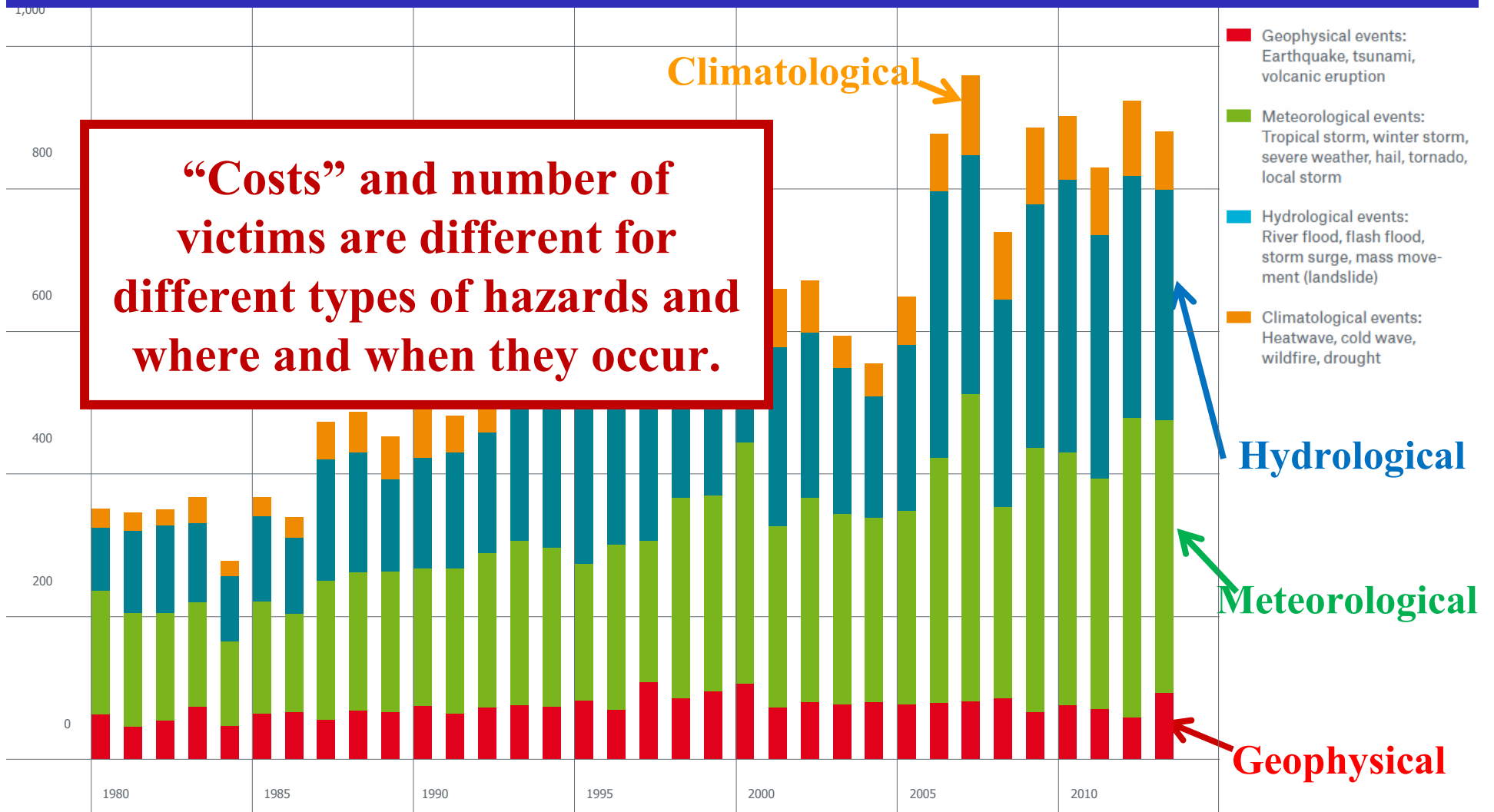
Integrated Research to Reduce Risk and Sustain Development

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President, International Council for Science

**Presentation to Tokyo Conference on International
Study for Disaster Risk Reduction and Resilience**

January 14, 2015

Number of “Natural” Catastrophes 1980-2013



NatCatSERVICE, Munich Re, 2014

Impacts from hazard events depend on:

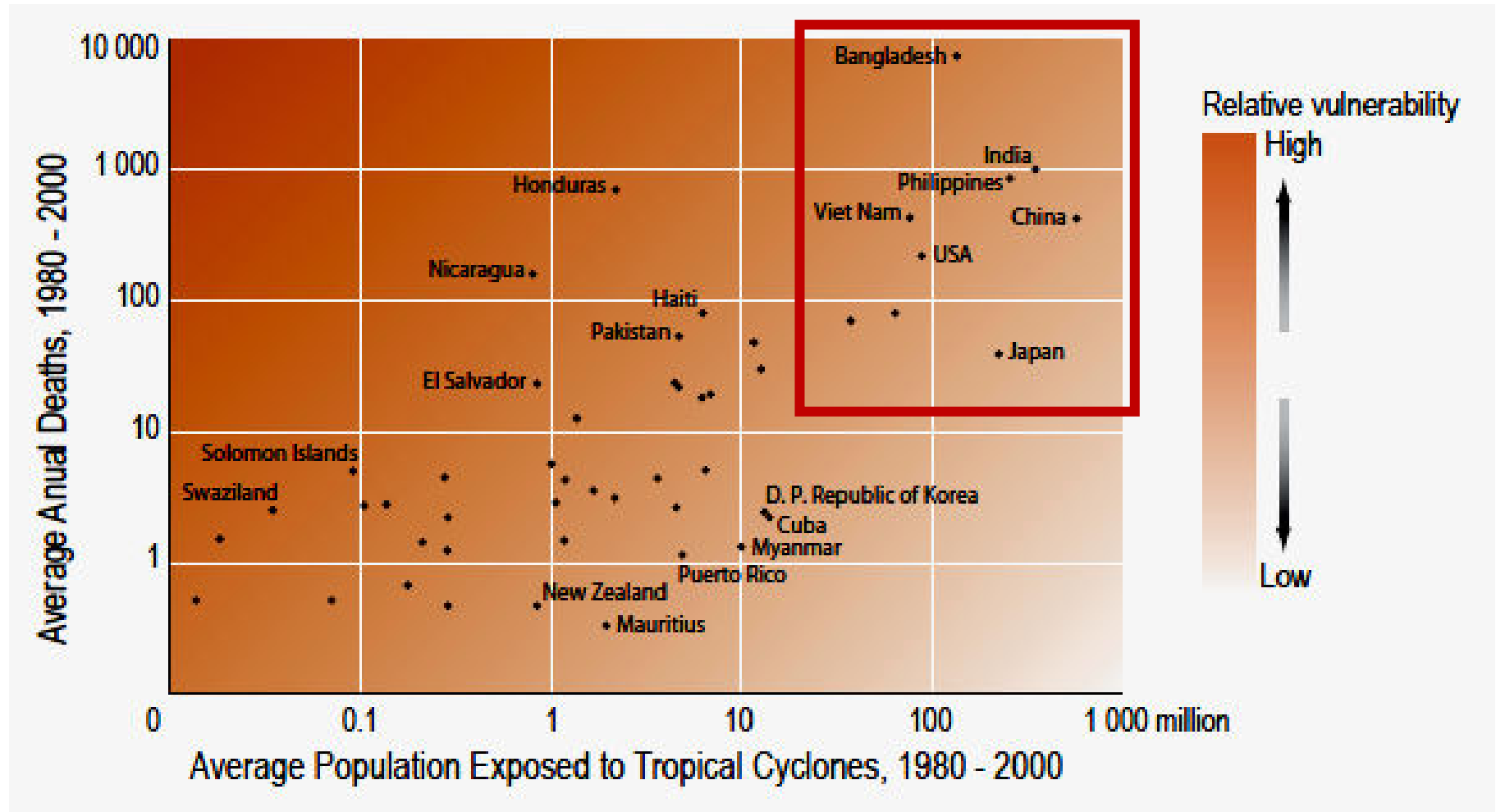


Exposure and vulnerability are key determinants of disaster risk

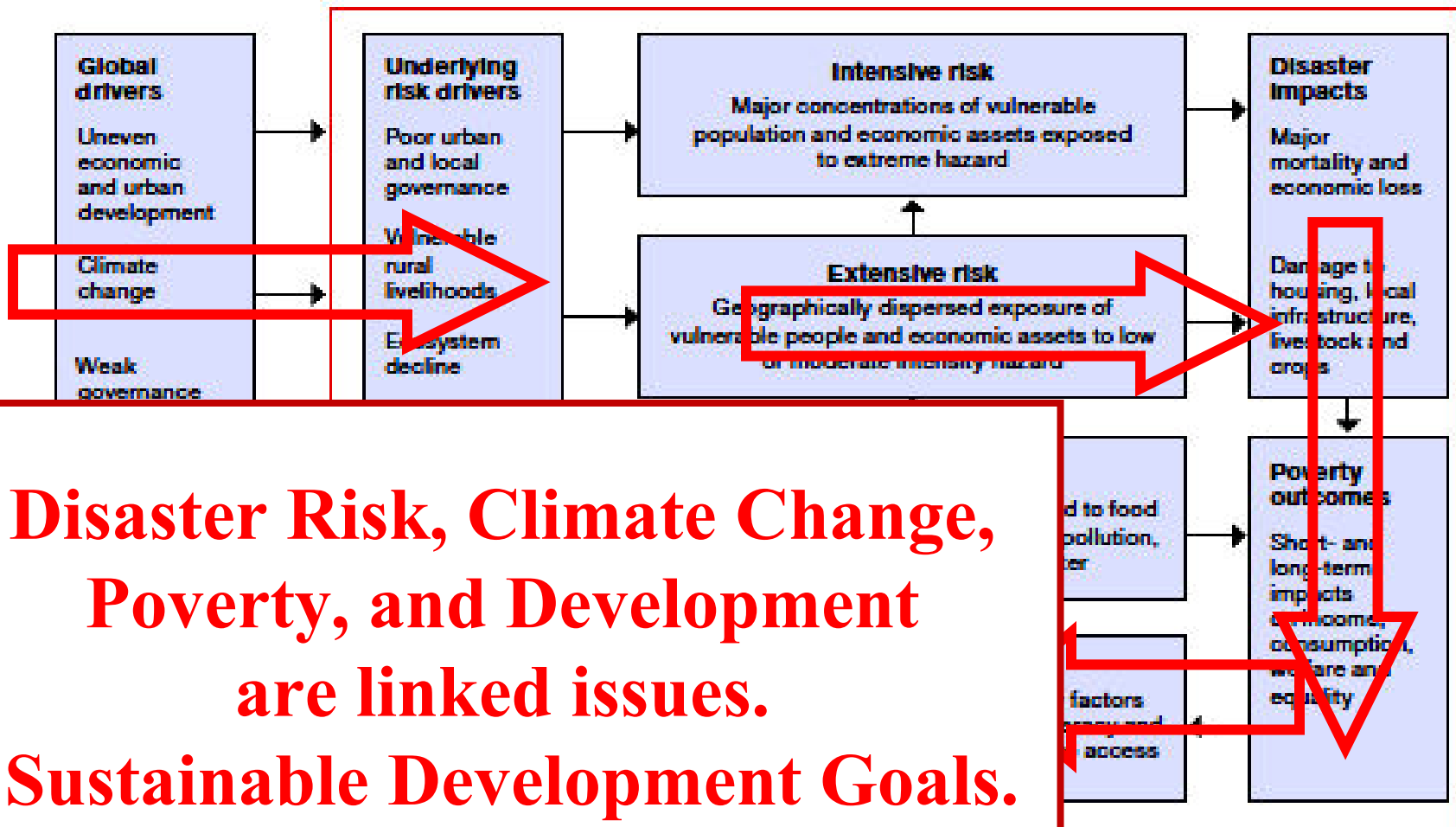
Disaster Risk: the likelihood of severe alterations in the normal functioning of a community or society due to hazard events interacting with vulnerable social conditions

Relative Vulnerability to Tropical Cyclones

Global Assessment Report (2007)



Disaster Risk-Poverty Nexus



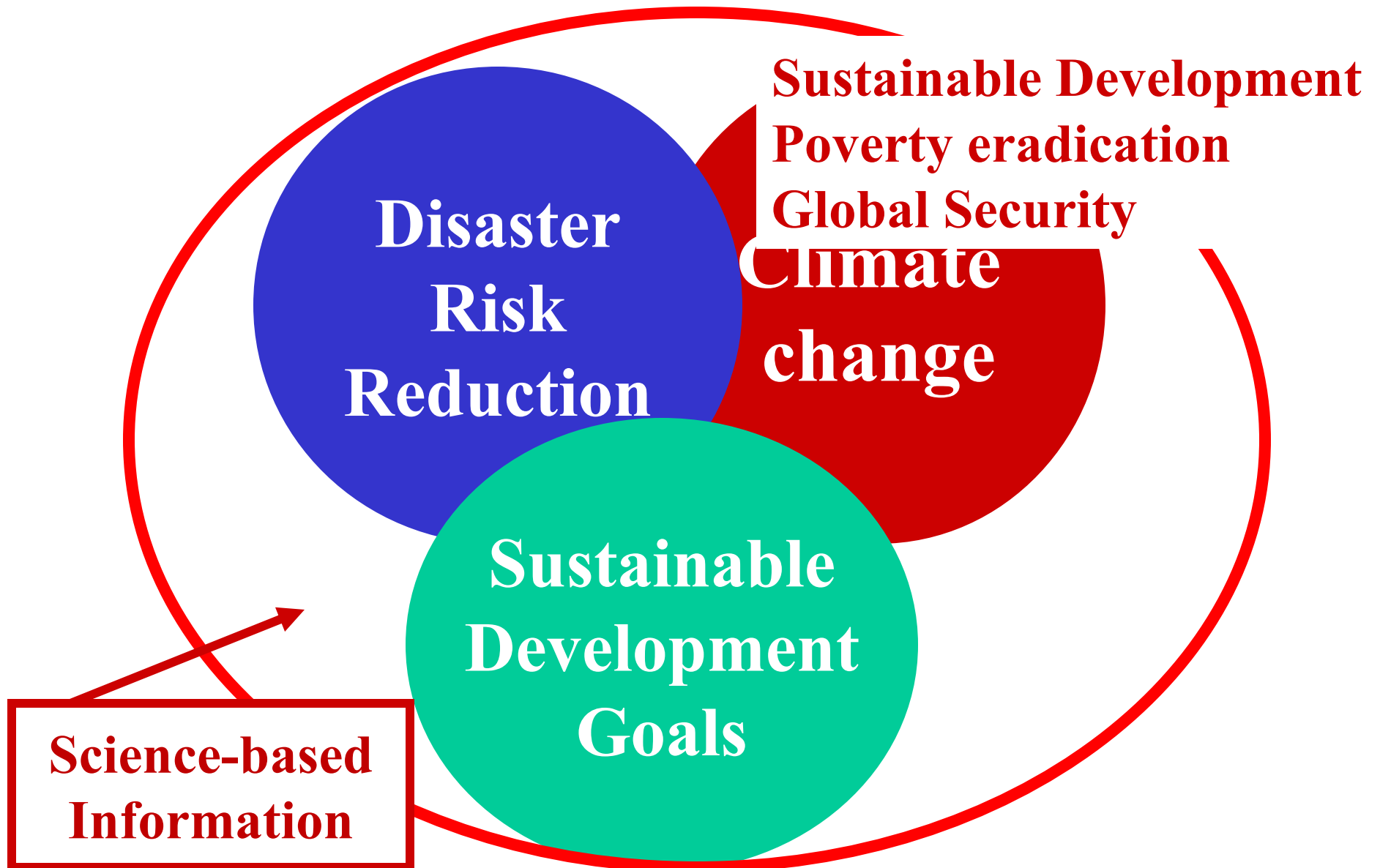
Policy Issues for Governments

**Disaster
Risk
Reduction**

**Climate
change**

**Sustainable
Development
Goals**

Policy Issues for Governments



International Council for Science



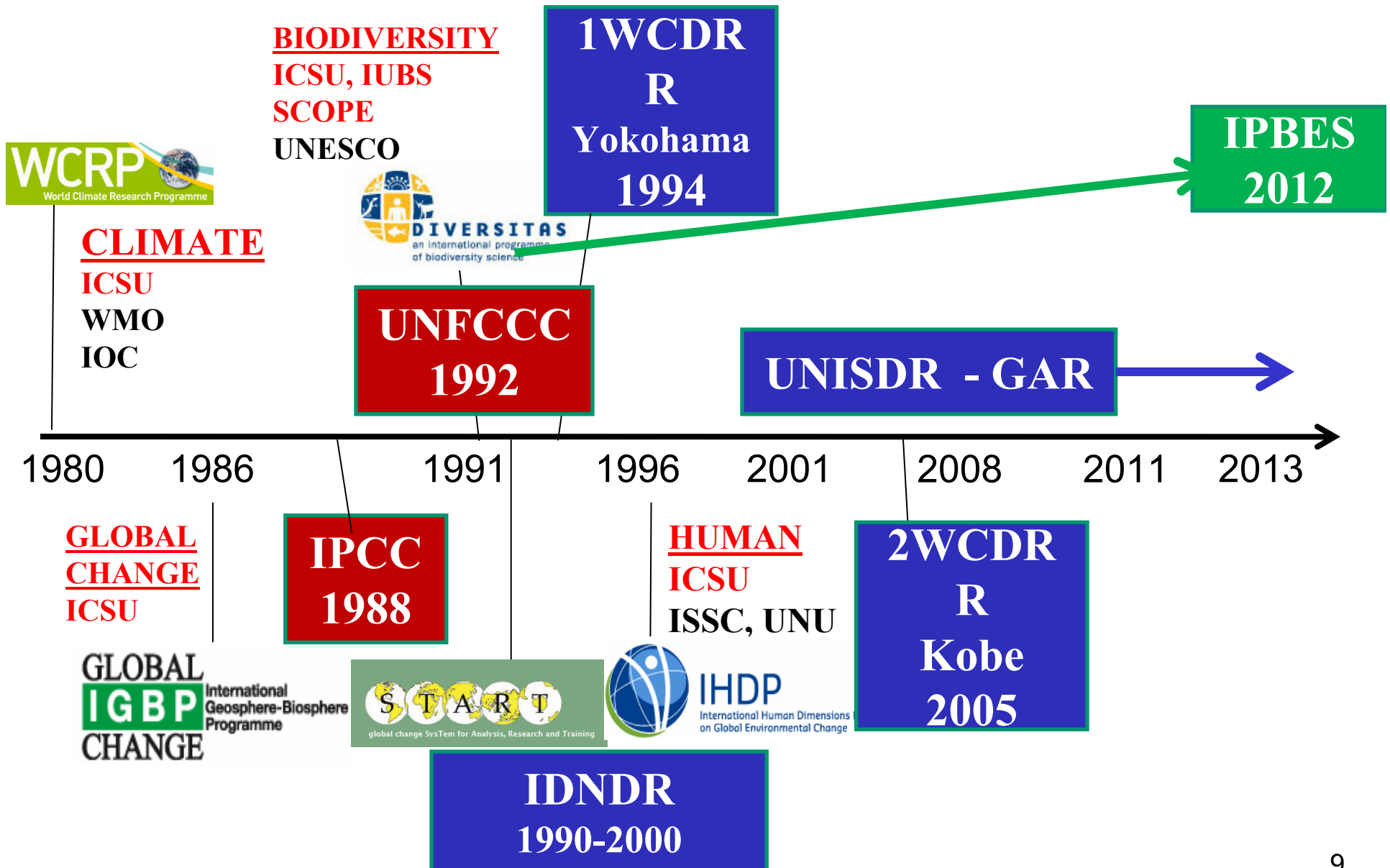
- **established 1931 –non-governmental organisation with a global membership of national scientific bodies (120 Members, representing 140 countries) and International Scientific Unions (31 Members).**

Mission - *to strengthen international science for the benefit of society. – all societies*

Vision - *The long-term strategic vision is for a world where science is used for the benefit of all, excellence in science is valued and scientific knowledge is effectively linked to policy making.*

- **Key priorities and associated activities:**
 - **Science for Policy**
 - **Universality of Science**
 - **International Research Collaboration**

International Research Programmes



2World Conference on Disaster Reduction, Hyogo Declaration and Hyogo Framework for Action (HFA)

“The starting point for reducing disaster risk and for promoting a culture of disaster resilience lies in the knowledge of the hazards and the physical, social, economic and environmental vulnerabilities to disasters that most societies face, and of the ways in which hazards and vulnerabilities are changing in the short and long term....”

Hyogo Framework for Action: Priorities

1. **Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation.**
2. **Identify, assess and monitor disaster risks and enhance early warning.**
3. **Use knowledge, innovation and education to build a culture of safety and resilience at all levels.**
4. **Reduce the underlying risk factors.**
5. **Strengthen disaster preparedness for effective response at all levels.**

Integrated Research on Disaster Risk



**ICSU: Scoping Group, 2005;
Science Plan, 2006-08.**

Addressing the challenge of natural and human-induced environmental hazards (IRDR) – 2008 →

An integrated approach to research on disaster risk through: an international, multidisciplinary (natural, health, engineering and social sciences, including socio-economic analysis) collaborative research programme. - Sept/2008

www.irdrinternational.org



A Science Plan for Integrated Research on Disaster Risk
Addressing the challenge of natural and human-induced environmental hazards



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Objectives:

1. Characterization of hazards, vulnerability and risk

- 1.1: identifying hazards and vulnerabilities leading to risks;
- 1.2: forecasting hazards and assessing risks; and
- 1.3: dynamic modelling of risk.

2. Effective decision making in complex and changing risk contexts

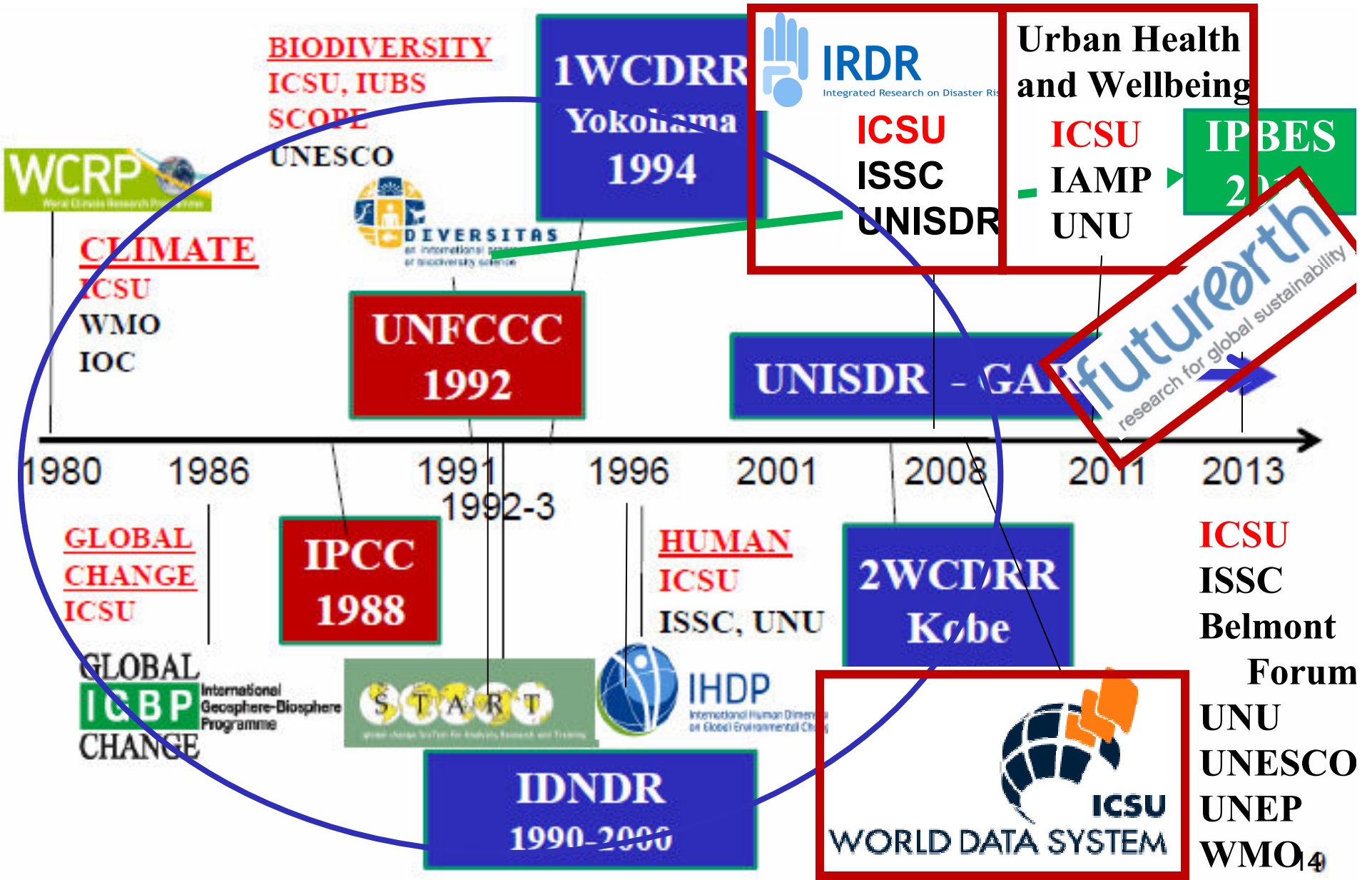
- 2.1: Identifying relevant decision-making systems and their interactions
- 2.2: Understanding decision making in the context of environmental hazards; and
- 2.3: Improving the quality of decision-making practice.

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

- 3.1: Vulnerability assessments;
- 3.2: Effective approaches to risk reduction

- Forensic investigations
- Data
- Assessment
- Capacity building

International Research Programmes



BELMONT
FORUM

Goal:

**To provide the knowledge
required for societies in the world
to face risks posed by global
environmental change and to seize
opportunities in a transition to
global sustainability**



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**UNITED NATIONS
UNIVERSITY**



**United Nations
Educational, Scientific and
Cultural Organization**



**INTERNATIONAL GROUP OF
FUNDING AGENCIES FOR
GLOBAL CHANGE RESEARCH**



WMO



Dynamic Planet

- **Approaches and Models**
projecting environment
drivers
observing
societal system
- **States and Trends**
explaining
understanding
thresholds
- **Critical Zones**
coasts
polar regions
tropical forests

Global Development

- **Stewardship of resources**
clean air
mining
materials
biodiversity
- **Ecosystem services**
Trade-offs
climate change
fisheries
- **Equitable access**
food security
water availability
healthy environment

Transformations towards Sustainability

- **Transformation process**
decision making
economy
mega-cities
development options
- **Innovation and ideas**
trade-offs
emerging technologies
assessment of policies
- **Global and regional governance**
international law
incentives
regional enforcement

Social equity
Poverty reduction
Human rights
Security
Violence
International Law
Data and information
....

Connecting:
Regional -
National
Programs
Others
.....

Fostering co-design and co-production of knowledge under Future Earth



- Opportunities**
- Assessment and Convention processes
 - STS Forum
 - National, Regional and International confs. – Unions
 - ...

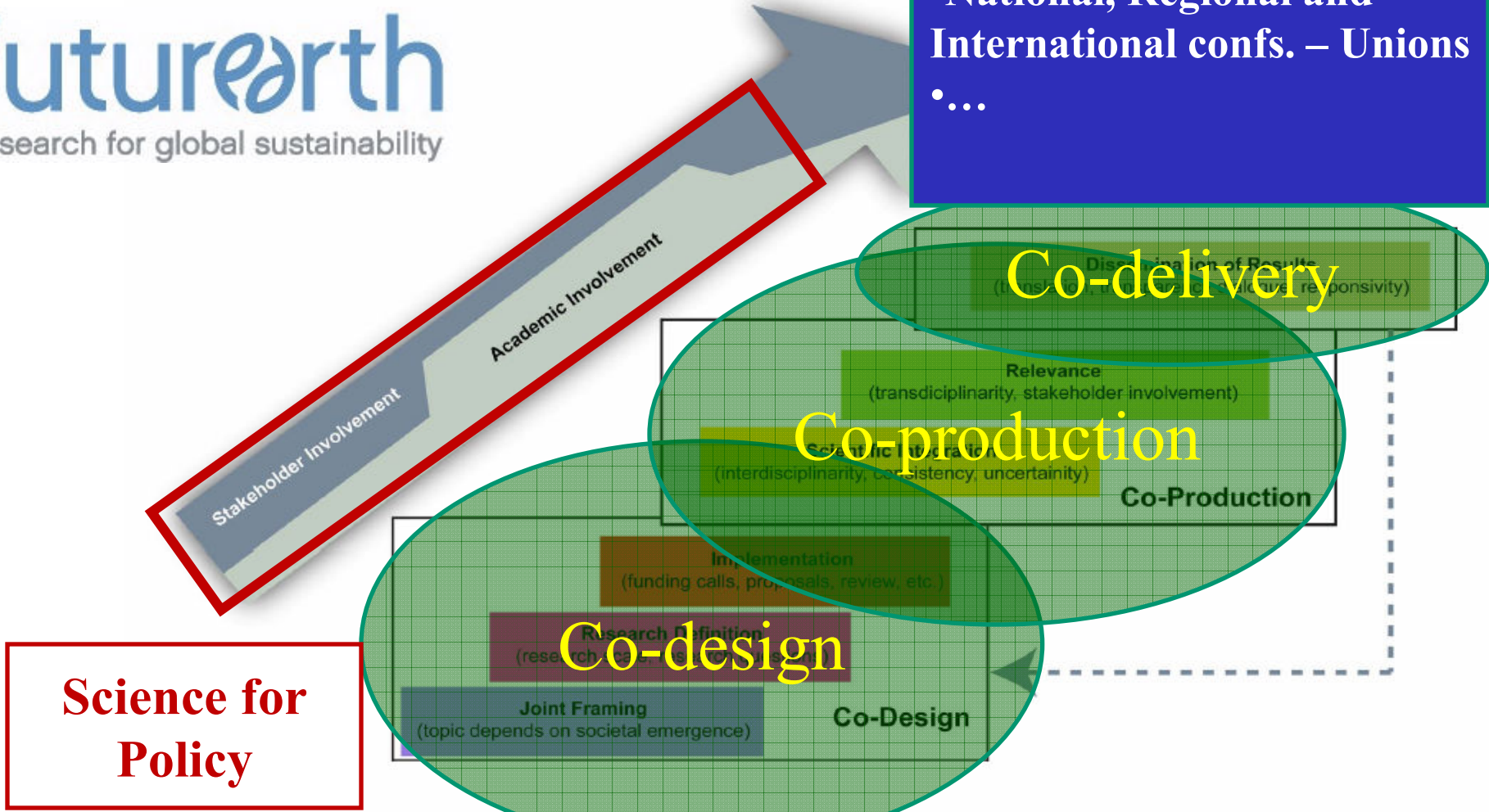


Figure 1: Steps and involvement in co-design and co-production of scientific knowledge⁴

Integrated International Science + Policy

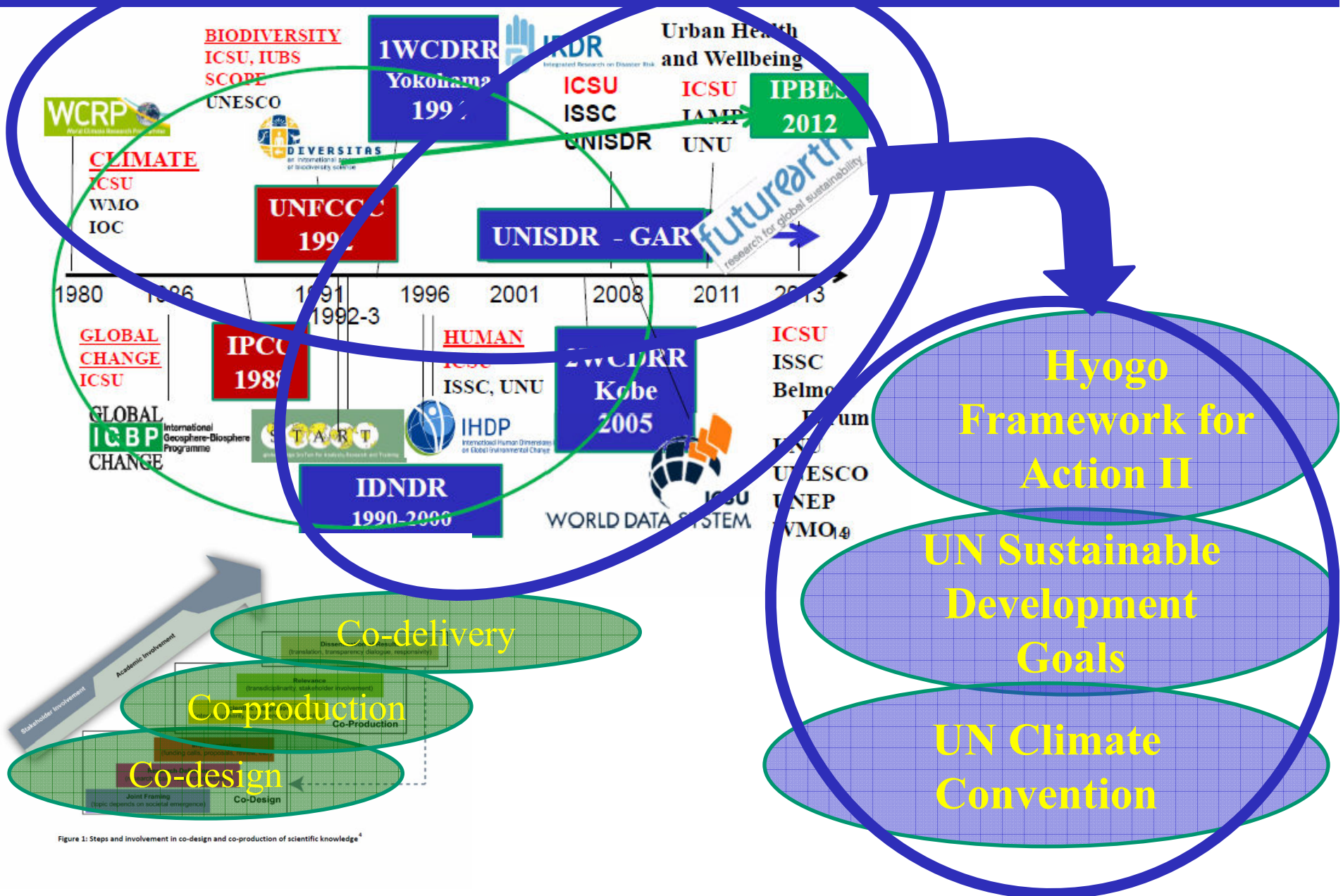


Figure 1: Steps and involvement in co-design and co-production of scientific knowledge⁴

Disaster Risks Research and Assessment to Promote Risk Reduction and Management

ICSU – ISSC ad-hoc Group on Disaster Risk Assessment
Input to Tokyo Statement and 3WCDRR

- **Disaster risk reduction should be based on firm scientific knowledge, vast information/data, and the systematic development and application of policies, strategies and practices to minimize vulnerabilities and disaster risks throughout a society.**
- **Science to be better communicated to governments and society and to ensure maximum benefit towards the post Hyogo Framework for Action and Sustainable Development Goals.**
- **Science-driven approach to disaster risk reduction possible through research and periodic assessments**

- **Disaster risk reduction** ↔ **Sustainable development**
 - **Science** → **basis for action** → **national platforms**
 - **Networking, integrating across the sciences and programs and sustaining them** → **IRDR, Future Earth, Urban Health, ...**
 - **Science-driven approach to disaster risk reduction, possible through research, assessments and synthesis**
 - **Monitoring and review** - data → analysis → **including socio-economics and health**
 - **Advice** - **Communication and engagement** → **best practices implemented**
 - **Capacity building**
- International partnership – ICSU, IRDR, SCJ, UNISDR, ... to mobilize science for action on DRR and resilience building.
HFA2 commitments – 6 key areas.

THE FUTURE WE WANT

I. Our Common Vision

- Rio de Janeiro, Brazil, from 20-22 June 2012,

13. We recognize that people's opportunities to influence their lives and future, participate in decision making and voice their concerns are fundamental for sustainable development. We underscore that sustainable development requires concrete and urgent action. It can only be achieved with a broad alliance of people, governments, civil society and private sector, all working together to secure the future we want for present and future generations.

Integrating research to reduce risk and sustain development



We need to address issues of intergenerational and international equity – reduce risk, sustain development for people and the planet.

Evidence-based policies for DRR and Sustainable Development



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Thank you for your
attention