

# GLOBAL WARMING OF 1.5 °C

an IPCC special report on the impacts of global warming of 1.5 °C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty

## Framing and context

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Bert Bolin, 1925-2007

# Framing and context

- A few aspects of history
- The challenge
- Pathways, sustainable development
- Global warming
  - above preindustrial
  - versus regional warming
- Feasibility
- A roadmap for SR15

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# History: UNFCCC (1992)

## Article 2

...such a level should be achieved within a time-frame sufficient

- to allow ecosystems to adapt naturally to climate change,
- to ensure that food production is not threatened and
- to enable economic development to proceed in a sustainable manner.

# History: Paris Agreement (2015)

## Article 2

1. This Agreement, in enhancing the implementation of the Convention, including its objective, aims to strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty, including by:

(a) Holding the increase in the global average temperature to well below 2 ° C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5 ° C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change;

# History: UNFCCC COP21 (2015)

## Decision

21. Invites the Intergovernmental Panel on Climate Change to provide a special report in 2018 on the impacts of global warming of 1.5 ° C above pre-industrial levels and related global greenhouse gas emission pathways;

# Timeline

- 11-13 April 2016, IPCC accepts invitation
- 15-18 August 2016, Scoping Meeting
- 17-20 October 2016, IPCC approves outline
- author selection
- four author meetings
- expert and government reviews
- 1-5 October 2018, IPCC approves report



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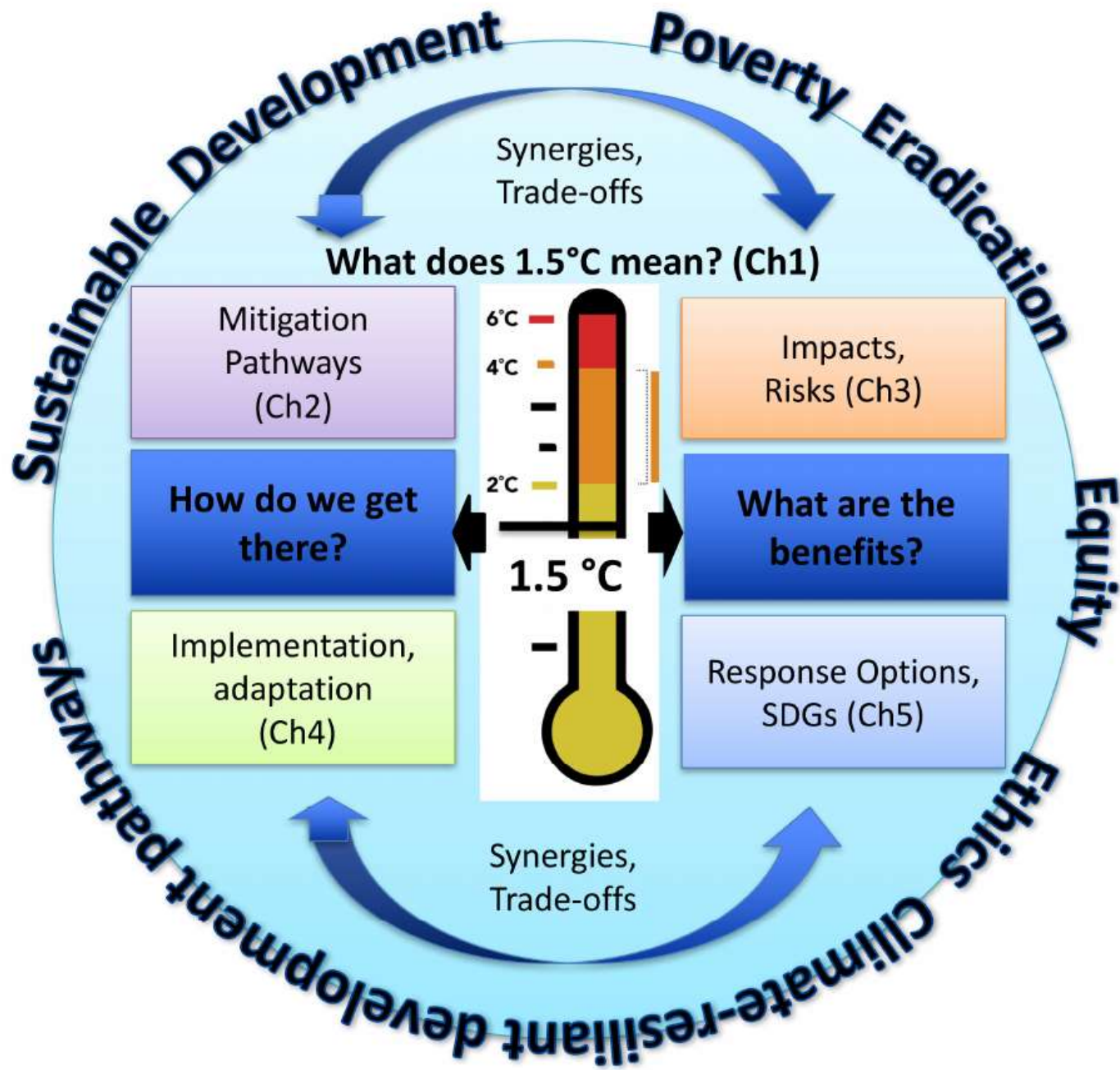
# The challenge

- Temperature rise to date has already resulted in profound alterations to human and natural systems, with new shocks and new risks
- The most affected are the low and middle income countries where this has led to decline in food security and has been linked to migration and poverty
- Failure to limit warming to 1.5° C will ... result in ... extensive human rights consequences. ... The gap between 1.5° C and 2° C amounts to a greater likelihood of drought, flooding, resource depletion, conflict and forced migration in many parts of the world

# The challenge (continued)

Achieving the ambitions of the Paris Agreement will require

- unprecedented political will and highly supportive innovative governance arrangements
- equipped with an in-depth understanding of the far reaching diversity in spatial, temporal and social interconnectedness and the learning capabilities of society



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# Pathways, sustainable development

- The global commitment to 1.5° C pathways is, in part, defined by nationally determined contributions (NDC) of greenhouse gas reduction.
- The current NDCs are not ambitious enough to secure the 1.5° C goal and are currently tracking toward a warming of 3-4° C above preindustrial temperatures.
- The analysis of pathways reveals opportunities for greater decoupling of economic growth from the rate of GHG emissions. Movement toward 1.5° C will require an acceleration of this trend.

# Pathways, sustainable development

- SDG13 specifically requires ‘urgent action to address climate change and its impacts’, but most if not all of the 17 SDGs are directly relevant to climate action.

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# Global warming above preindustrial

- Warming relative to pre-industrial levels is defined as the increase in expected global average blended surface air temperature changes over land and sea surface temperature changes over oceans, relative to the reference period 1850-1879.
- 1.5° C relative to pre-industrial means
  - 0.9° C warmer than 1986-2005, or
  - 0.6° C warmer than the present decade 2010-2019.



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# Feasibility

- The approach of the ‘feasibility’ question starts from a given condition - in this case the requirements of 1.5° C world - and aims to reveal the policy implications and enabling conditions of different trajectories compatible with this objective, building on back casting techniques.
- No “yes or no”.

# Feasibility dimensions

1. **geophysical and environmental** – the capacities of physical systems (including response to negative implications) to meet the requirements of achieving the condition of 1.5° C;
2. **technological and economic** – the nature of the enabling conditions in technical and economic systems; and
3. **social and institutional** – the evolutions in the social and institutional context that are required to create the space for the deep socio-technical changes implied by these scenarios.

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***Thank you very much for your attention!***