



# Delineating the Policy Space for Loss and Damage

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**bc<sup>3</sup> | summer school**

**Climate Change in an Era of Uncertainty**

5<sup>th</sup>-7<sup>th</sup> of July 2017  
Palacio Miramar – San Sebastian

The banner for the BC3 Summer School features a green and blue color scheme. It includes the BC3 logo, which consists of three overlapping circles in green, blue, and white. Below the logo, the text "summer school" is written in a white sans-serif font. The main title "Climate Change in an Era of Uncertainty" is displayed in a large, bold, white sans-serif font against a dark blue background. At the bottom, the dates "5<sup>th</sup>-7<sup>th</sup> of July 2017" and the location "Palacio Miramar – San Sebastian" are written in a smaller white sans-serif font. The background of the banner shows a scenic view of a coastal town with mountains in the distance.

# Overview

1. Climate Change challenges
2. Policy responses
3. L&D discourse
4. A proposal
5. Conclusion

A close-up, low-angle shot of a coral reef underwater. The foreground is dominated by a large, light-colored, fan-shaped coral polyp. The surrounding area is filled with smaller, more densely packed coral colonies and patches of green seagrass or algae. Sunlight filters down from the surface in bright rays, creating a dappled light effect on the reef. The overall color palette is shades of green, brown, and yellow.

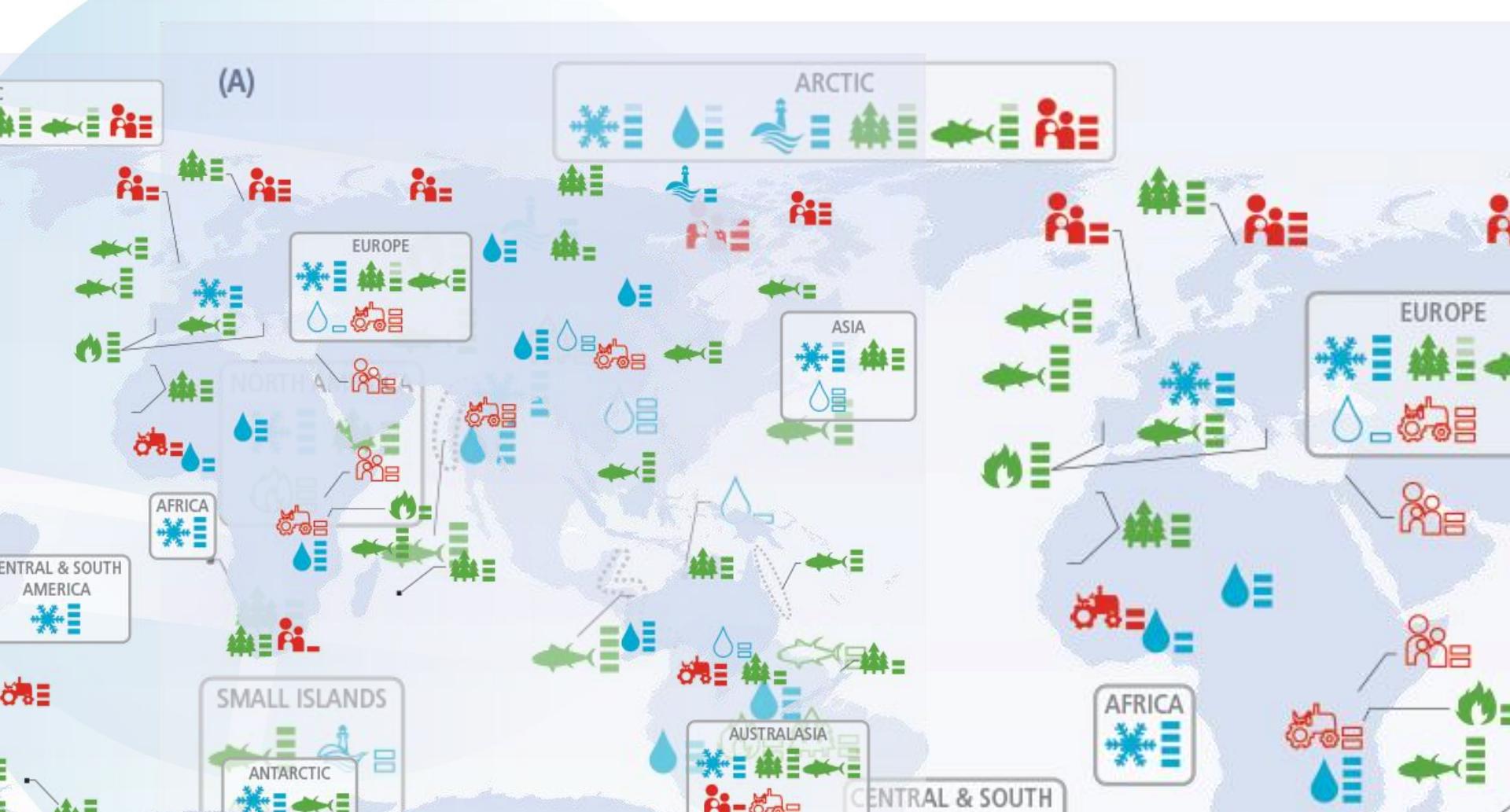
# WIDESPREAD OBSERVED IMPACTS

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# A CHANGING WORLD

ipcc

INTERGOVERNMENTAL PANEL ON climate change



Confidence in attribution to  
climate change

- = = = =  
very low low med high very high

= indicates confidence range

**Physical systems**



Observed impacts attributed to climate change for

**Biological systems**



**Human and managed systems**



Outlined symbols = Minor contribution of climate change  
Filled symbols = Major contribution of climate change



Regional-scale  
impacts

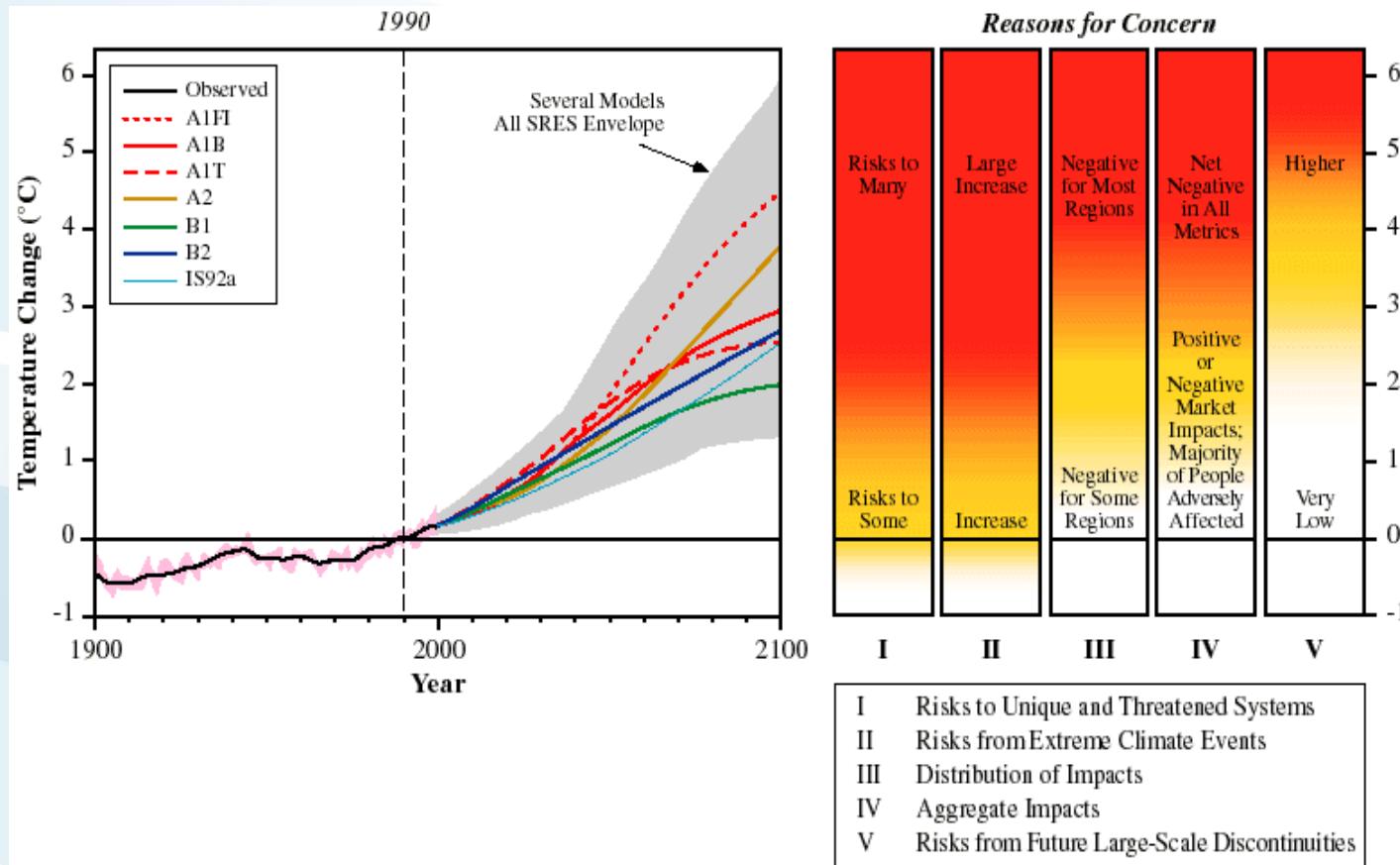


ADAPTATION IS  
ALREADY OCCURRING



RISKS OF  
CLIMATE CHANGE  
**INCREASE**  
WITH CONTINUED  
HIGH EMISSIONS

# The 5 Reasons for Concern/burning embers diagram

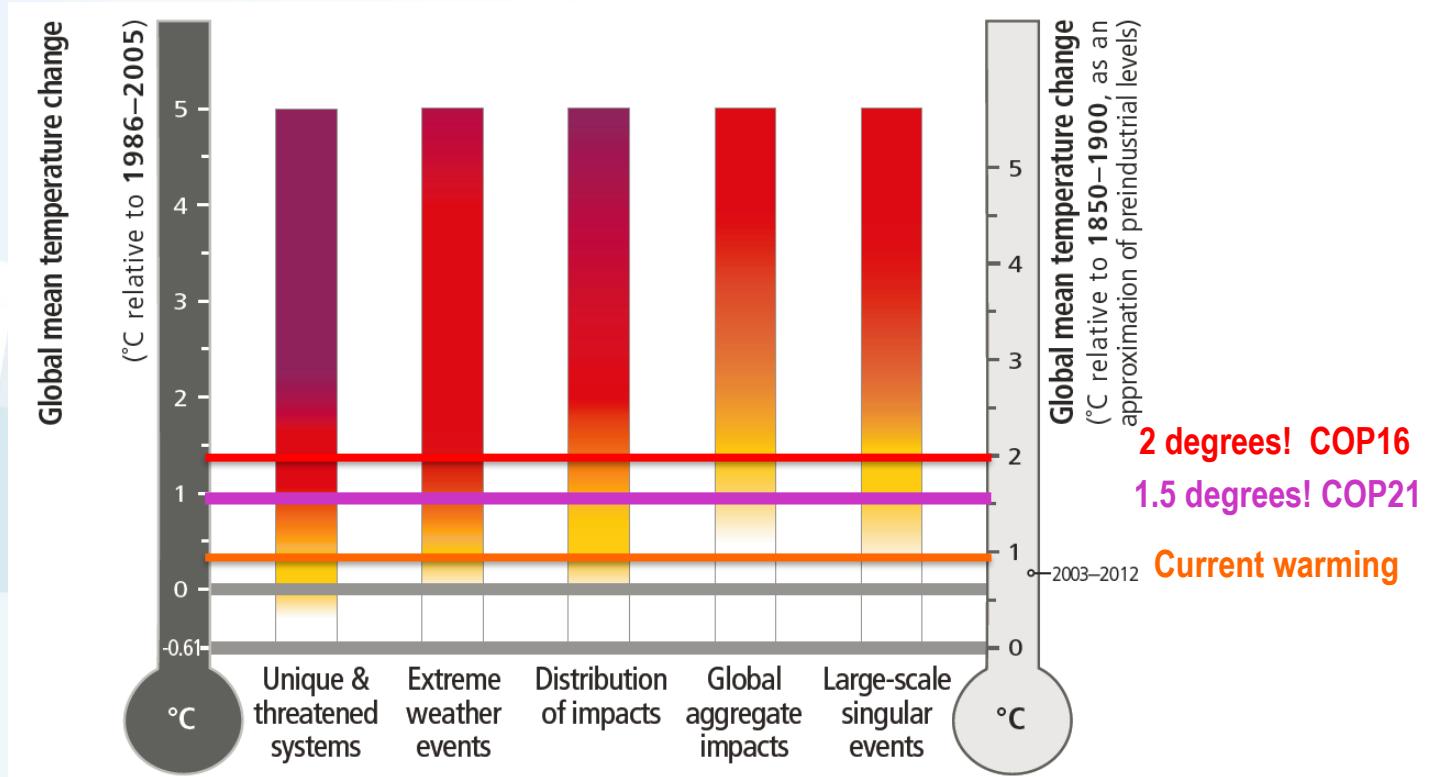


UNFCCC (1992)

Art. 2: “[...] prevent dangerous anthropogenic interference with the climate system.”

Art. 3: “[...] specific needs and special circumstances [...] especially those that are particularly vulnerable to the adverse effects of climate change [...].”

# 2014 version



## Level of additional risk due to climate change

IPCC, 2014



# **Informing the Paris Agreement UNFCCC stocktake on long-term goal before COP21**

## **Message 5: The 2°C limit should be seen as a defence line.**

The ‘guardrail’ concept, in which up to 2 °C of warming is considered safe, is inadequate and would therefore be better seen as an upper limit, a **defence line that needs to be stringently defended**, while less warming would be preferable.

UNFCCC, 2015



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# **PLAN A** EFFECTIVE CLIMATE CHANGE MITIGATION AND CLIMATE RISK MANAGEMENT

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A MORE VIBRANT WORLD

A dark, semi-transparent aerial photograph of a modern city street. It shows several tall buildings with glass windows and green roofs. Some buildings have solar panels installed on their roofs. The street appears to be a mix of residential and commercial areas.

Got a climate problem?  
Try stratospheric sulfate aerosols  
for that quick climate fix!



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## **PLAN B** **GEOENGINEERING**

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**WARNING!** Side effects may include: water cycle alteration, drought, ozone loss, upper atmospheric warming, ecosystem alterations and delays to greenhouse gas emission reduction negotiations.

Please consult a lawyer before taking.



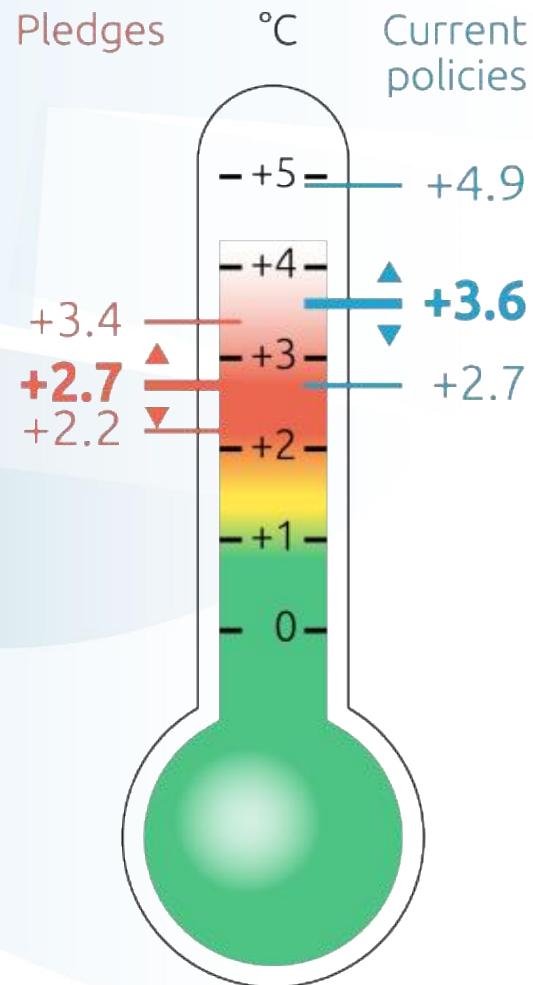
# PLAN C LEAVING IT ALL BEHIND

# Policy response to the challenge (Plan A - Mitigation and Adaptation)

## Paris COP 21



# But: State of play before&after COP 21

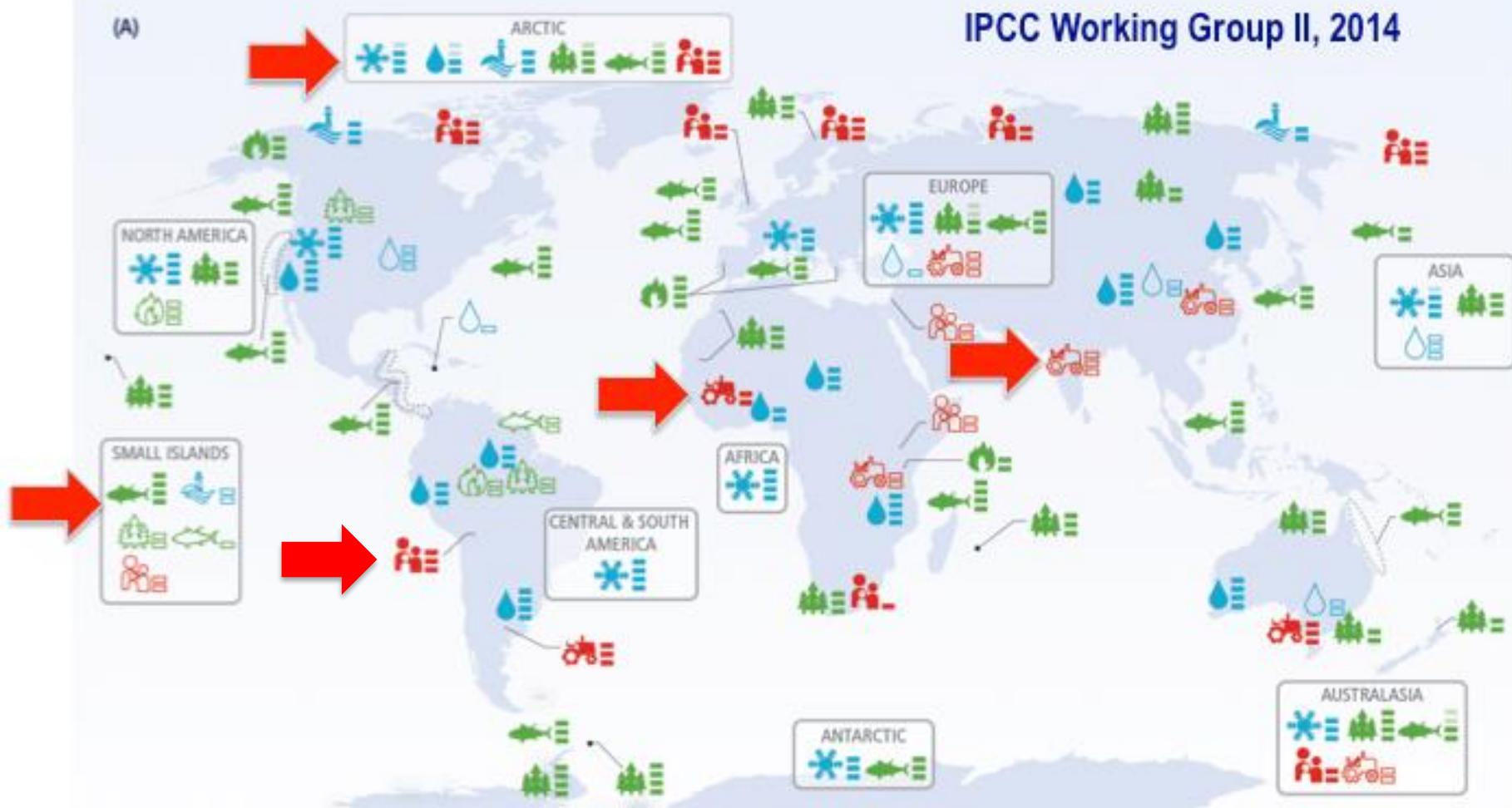


Climate Action Tracker, October 2015

# Responsibility and justice?



# IPCC Working Group II, 2014



Confidence in attribution to climate change

- very low   = low   = med   = high   = very high

indicates confidence range

Observed impacts attributed to climate change for

#### Physical systems



- Glaciers, snow, ice, and/or permafrost
- Rivers, lakes, floods, and/or drought
- Coastal erosion and/or sea level effects

#### Biological systems



- Terrestrial ecosystems
- Wildfire
- Marine ecosystems

#### Human and managed systems



- Food production
- Livelihoods, health, and/or economics



Regional-scale impacts

Outlined symbols = Minor contribution of climate change  
Filled symbols = Major contribution of climate change

# Dangerous climate change-related risks affecting vulnerable populations and systems



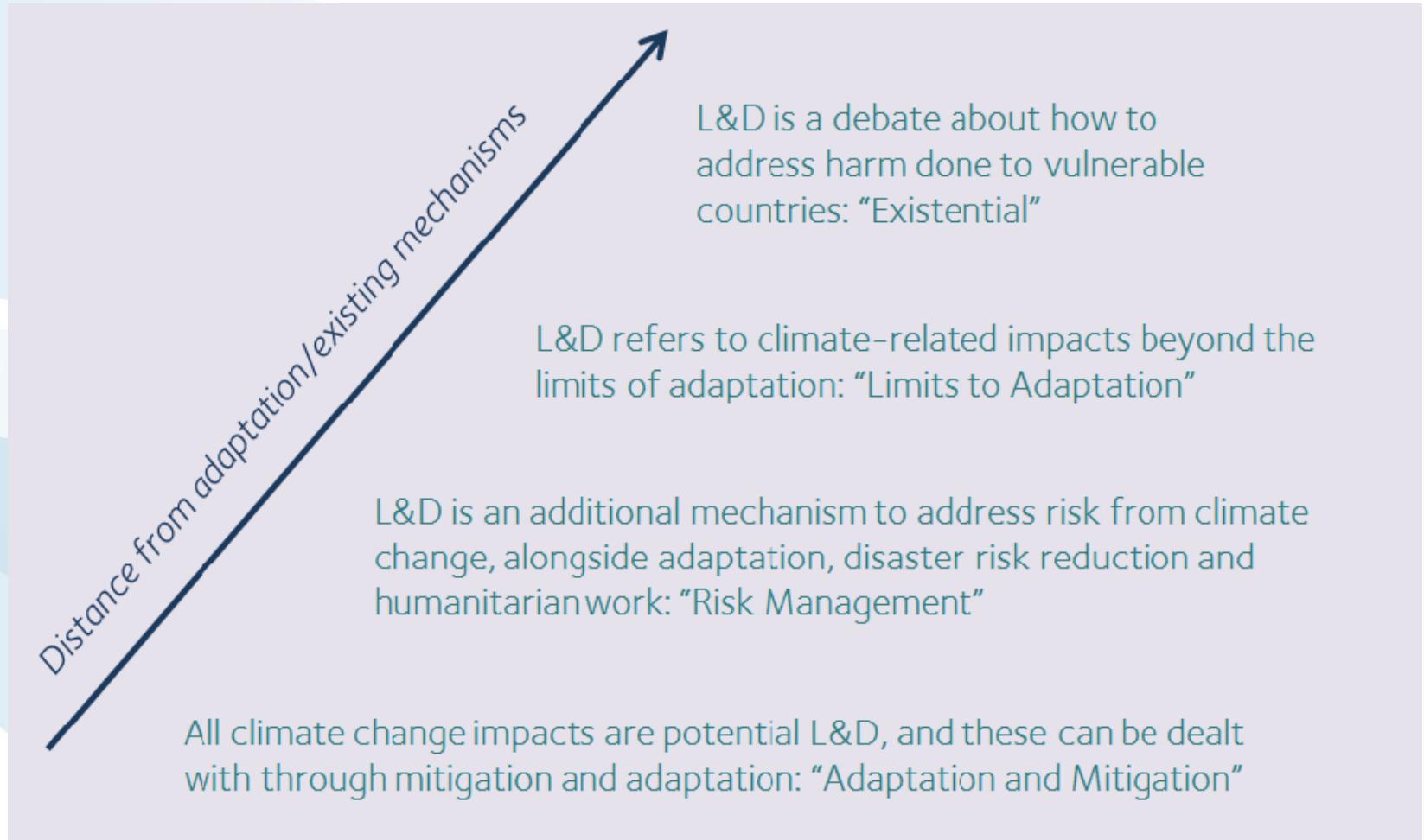
# Policy response for risks beyond adaptation

## The Loss & Damage Mechanism

- **AOSIS** in 1991 proposed establishment of a compensation scheme for the most vulnerable small island and low-lying coastal states
- Warsaw **Loss and Damage mechanism institutionalised** in 2013
- L&D with **stand-alone article** in Paris agreement 2015
- 3<sup>rd</sup> pillar of deliberations under the UNFCCC in addition to mitigation and adaptation
- **Contested terrain**
  - ‘Southern countries’ at risk (such as AOSIS) demand **compensation**, reject risk management as involves national responsibility
  - OECD negotiators willing to support **risk management**, part. **insurance**, but liability and compensation considered red lines

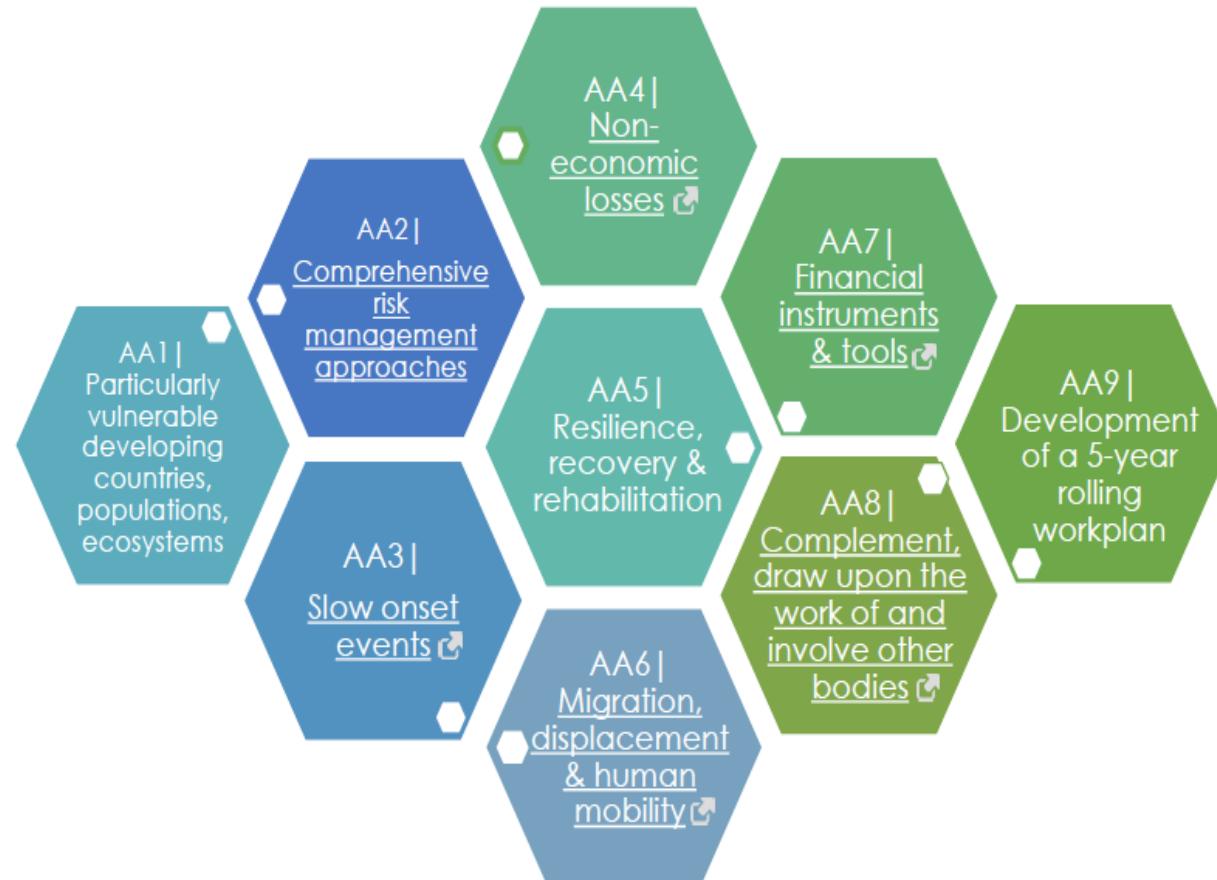


# Perspectives on Loss and Damage



# L&D Executive Committee

## Action areas of 2 year workplan



UNFCCC, 2016

# Questions



Avoided	Unavoided	Unavoidable
Avoidable damage avoided  → Damage prevented through mitigation and/or adaptation measures.	Avoidable damage and loss not avoided  → Where the avoidance of further damage was possible through adequate mitigation and/or adaptation, but where adaptation measures were not implemented due to financial or technical constraints.	Unavoidable damage and loss  → Damage that could not be avoided through mitigation and/or adaptation measures; e.g., coral bleaching, sea level rise, damage due to extreme events where no adaptation efforts would have helped prevent the physical damage.

Source: Verheyen, 2008

Dealing with unavoidable risks today AND avoiding future risks and preventing unavoidable risks?

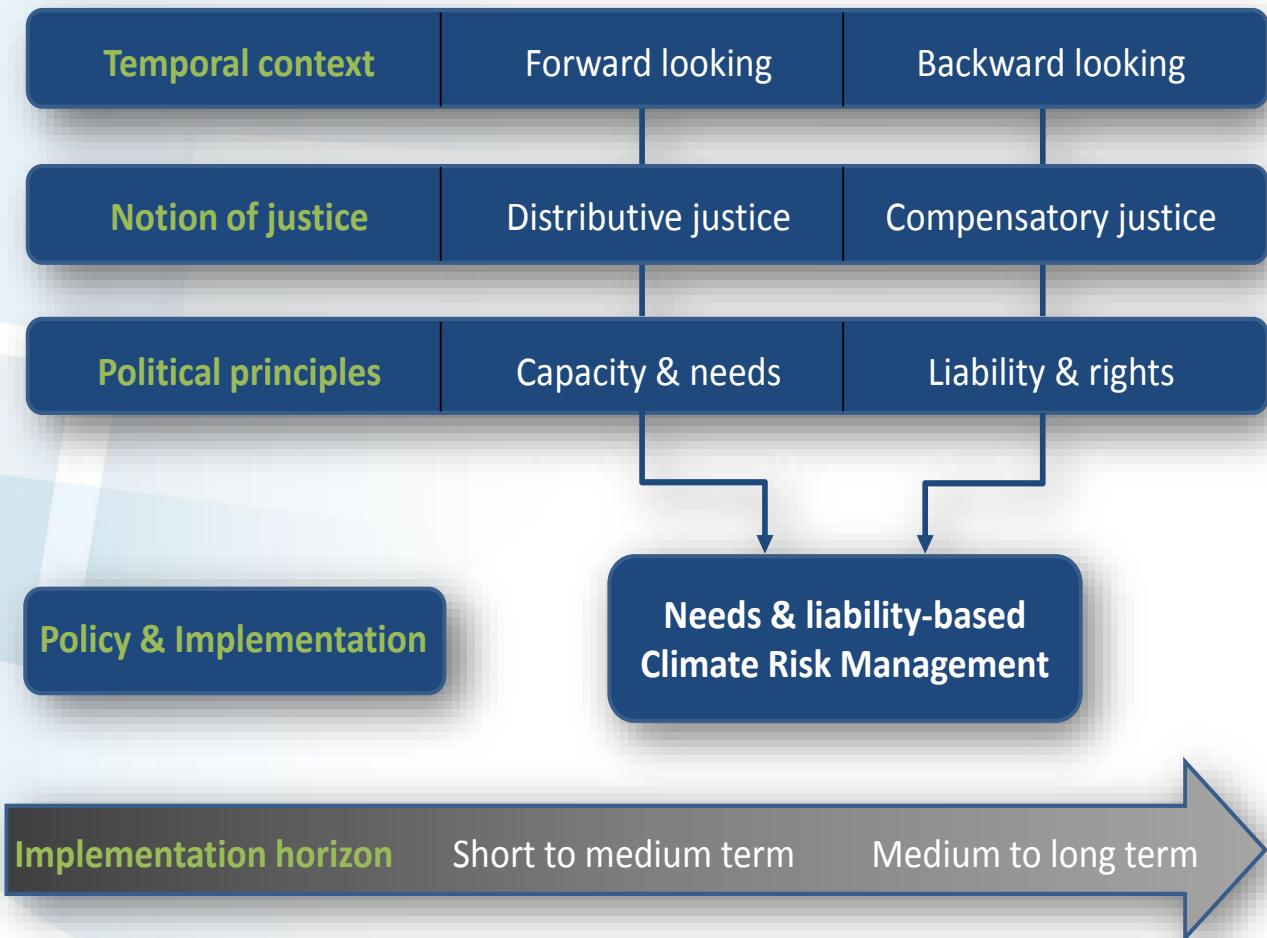
How different –or the same- as adaptation and disaster risk management?

What is the risk and options space?

# Methodological approach for identifying the Loss and Damage space

- Principled approach to the L&D debate
  - Integrate evidence from attribution studies and work towards **compensatory justice** → curative options
  - Supporting climate risk management via **distributional justice** → transformational options
  - Signaling urgency of 1.5°/2° C ambition
- Building blocks for policy proposal on Loss&Damage
  1. Comprehensive risk analytics
  2. Risk evaluation: risk preference and tolerance
  3. Justice principles

# A broad climate risk analytical perspective



# 1. Climate change and disaster risk



## Hazard

*Intensities, duration and frequencies of some hazards changing (IPCC 2012&14)  
Extreme event attribution in early stages (James et al., 2014; Trenberth et al., 2015)*



## Exposure

*Dominating factor - currently (IPCC, 2012&14)*



## Vulnerability

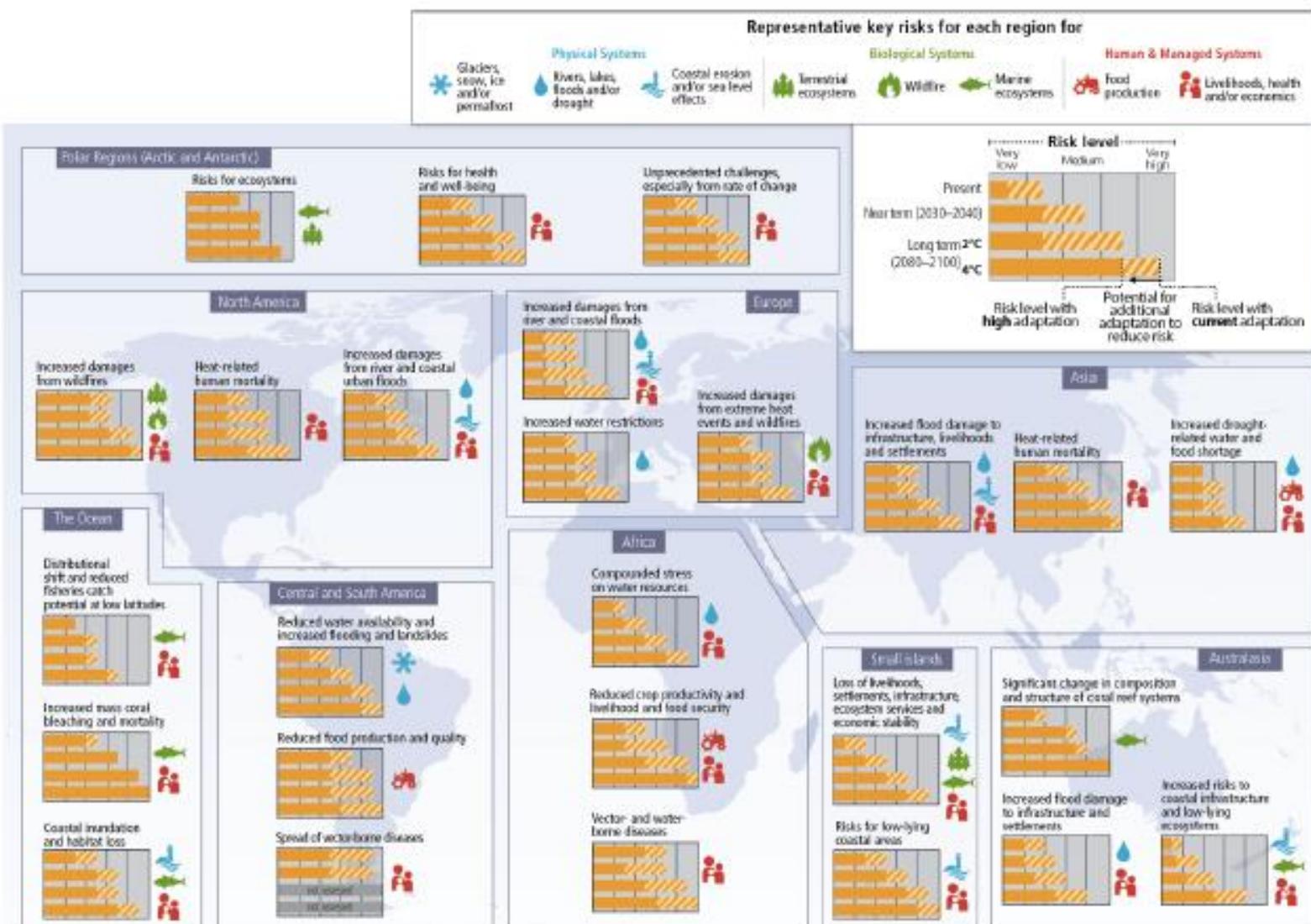
*Key driver, knowledge gaps, significant adaptation deficit (IPCC, 2012)*

## Risk

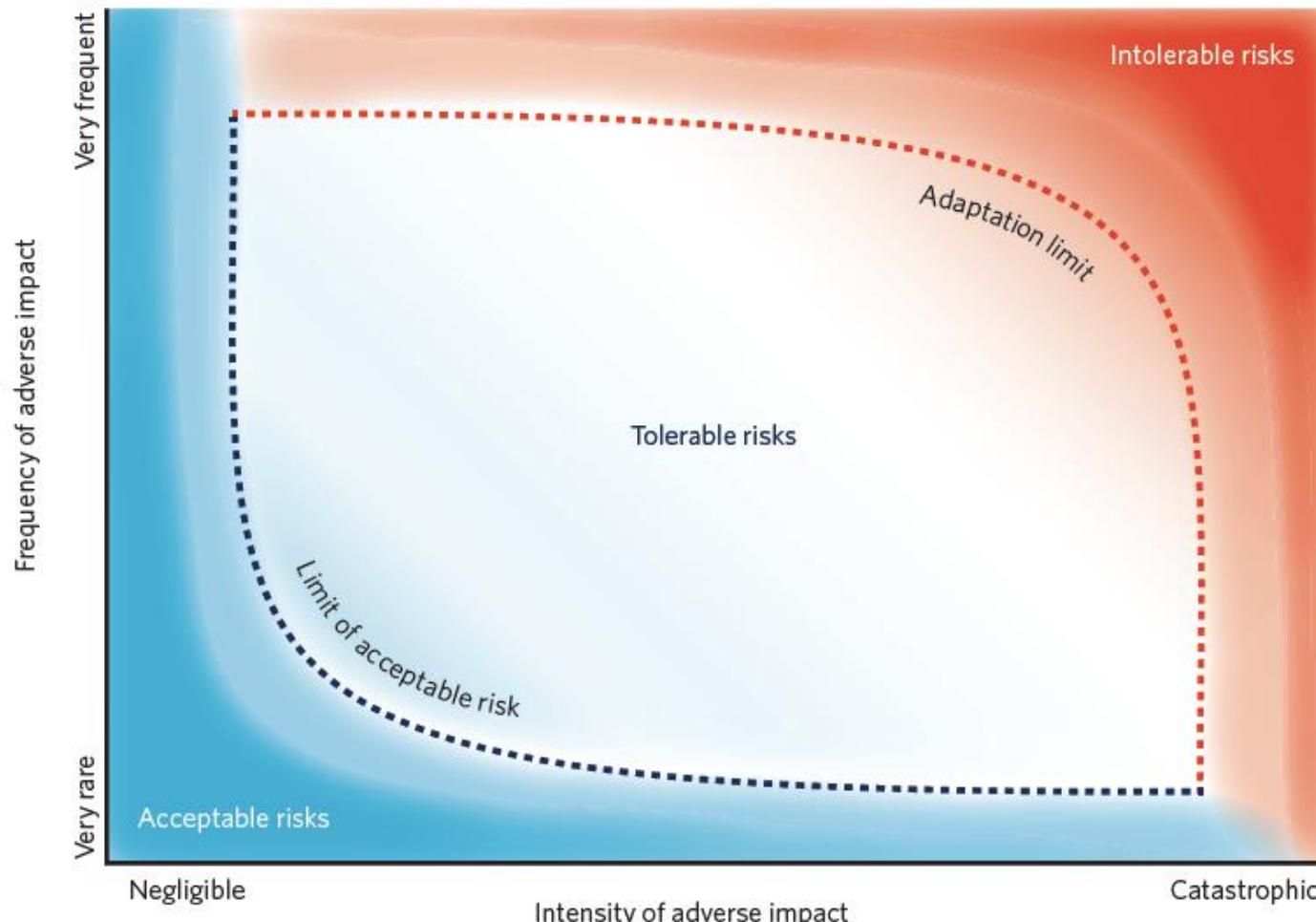
*Climate attribution very complex (Schaller et al., 2016)*

Images:  
IPCC, 2014

# Future risk: IPCC Working II regional climate risk analysis



## 2. Risk evaluation



Acceptable, tolerable and intolerable risks

Dow et al. 2013b after Klinke and Renn 2002; Renn and Klinke 2013)

### 3. Climate Justice

- Identifying roles and responsibilities for dealing with risks involves attention to climate justice principles
- *Compensatory justice*
  - Polluter-pays principle,
  - due to the unequal distribution of historical and current emissions, as well as potential irreversible loss,
  - attributing impacts to anthropogenic climate change and identifying harm-doing.
- *Distributive justice*
  - Burden sharing necessary as many vulnerable countries in need of international support for tackling today's adaptation deficits
  - Does not require climate attribution of past, present and future risks for generating international support, such as provided via the Global Facility for Disaster Risk Reduction (GFDRR).

# What are the risks we are talking about and what set of measures can be used?

Avoided	Unavoided	Unavoidable
Avoidable damage avoided  → Damage prevented through mitigation and/or adaptation measures.	Avoidable damage and loss not avoided  → Where the avoidance of further damage was possible through adequate mitigation and/or adaptation, but where adaptation measures were not implemented due to financial or technical constraints.	Unavoidable damage and loss  → Damage that could not be avoided through mitigation and/or adaptation measures; e.g., coral bleaching, sea level rise, damage due to extreme events where no adaptation efforts would have helped prevent the physical damage.

**Transformative measures**  
Avoiding risks ex-ante through transformative risk management (building on DRR and CCCA)

**Curative measures**  
Dealing with unavoidable and unavoidable impacts ex-post

Source: Verheyen, 2008

Mechler and Schinko, 2016

# Curative options

- Support increasing costs attributable to climate change (e.g., coastal defense)
- National-level L&D mechanisms/pools being set-up: Bangladesh, Philippines etc.
- Many risks non-monetary
- Displacement coordination facility:
  - Legal protection by international law and finance for forced migration
  - Nansen Initiative: state-led effort for tackling disaster-induced cross-border displacement

# Transformative measures for risk management

- Comprehensive risk management part of the ExCom workplan
- Debate largely on insurance
  - Pooling and sharing risks to diversify risks integrated with a broader view towards comprehensive DRM and building resilience
  - Innovative instruments involving Public Private Partnerships
- Livelihood transformation (+up-side risk taking, .e.g. R4 in Eastern Africa)
- Migration
- Building resilience throughout while aligning with SDGs

# Linking up-and down-side risk management

## Example R4 Rural Resilience Initiative (drought)

- Ethiopia, Senegal, Malawi, Zambia
- Partners: farmers, local relief society, insurers, reinsurers, rural bank., university, government and donors
- Smallholder farmers' livelihoods in drought-prone northern state of Tigray in Ethiopia exposed to weather shocks
- **Integrated risk management framework**
  - Improved resource management (risk reduction)
  - Individual/group savings (risk reserves)
  - Microinsurance (risk transfer)
  - Microcredit (risk taking)
- “Insurance-for-work” program on top of the government’s “food and cash-for-work” Productive Safety Net Programme (PSNP)
- Work program includes projects for reducing risk and building climate resilience, such as improved irrigation or soil management.



# Risk and Policy space for the Small Island States

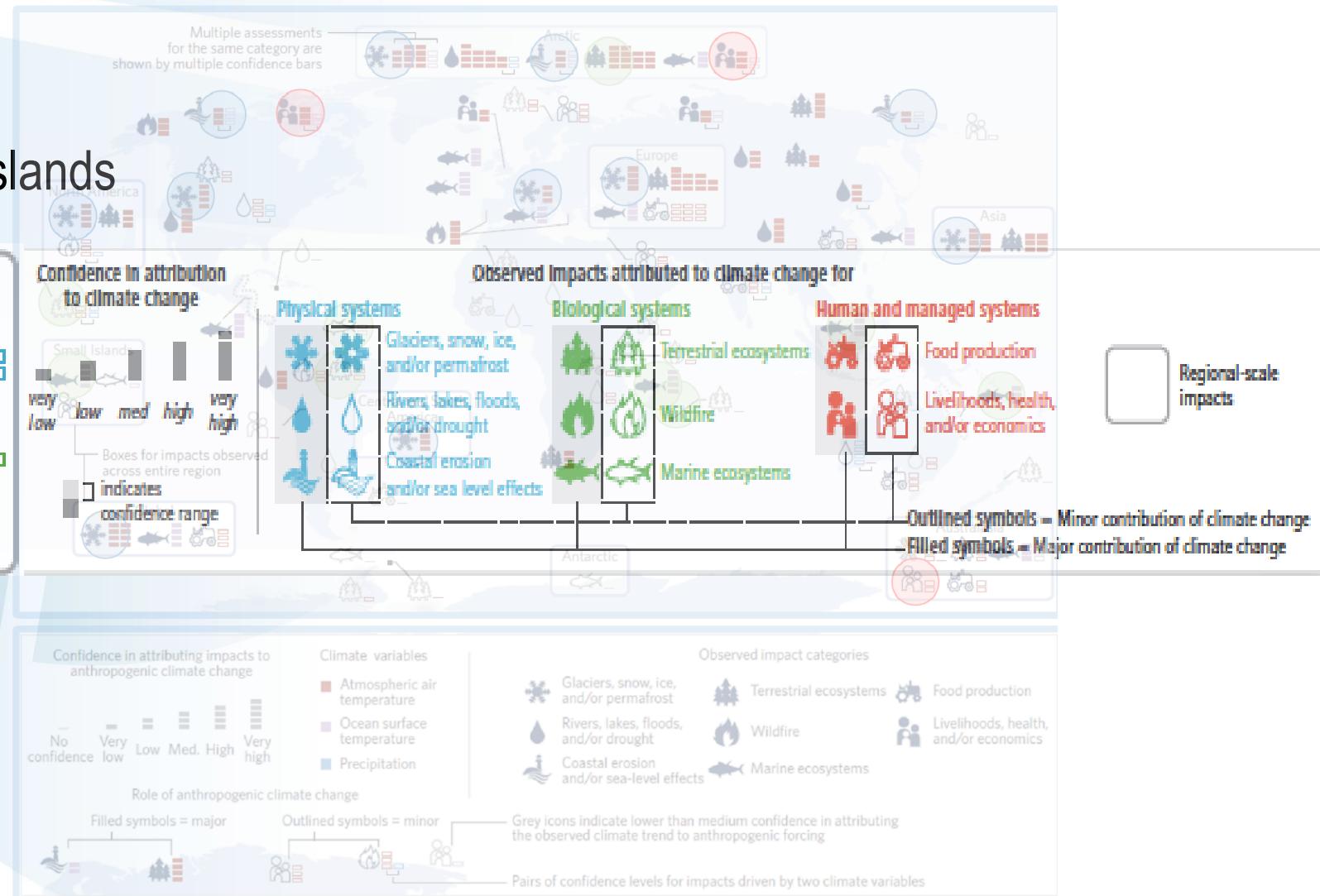
The screenshot shows the homepage of the Science AAAS website. The top navigation bar includes links for Home, News, Journals, Topics, Careers, and a search bar. Below the navigation, there are links for Science, Science Advances, Science Immunology, Science Robotics, Science Signaling, and Science Translational Medicine. A large, bold title "Science" is displayed, followed by the AAAS logo. The main content area features a photograph of a person climbing a palm tree on a beach, with waves crashing against the trunk. To the left of the photo, a sidebar contains the text "Identifying the policy space for climate loss and damage" and a quote from Springer Medizin. The quote discusses the importance of climate risk analysis in policy forums.

Identifying the policy space for climate loss and damage

The authors of this policy forum believe climate risk analysis must play a fundamental role

Springer Medizin

# Small Islands



# Small Islands: sea level rise and high-water events

Climate-related drivers of Impacts										Level of risk & potential for adaptation																							
Warming trend	Extreme temperature	Drying trend	Extreme precipitation	Precipitation	Snow cover	Damaging cyclone	Sea level	Ocean acidification	Carbon dioxide fertilization	Risk level with high adaptation	Risk level with current adaptation	Potential for additional adaptation to reduce risk																					
The interaction of rising global mean sea level in the 21st century with high-water-level events will threaten low-lying coastal areas (high confidence) [29.4, Table 29-1; WGI AR5 13.5, Table 13.5]	• High ratio of coastal area to land mass will make adaptation a significant financial and resource challenge for islands. • Adaptation options include maintenance and restoration of coastal landforms and ecosystems, improved management of soils and freshwater resources, and appropriate building codes and settlement patterns.	 	          	          	          	          																											

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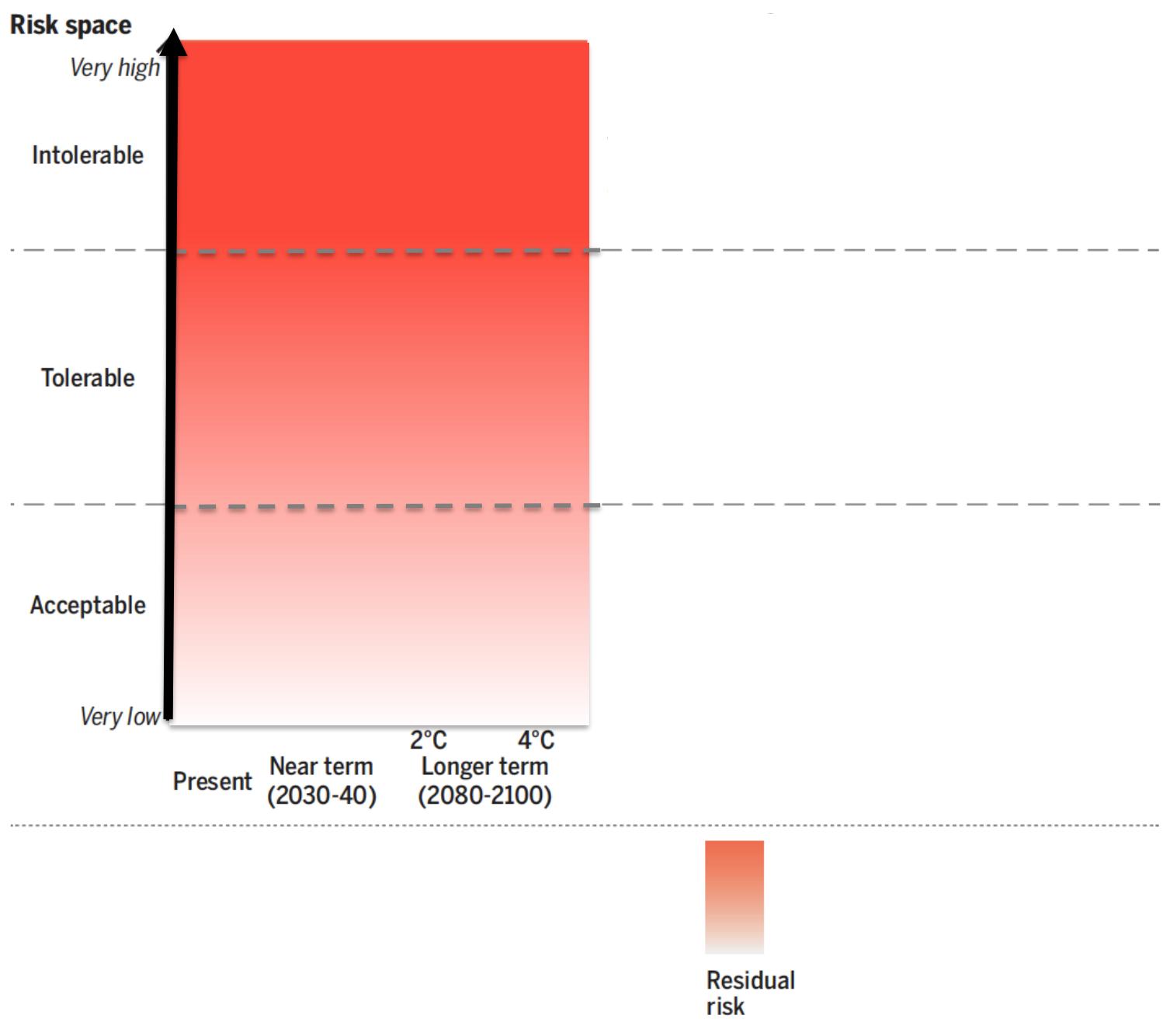
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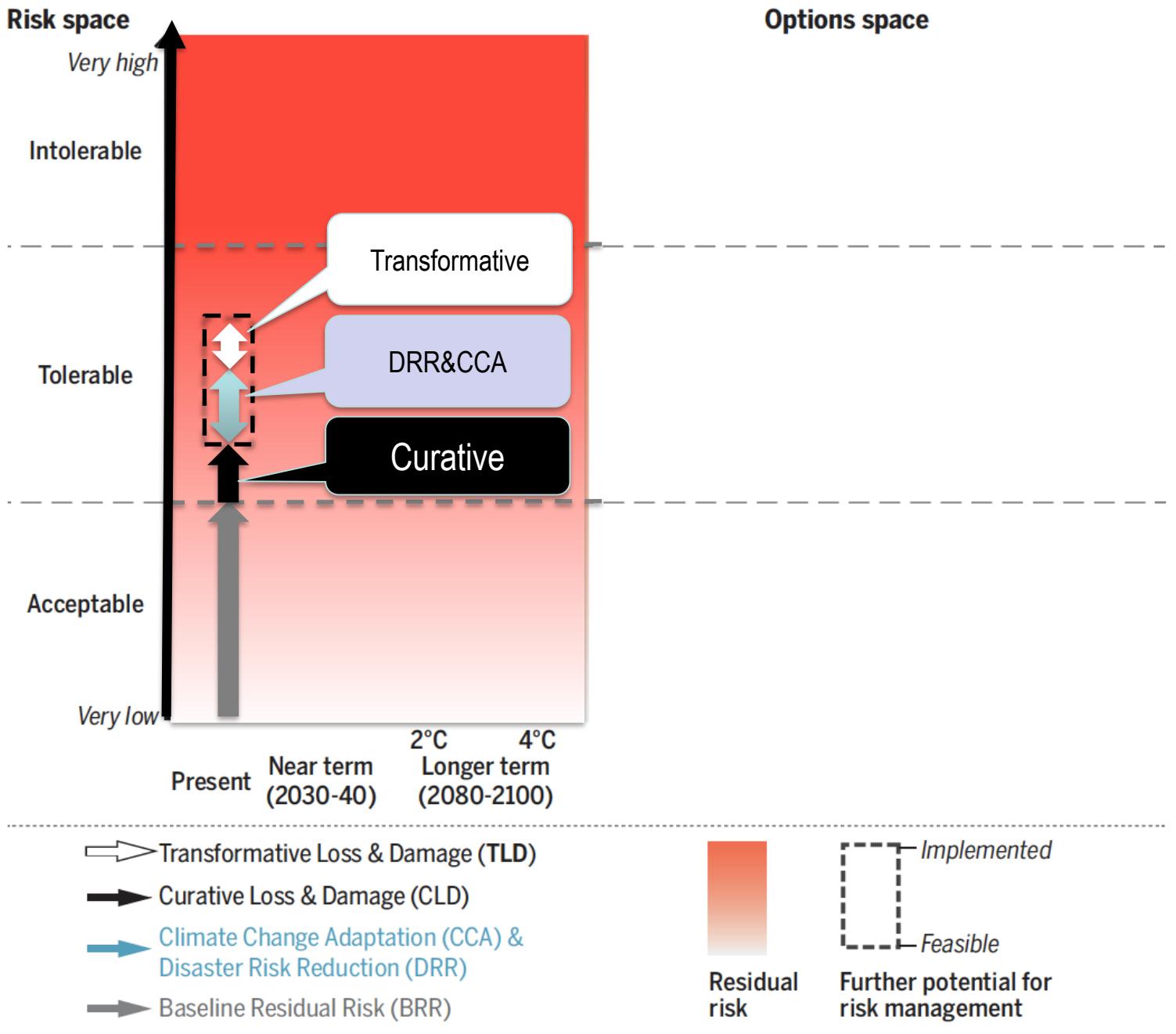
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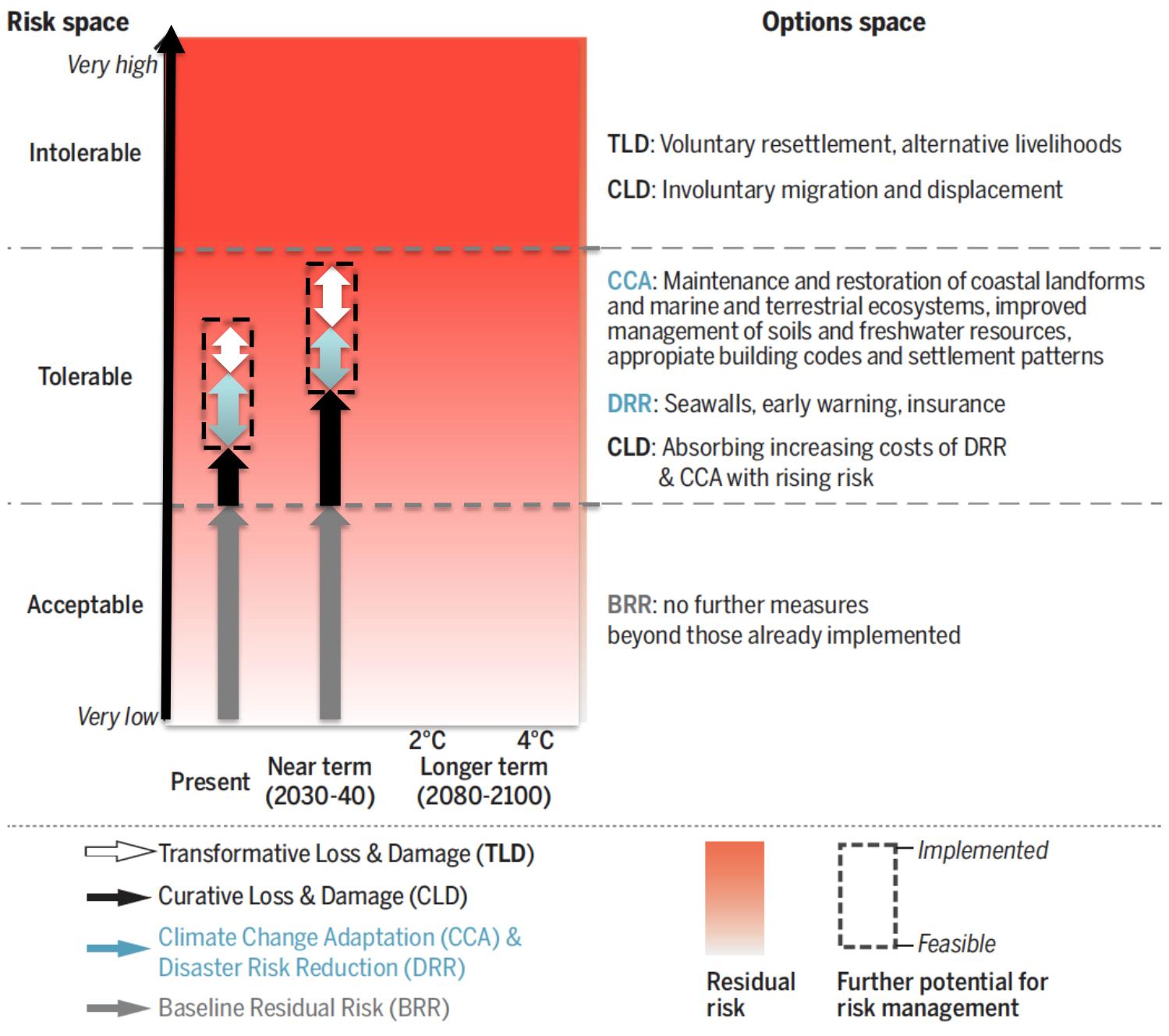
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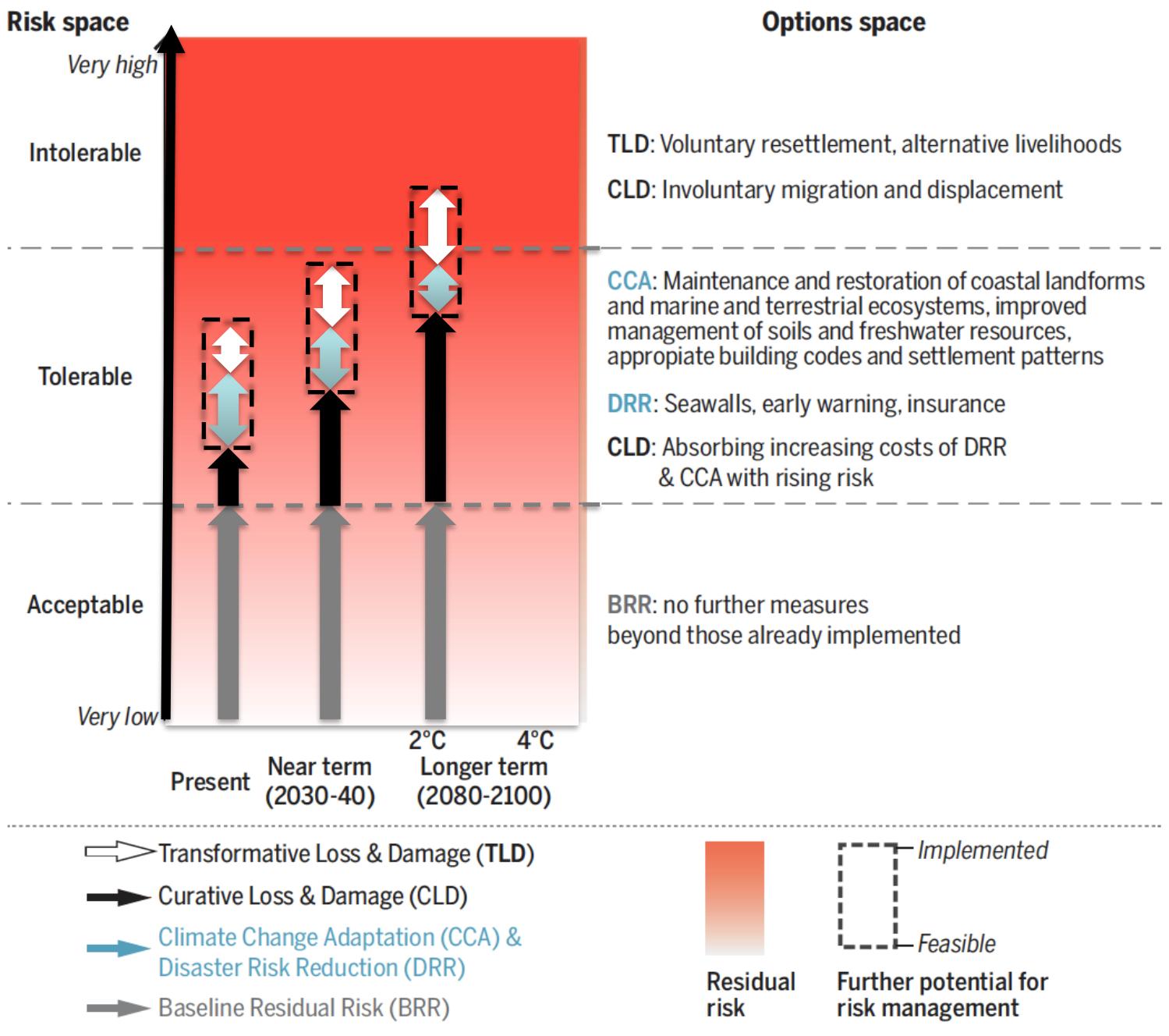
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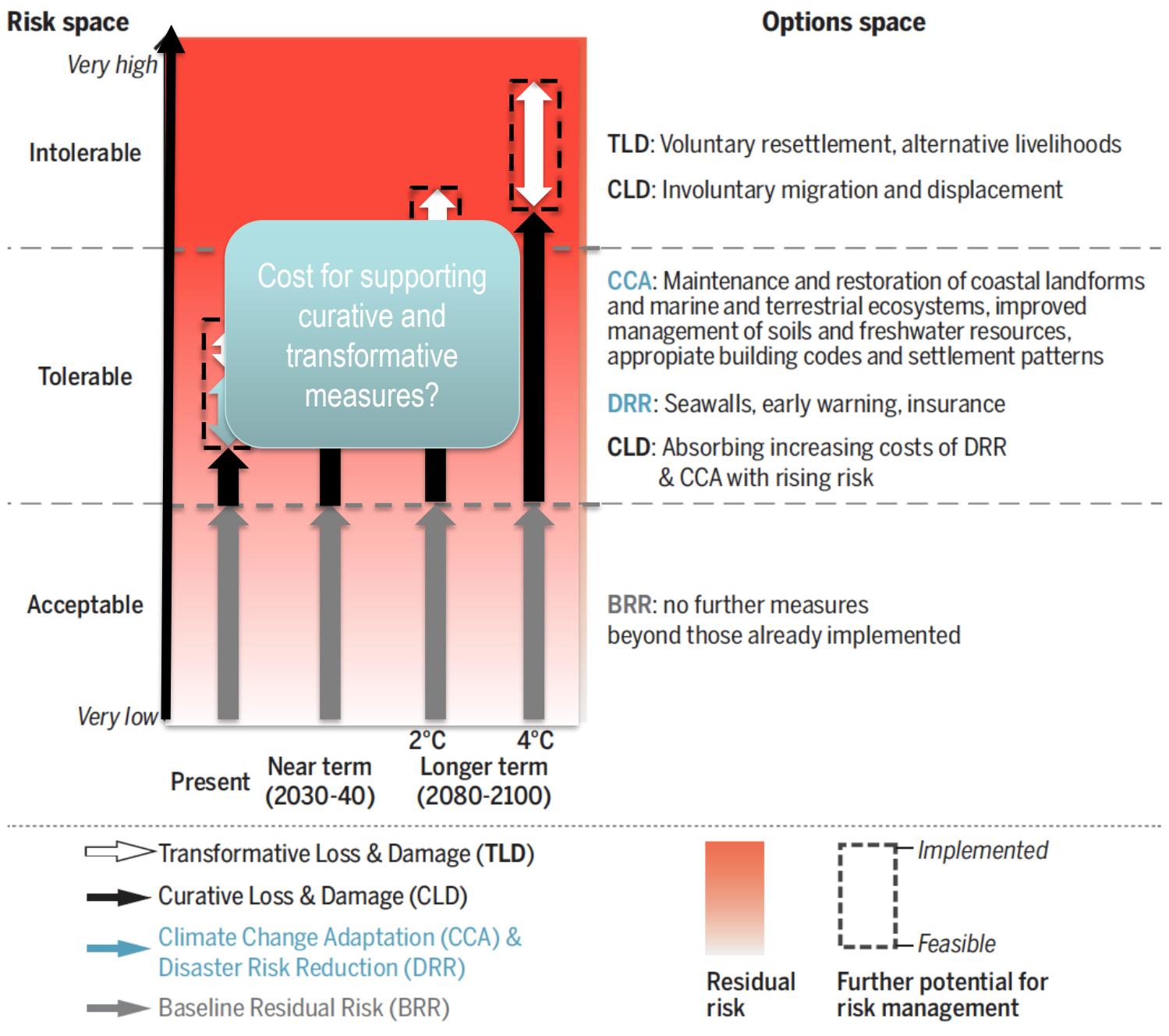




Mechler & Schinko, 2016

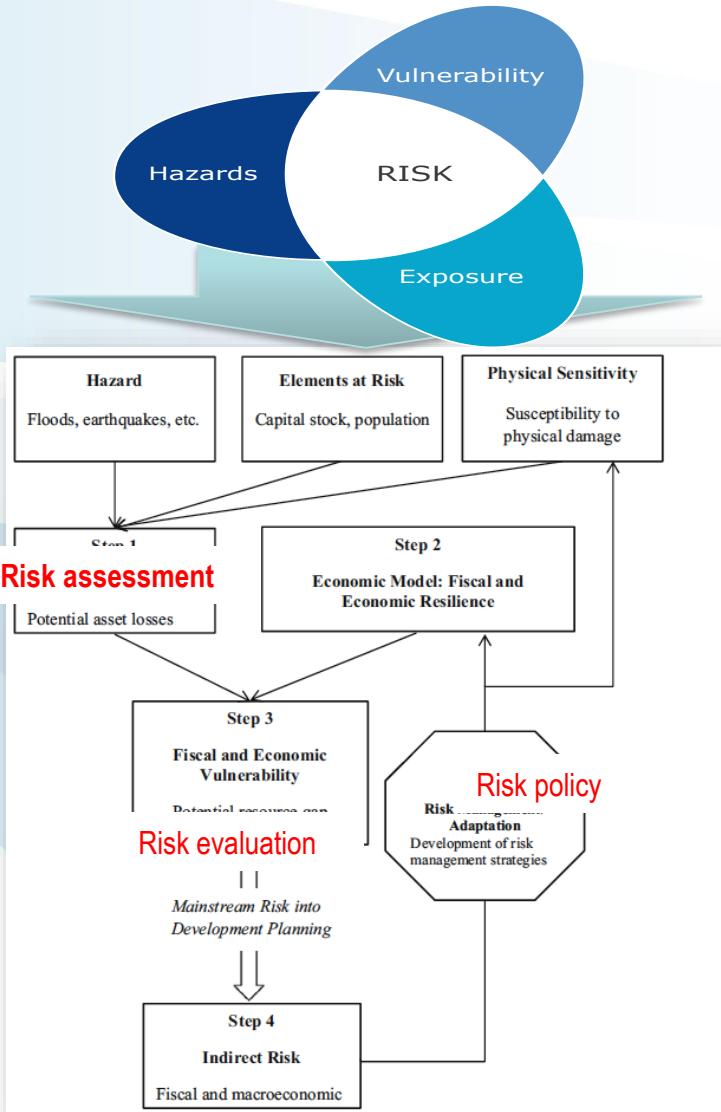






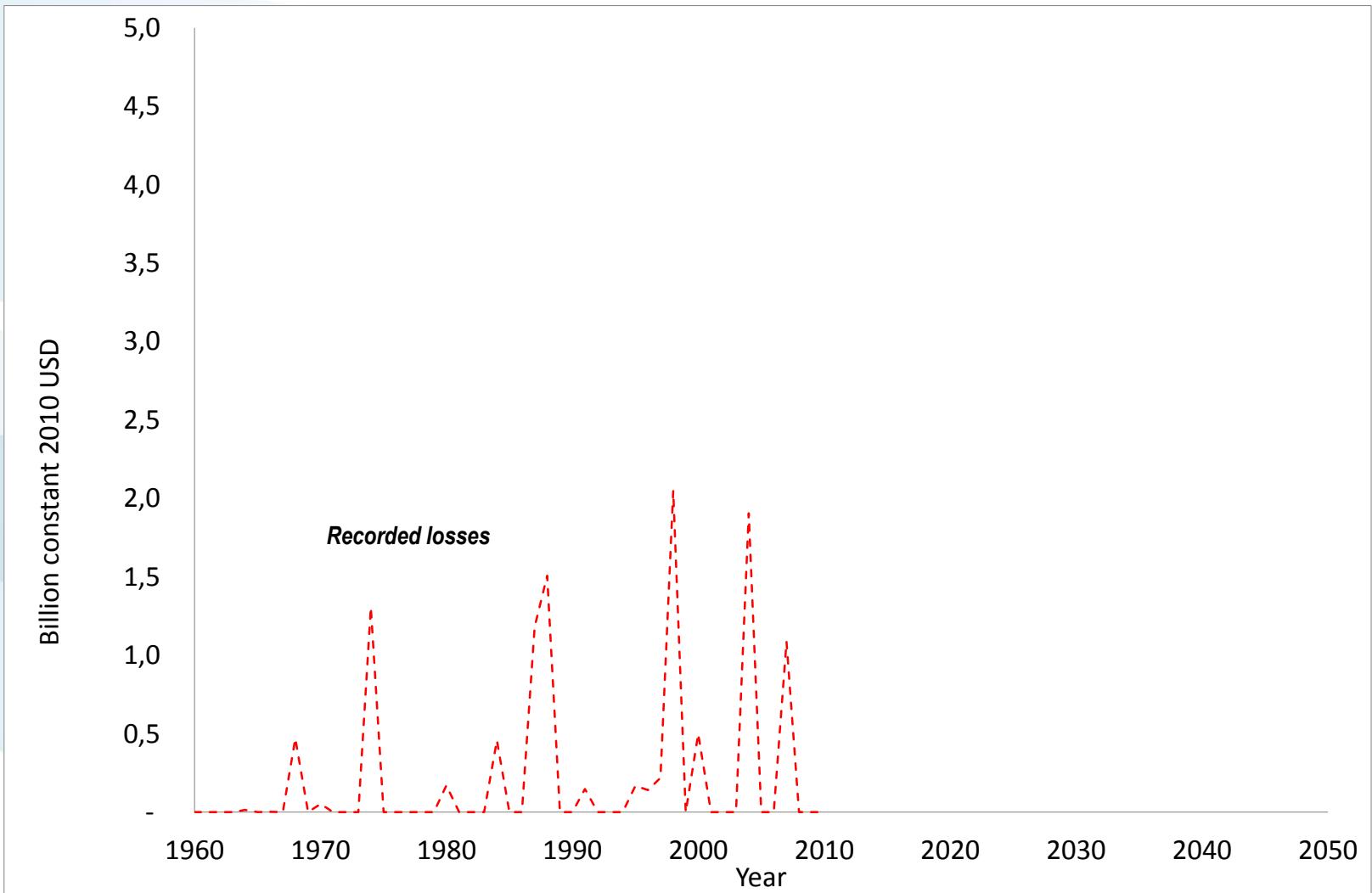
# Modelling risk and risk management

## CATSIM model



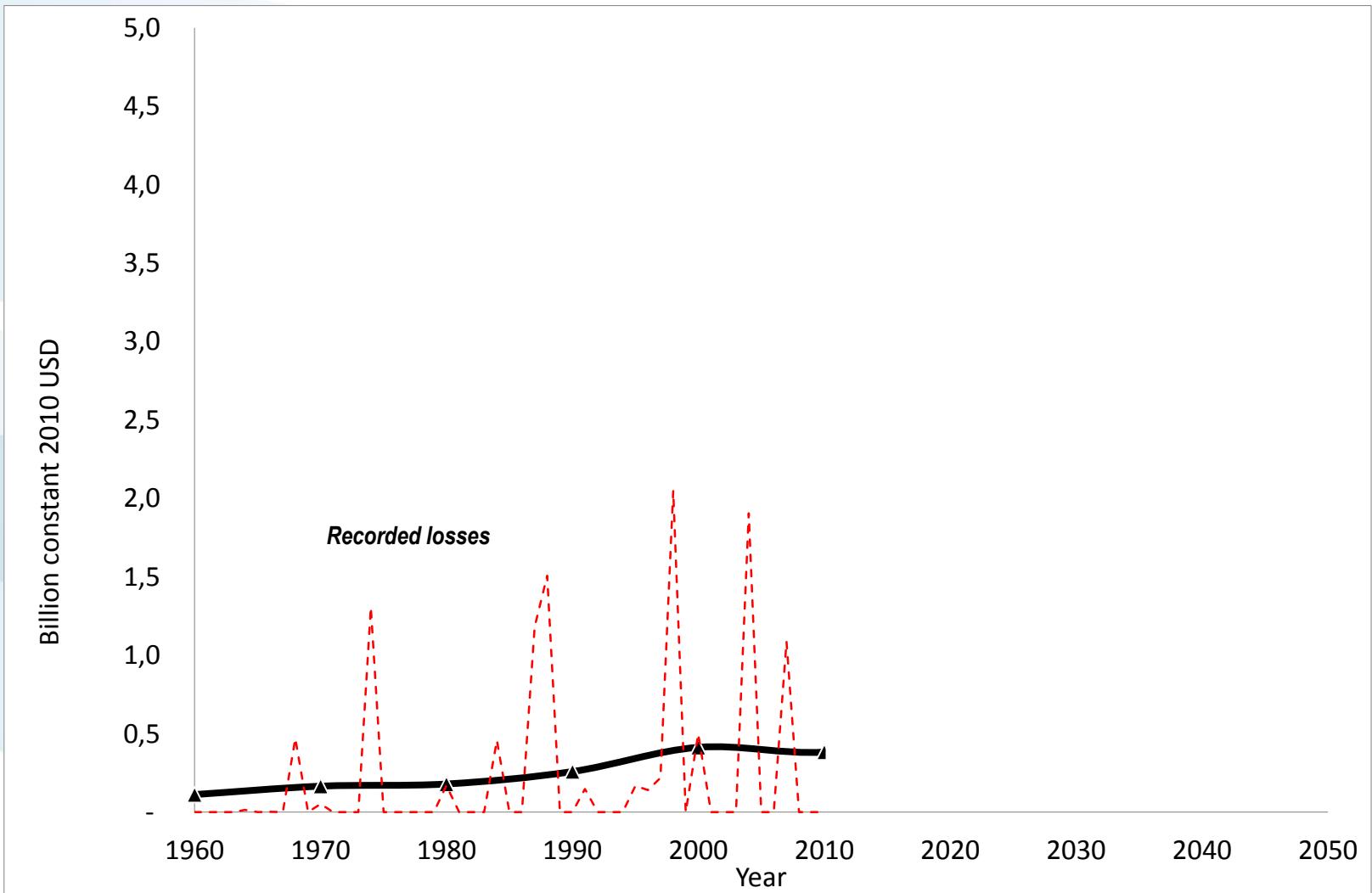
Mechler, Hochrainer, Linnerooth-Bayer, Pflug, 2006

# Projecting climate risk (Bangladesh)



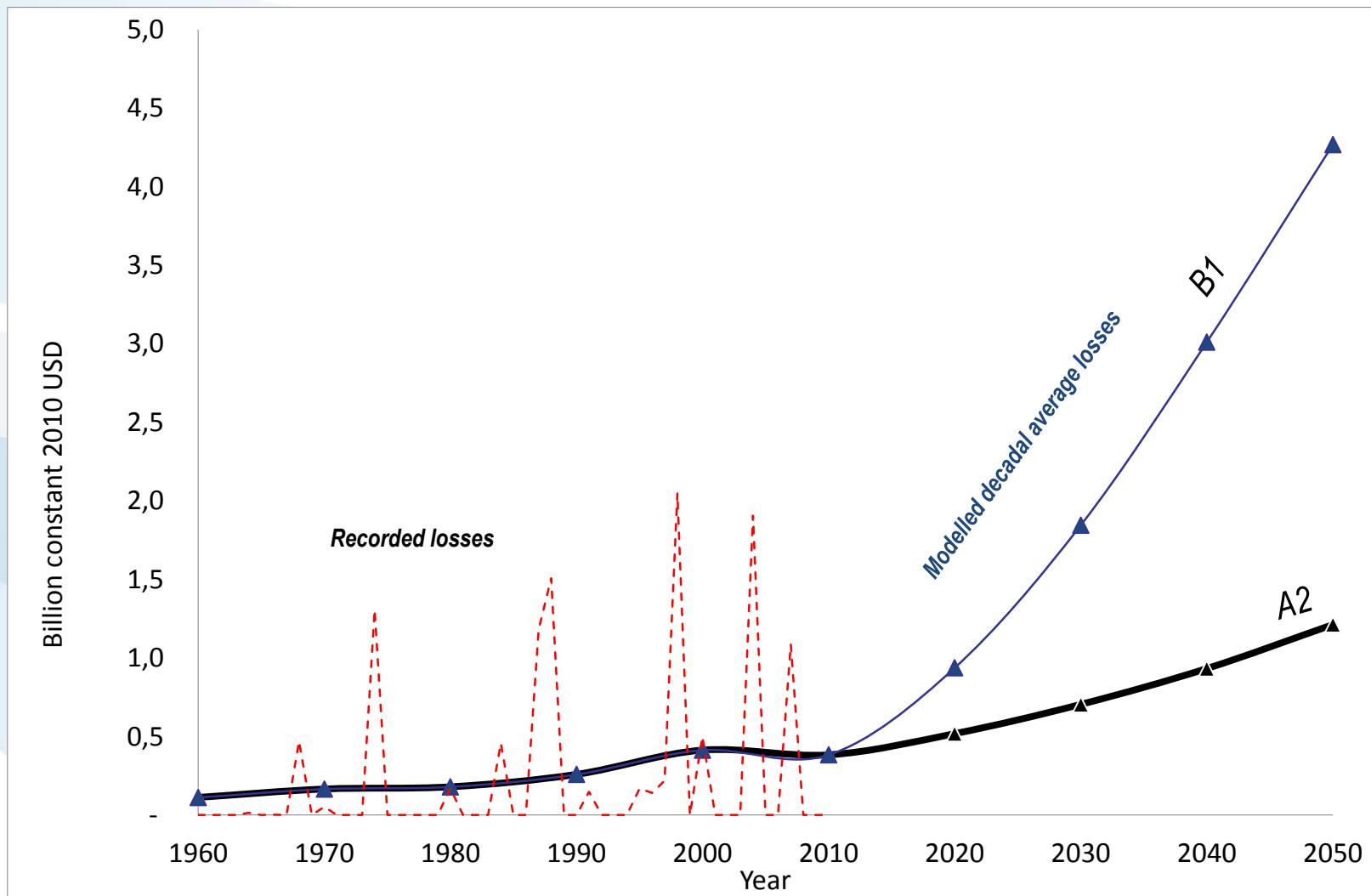
Mechler and Bouwer, 2015

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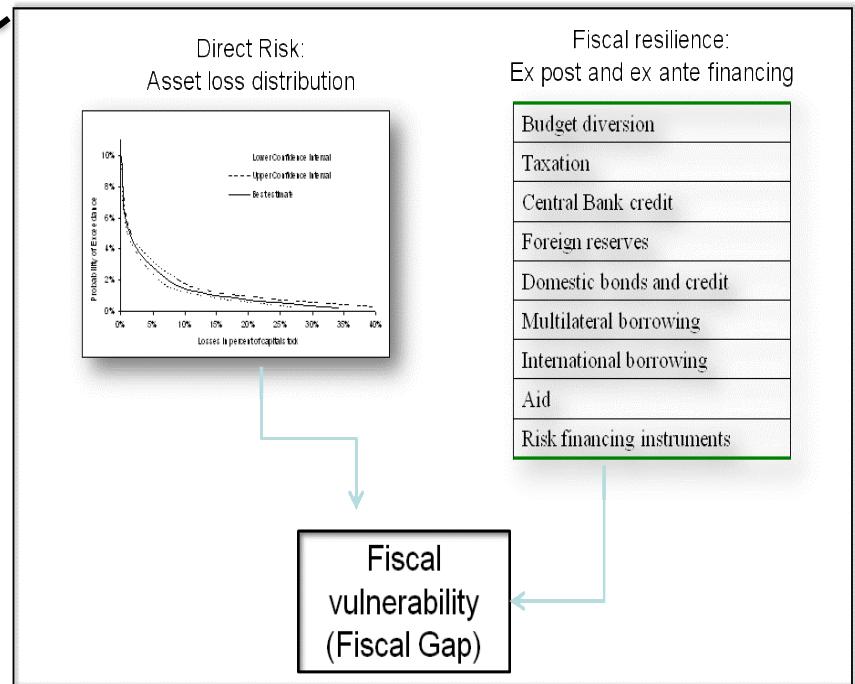
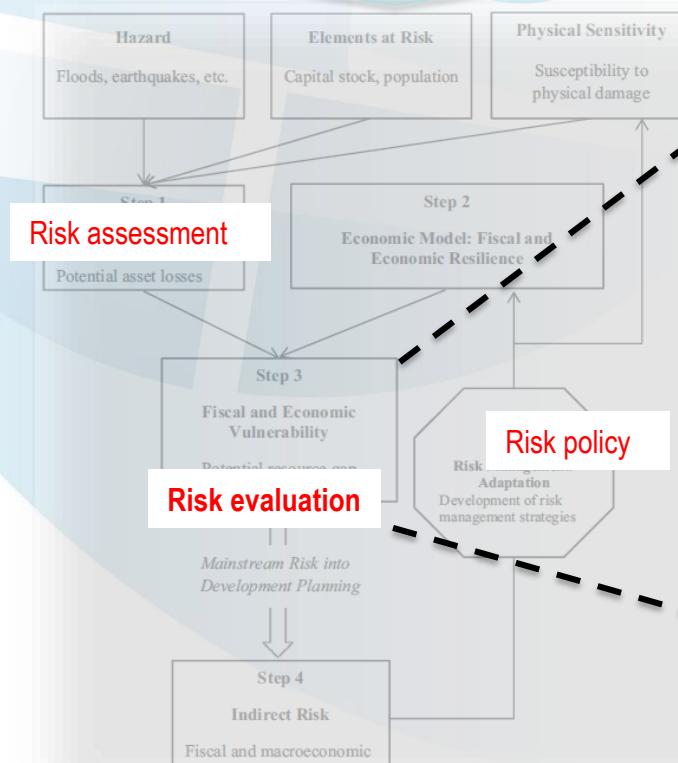
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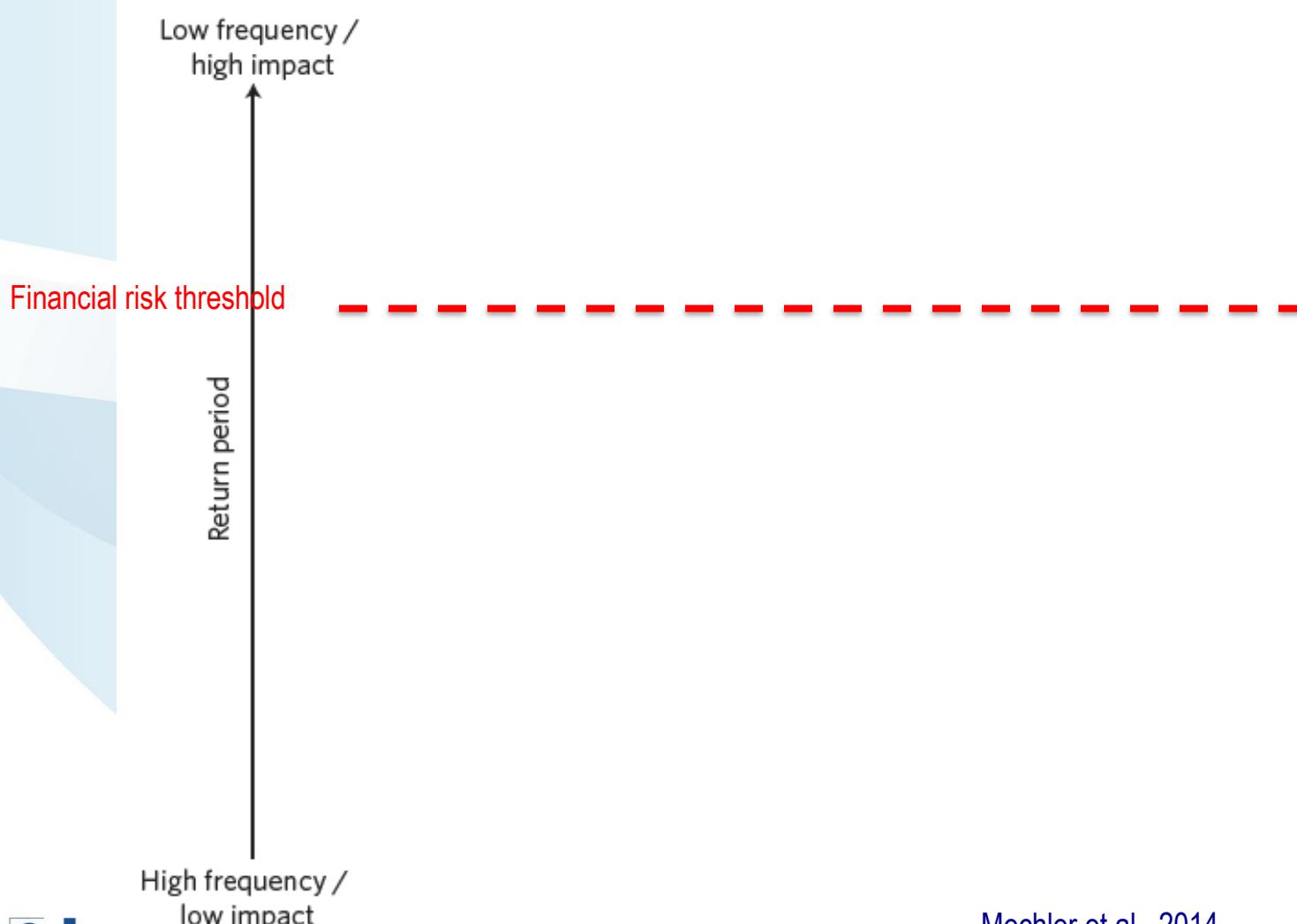
Mechler and Bouwer, 2015

# Modelling risk and risk CATSIM model



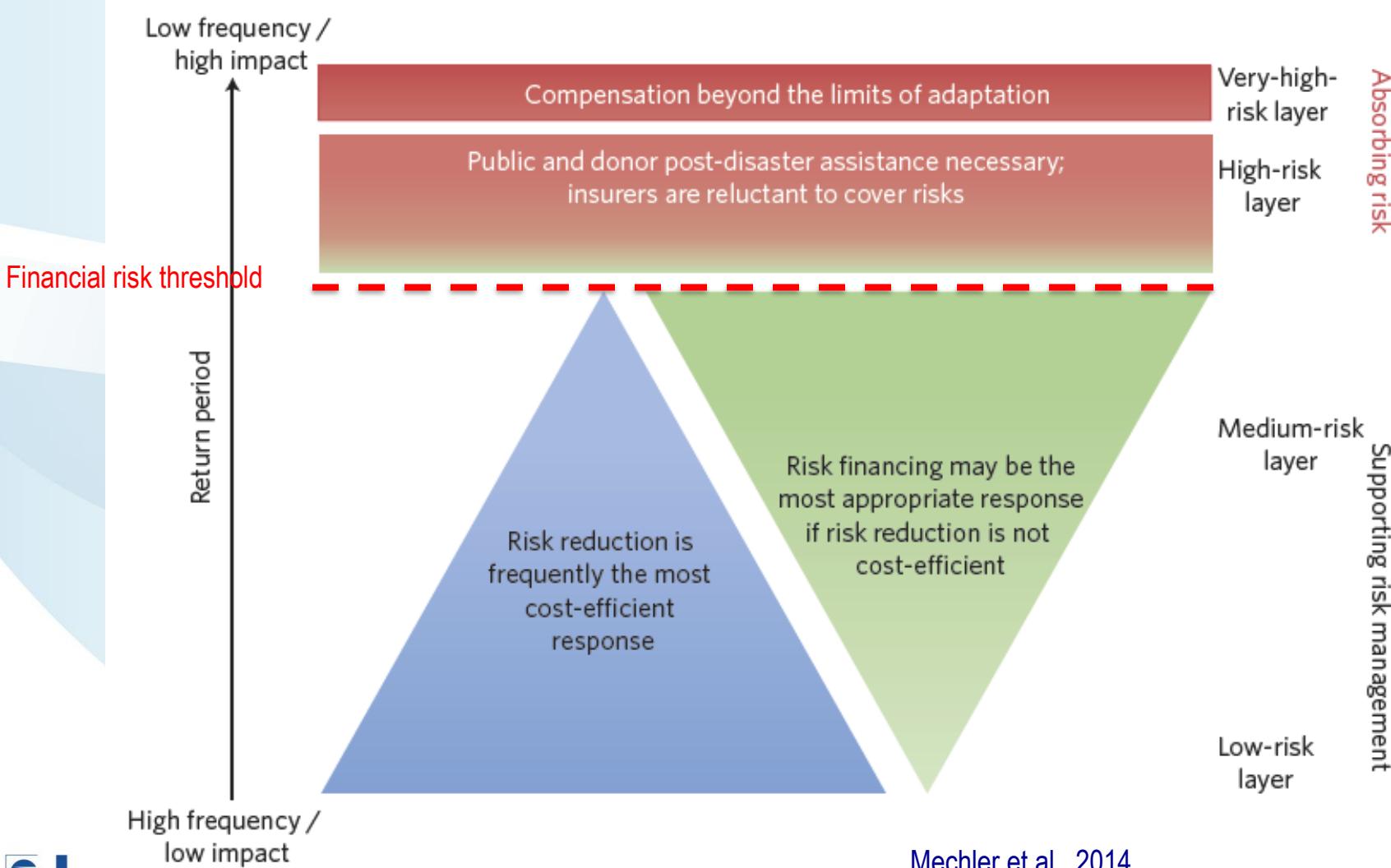
Mechler, Hochrainer, Linnerooth-Bayer, Pflug, 2006

# Risk evaluation: risk layering

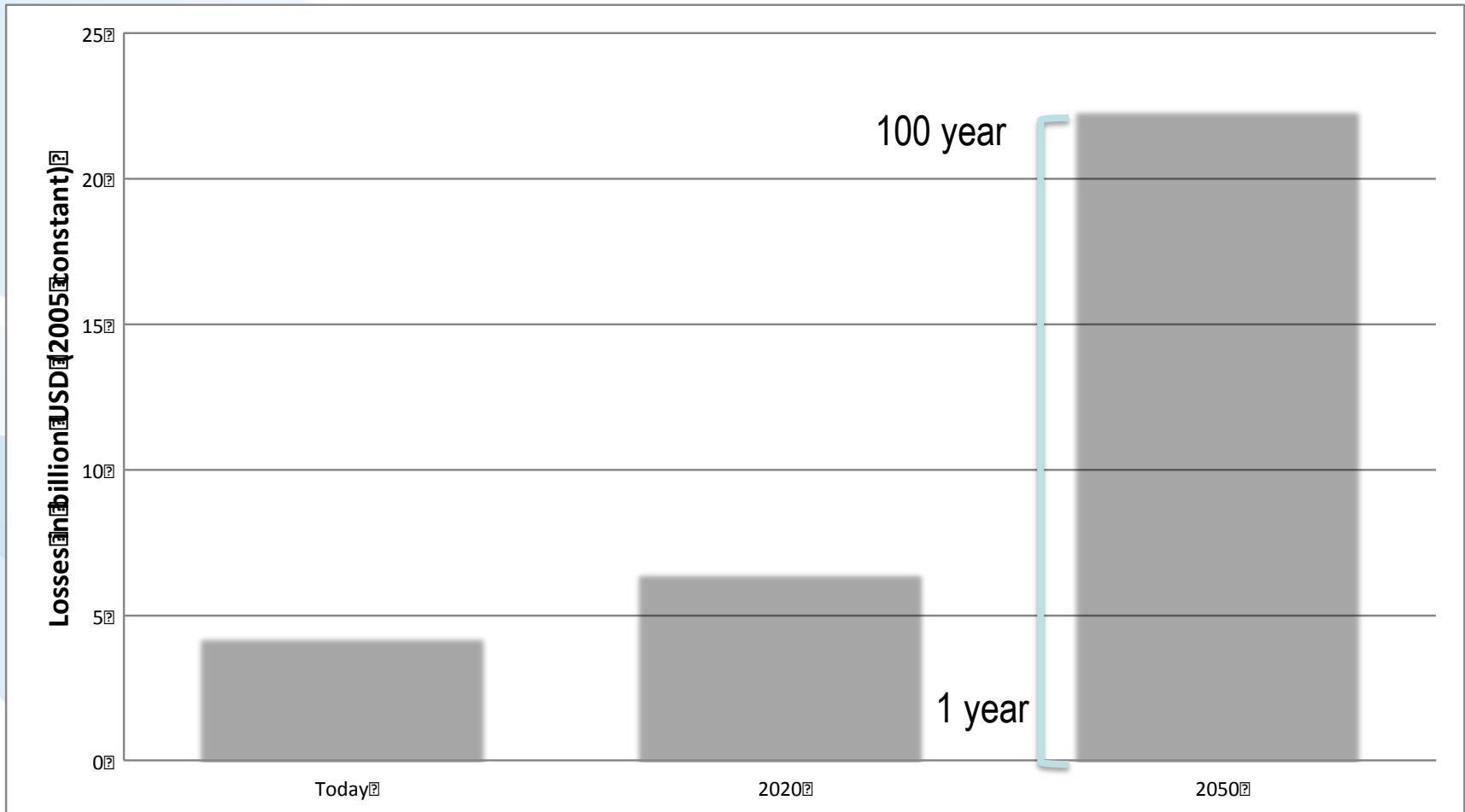


Mechler et al., 2014

# Risk evaluation: risk layering



# Future risks and liabilities (Bangladesh)



Risk layers with climate change  
(B1 scenario and no additional risk reduction)

Based on Mechler and Bouwer, 2015

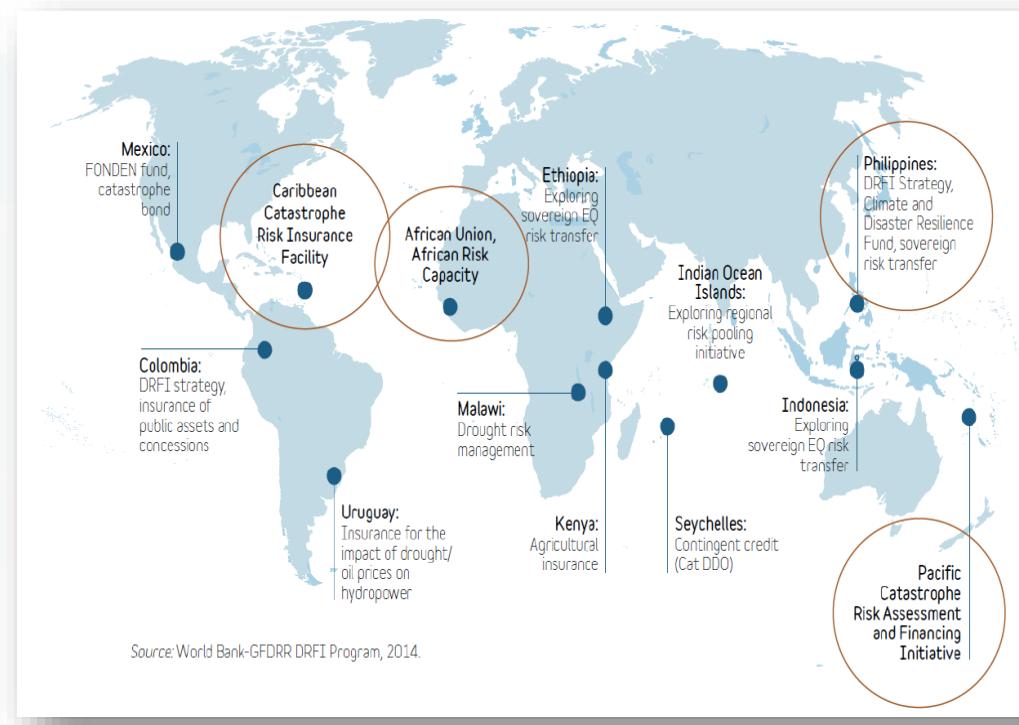
# Implications



## National Mechanism on Loss and Damage in Bangladesh

Scoping Paper

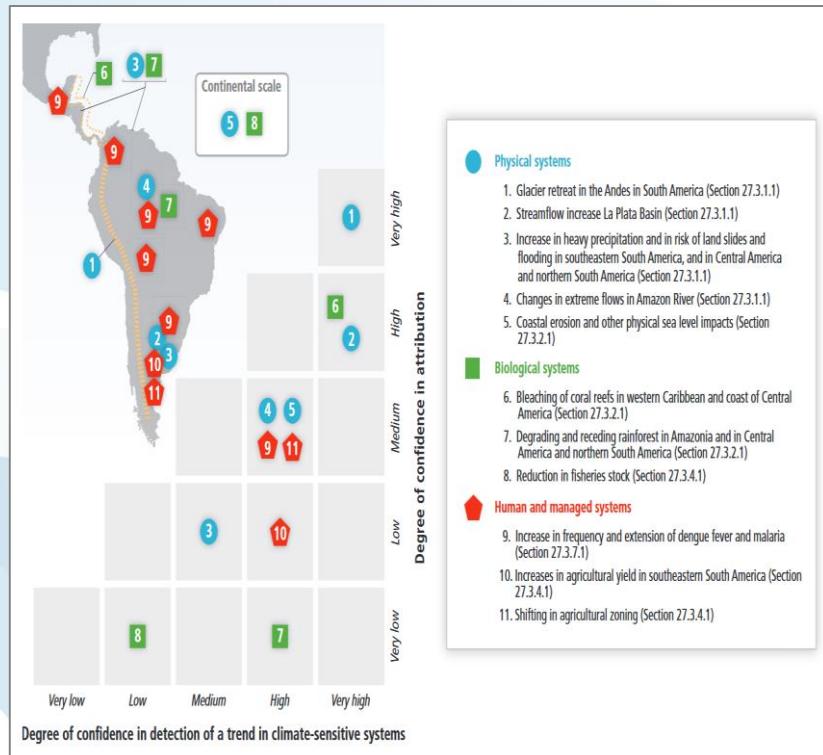
Developed by ActionAid Bangladesh, CARE Bangladesh, the International Centre for Climate Change and Development and Nature Conservation Management.  
29 October 2016



## Regional and national pools/national mechanisms

- Curative: Increased capitalisation in a changing climate
  - Transformative: Linking risk pools to resilience building
- Eastern Africa-drought risk management: risk reduction, insurance, credit, risk taking

# Broader implications: distributive justice perspective



Germanwatch, 2017

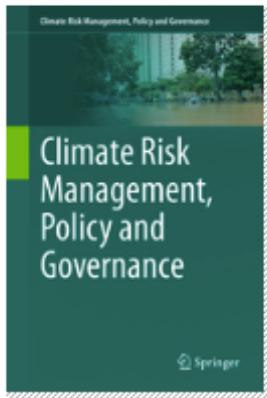


The Mountain Institute, 2017

# Epilogue: from symbolic to real action?

- Need to stick to Plan A+
  - L&D as link to SDG debate: Transformative risk management
  - L&D as “Canary in the coal mine:” curative component
- Need for pluralistic methodological approach to address economic and non-economic risks
- Enhanced imperative to work with civil society and practice community - in addition to policy level

# Upcoming book



## Climate Risk Management, Policy and Governance

Series Editors: Mechler, Reinhard, Surminski, Swenja

ISSN: 2510-1390



Fall 2017 Book #2:  
Mechler, Bouwer, Linnerooth-Bayer, Schinko, Surminski  
"Loss and Damage from Climate Change. Concepts, Principles and Policy Options."  
*Springer*

### ABOUT THIS SERIES | TITLES IN THIS SERIES

This book series is devoted to the growing body of studies that provide analytical insight for policy-making and implementation for bridging climate change adaptation, disaster management and development sectors. It is reflective on all aspects of the climate risk management process, including assessment, mapping, identification, communication, implementation, governance and evaluation of climate risks and management responses.

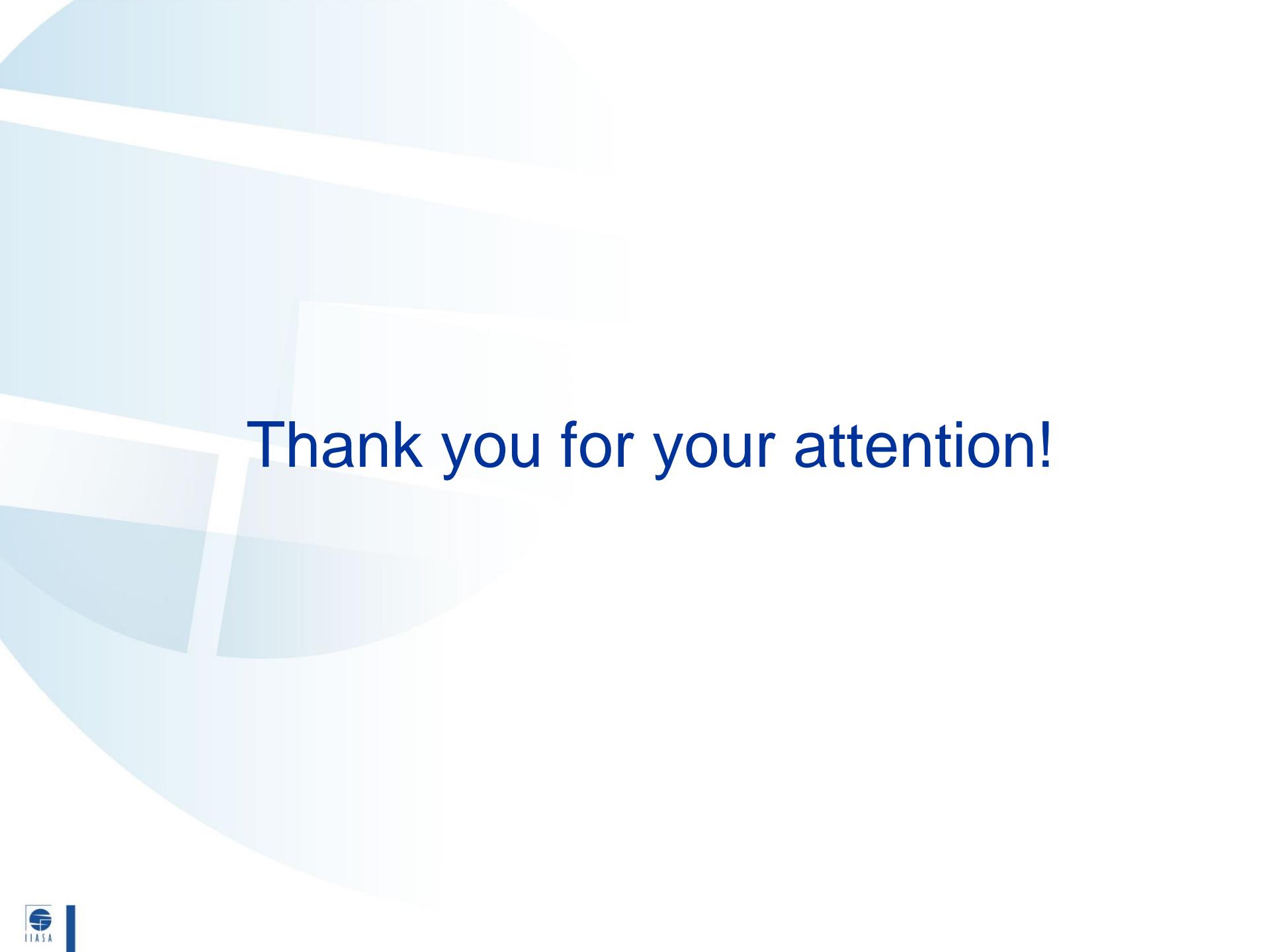
Topics may span across global, national, regional, sectoral and local scales. The series invites multi-disciplinary and transdisciplinary approaches, combining insights from natural science, engineering and social sciences; emphasizing existing gaps, particularly in the area of decision-making, governance and international relations.

The series furthermore offers both theoretical and practical contributions, with the aim to further academic study and thinking, as well as advancing policy making and implementation of climate risk management processes and tools.

# Loss and Damage research network

## Members' institutional affiliations





**Thank you for your attention!**

# **Roles for socio-economic analysis in climate risk discourse**

## **Research questions**

### **Epistemological**

- What are risks and what constitutes ‘danger’ from an economic/social science perspective?

### **Reflective**

- How to collectively decide and act on appropriate levels of protection?

### **Instrumental**

- Funding necessary to support adaptation and ‘beyond adaptation’?
- Requisite institutions for governing critical risks?

### **Participatory**

- How to co-generate acceptable and effective processes & options for implementation?

# Discourses for the broader risk spectrum

		Consequences	
Probabilities		Known	Unknown
Known	Known	Risk?	Ambiguity?
	Unknown	Instrumental	Participatory
Unknown	Known	Uncertainty?	Ignorance?
	Unknown	Reflective	Epistemological

Based on Schinko, Mechler, Hochrainer-Stigler, *Mitigation and Adaptation Strategies for Global Change* 2016