



The Case for Urgent Action on Climate Change

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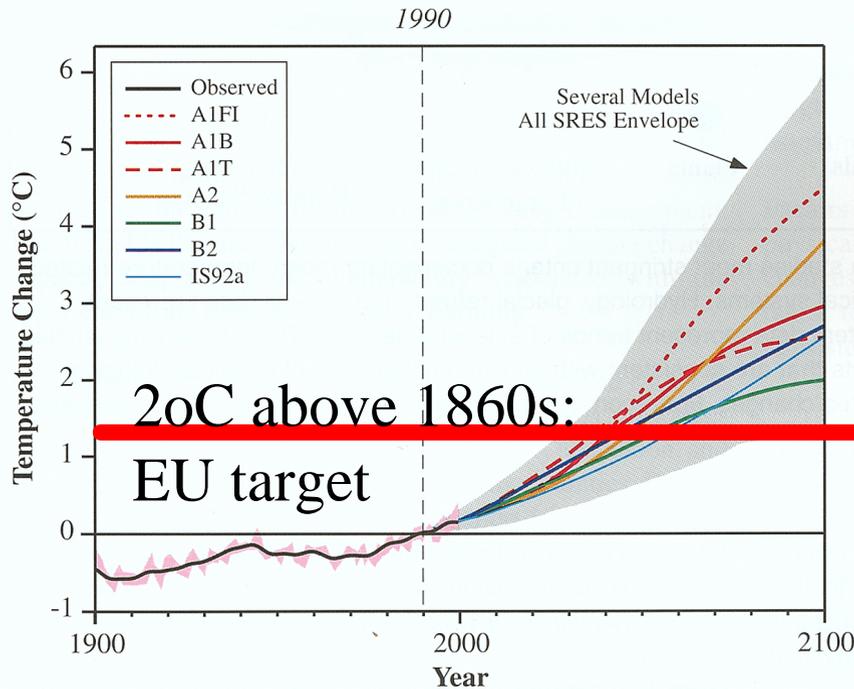
Article 2: UNFCCC

Ultimate objective to prevent dangerous anthropogenic **interference with the climate system** ... within a time frame sufficient to:

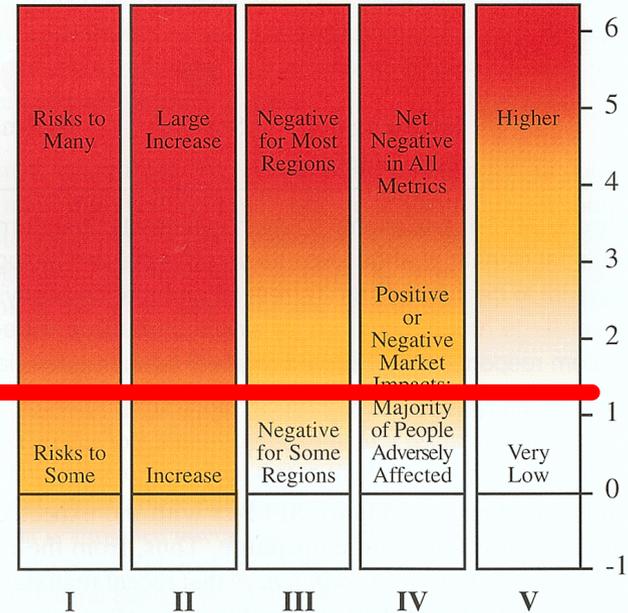
- » allow ecosystems to adapt naturally to climate change
- » ensure that food production is not threatened
- » enable economic development to proceed in a sustainable manner



IPCC TAR Risk vs Temperature



Reasons for Concern



- I Risks to Unique and Threatened Systems
- II Risks from Extreme Climate Events
- III Distribution of Impacts
- IV Aggregate Impacts
- V Risks from Future Large-Scale Discontinuities



Ecosystems impacts

South Africa: Range loss and risk of extinction of endemic plants in Fynbos biome "Hot Spot" projected to lose 51-61% of area, with 10% of endemic Proteaceae species suffering complete range loss. (9)

South Africa: Severe risk of extinction - succulent Karoo "Hot Spot" projected to virtually disappear with likely extinction of its 2800 endemic plants by 2050 (1.8-2.4°C above 1861-1890) (8)

Europe: Changes in plant biodiversity (32% of sampled areas in Europe in 2050 no longer have species in them that are present now for 2.1°C warming above 1961-1990) (7)

Australia: Eucalypt species out of climatic range (50% of species out of current thermal range with 3.6°C warming above 1861-1890) (6)

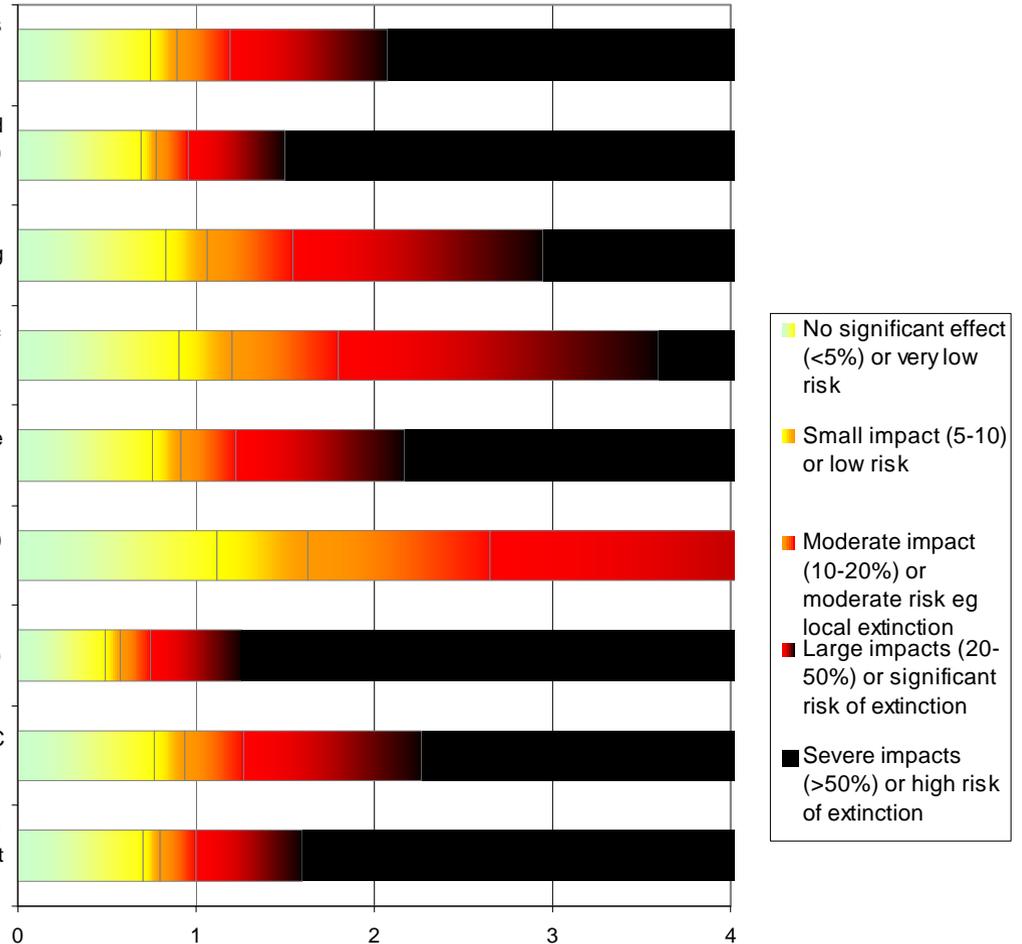
China: Reduction in extent of boreal forest (70% reduction ca 2.8°C above 1861-1890) (5)

Europe: Alpine ecosystems - % of species losing 90% of range (38% by 4.5°C) (4)

Global: Coral reef bleaching per decade (annually by 2.1°C) (3)

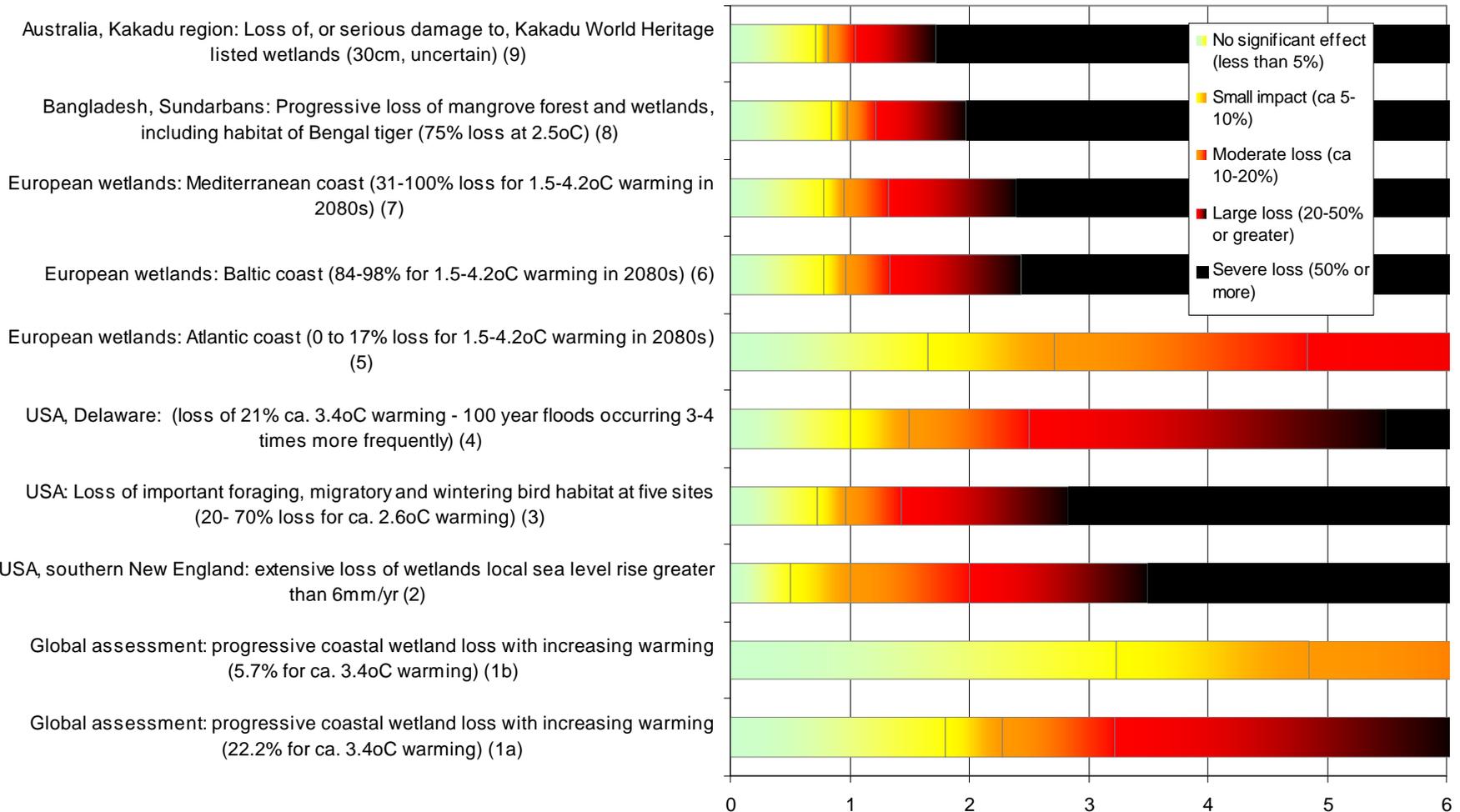
Australia: Alpine ecosystems of south eastern Australia (total loss with 3-4°C warming) (2)

Australia: Highland tropical forests, Queensland - area loss (50% loss with about a 1.6°C warming). Inscribed on World Heritage list and harbour most endemic vertebrates of this region (1)



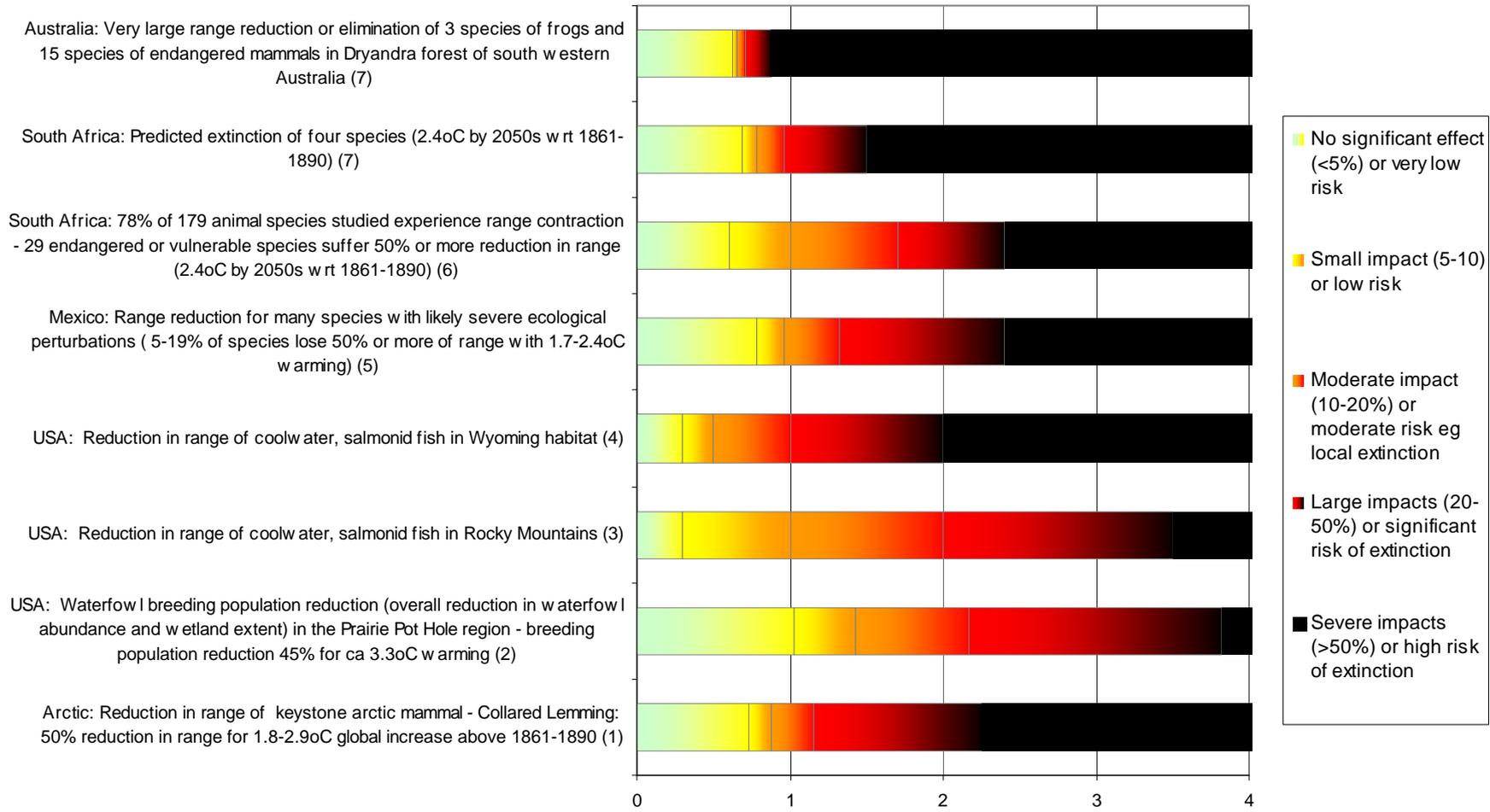


Impacts on coastal wetlands





Impacts on animal species





Rainforests in North Queensland, Australia: „Impending environmental catastrophe“

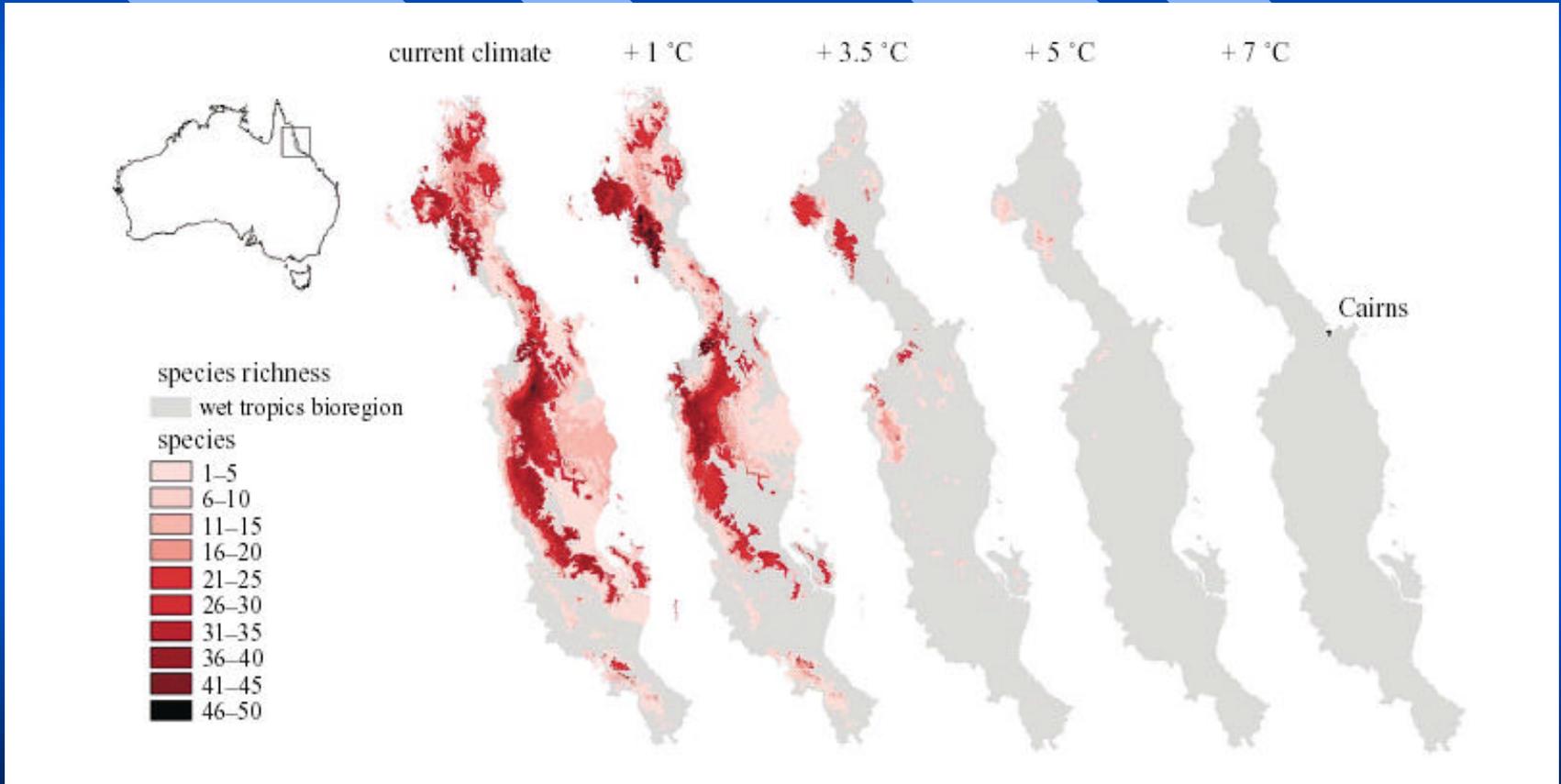


Figure 1. Geographical pattern of species richness of regionally endemic rainforest vertebrates at each temperature scenario. Species richness is produced by overlaying all species-distribution models at each temperature scenario. Williams et al 2003



Water and Article 2

- ⑩ 1.5°C to 2-2.5°C non linear risk threshold. Numbers at risk rising from close to 600 million to between 2.4-3.1 billion. Megacities in India and China.
- ⑩ 2°C warming - very high levels of additional risk at all time periods in the range 662 million to around 3 billion.
- ⑩ Above 2.5°C risk saturates 3.1-3.5 billion.



Food and Article 2: <2oC

- ⑩ At all levels of warming, a large group of poor, highly vulnerable developing countries are expected to suffer increasing additional food deficits, which is expected to lead higher levels of food insecurity and hunger in these countries.
- ⑩ 1°C Small damages - around 10 million more at risk) over the next century.
 - ⑩ Nearly all developed countries benefit
 - ⑩ Many developing countries in the tropics are estimated to experience small but significant crop yield growth declines.
- ⑩ 1°C -> 2°C warming triples the number of people at risk of hunger in the 2080s.



Food and Article 2: 2oC

- ⑩ 2°C increasing risk, with the risk increasing from the 2050s to the 2080s.
- ⑩ 2.5°C warming by the 2080s, the Parry et al. (1999) analysis indicates 45-55 million extra people at risk of hunger, with the number at risk rising very rapidly with temperature.

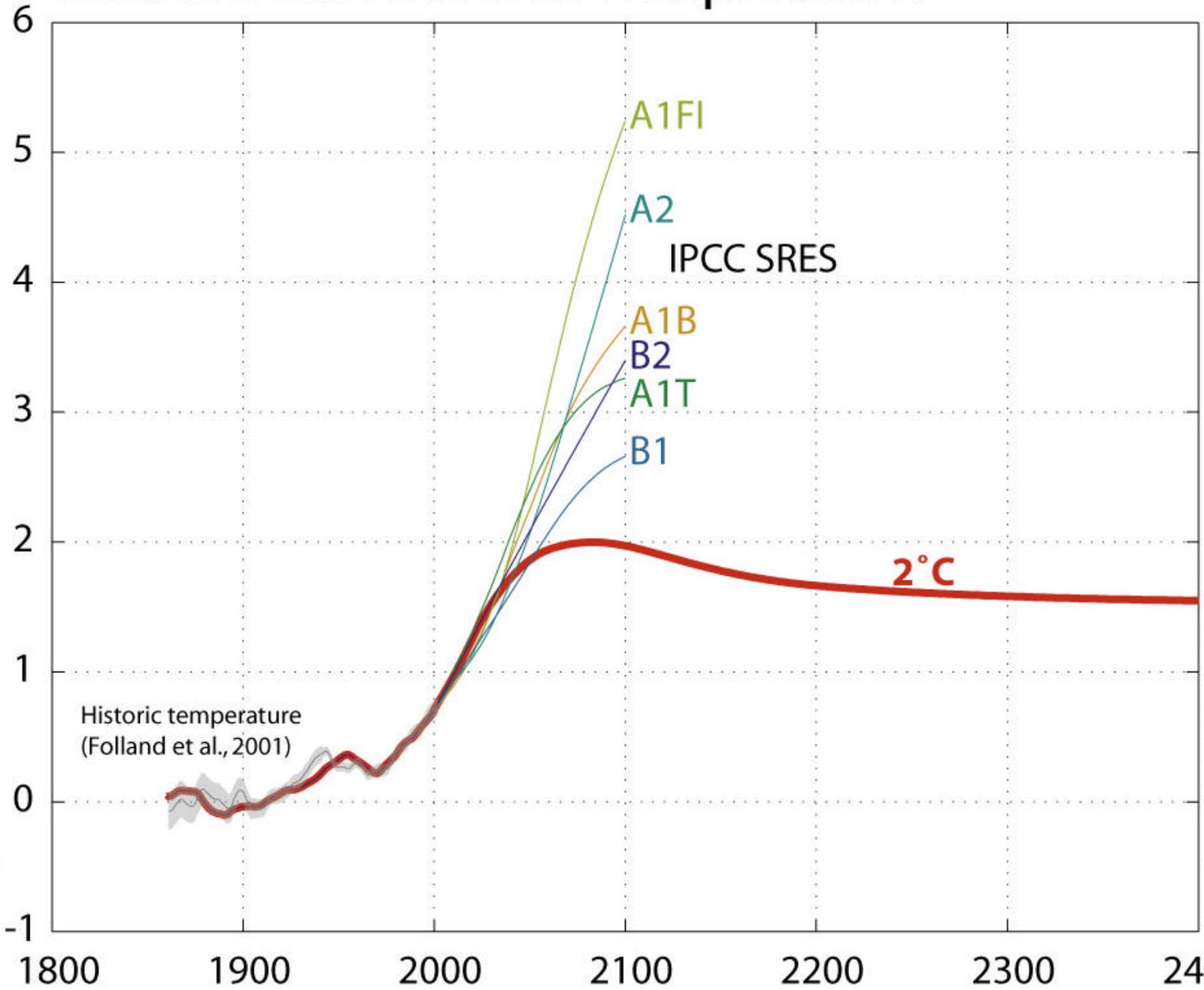


Long-term goal

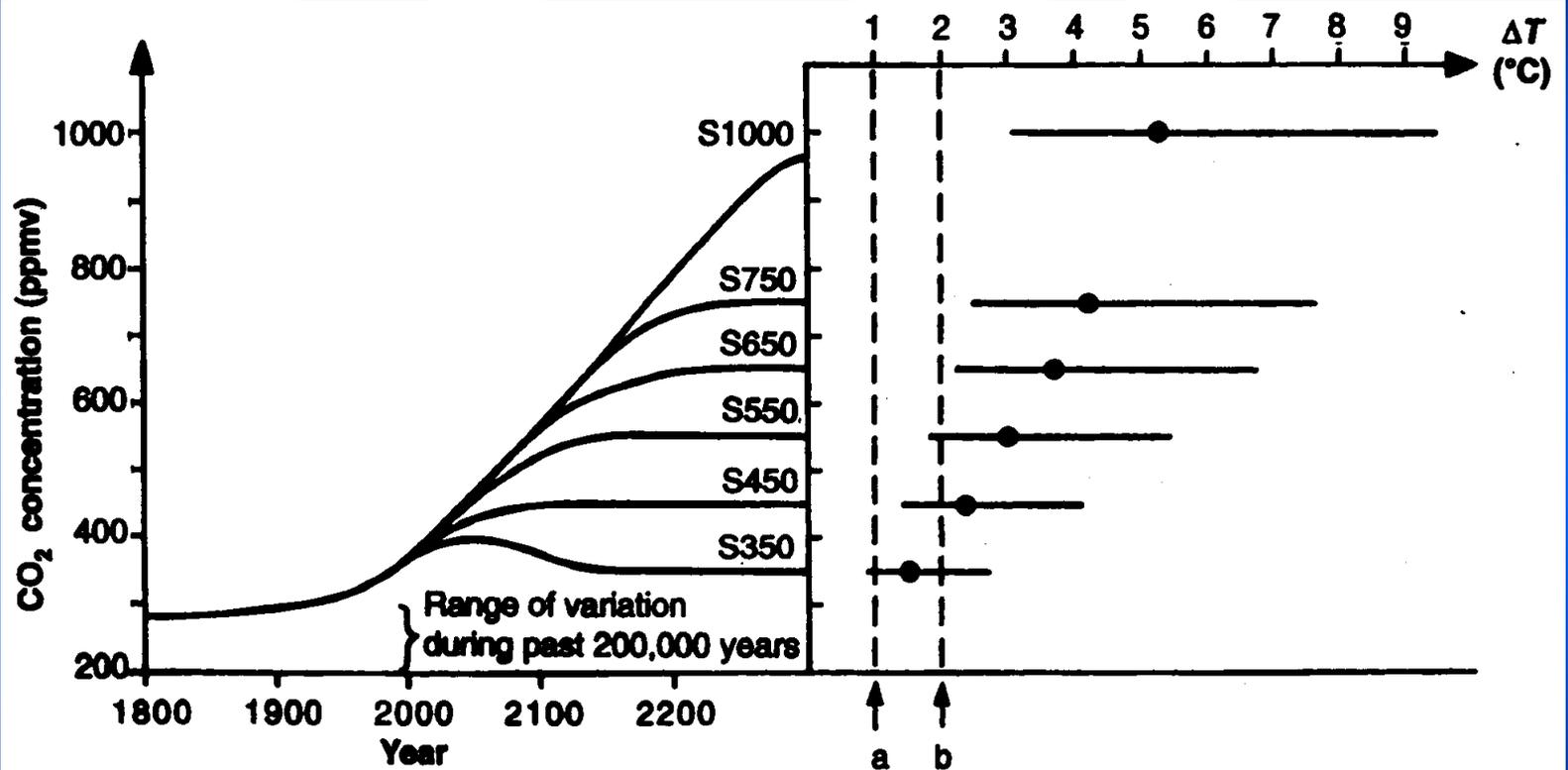
- To avoid dangerous climate change, global average temperature must peak at 2 degrees C (above pre-industrial levels) and be reduced thereafter
 - 2 degrees C is already intolerable for some ecosystems and populations

Global Mean Surface Temperature

Temperature above Pre-Industrial (°C)



CO₂-concentration and temperature



...but that “will essentially destroy the entire global economy” (Linden 1996)

1.) Technical potential and feasibility has been demonstrated in numerous studies

– Power Sector

» Eg U.S. : 59% reduction, consumer net costs sink \$86 billion/year by 2020

» Others similar: 2020 solutions include energy efficiency, wind, biomass primarily

...but that “will essentially destroy the entire global economy” (Linden 1996)

- 2.) Attaching a price/cost to the emission of CO₂ fundamentally transforms the cost hierarchy of the available fuel alternatives for generating electricity
- 5 euros/ton CO₂e in Europe and US\$11 switching from coal to gas-fired generation becomes the most economically attractive option for almost all firms
 - All power companies are likely to gain from preparing for carbon constraints

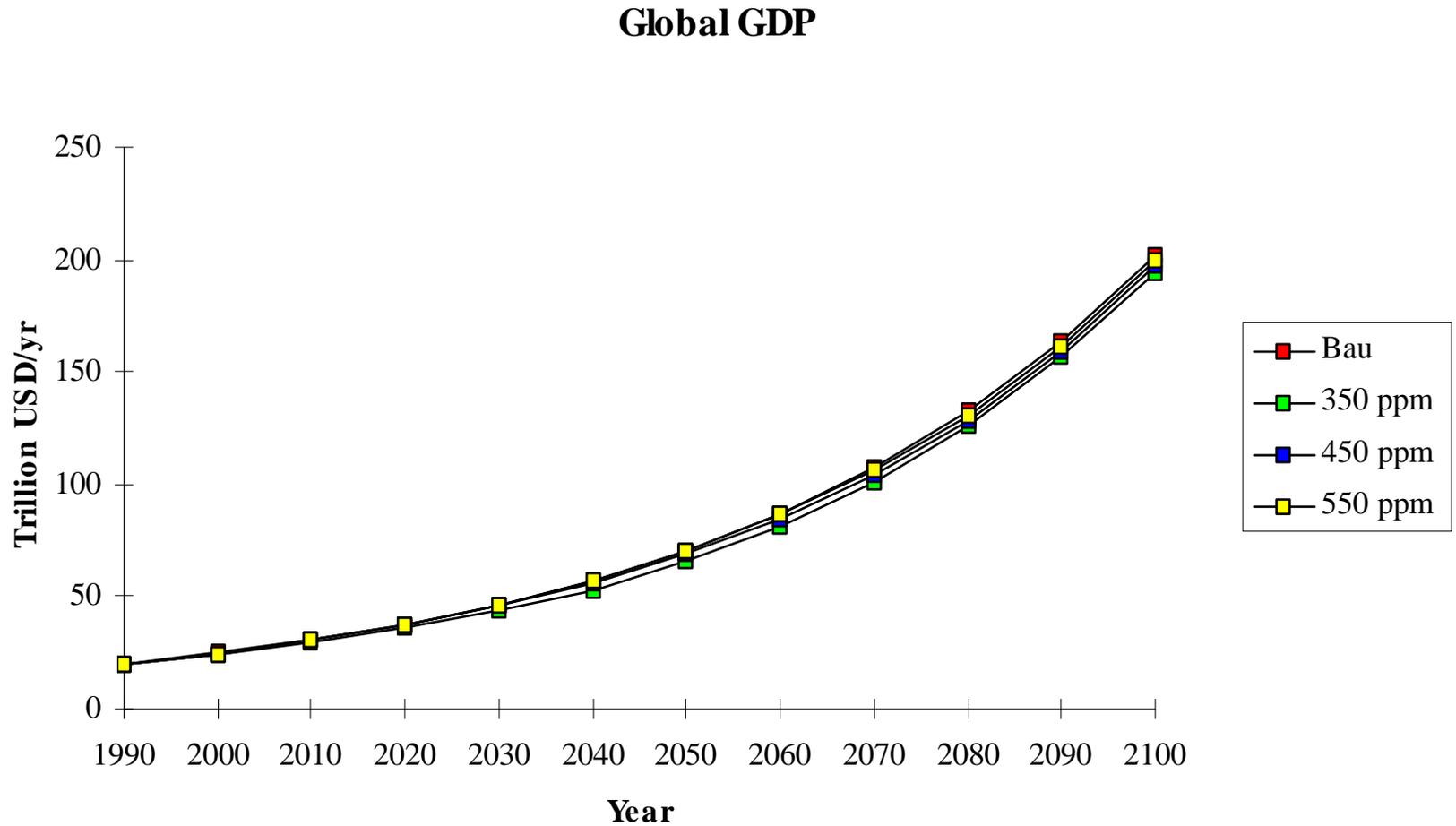
Big Picture: IPCC: stabilise at cost between \$2.5 trillion and \$8 trillion

- Have to see in the context of 2%/yr economic growth predicted by economists in next 100 years
- Without global warming action, the world as a whole will be 10 times as rich by 2100, and people on average will be five times as well off
- Adding in highest costs of warming, would postpone this target by two years
- Meeting Kyoto would mean industrialised countries get 20% richer by June 2010 rather than January 2010.

Big Picture: IPCC: stabilise at cost between \$2.5 trillion and \$8 trillion

- *There is widespread agreement amongst macro-economic models that stringent carbon controls are compatible with a significant increase in global and regional economic welfare. Thus, the key controversy can hardly be overall costs, but the fact that it is likely that a few sector or industries will suffer severe losses. These mere expectation that such losses may occur is sufficient to set strong interest groups in motion against climate policies.*

The cost to stabilise the atmosphere





Basic Policy Frameworks

- Technology approach alone is ineffective
- Policy framework required to:
 - Place a cost on CO₂
 - Boost technologies needed for the future
 - Ensure global equity and fairness is maintained



Short-term

- Entry into force and implementation of the Kyoto Protocol
- Effective implementation of EU Emissions Trading Scheme
- Climate Stewardship Act
- Energy policy gives the right incentives and costs in North and South
- Transparency in liberalisation debates in developing countries



Medium Term: Basic Principles for post-2012

- Environmentally effective
 - Running out of time to stay below 2 degrees C
 - Global reductions in the next 15 years
 - Must get policy framework correct
- Multi-lateral approach to the problem



Basic Principles

- Equity – equal access to the atmospheric commons
 - Give increasing weight to the aim of per capita emissions convergence over the course of the 21st century
 - Intergenerational equity
- Historical responsibility
- Ability to pay and the capacity to act
- Not harm ability of countries to achieve sustainable development objectives
- Rio principles – provision by developed countries of resources and funding for development



Three Tracks

Track Three: **Adaptation Track** for the most vulnerable regions

Track Two: **Decarbonisation Track** for the developing countries not in the Kyoto Track

Track One: **Kyoto Track** with legally binding emission reduction in subsequent commitment periods



The Kyoto Track

- Legally binding, tradable emission limitations and reduction obligations
- Deep cuts by industrialised countries through absolute mandatory caps
- Very small set of developing countries according to a set of criteria
 - Relative per capita emissions
 - Per capita income
 - Historical responsibility



Kyoto Track is not...

- Voluntary
- Pledge and review
- Intensity targets for industrialised countries
- Binding sectoral targets for industrialised countries
- Technology agreements
- “Orchestra of treaties”



Rather...

- It builds on the heart  of the Kyoto Protocol, binding absolute caps on emissions from developed countries
 - Building experience through European system
 - Base for any serious approaches in the US
 - Precursor for any significant commitments by developing countries



Decarbonisation Track

- Majority of developing countries, but focused on the big emitters
- Designed to enable developing countries to follow a low carbon path to development
- Actions and policies should rapidly accelerate the introduction of new, sustainable technologies (already tested in Track One countries)



Decarbonisation Track acc. to...

- Availability of resources and technology from industrialised countries
- Level of emission reductions undertaken by Kyoto track countries
- Adoption of no regrets measures by all as a base



Decarb Track commitment development could be guided by:

- Sustainable Development Policies and Measures
- Sectoral targets
- Carbon intensity targets
- Triptych approach
 - Domestic
 - Internationally exposed industry
 - Power sector



Adaptation Track

- Meet the needs of key vulnerable regions to assist with adaptation measures
- Funded by industrialised countries
- Compensation for the unavoidable impacts
- Current UNFCCC and Kyoto elements as base, but need more
 - Adaptation Fund
 - Special Climate Change Fund
 - LDC Fund



Emission Reduction Targets

- Set in Kyoto Track
- Set every five years, 6 gases, bunker fuels
- 60-80% by 2050 for Annex B to stay within 2 degrees C
- Global emissions peak by the 2020s at the latest with substantial global reductions by the 2050s
- Some developing countries would continue to increase for sometime after the 2020s before the stabilisation stage



“We have been warned. On most issues we ask children to listen to their parents. On climate change, it is parents who should listen to their children.”

Prime Minister Tony Blair, September 14, 2004



Thank you!

