

Towards a Future Climate Regime

Wien, 28 January 2010

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Copenhagen Accord – Objective

- Increase in global temperature should be **below 2°C**
- **Deep cuts in global emissions** are required ... to hold the increase in global temperature below 2°C
- **Peaking** of global and national emissions **as soon as possible**; time frame for peaking will be longer in developing countries
- Assessment of the implementation by 2015, including **consideration of strengthening the long-term goal** in relation to temperature rises of **1.5°C**

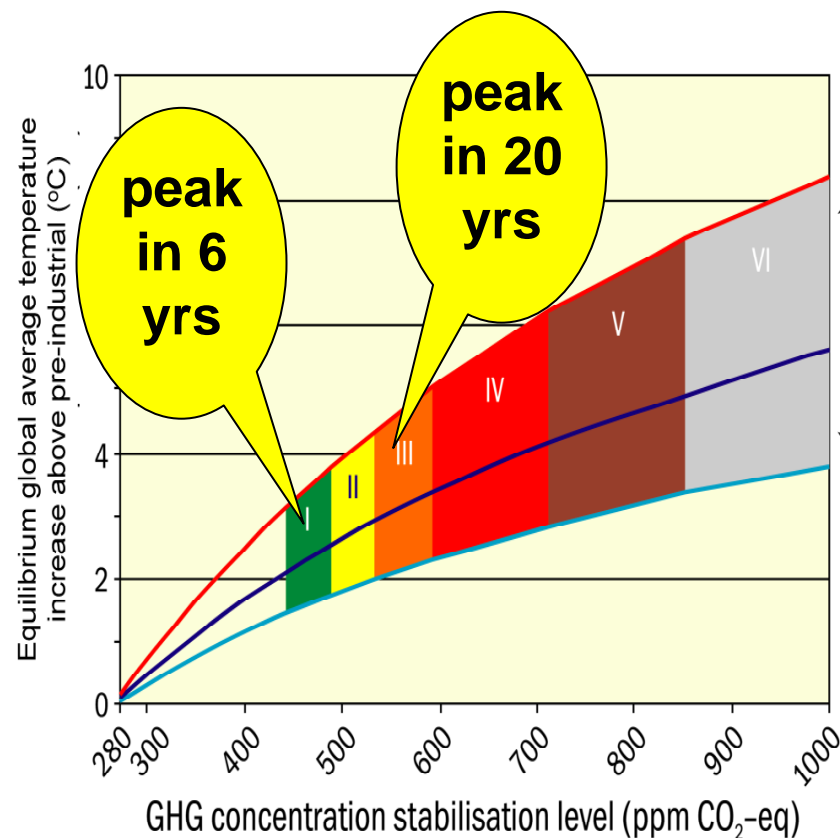
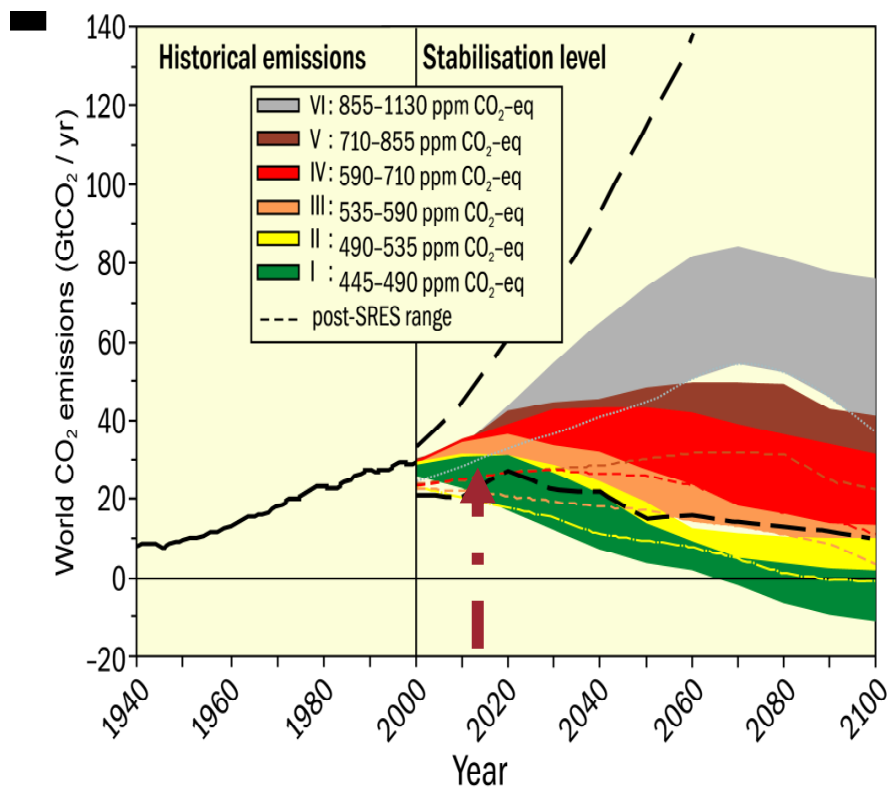
To stay below 2°C warming → stabilisation at 450ppm CO₂-eq

In order to have a 50% chance of keeping the global mean temperature rise below 2°C relative to pre-industrial levels, atmospheric GHG concentrations must stabilise below 450ppm CO₂ equivalence.

Stabilisation below 400ppm will increase the probability to roughly 66% to 90%.

IPCC, 2007

Peaking of global emissions within 6 years and 50-85% reduction by 2050 required



IPCC, 2007

Reasons for concern

Reasons for concern
about projected climate change impacts

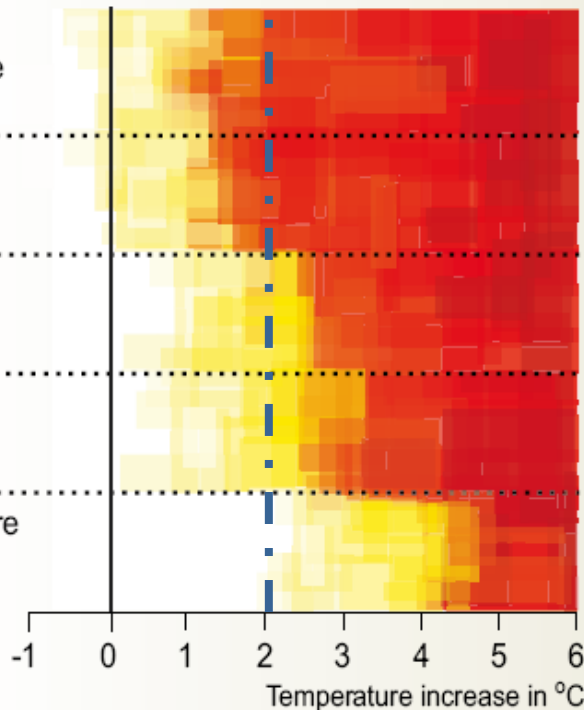
Risks from
extreme climate

Risk to unique
and threatened
systems

Distribution of
impacts

Accumulated
impacts

Risks from future
large scale
singularities



- neutral or small negative or positive impacts or risks
- negative impacts for some systems or low risks
- negative impacts or risks that are more widespread and/or greater in magnitude

Source: IPCC, 2001.

Introduced in TAR

In AR4 they were assessed to be stronger, with many risks identified with higher confidence.

Some risks were projected to be larger or to occur at lower increases in temperature.

IPCC, 2007

Copenhagen Accord – Mitigation

- **Annex I** Parties commit to implement individually or jointly the quantified economy-wide emissions targets for 2020 (Appendix I)
- **Non-Annex I** Parties to the Convention will implement mitigation actions, (including those submitted in Appendix II); LDCs and SIDS take voluntary action
 - Non-Annex I mitigation actions communicated through national communications; be added to the list in appendix II; **domestic measurement, reporting and verification**
 - Mitigation actions seeking international support will be recorded in a registry; subject to **international measurement, reporting and verification**
- Agree on the need to provide positive incentives to such actions through the immediate establishment of a mechanism including **REDD-plus**

Emission allowances in 2020 and 2050 for a 450 ppm CO₂eq. stabilisation

Box 13.7 The range of the difference between emissions in 1990 and emission allowances in 2020/2050 for various GHG concentration levels for Annex I and non-Annex I countries as a group^a

Scenario category	Region	2020	2050
A-450 ppm CO ₂ -eq ^b	Annex I	-25% to -40%	-80% to -95%
	Non-Annex I	Substantial deviation from baseline in Latin America, Middle East, East Asia and Centrally-Planned Asia	Substantial deviation from baseline in all regions
B-550 ppm CO ₂ -eq	Annex I	-10% to -30%	-40% to -90%
	Non-Annex I	Deviation from baseline in Latin America and Middle East, East Asia	Deviation from baseline in most regions, especially in Latin America and Middle East
C-650 ppm CO ₂ -eq	Annex I	0% to -25%	-30% to -80%
	Non-Annex I	Baseline	Deviation from baseline in Latin America and Middle East, East Asia

Notes:

- ^a The aggregate range is based on multiple approaches to apportion emissions between regions (contraction and convergence, multistage, Triptych and intensity targets, among others). Each approach makes different assumptions about the pathway, specific national efforts and other variables. Additional extreme cases – in which Annex I undertakes all reductions, or non-Annex I undertakes all reductions – are not included. The ranges presented here do not imply political feasibility, nor do the results reflect cost variances.
- ^b Only the studies aiming at stabilization at 450 ppm CO₂-eq assume a (temporary) overshoot of about 50 ppm (See Den Elzen and Meinshausen, 2006).

Source: See references listed in first paragraph of Section 13.3.3.3

IPCC, 2007

Investors call for legally binding targets this year !

- **Developed countries** to establish emission reduction targets of **80–95% by 2050**,
- Interim targets of **25–40% by 2020**.
- **Developing countries** should have clear action plans that **deliver measurable and verifiable emission reductions** compared to projected levels.
- **Comprehensive long-term measures**, including a **global emission reduction target of 50–85% by 2050**

From: 2010 Investors Statement on
Catalyzing Investment in a
Low-Carbon Economy

Copenhagen Accord – Finance

- **Adaptation** faced by all countries; developed countries shall provide adequate, predictable and sustainable financial resources
- A significant portion of new multilateral **funding for adaptation** funding should flow through the **Copenhagen Green Climate Fund**.
- Collective commitment by developed countries **US\$ 30 billion for 2010- 2012; balanced allocation between adaptation and mitigation**.
- For **meaningful mitigation actions** developed countries commit to a goal of mobilizing **US\$ 100 billion dollars a year by 2020**; to come from a wide **variety of sources** - public, private, bilateral, multilateral, including alternative sources.

Estimated costs of adaptation

World Bank (preliminary findings of global report) - Costs of adaptation in developing countries will be in the order of **US\$75-100 billion per year** for the period 2010 to 2050

Stern Review (2007) estimates that if we don't act, the overall costs and risks of climate change **will be equivalent to losing at least 5% of global GDP each year, now and forever**

Crop response to warming

High latitude:

- production **increases** with 1-3°C rise in local mean temperature
- **decreases** above 1-3°C rise.



Low latitude:

- Production **decreases** with 1-2°C rise in mean temperatures
- Increased drought/flood frequency affect especially subsistence sectors at low latitudes



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INTERGOVERNMENTAL PANEL ON climate change

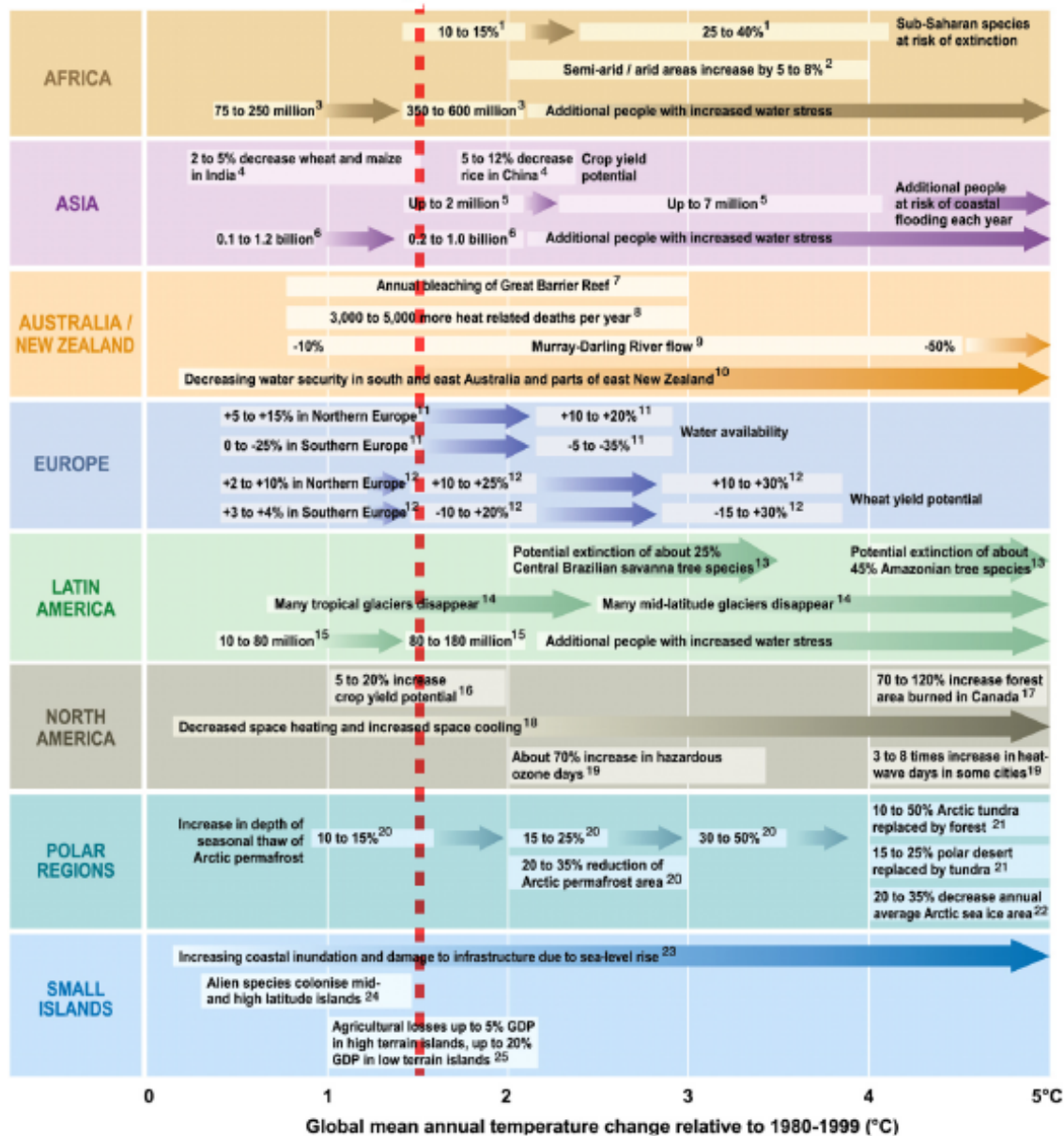


Megadeltas – particularly vulnerable



Potentially displaced by current sea-level trends to 2050
(Extreme \geq 1 million; high 1 million to 50,000; medium 50,000 to 5,000)

2°C above pre-industrial



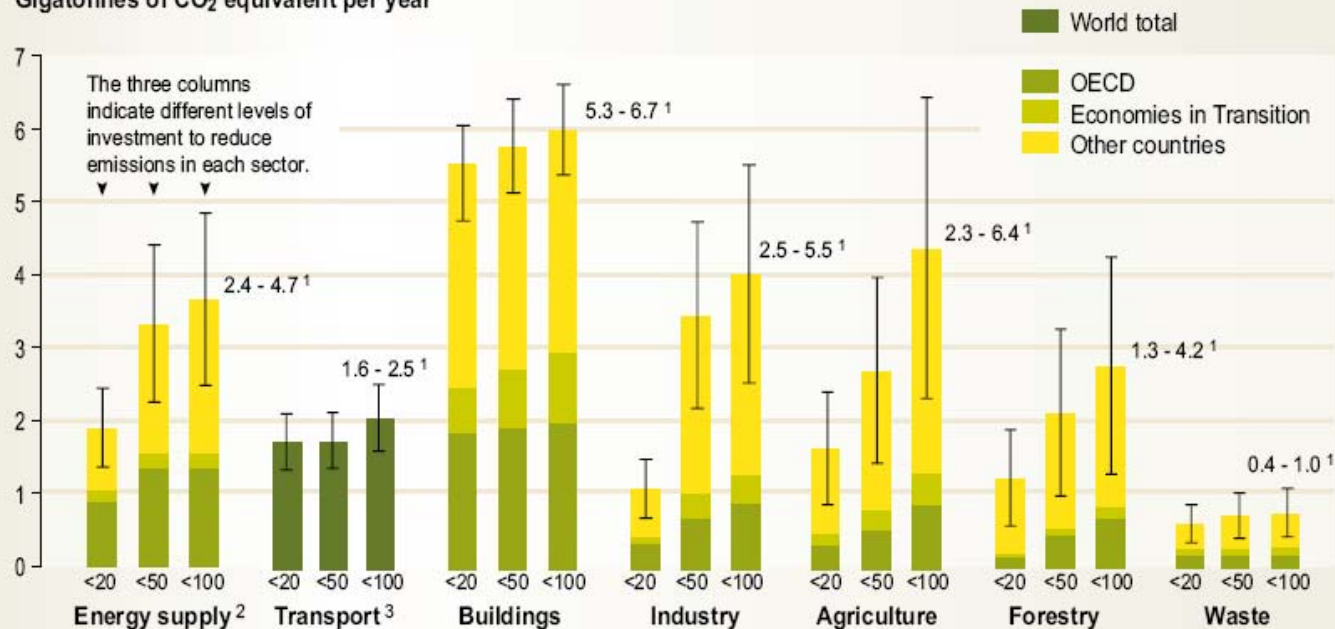
Projected regional impacts

IPCC, 2007

Sectors: Economic potential for GHG emission reductions by 2030

Economic potential for reducing GHG emissions by sector in 2030

Gigatonnes of CO₂ equivalent per year



1. Total range of potential in each sector when investing up to US\$100 per tonne of CO₂ eq
2. Electricity use is included in end use sectors, not in the energy sector.
3. As transport includes aviation, only global totals are shown.

Sources: IPCC, 2007.

Estimated investment costs – mitigation

- **UNFCCC Secretariat:** > **US\$200 billion** additional investment capital for mitigation each year by 2030 to return GHGs to current levels
- **International Energy Agency:** additional investment of **US\$10.5 trillion** needed globally in the energy sector from 2010–2030 to stabilize GHG emissions at around 450ppm.
 - ~ roughly 0.1% of the total value of world financial assets
- **World Bank:** in developing countries **US\$140-175 billion** needed annually by 2030 to mitigate on 2°C trajectory

From: 2010 Investors Statement on
Catalyzing Investment in a
Low-Carbon Economy

IPCC activities

Comprehensive, objective, open and transparent assessments of scientific knowledge

- 5th Assessment – due in 2013/14
- Special Reports
 - Renewable energy – February 2011
 - Extreme events and disasters – Sept 2011
- Methodology work

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