



INTERNATIONAL
COUNCIL
FOR SCIENCE

Co-Sponsor's Update International Council for Science (ICSU)

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Presentation to: 18th Scientific Committee IRDR,
20-21 November 2017, Tokyo**



IRDR

Integrated Research on Disaster Risk



Western
UNIVERSITY - CANADA

SCIENCE FOR SUSTAINABLE DEVELOPMENT

Keys: Evidence-based decision making:

- **Transdisciplinary science – across natural, social, economic, health, engineering, ...**
- **October 26, 2017 – International Council for Science (ICSU) and International Social Sciences Council voted (over 90%) to MERGE**
- **➡ International Science Council – ISC**
- **40 international scientific unions and associations + > 140 national/regional org.**
- **Vision of advancing all sciences as a global public good**

SDGs – 17 with 169 Targets

Interconnections



Connecting across the Global Policy Agenda – Global 2030 Agenda



**Sendai Framework for
Disaster Risk Reduction
2015-2030**

UN World Conference on
Disaster Risk Reduction
2015 Sendai Japan

Oceans

Peace – WSF 2017

Urban Agenda 2016

UNFCCC - Climate Convention CoP21, 2015



- Welcoming the adoption of United Nations General Assembly resolution A/RES/70/1, “Transforming our world: the 2030 Agenda for **Sustainable Development**” in particular its **goal 13** and the adoption of the Addis Ababa **Adaptation Agenda** and the adoption of the **Sendai Framework for Disaster Risk Reduction**

Sendai Framework for Disaster Risk Reduction 2015-2030



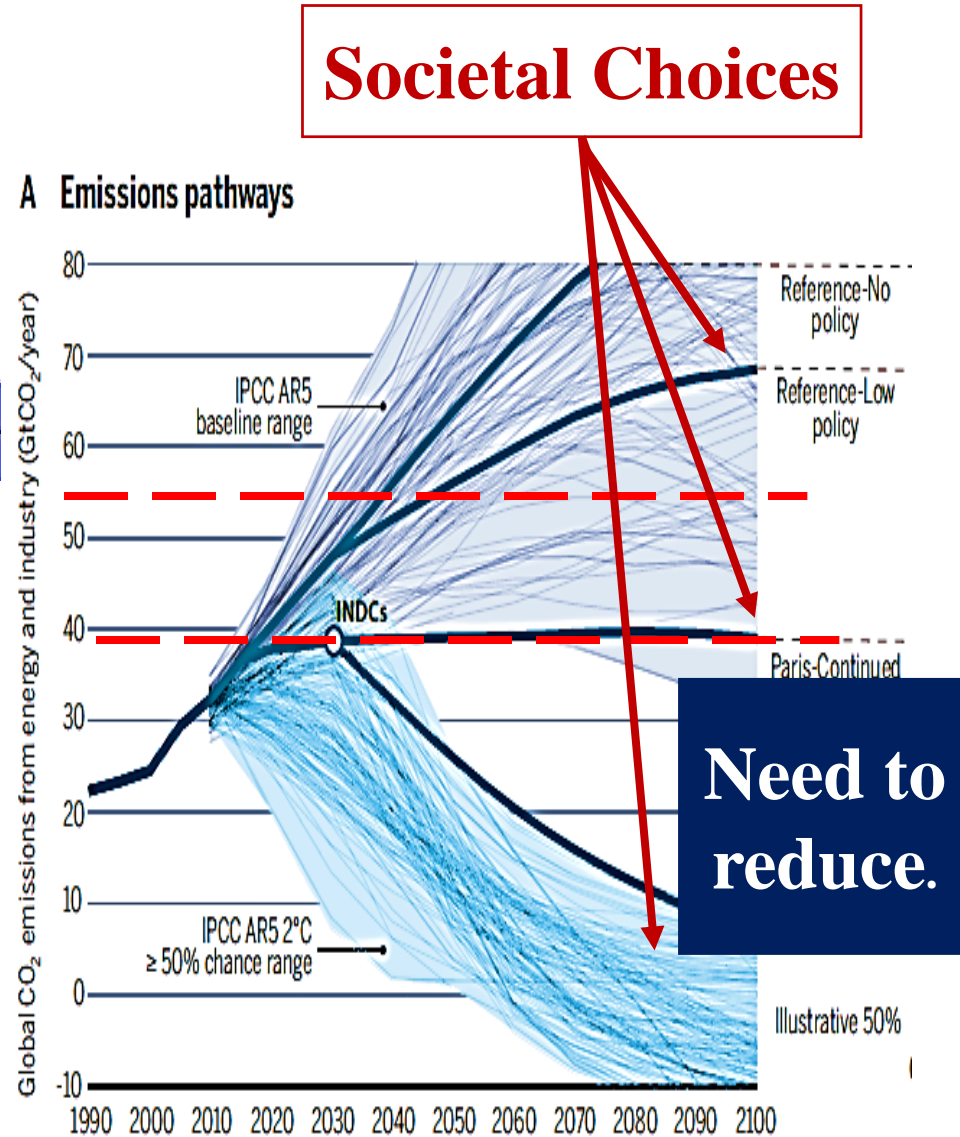
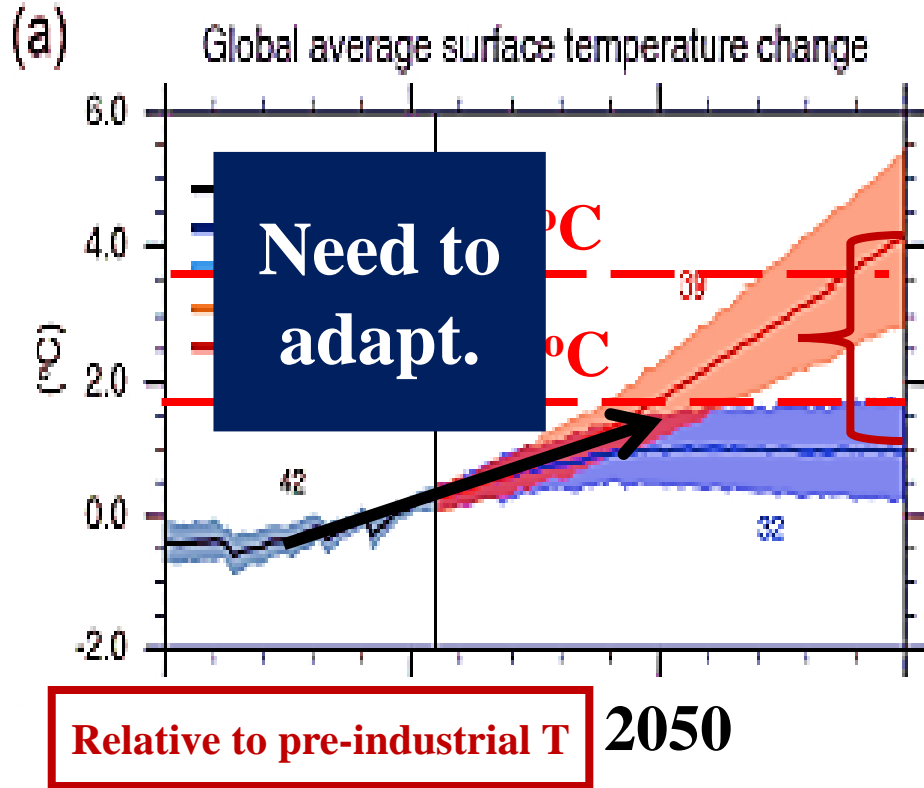
Article 2

1. This Agreement, .. aims to strengthen the global response to climate change, .. context of sustainable development

(a) **Holding the increase .. global average temperature to well below 2 °C above pre-industrial levels and pursuing .. Limit .. to 1.5 °C .., significantly reduce the risks and impacts of climate change; MITIGATION**

(b) **Increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production; ADAPTATION**

Climate Projections for future



*The post-2015 development agenda,
financing for development, climate change
and disaster risk reduction ...*

Lead - S&T
Major Grp



*Ensuring credible links, ... between these processes will
contribute to building resilience and achieving the global goal
of eradicating poverty.” ...action within and across sectors by*

States at local, national, regional and global levels

Four priority areas for Disaster Risk Reduction

1. **Understanding disaster risk;**
2. **Strengthening disaster risk governance to manage disaster risk;**
3. **Investing in disaster risk reduction for resilience;**
4. **Enhancing disaster preparedness for effective response, and to “Build Back Better” in recovery, rehabilitation and reconstruction.**

Sendai Framework for Disaster Risk Reduction 2015-2030

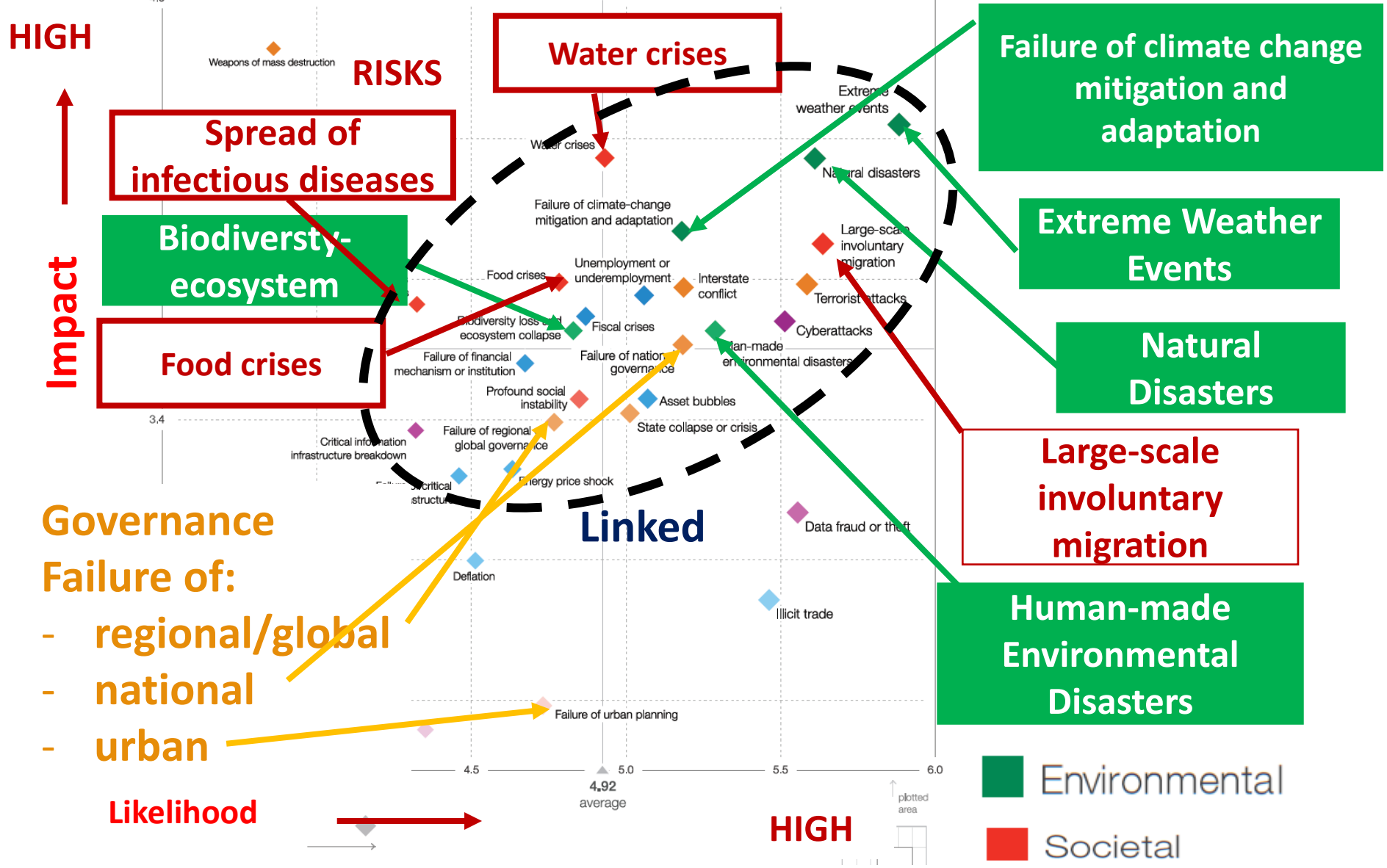
The seven global targets will be measured at the global level and will be complemented by work to develop appropriate indicators. National targets and indicators will contribute to the achievement of the outcome and goal of the present Framework.

Seven global targets are:

- (a) Substantially reduce **global disaster mortality** by 2030, aiming to lower the average per 100,000 global mortality rate in the decade 2020–2030 compared to the period 2005–2015;
- (b) Substantially reduce the **number of affected people globally** by 2030, aiming to lower the average global figure per 100,000 in the decade 2020–2030 compared to the period 2005–2015;
- (c) **Reduce direct disaster economic loss** in relation to global gross domestic product (GDP) by 2030;
- (d) Substantially **reduce disaster damage to critical infrastructure and disruption of basic services**, among them health and educational facilities, including through developing their resilience by 2030;
- (e) Substantially increase the number of **countries with national and local disaster risk reduction strategies** by 2020;
- (f) Substantially enhance **international cooperation to developing countries** through adequate and sustainable support to complement their national actions for implementation of the present Framework by 2030;
- (g) Substantially increase the **availability of and access to multi-hazard early warning systems** and disaster risk information and assessments to people by 2030.

Major Global Challenges – “Wicked” problems

Global Risks 2017 - World Economic Forum



Planning and Conduct of Science Programs

- Traditional Research programs
- Design – working groups of scientists
- Conduct research and then report on what we found.
- **CO-DESIGN** – also called **participatory design** - is an approach to design attempting to **actively involve all stakeholders** (e.g. employees, partners, customers, citizens, end users) **in the design process to help ensure the result meets their needs and is usable**. Participatory design is an approach which is focused on processes and procedures of design and is not a design style. (Wikipedia)

Policy Issues for Science and Society

Responsibilities of global science

To contribute to post-2015 frameworks, including the Sendai Framework, Agenda 2030, Paris Climate Agreement and the upcoming agenda.

SDG 17. Strengthen the means of implementation and revitalize the global partnership for sustainable development

Develop fully global science capacity

Science for the benefit of all societies and “leaving no scientists behind”

Science and Technology for Sustainable Development

Projecting science, technologies and societal change

Challenging science policy and practice

Time to create the ‘conditions of possibility’, to support science for a sustainable and just world



- **Mission is to facilitate the analysis and prediction of Earth system variability and change for use in an increasing range of practical applications of direct relevance, benefit and value to society. Objectives of the WCRP are:**

- **to determine the predictability of climate; and**
- **to determine the effect of human activities on climate**

Leading source of science for IPCC – WGI, WGII – assessments.



advances society's ability to cope with high impact weather through research focused on improving time and utilization of weather

**More extreme weather? Which types?
How to get out forecasts?**

International Research Collaboration Future Earth

Transition
Team
2011-2012

Future
Earth
Initial
Design



2007-8



2008-



2012-



2001



WORLD DATA SYSTEM



Established
1980



1985



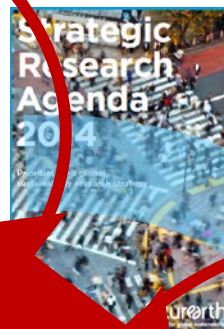
1991



1996



Change SysTem for Analysis, Research and Training



2015



2016

futureearth
research for global sustainability

2020+

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



How can we “best” involve society to have approaches for the “right” future?

Governing Council

Advisory Committee

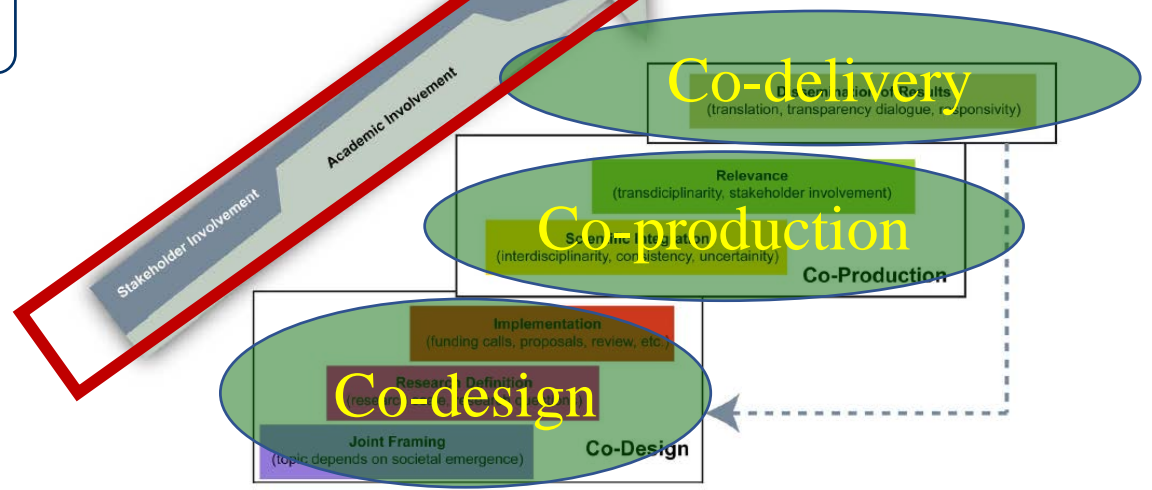
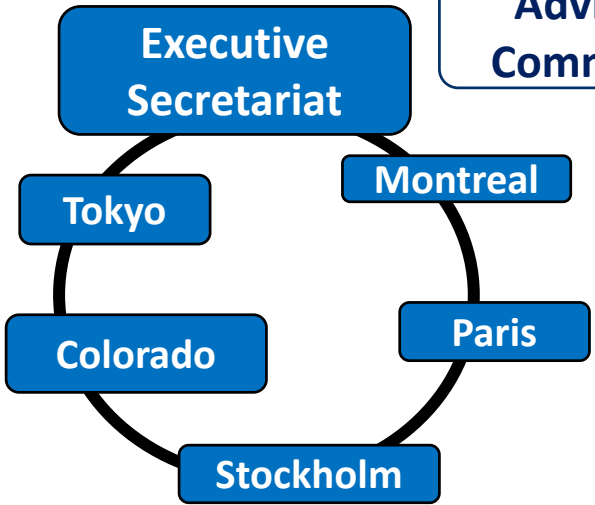


Figure 1: Steps and involvement in co-design and co-production of scientific knowledge⁴

Knowledge-Action Networks are collaborative frameworks that facilitate highly integrative sustainability research.

- **Their aim is to generate the multifaceted knowledge needed to inform solutions for complex societal issues.**
- **They are the essential links to key focal challenges.**

- **Water-Energy-Food Nexus**
- **Oceans**
- **Transformations**
- **Natural Assets**



- **Sustainable Development Goals**
- **Cities**
- **Health**
- **Finance & Economics**
- **Risk - Disasters**



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UNITED NATIONS
UNIVERSITY

Inter-Academy Medical Panel

10-year interdisciplinary research effort whose overall aim is to generate policy-relevant knowledge that will improve health status, reduce health inequalities and enhance the well-being of urban dwellers. It will focus on the integration of natural, social, medical and engineering sciences using systems approaches to address the complexity of urban issues and their influence on health.



Science Committee



“Big Data in an Urban Context” - the challenges and opportunities of big data for urban health.

Nov 30-Dec 4, 2015

An integrated approach to research on disaster risk through: an international, multidisciplinary (natural, health, engineering and social sciences) collaborative research programme.

Objectives:

- 1. Science for ... hazards, vulnerability and risk**
- 2. Effective decision making risk interpretation to action**
- 3. Reducing risk and curbing losses ...**

IRDR International Centres of Excellence – ICOE (12)

ADDRESSING MAJOR GLOBAL CHALLENGES

**Global Policy
Agenda
2015-2030**



**Global Research
Agenda**

**Paris
Climate
Agreement**



**Sustainable
Development
Goals**



**Disaster
Risk Reduction
Sendai**



**Urban
Agenda
2016**



**Integrated
Science-Policy
Interface**



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ISC- 2018



**Collaboration
Co-Design
Link**



**Co-Design
Involve stakeholder
community in research
program**

Transdisciplinary Research through Global Research Programs

