



**FALIA Invitational Seminar in Japan**

**"Life Insurance Marketing under the Rapid  
Socio-Economic Changes" Course**

**(The Reality of Climate Change)**

**Principles for Sustainable Insurance  
Responding to the Climate Change and Biodiversity**

**September 5, 2024  
Masayuki Tanaka  
FALIA**

# **Agenda**

**1. Global Risk Overview**

**2. Risk related to climate change**

**3. Climate Change Impact**

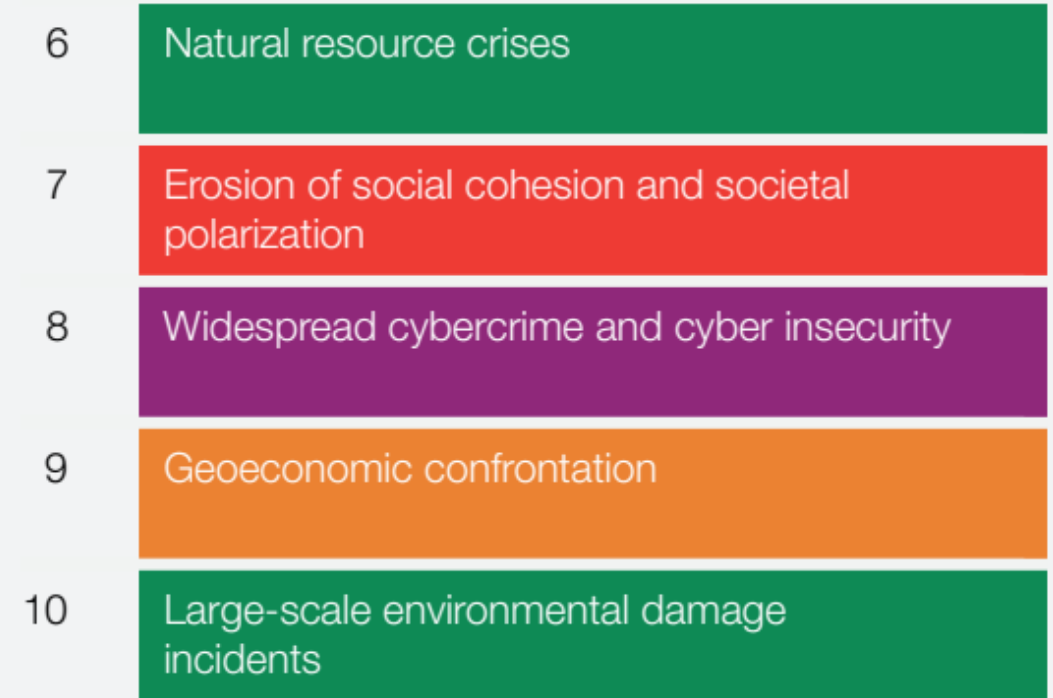
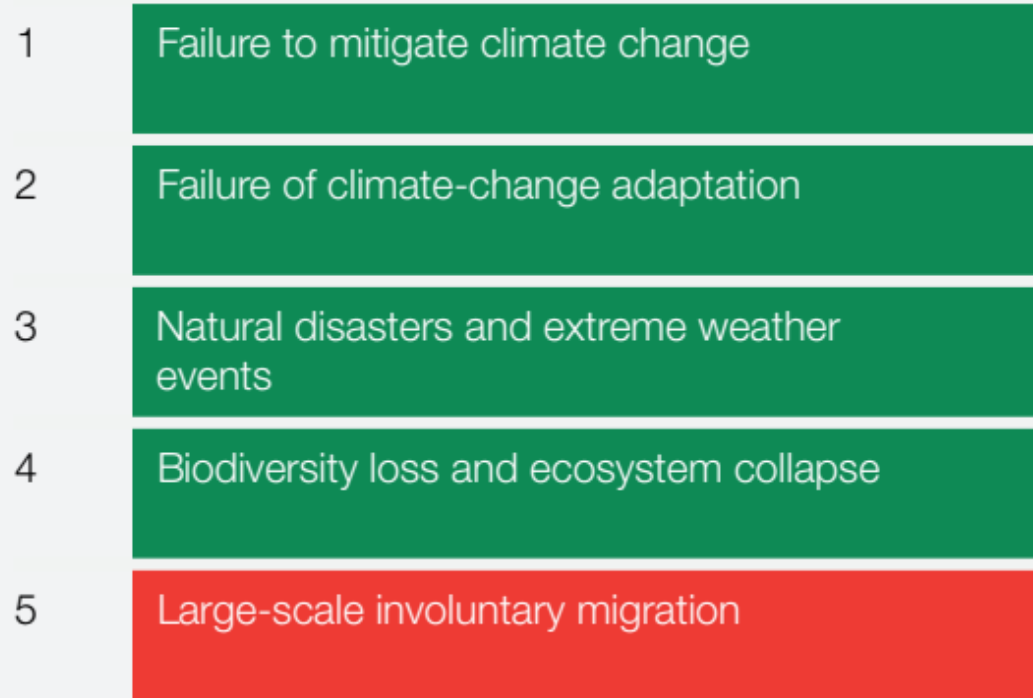
**4. Risk related to biodiversity**

**5. Principles for Sustainable Insurance (PSI)**

**6. Examples of Sustainability management of insurance companies**

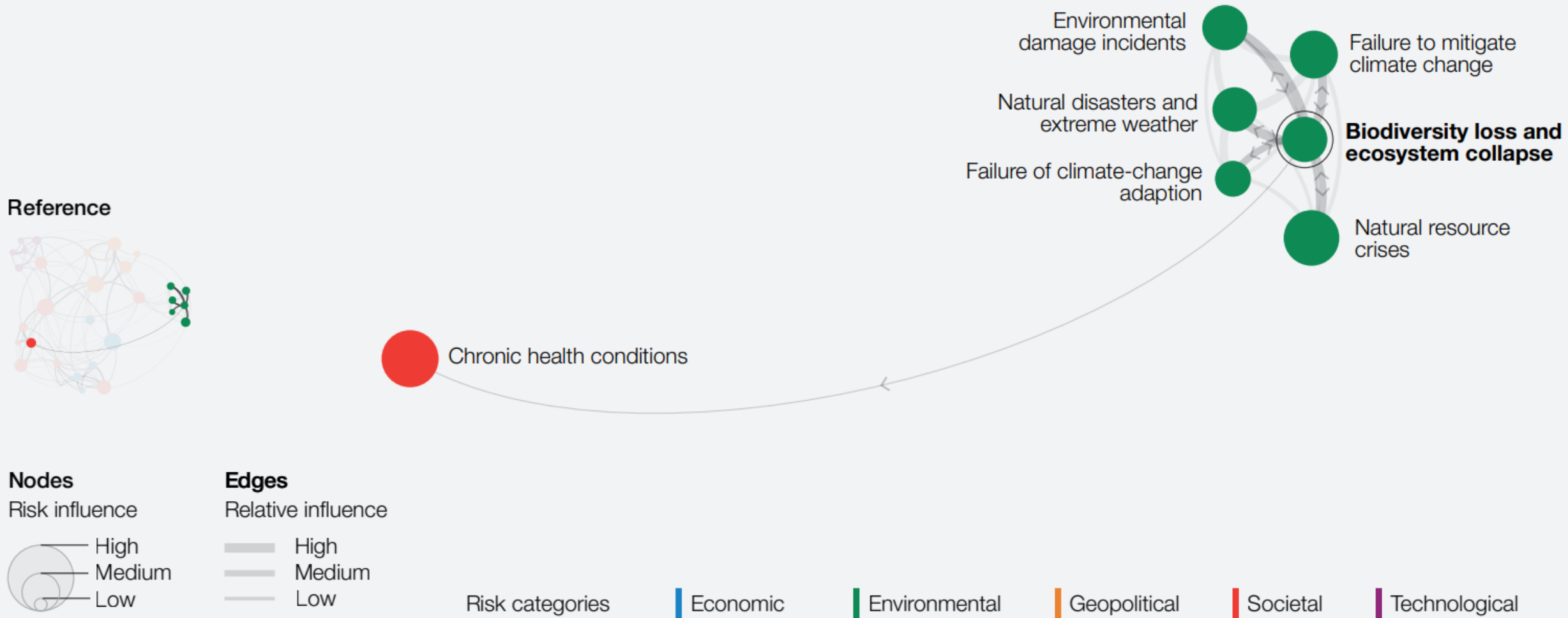
# **1. Global Risk Overview**

# Global risks ranked by severity over the long term (10 years)



Risk categories | Economic | Environmental | Geopolitical | Societal | Technological

# Compounding environmental crises



# Climate change Impact on Ecosystem Structure

| Ecosystems                | Changes in ecosystem structure |               |        | Species range shifts |               |               | Changes in timing (phenology) |               |               |
|---------------------------|--------------------------------|---------------|--------|----------------------|---------------|---------------|-------------------------------|---------------|---------------|
|                           | Terrestrial                    | Freshwater    | Ocean  | Terrestrial          | Freshwater    | Ocean         | Terrestrial                   | Freshwater    | Ocean         |
| Global                    | High                           | High          | High   | High                 | High          | High          | High                          | High          | High          |
| Africa                    | High                           | High          | High   | High                 | Lim. evidence | High          | Lim. evidence                 | Low           | Low           |
| Asia                      | High                           | Medium        | High   | Low                  | Medium        | Lim. evidence | Low                           | Low           | Medium        |
| Australasia               | High                           | High          | High   | High                 | Lim. evidence | High          | High                          | Lim. evidence | Low           |
| Central and South America | High                           | High          | High   | High                 | High          | High          | Lim. evidence                 | Lim. evidence | Low           |
| Europe                    | High                           | High          | High   | High                 | High          | High          | High                          | High          | High          |
| North America             | High                           | High          | High   | High                 | High          | High          | High                          | High          | High          |
| Small Islands             | High                           | High          | High   | High                 | High          | High          | High                          | Lim. evidence | Medium        |
| Arctic                    | High                           | Medium        | High   | High                 | High          | High          | High                          | Medium        | High          |
| Antarctic                 | Medium                         | Lim. evidence | Medium | Medium               | Lim. evidence | Medium        | Medium                        | Lim. evidence | Lim. evidence |
| Mediterranean region      | High                           | Lim. evidence | High   | High                 | Medium        | High          | High                          | Lim. evidence | Medium        |
| Tropical forest           | High                           | Lim. evidence | N/A    | Medium               | Lim. evidence | N/A           | Lim. evidence                 | Lim. evidence | N/A           |
| Mountain regions          | High                           | High          | N/A    | High                 | Medium        | N/A           | High                          | Low           | N/A           |
| Deserts                   | High                           | N/A           | N/A    | High                 | N/A           | N/A           | Lim. evidence                 | N/A           | N/A           |
| Biodiversity hotspots     | High                           | Lim. evidence | High   | High                 | Lim. evidence | High          | High                          | Lim. evidence | Not assessed  |

## **2. Risk related to Climate Change**

# What is IPCC?



REPORTS

SYNTHESIS REPORT

WORKING GROUPS

ACTIVITIES

NEWS

CALENDAR

 FOLLOW

 SHARE

## About the IPCC

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The Intergovernmental Panel on Climate Change (IPCC) is the United Nations body for assessing the science related to climate change.

OVERVIEW\_

HISTORY

STRUCTURE

PREPARING REPORTS

GENDER

AD-HOC AND TASK  
GROUPS

FUTURE WORK

SCHOLARSHIP

ENGAGE

CONTACT

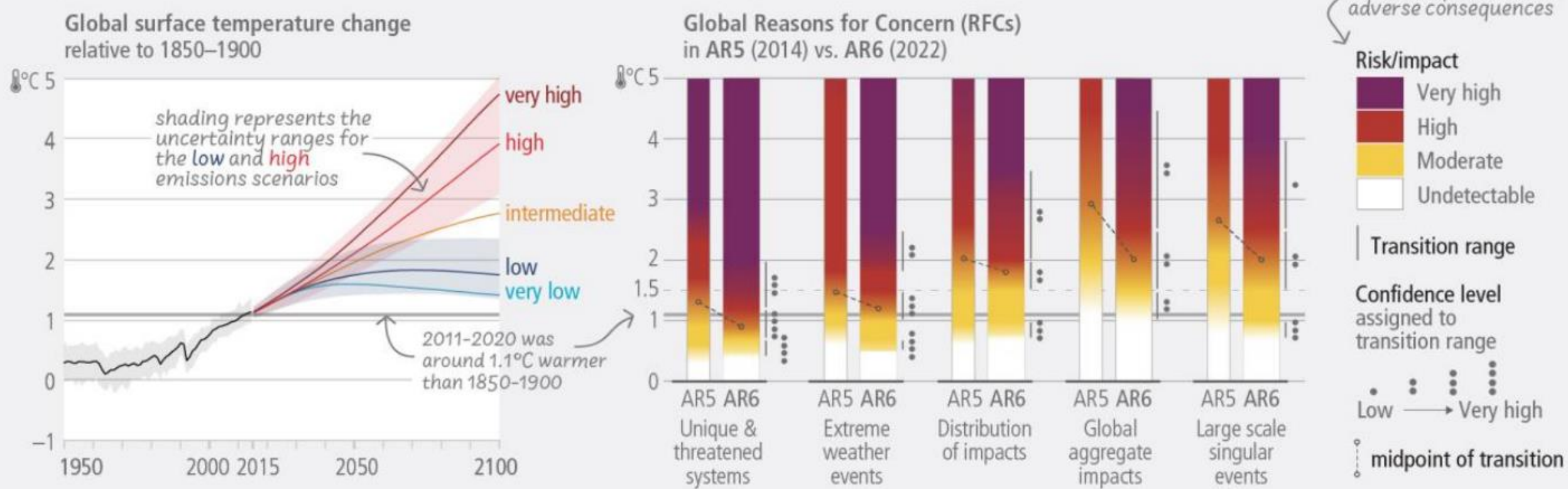
<https://www.ipcc.ch/>



# IPCC 6th Assessment Report (AR6)

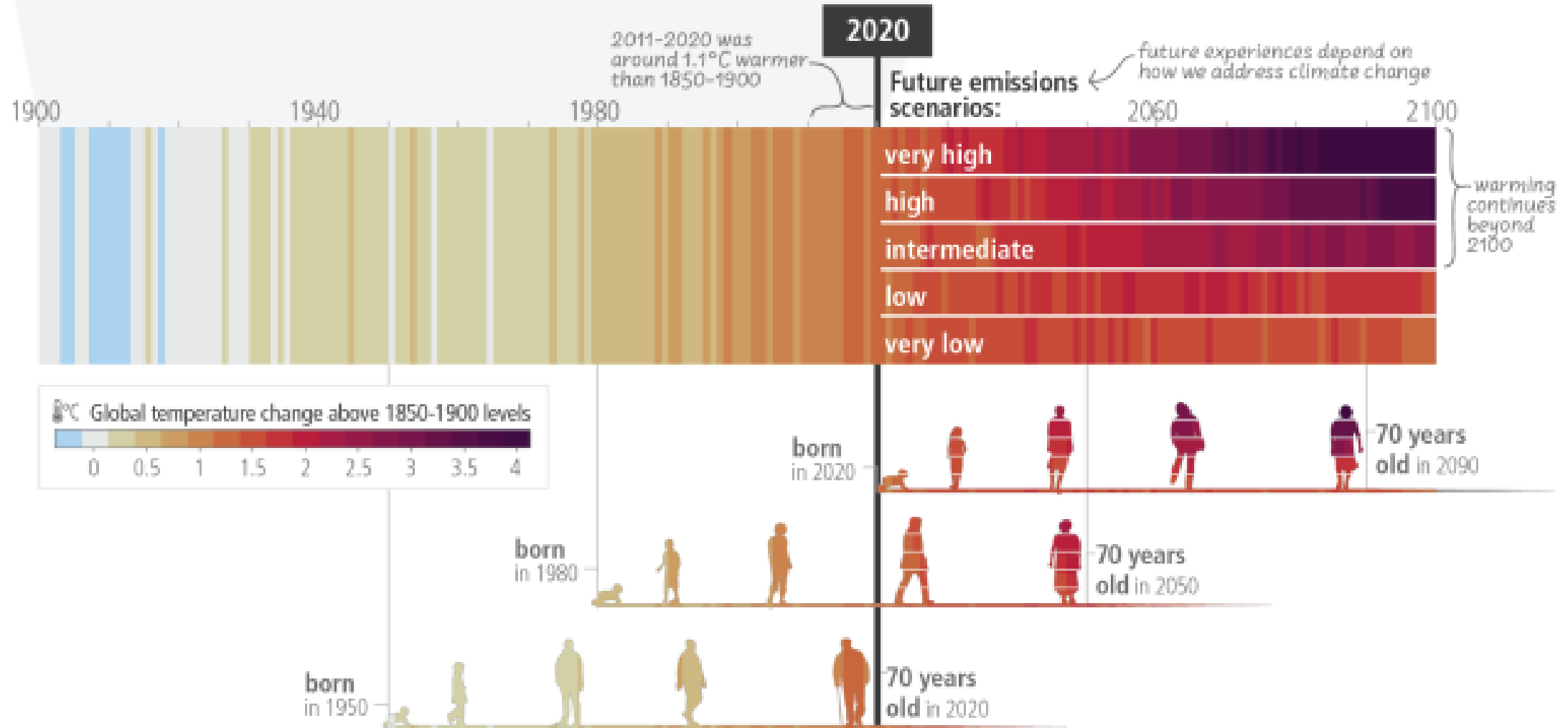
## Risks are increasing with every increment of warming

### a) High risks are now assessed to occur at lower global warming levels



# IPCC 6th Assessment Report (AR6)

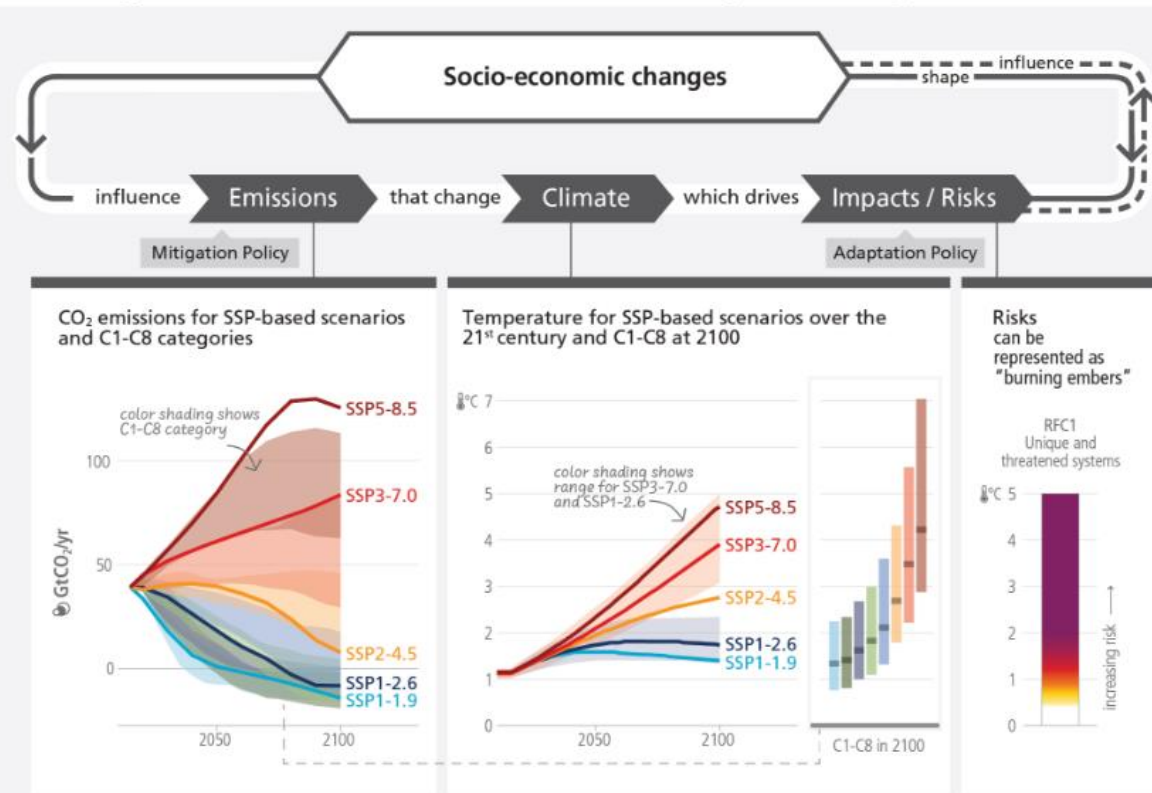
c) The extent to which current and future generations will experience a hotter and different world depends on choices now and in the near-term



# AR6 Assumptions

Scenarios and warming levels structure our understanding across the cause-effect chain from emissions to climate change and risks

a) AR6 integrated assessment framework on future climate, impacts and mitigation



b) Scenarios and pathways across AR6 Working Group reports

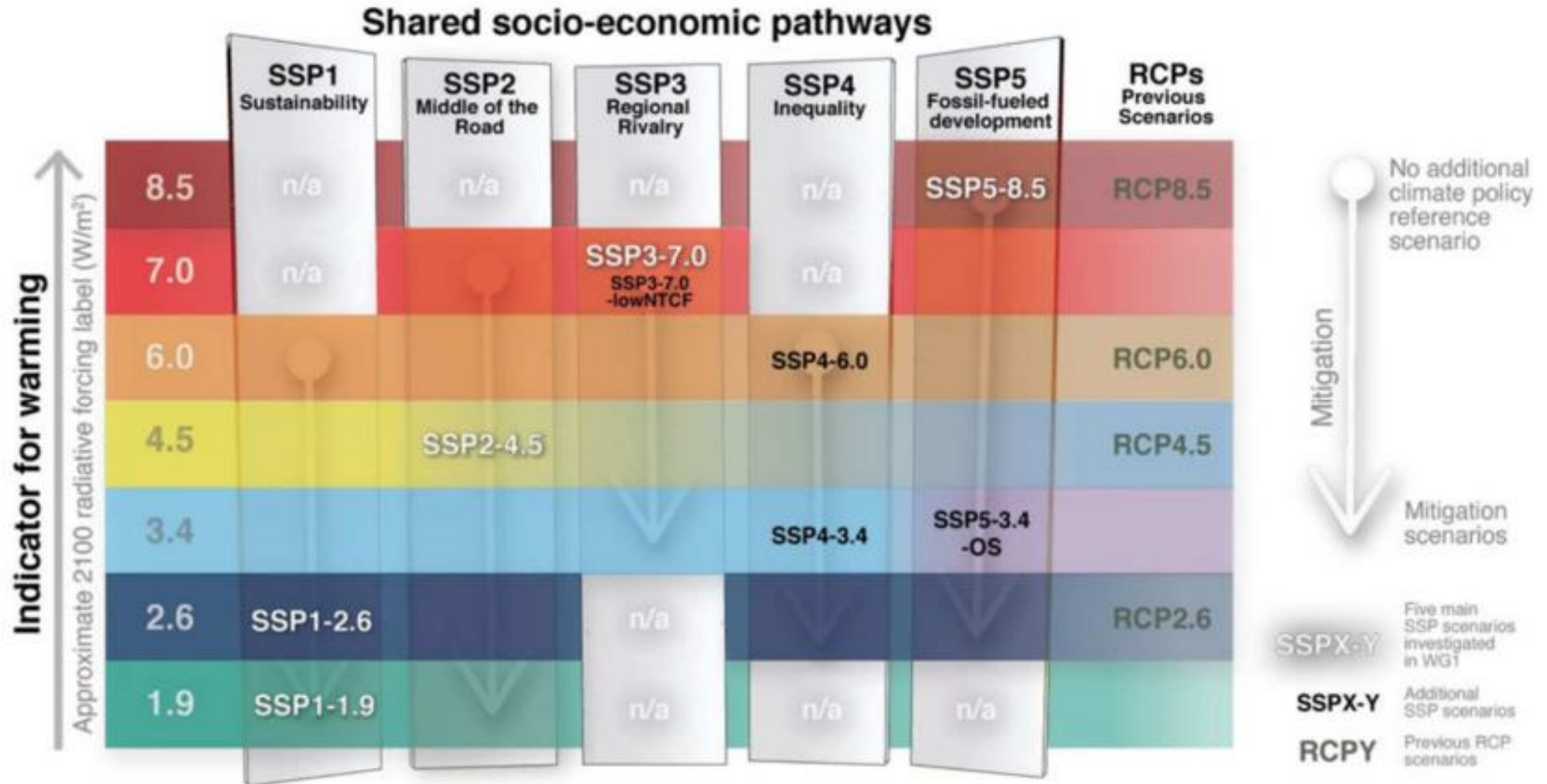
| Category in WGIII | Category description                                       | GHG emissions scenarios (SSPx-y*) in WGI & WGII | RCPy** in WGI & WGII |
|-------------------|--|---|----------------------|
| C1                | limit warming to 1.5°C (>50%) with no or limited overshoot | Very low (SSP1-1.9)                             |                      |
| C2                | return warming to 1.5°C (>50%) after a high overshoot      |   |                      |
| C3                | limit warming to 2°C (>67%)                                | Low (SSP1-2.6)                                  | RCP2.6               |
| C4                | limit warming to 2°C (>50%)                                |   |                      |
| C5                | limit warming to 2.5°C (>50%)                              |   |                      |
| C6                | limit warming to 3°C (>50%)                                | Intermediate (SSP2-4.5)                         | RCP 4.5              |
| C7                | limit warming to 4°C (>50%)                                | High (SSP3-7.0)                                 |                      |
| C8                | exceed warming of 4°C (>50%)                               | Very high (SSP5-8.5)                            | RCP 8.5              |

c) Determinants of risk



# AR6 Assumptions

## SSP-RCP scenarios used in IPCC-AR6





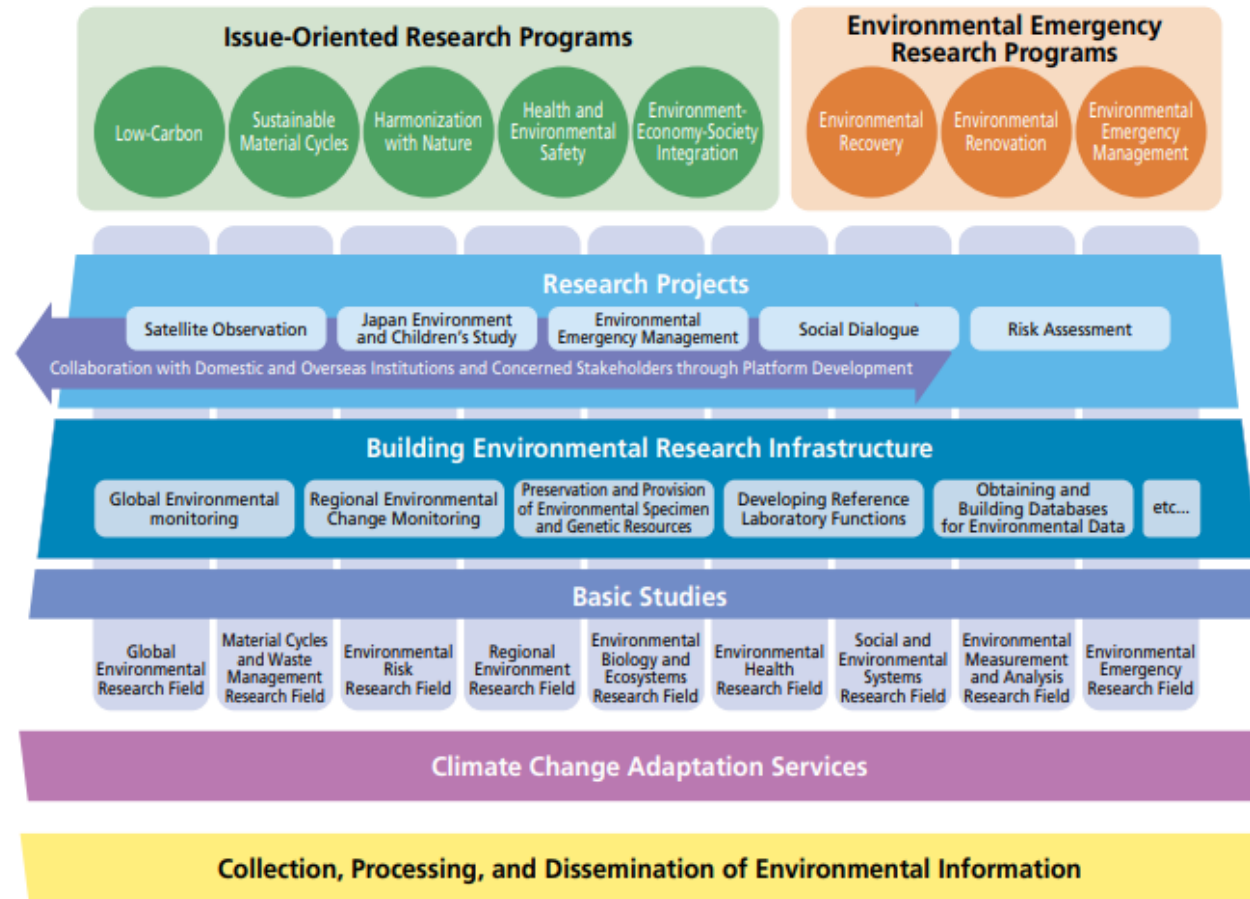
# NIES, CCCA and AP-PLAT



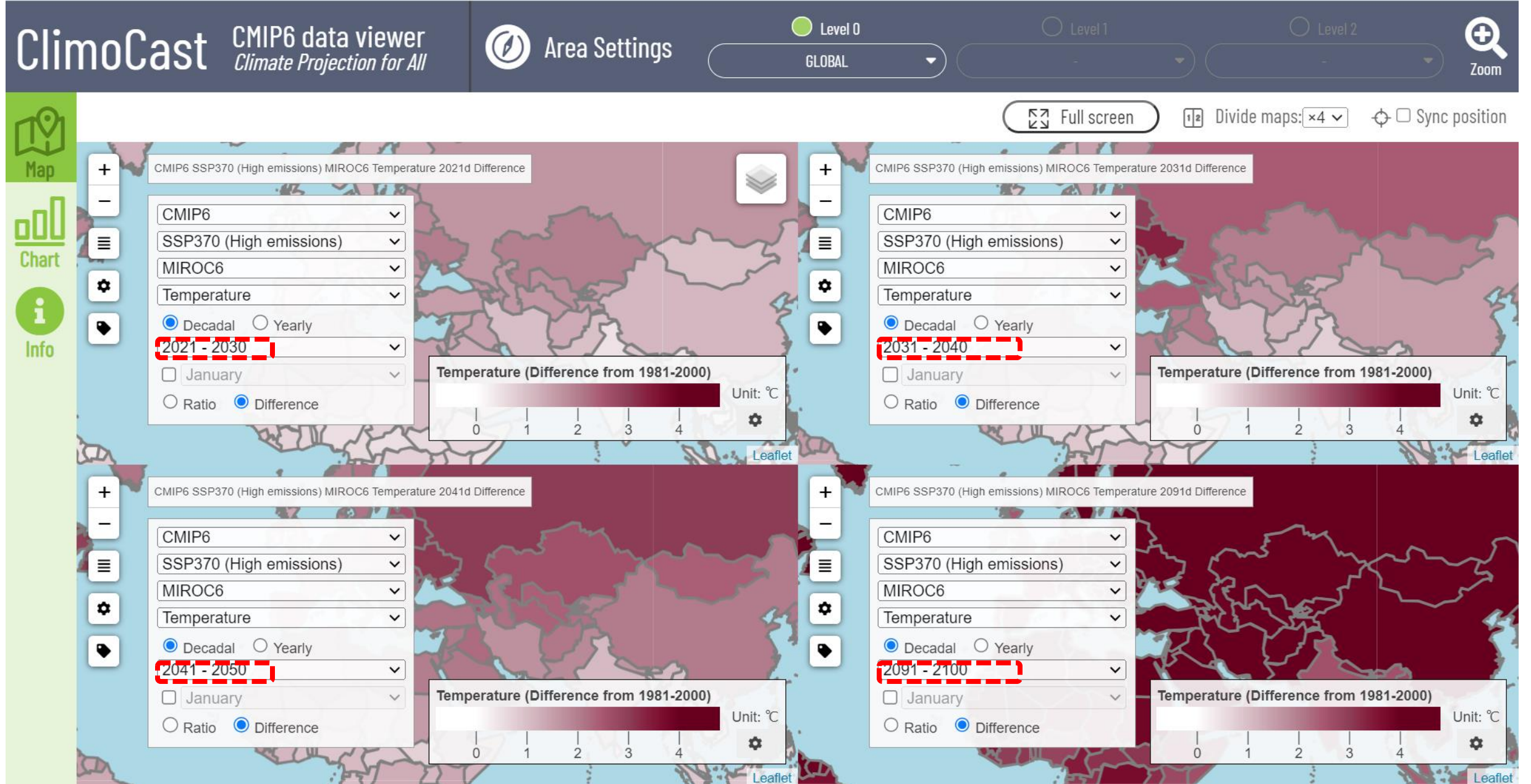
National  
Institute for  
Environmental  
Studies, Japan



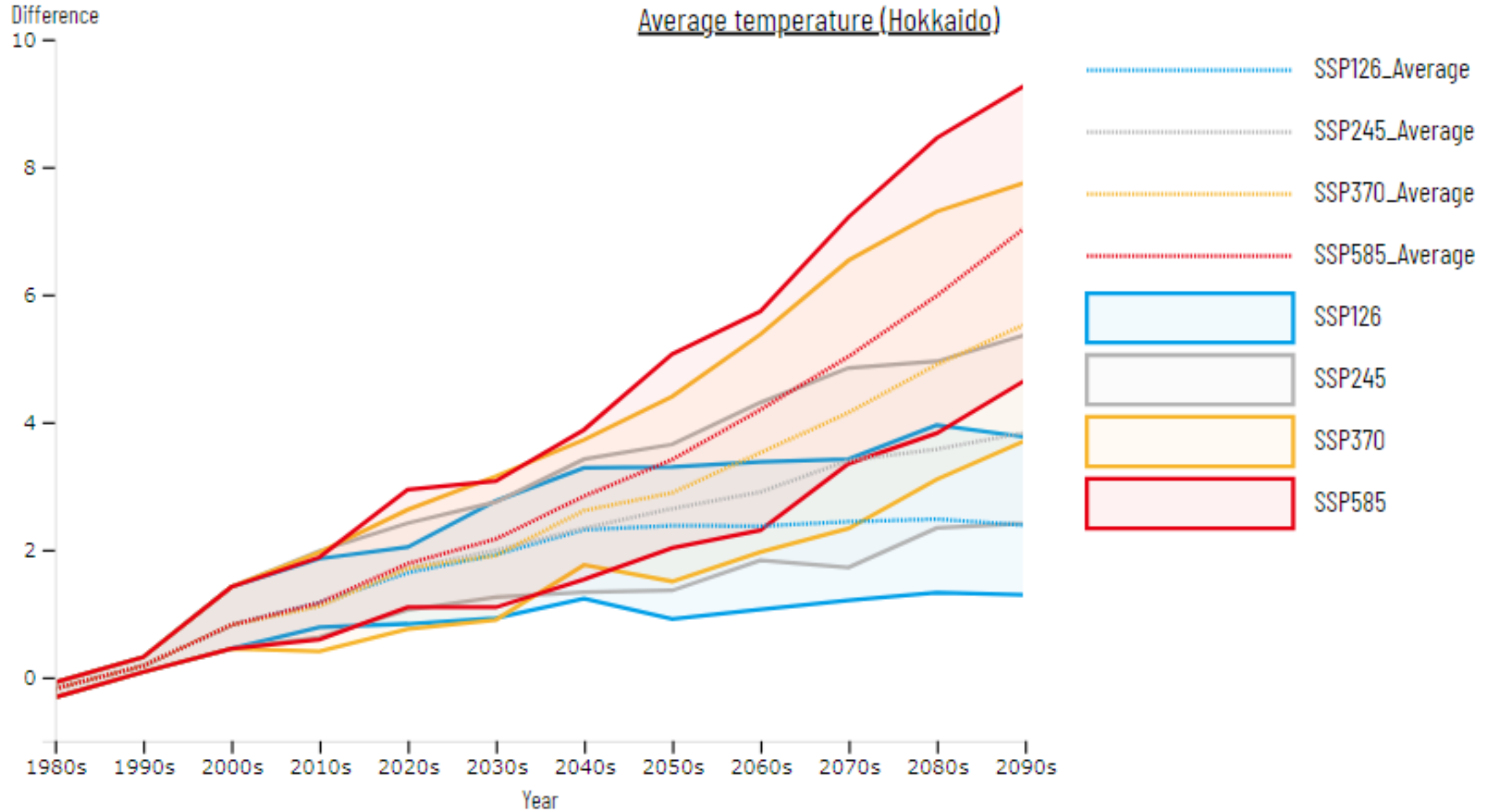
## Overview of NIES Initiatives



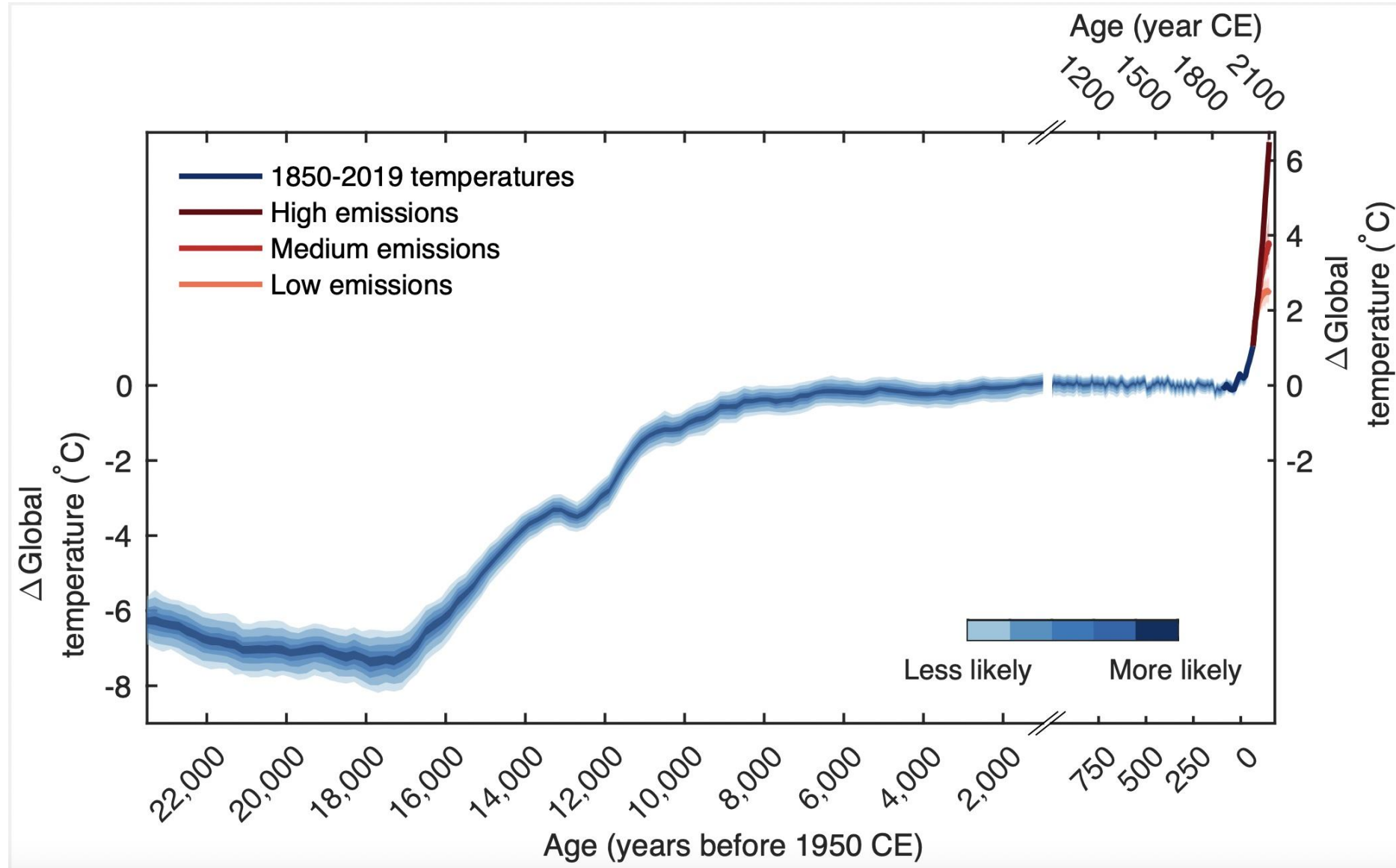
# Temperature increase forecast from 2020 to 2100 by ClimoCast



# Temperature increase forecast of Hokkaido

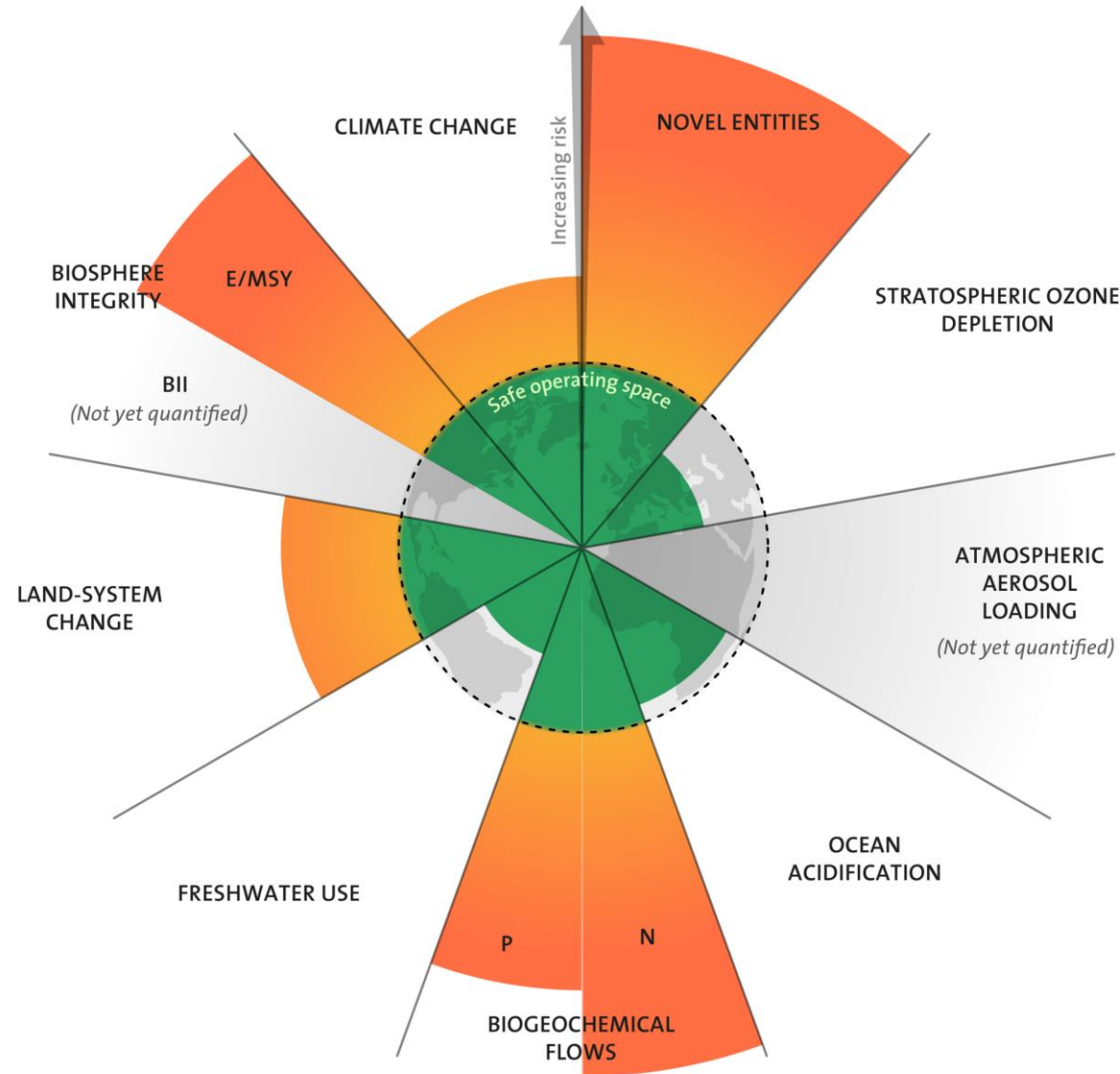


# We have never exceeded 2°C in the last 3 million years





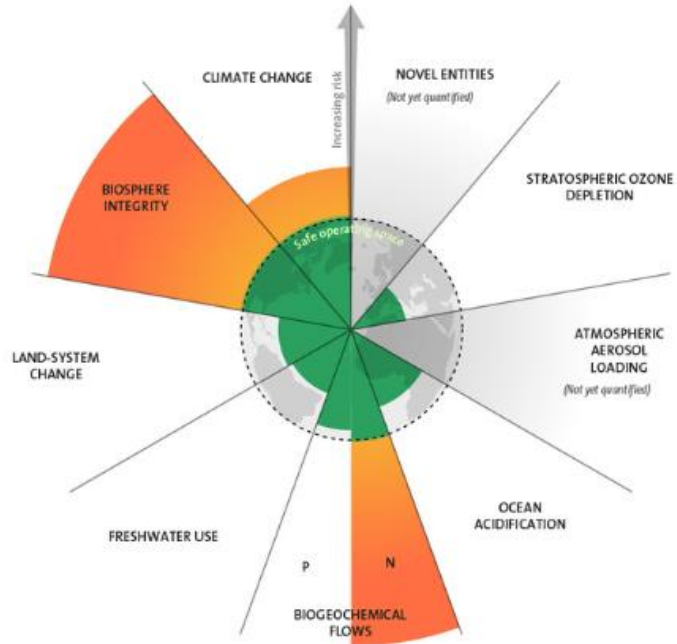
# Planetary Boundaries



Johan Rockström

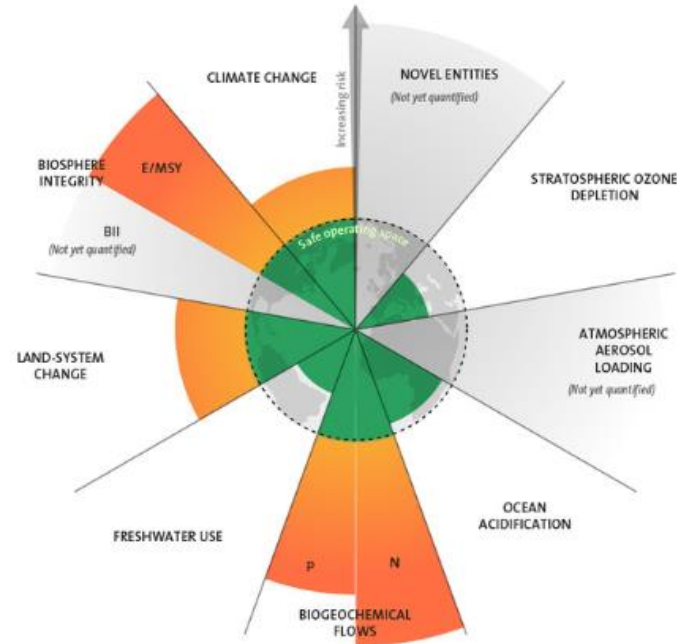
# Transition of Planetary Boundaries

2009



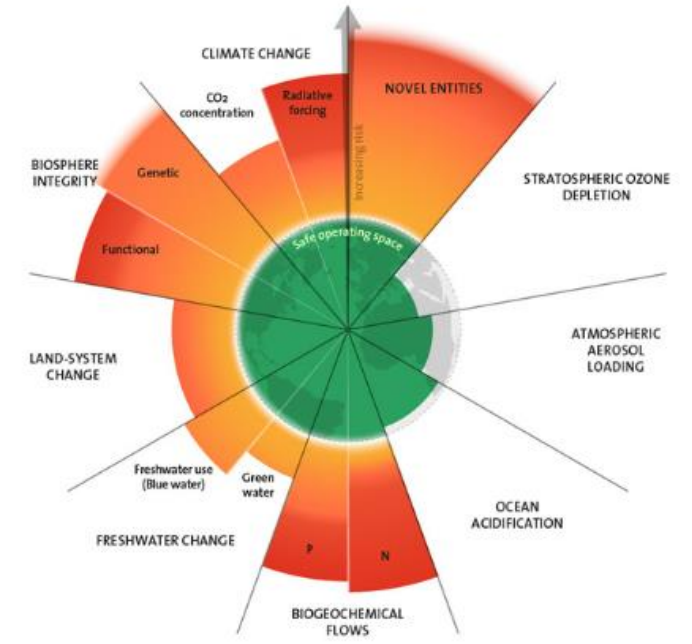
7 boundaries assessed,  
3 crossed

2015



7 boundaries assessed,  
4 crossed

2023

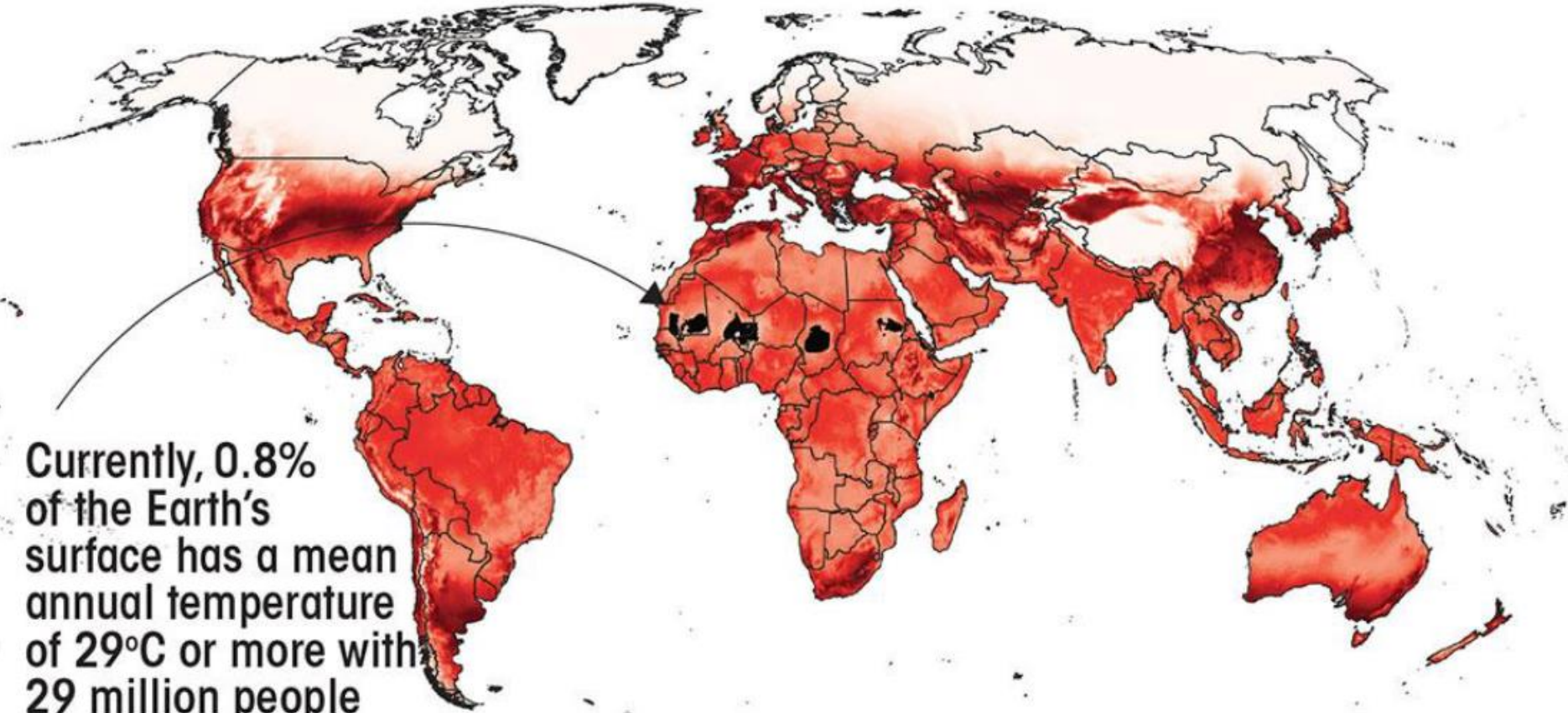


9 boundaries assessed,  
6 crossed

# Climate change under RCP 8.5 scenario

Climate suitability - high emission scenario (RCP# 8.5)

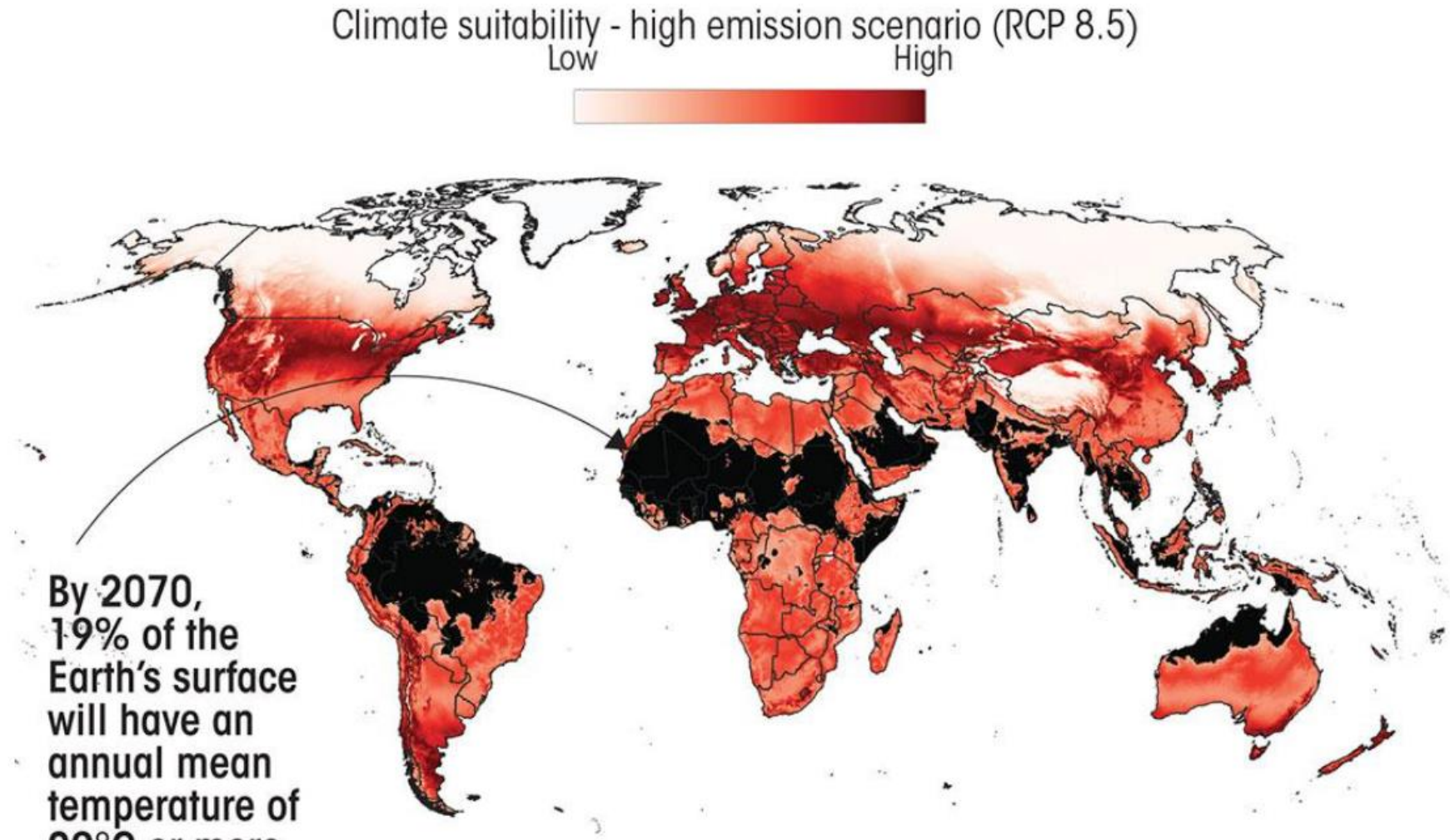
Low  High



Currently, 0.8% of the Earth's surface has a mean annual temperature of 29°C or more with 29 million people living in that region

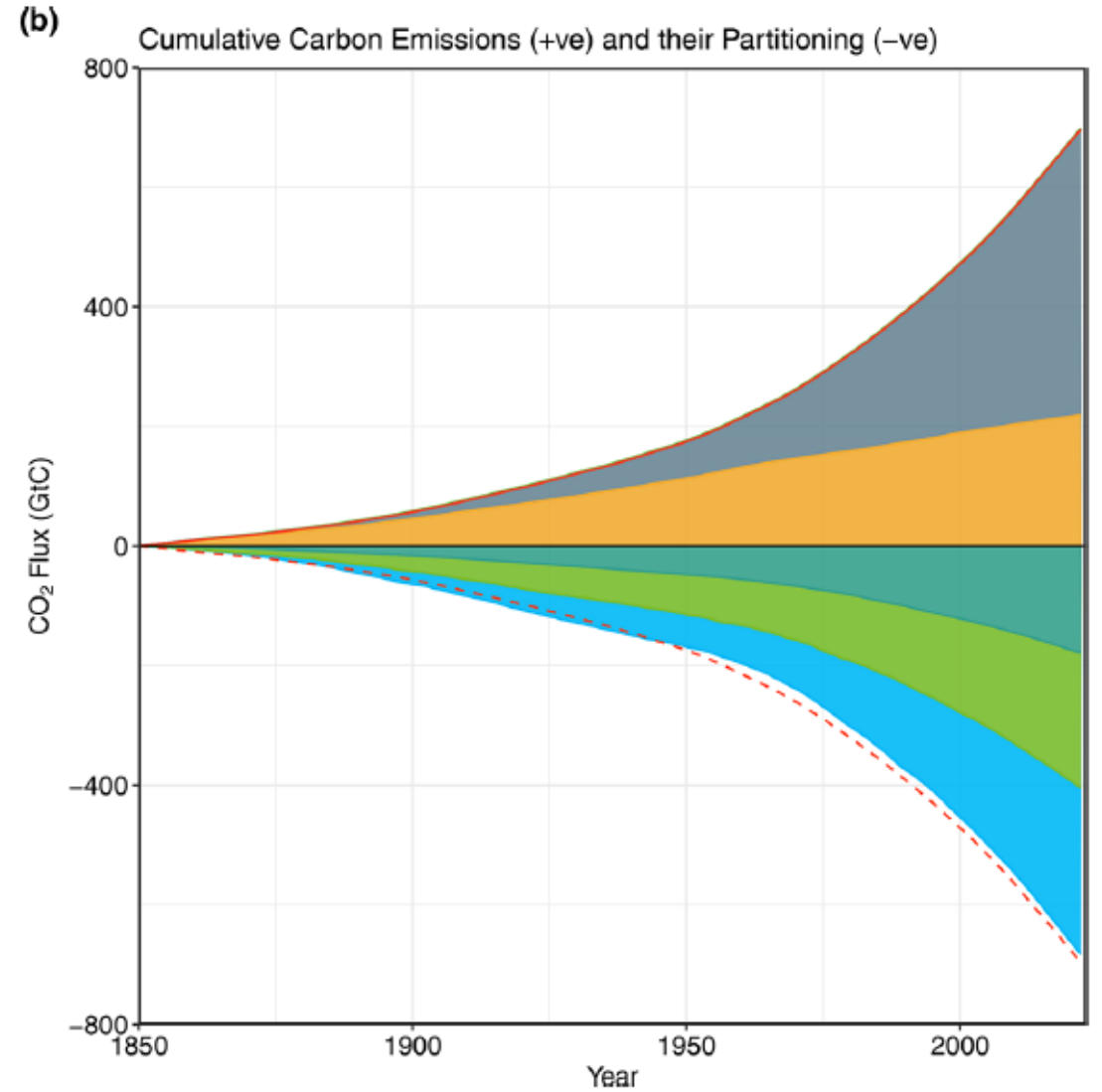
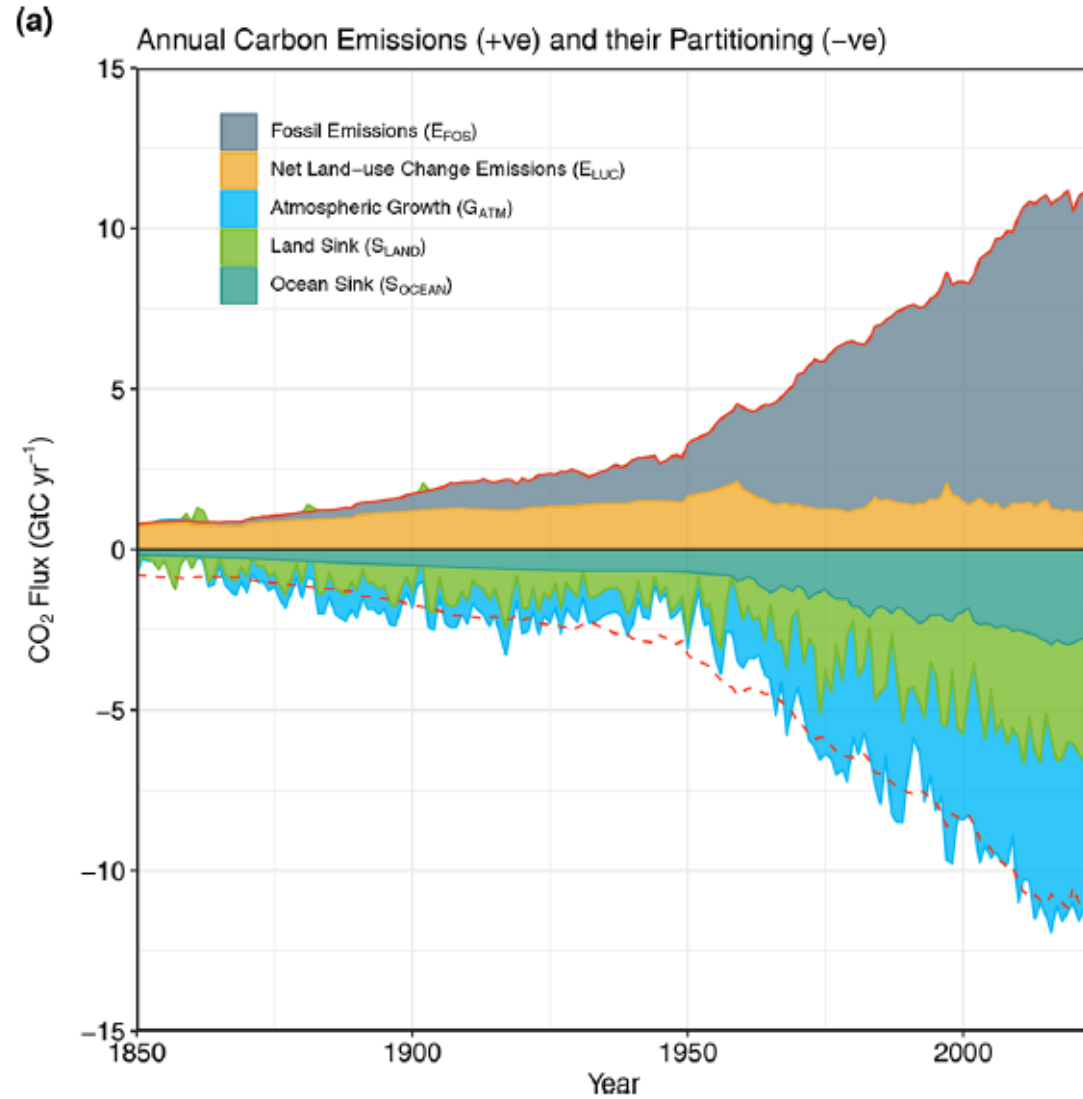


# Climate change under RCP 8.5 scenario

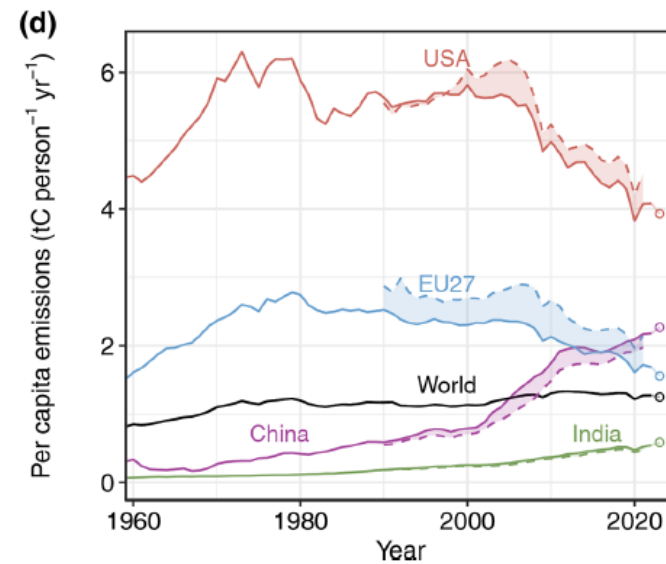
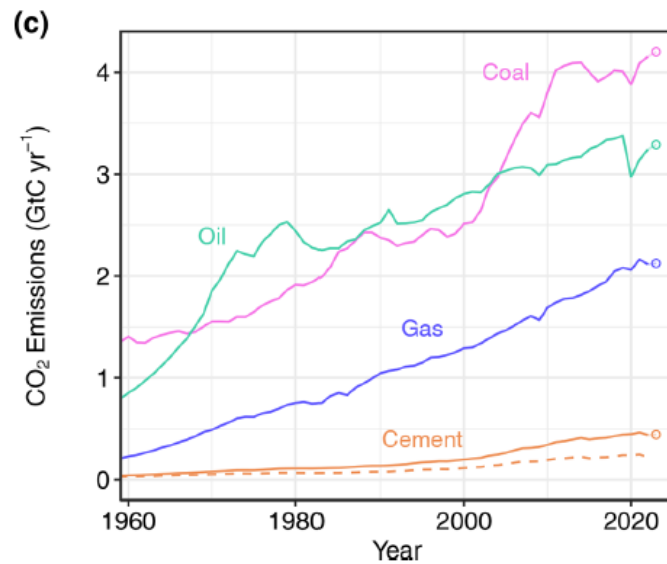
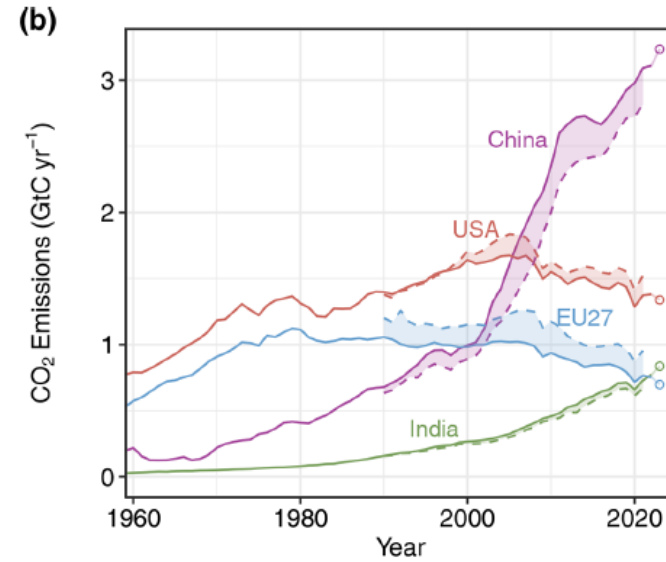
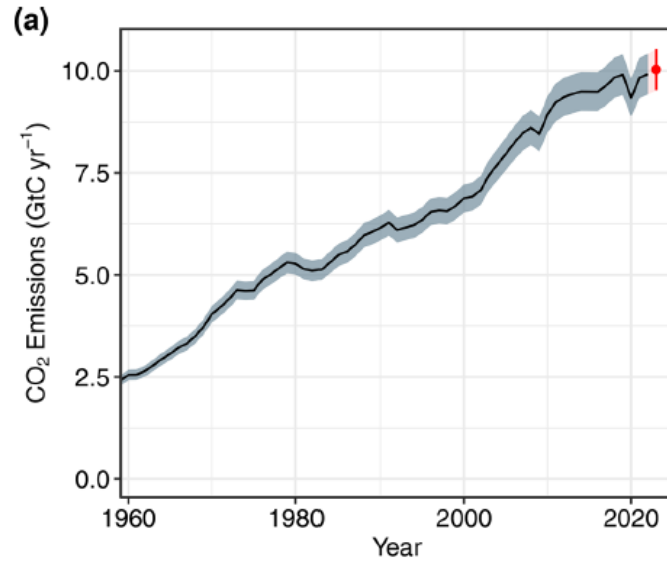


Source: "Future of the human climate niche", PNAS, May 2020

# Global Carbon Sink 2023

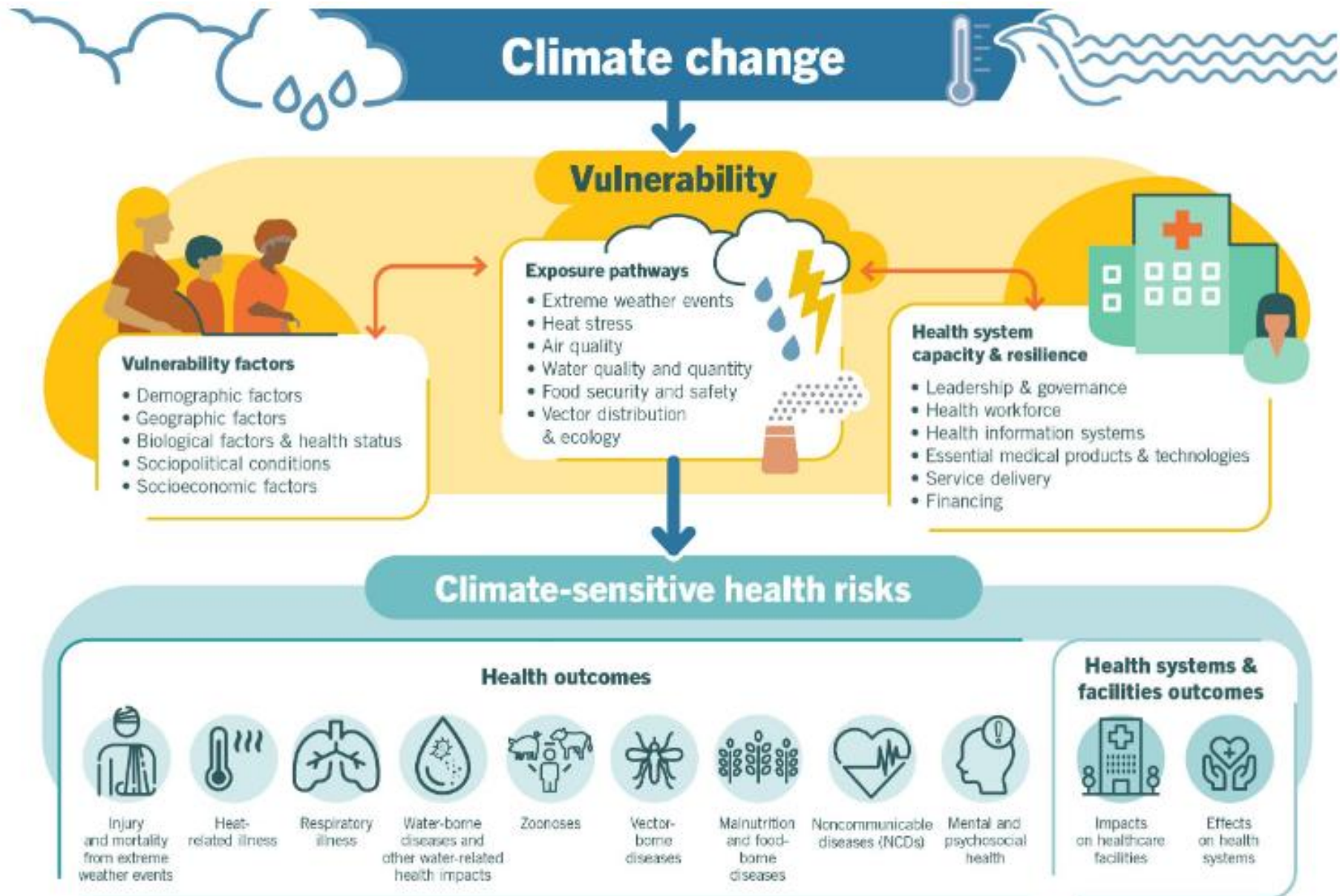


# Fossil CO<sub>2</sub> emissions for the globe, including an uncertainty of 5% (grey shading)



### **3. Climate Change Impact**

# Climate Change impact on Human Health





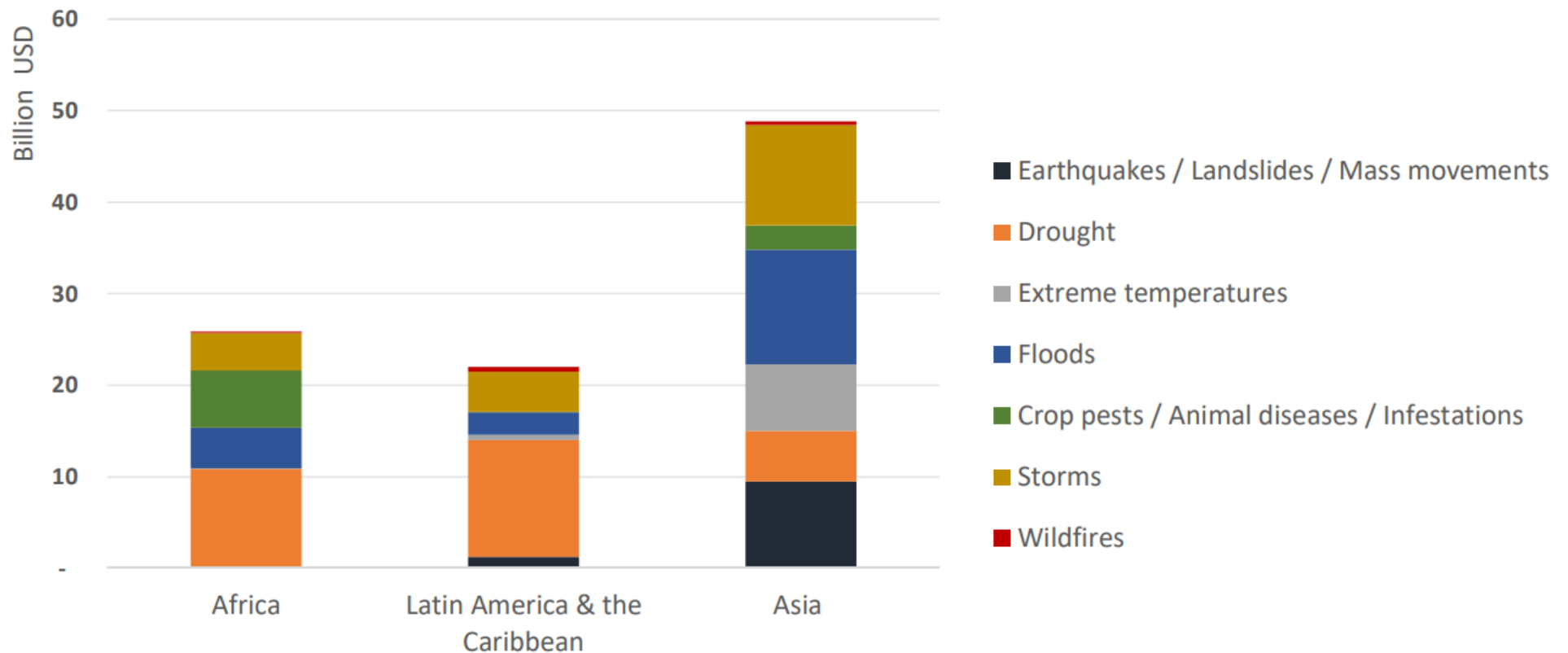
# Climate Change impact on Food Security (Agriculture Loss)

Assessing Damage and Loss in Agriculture  
FAO's methodology

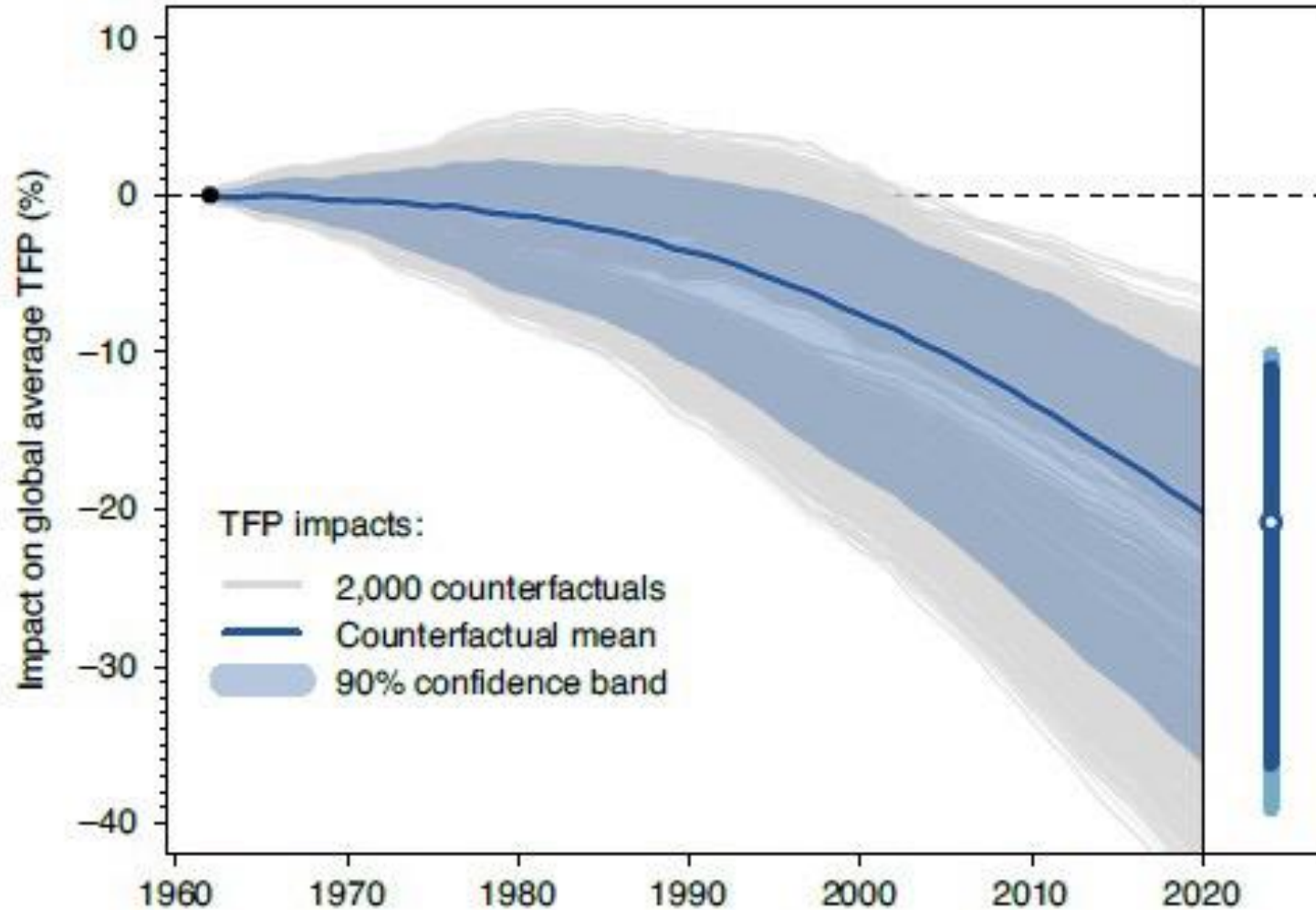


Upcoming FAO report  
Main findings

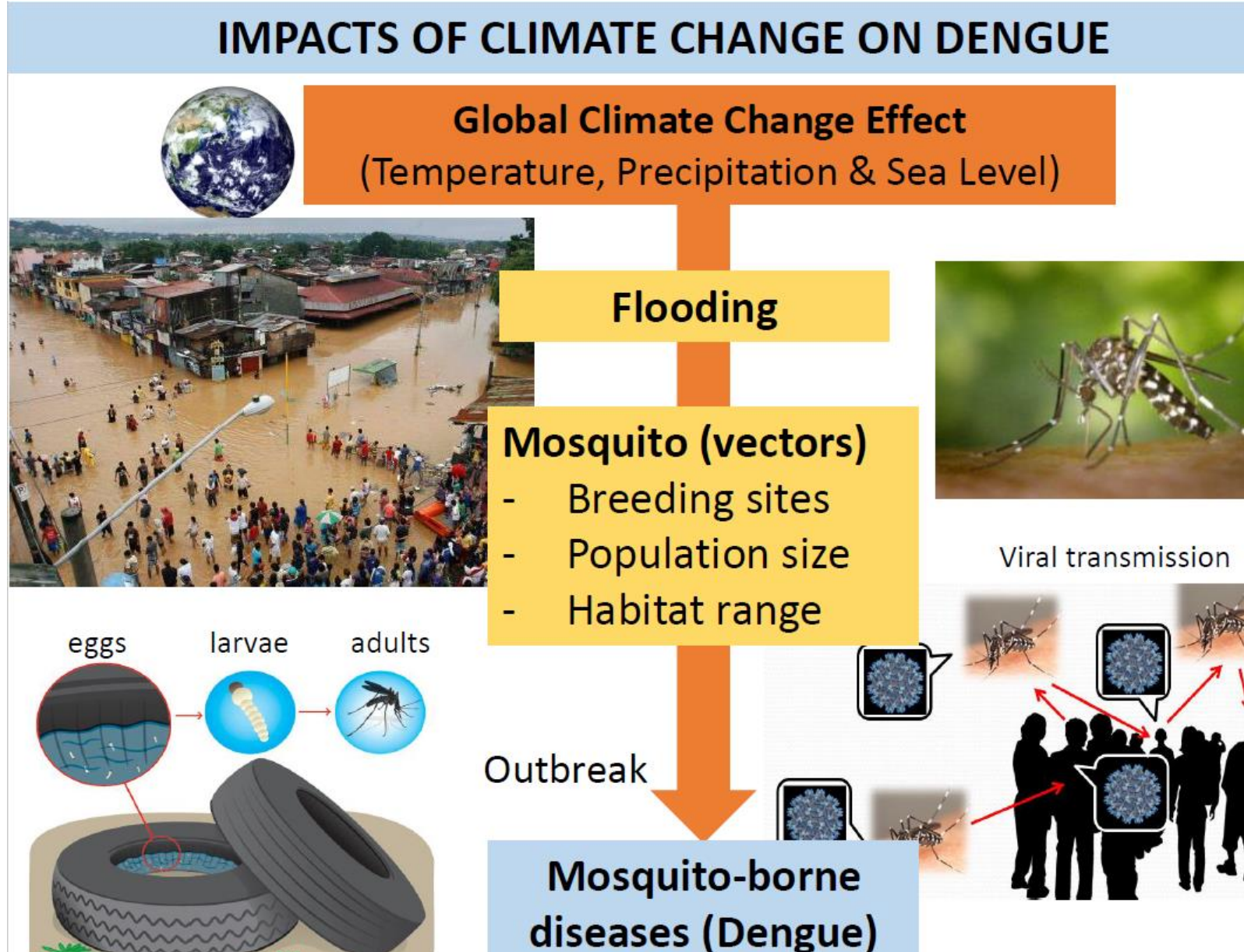
Production loss by region and per disaster, 2005 - 2015



# Agricultural productivity growth has slowed by more than 20% because of climate change



# Climate Change impact on Dengue

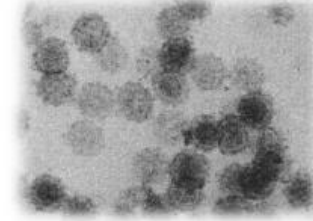




# Dengue fever at a glance

## WHAT IS DENGUE?

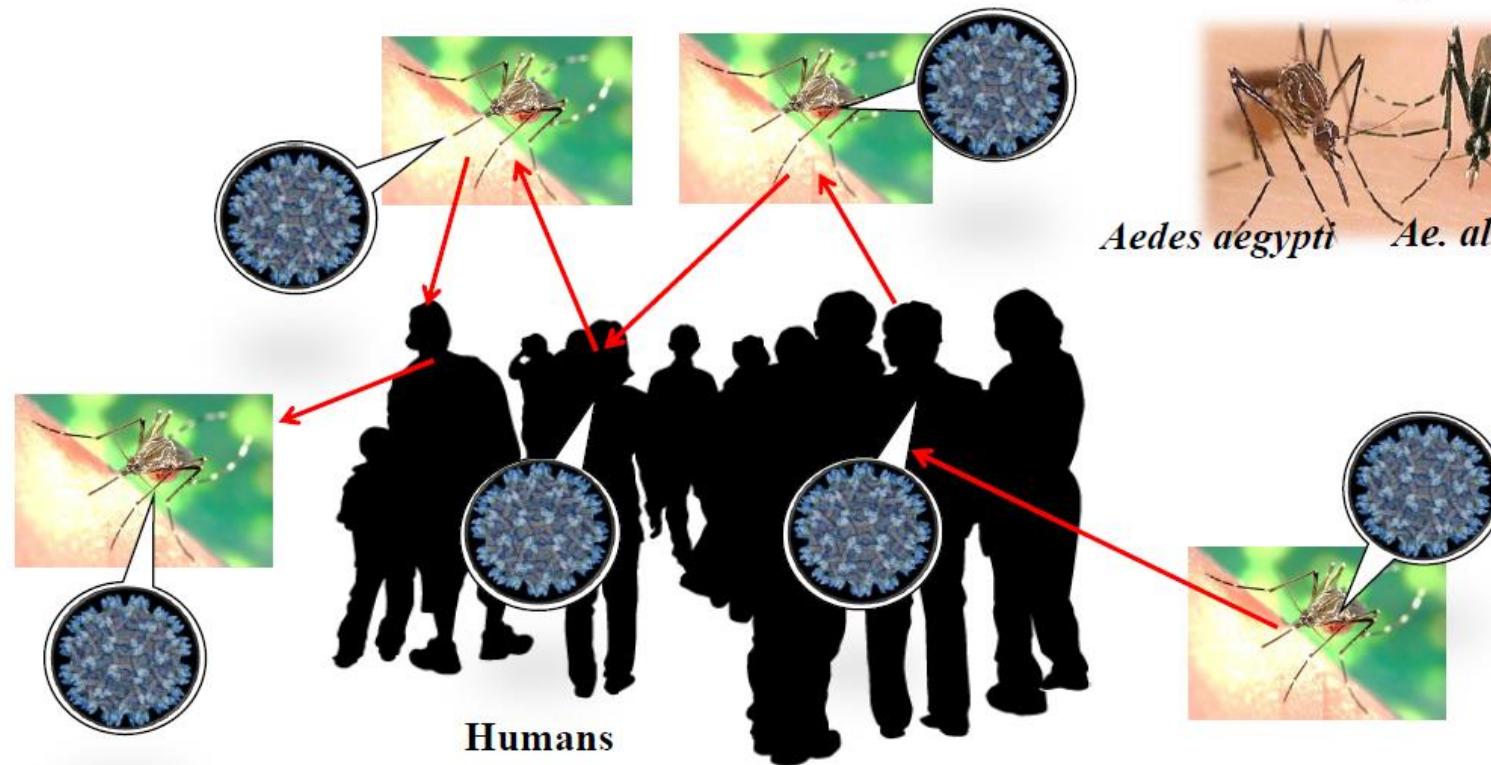
It is a viral infection transmitted by the bite of an infected female *Aedes* mosquito (WHO, 2012)



Dengue Virus (DENV)  
Has 4 serotypes



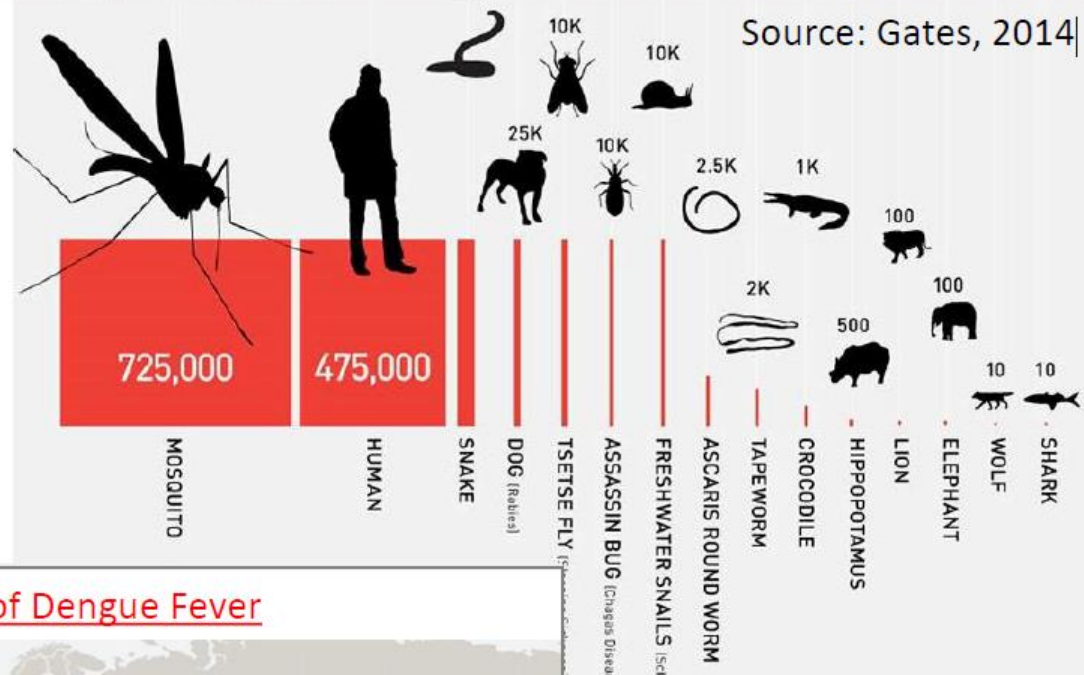
*Aedes aegypti*    *Ae. albopictus*



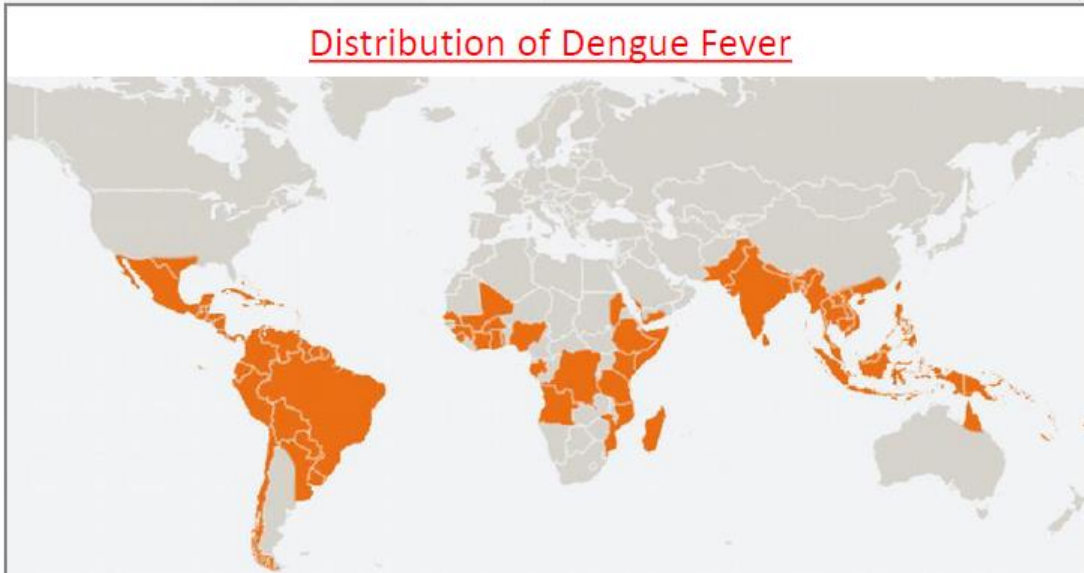
# Dengue fever at a glance

## MOSQUITOES: THE WORLD'S SMALLEST BIGGEST KILLER

5

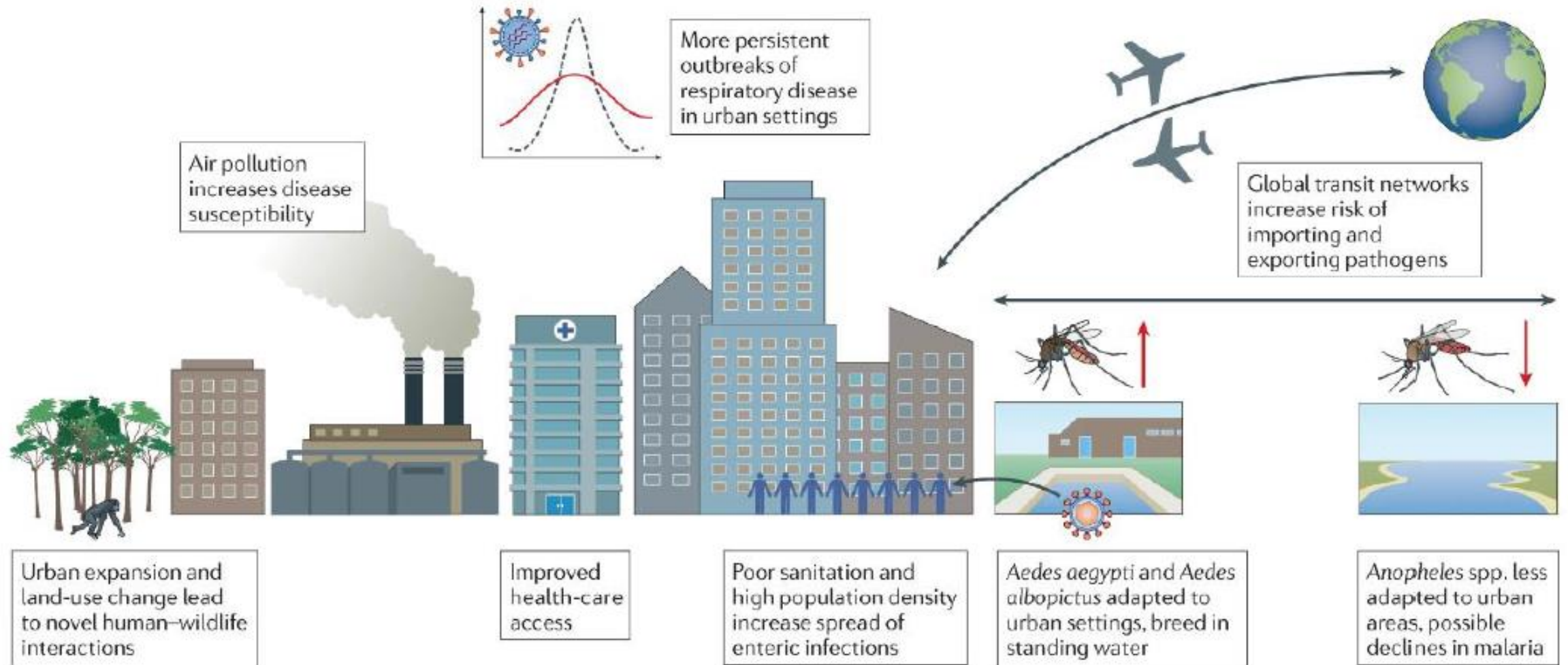


Distribution of Dengue Fever



# Urbanization and Land-use change contribute to Infectious Diseases

From: [Infectious disease in an era of global change](#)



(Reference) <https://www.nature.com/articles/s41579-021-00639-z>

## **4. Risk related to biodiversity**

# Definitions of Key Words

## **Biodiversity:**

**The variability among living organisms from all sources including terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part; this includes diversity within species, between species and of ecosystems.**



# Definitions of Key Words

## **Ecosystem:**

**A dynamic complex of plant, animal, and micro-organism communities and their non-living environment interacting as a functional unit. Ecosystems can be defined at a variety of scales, from a single pond to the globe. Humans and their activities are part of ecosystems as well.**

# Definitions of Key Words

## **Ecosystem services:**

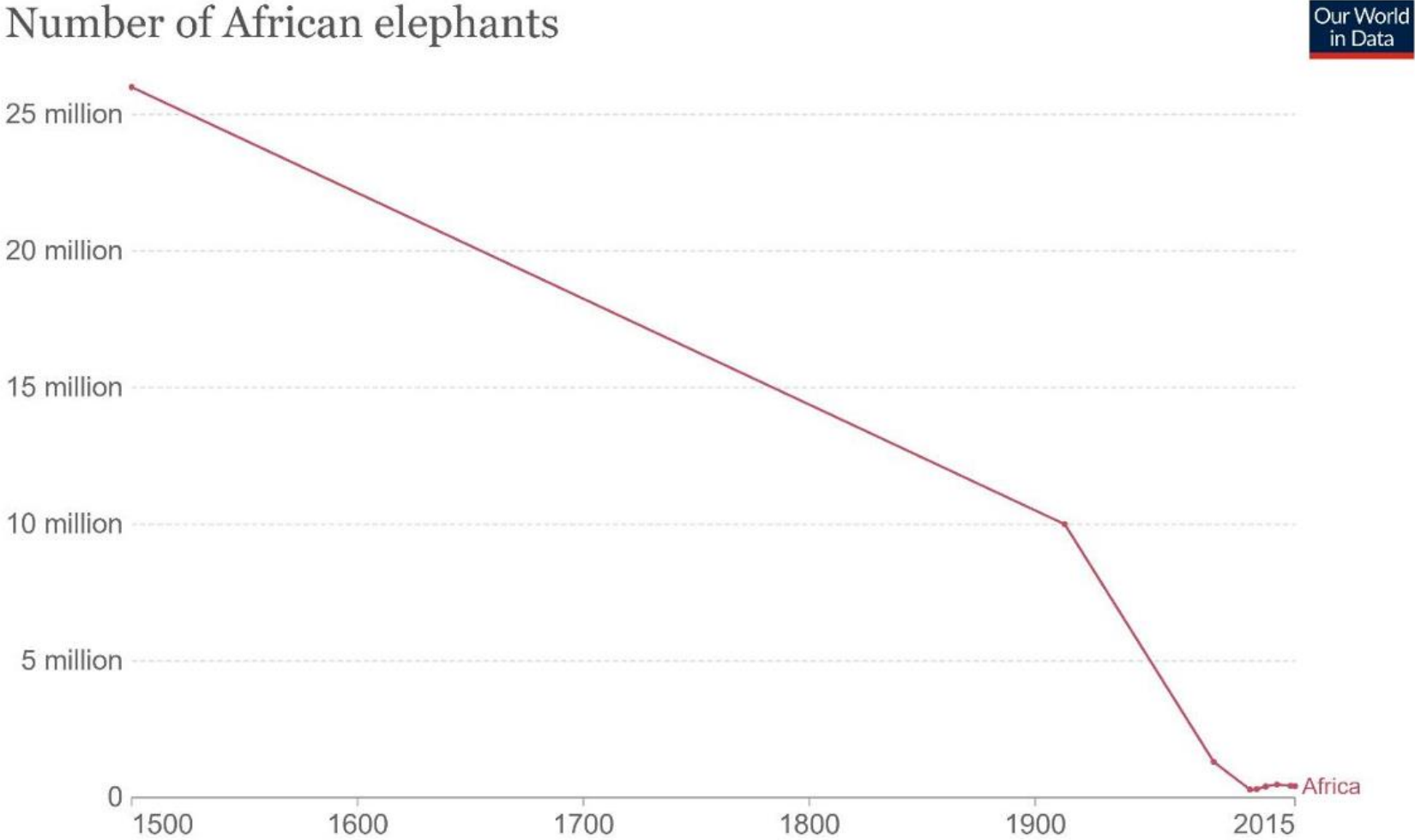
**The benefits (and occasionally disbenefits or losses) that people obtain from ecosystems. These include provisioning services such as food and water; regulating services such as flood and disease control; and cultural services such as recreation, ethical and spiritual, educational and sense of place.**

# **Definitions of Key Words**

## **Well-being:**

**A perspective on a good life that comprises access to basic materials for a good life, health and physical well-being, good social relations, security, peace of mind, spiritual experience, and freedom of choice.**

# Biodiversity Loss



Source: African Elephant Specialist Group (AfESG); Great Elephant Census  
Note: Long-run estimates from 1500 and 1913 in particular have a large degree of error and should be interpreted with caution; however, they are a useful indicator of the magnitude of population change over time.  
OurWorldInData.org/large-mammals-extinction • CC BY

# Biodiversity Loss

## Unprecedented rate of extinction

- ◇ On the Earth, 8.7 million or more of animal and plant species exist (estimate)
- ◇ Currently, 37,480 species (28%) are threatened to extinction out of 134,425 species identified
- ◇ If we don't take urgent actions, most of them will extinct within a few decades. (IPBES, 2019)





# Biodiversity Loss

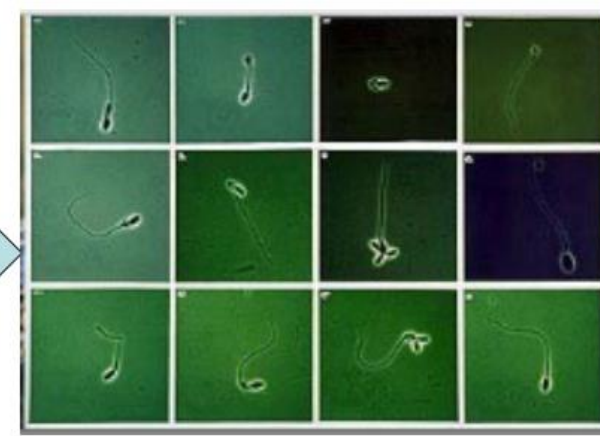
## Direct drivers of biodiversity loss

- ◆ Land/sea-use change (e.g. expansion of residential area, conversion of forests into hotels, agricultural area or roads)
- ◆ Direct exploitation (e.g. deforestation, overfishing)
- ◆ Climate change (e.g. GHG emissions leading to extreme weather)
- ◆ Pollution (e.g. inappropriate discharge of wastewater, plastics)
- ◆ Invasive species

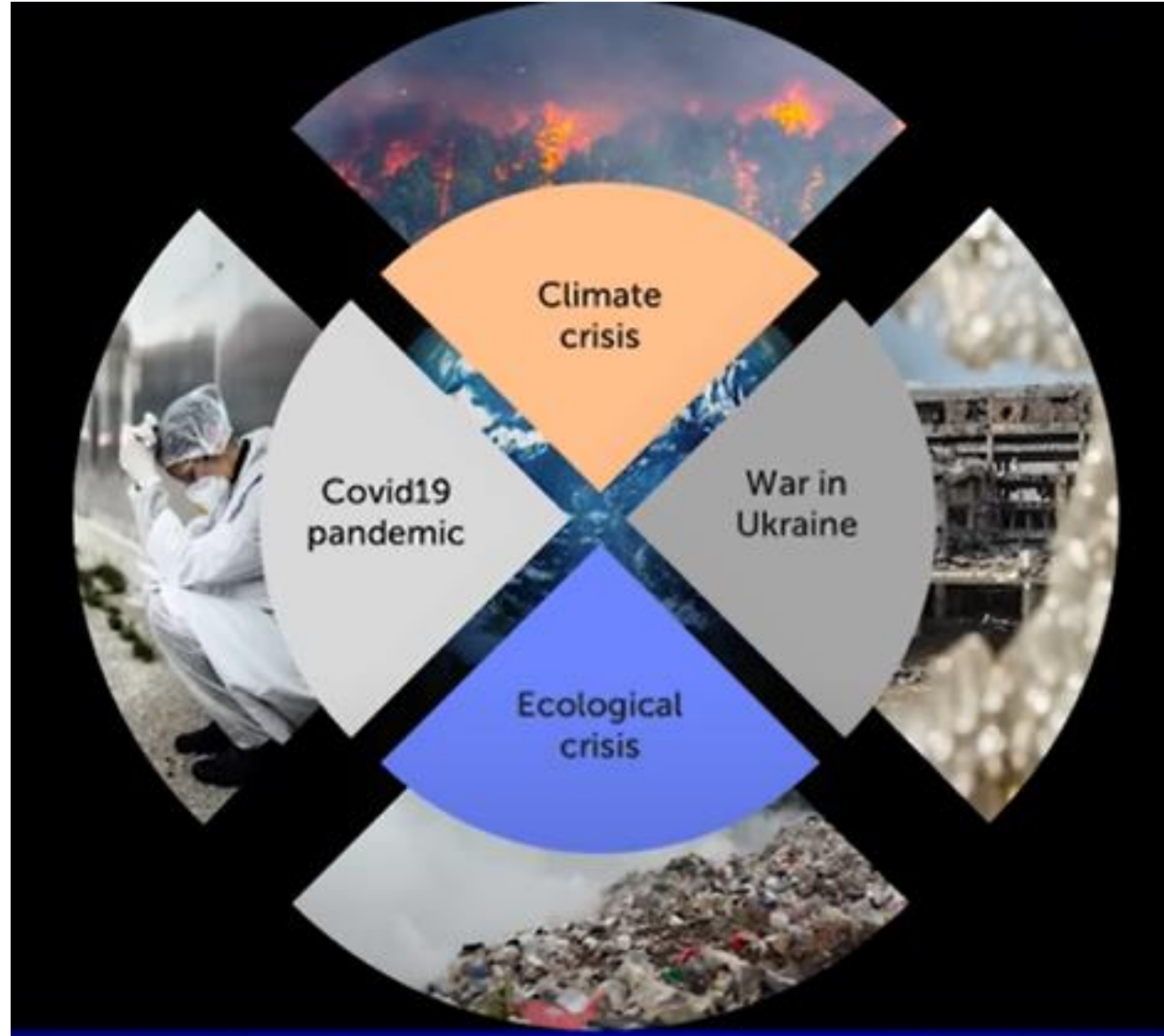


# Three levels of biodiversity

- **Genetic diversity** is all the different genes contained in all individual plants, animals, fungi, and microorganisms. It occurs within a species as well as between species.
- **Species diversity** is all the differences within and between populations of species, as well as between different species.
- **Ecosystem diversity** is all the different habitats, biological communities, and ecological processes, as well as variation within individual ecosystems.



# Four interconnected global crises



Johan Rockström





# UN Biodiversity Conference (COP15) in December 2022



Adoption of GBF, Dec, 2022

- **196 countries joined**
- **The Kunming-Montreal Global Biodiversity Framework (GBF) adopted**
- **4 goals and 23 targets were formulated**

## Four Goals for 2050:

1. **Halt human-induced extinction**: Reduce the rate of extinction of all species tenfold by 2050.
2. **Sustainable use and management of biodiversity**: Ensure that nature's contributions to people are valued, maintained, and enhanced.
3. **Fair sharing of benefits**: From the utilization of genetic resources and digital sequence information on genetic resources.
4. **Accessible implementation**: Adequate means of implementing the GBF accessible to all Parties, particularly Least Developed Countries and Small Island Developing States

## 23 Targets for 2030:

- **Effective conservation and management:** At least 30% of the world's lands, inland waters, coastal areas, and oceans, emphasizing biodiversity-rich regions.
- **Restoration:** Complete or initiate restoration on 30% of degraded terrestrial, inland waters, and coastal and marine ecosystems.
- **Reduce food waste:** Cut global food waste in half.
- **Nutrient and pesticide reduction:** Halve excess nutrients and overall risk from pesticides.
- **Subsidy reform:** Phase out or reform subsidies harming biodiversity by at least \$500 billion annually.
- **Biodiversity funding:** Mobilize at least \$200 billion per year in biodiversity-related funding.
- **Invasive species control:** Prevent introduction of priority invasive alien species and reduce their establishment.
- **Corporate transparency:** Require large companies to disclose their biodiversity risks and impacts

## **5. Principles for Sustainable Insurance (PSI)**

# Principles for Sustainable Insurance (PSI)



Launched at the 2012 UN Conference on Sustainable Development, the UNEP FI Principles for Sustainable Insurance (PSI) serve as a global framework for the insurance industry to address environmental, social and governance risks and opportunities. The PSI initiative is the largest collaborative initiative between the UN and the insurance industry.



# What is Sustainable Insurance?

Sustainable insurance is a strategic approach where all activities in the insurance value chain, including interactions with stakeholders, are done in a responsible and forward-looking way by identifying, assessing, managing and monitoring risks and opportunities associated with environmental, social and governance issues.

Sustainable insurance aims to reduce risk, develop innovative solutions, improve business performance, and contribute to environmental, social and economic sustainability.

# PSI's 4 Principles



**Ban Ki-moon**

Secretary-General of the United Nations

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Principle 1 - We will embed in our decision-making environmental, social and governance issues relevant to our insurance business.

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Principle 2 - We will work together with our clients and business partners to raise awareness of environmental, social and governance issues, manage risk and develop solutions.

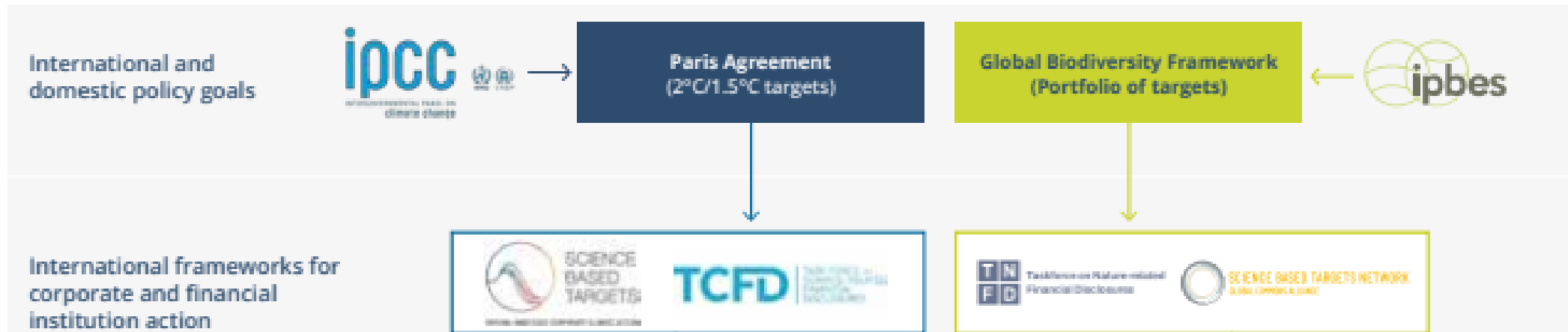
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Principle 3 - We will work together with governments, regulators and other key stakeholders to promote widespread action across society on environmental, social and governance issues.

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Principle 4 - We will demonstrate accountability and transparency in regularly disclosing publicly our progress in implementing the Principles.

# Sustainability Reporting will become popular as Financial Disclosure



# PSI Participants (As of August 28<sup>th</sup> 2024)

**167**  
***Signatories***



**110**  
***Supporting  
Institutions***

ROYAUME DU MAROC



**acaps**

هيئة مراقبة التأمينات والاجتياط الاجتماعي  
الهيئة العامة للرقابة على التأمينات والاجتياط الاجتماعي  
Autorité de Contrôle des Assurances et de la Prévoyance Sociale

# The insurance industry and sustainable development: A UN system-wide agenda



UN Global Compact



UN Framework  
Convention  
on Climate Change



UN Environment



International  
Labour Organization



PSI  
Principles for Sustainable Insurance



UN DESA  
UN Dept. of  
Economic & Social  
Affairs



WHO

World Health Organization



Office of the UN High Commissioner  
for Human Rights



PSI  
Principles  
for Sustainable  
Insurance



UN Human Settlements Programme



UNISDR

The United Nations Office for Disaster Risk Reduction

UN Office for Disaster Risk Reduction



UN Development  
Programme



Food & Agriculture  
Organization



World  
Food Programme



UN Educational,  
Scientific & Cultural  
Organization



World  
Meteorological  
Organization



UNITED NATIONS  
UNCTAD

UN Conference on Trade  
& Development



# PSI market events: Shaping the global sustainable insurance agenda



The US



The UK



Switzerland



Germany



Costa Rica



Brazil



Morocco



The Philippines



Colombia



South Africa

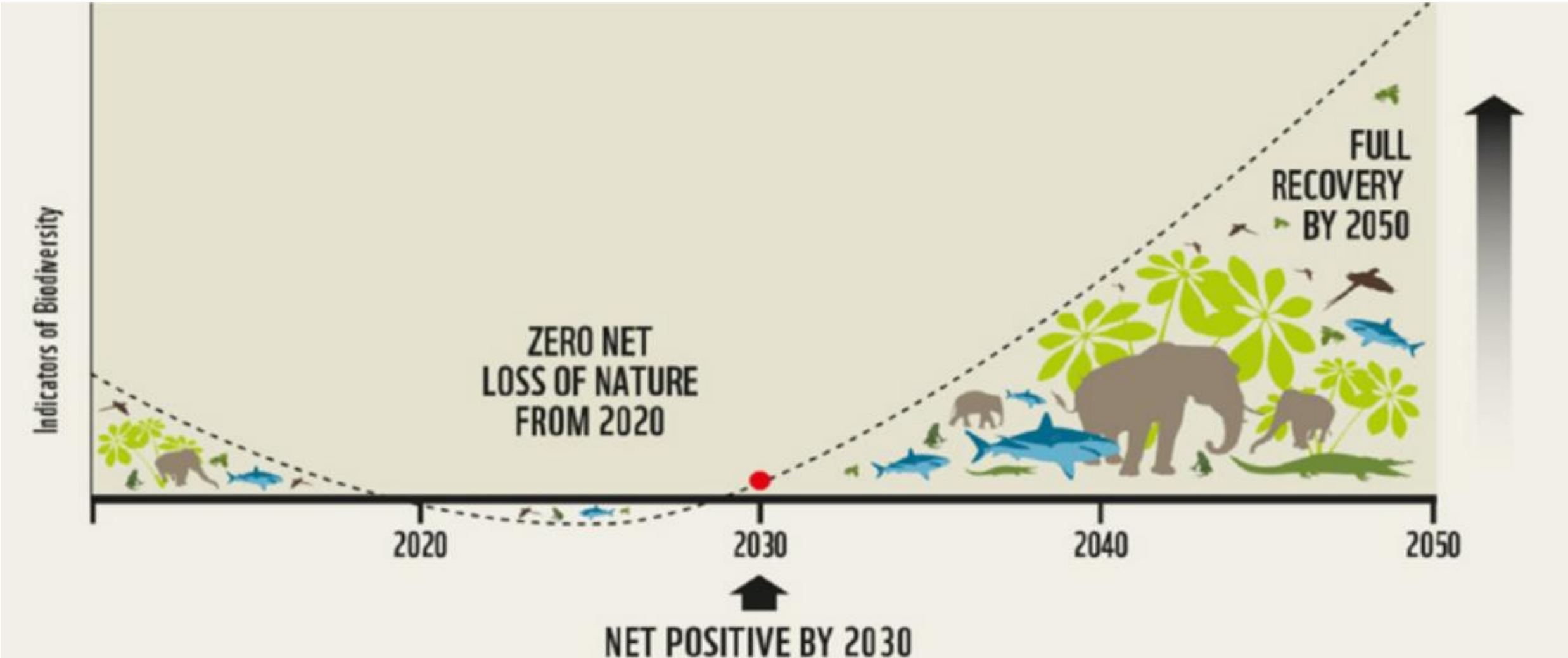


Australia

# Key actions to advance nature-positive insurance



# The global goal for nature: Nature-positive by 2030

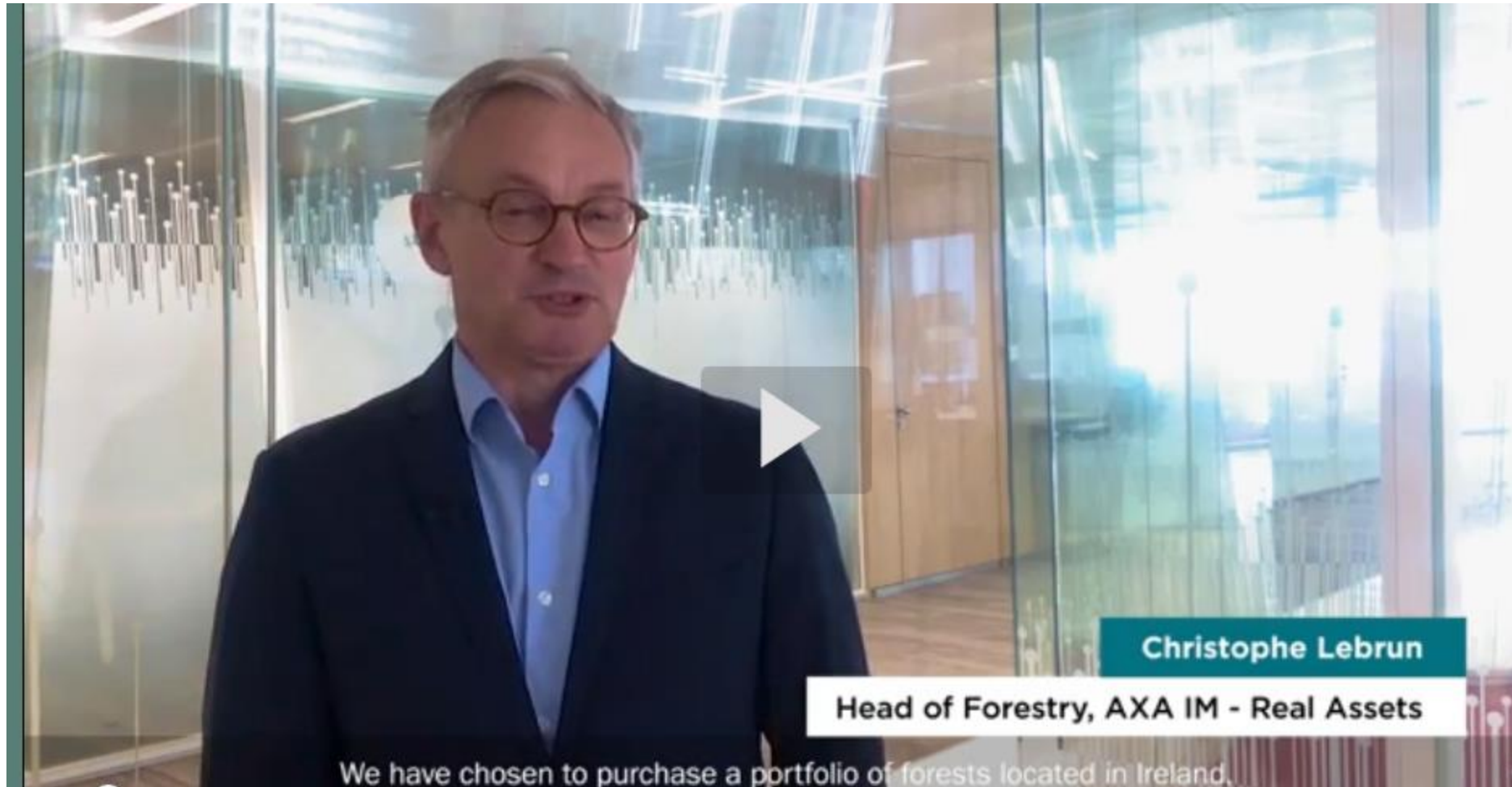


## **6. Examples of Sustainability management of insurance companies**

- **AXA Group's deforestation strategy**
- **Generali Group's deforestation strategy**
- **Allianz Group's climate change strategy**



# AXA Group's deforestation strategy



<https://alts.axa-im.com/investment-expertise/real-estate-equity/forestry>



# Generali Group's deforestation strategy

## Restoring life to the forests

 WHERE WE ARE

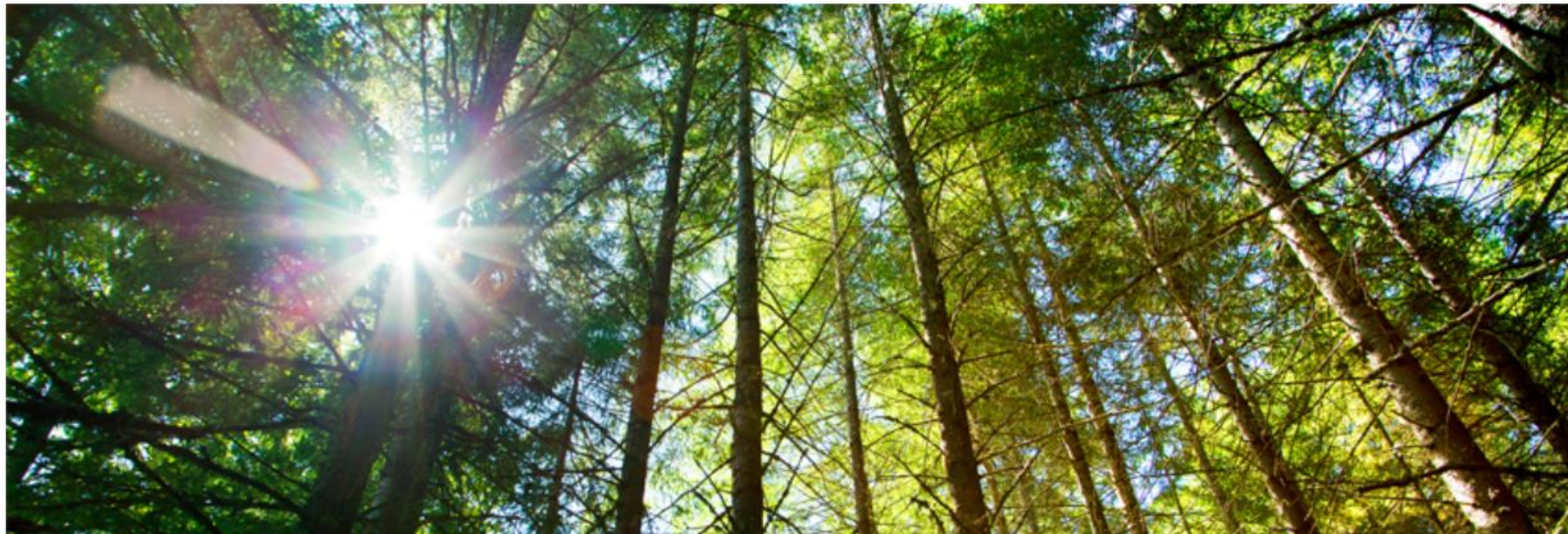
 DOWNLOAD CENTER

 CONTACT US

**SUSTAINABILITY** WORK WITH US INVESTORS MEDIA GOVERNANCE

 SEARCH

On 15 November 2014, volunteers from all over Slovenia – including Generali employees – met up to plant the new trees. By giving up its corporate Christmas presents, Generali was able to purchase 10,000 seedlings for the project.





# Allianz Group's climate change strategy



## Enable the low-carbon transition

We aim to enable the journey to net-zero through the work we do within our own operations, for our investees, and for our insurance customers. Our ambition is to be a trusted insurance and investment partner for a wide range of industries and customers at varying stages along their net-zero transformations.

Our business strategy aims to systematically enable a low-carbon and climate-resilient future. We focus on key sectors with high emissions and the need for transformation. The energy and transportation sectors are prime examples. We aim to strategically invest in low-carbon assets and insure low-carbon technologies. Grounded in our belief in science-based decision making, we support partners, investees, and clients along the path to net-zero, we also commit to pursuing net-zero emissions within our own operations.

**This is the end of the presentation.**

**Thank you for listening to my presentation.**