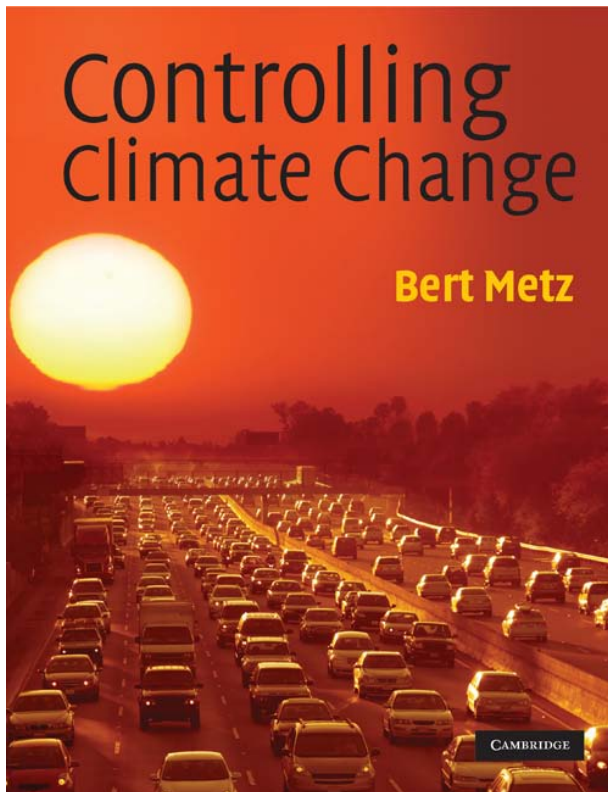


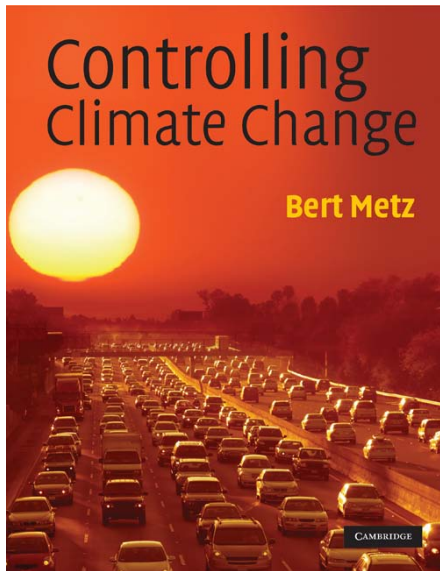
Controlling climate change after Copenhagen



Dr. Bert Metz

Former Co-chairman IPCC Working Group III

Fellow, European Climate Foundation



1. Climate change and its impacts
2. Greenhouse gas emissions
3. Keeping climate change within sustainable limits; where to draw the line?
4. Development First
5. Energy supply
6. Transportation
7. Buildings
8. Industry and waste management
9. Land use, agriculture and forestry
10. How does it fit together?
11. Policies and measures
12. International climate change agreements

COPENHAGEN OUTCOME

Copenhagen

- Huge increase in awareness/ political attention
- Inability to conclude 2 year negotiation process
- Acrimoneous process
- Political declaration (not unanimous) >> Copenhagen Accord as input in negotiations
- Decisions to continue negotiations, aiming at completion at COP 16/ Mexico (Nov/Dec 2010)

Copenhagen Accord(1/3)

In	But	Consequence
Recognising 2 degree limit	<ul style="list-style-type: none"> •No reduction commitments to get there; • Targets/actions likely to get in far below top end 	We are on track to 3-4 degrees; chances of staying below 2 degrees virtually zero
Review in 2015 with option to tighten global limit to 1.5 degrees	No strengthening of 2020 reduction commitments	This is lip service to vulnerable countries; has no practical impact; does not increase chance to stay below 2 degrees
Annex I countries to list their 2020 targets and non-Annex-I PART of their actions by Feb 1, 2010	<ul style="list-style-type: none"> •Terms “developed” and “developing”(as in Bali Action Plan) disappeared; •Accounting rules NOT uniform; nothing about surplus AAU; •No benchmark on how much they do 	<ul style="list-style-type: none"> •Including “new developed countries” impossible; •Big loopholes on value of targets; •No pressure on maximizing reductions

Copenhagen Accord (2/3)

In	But	Consequence
Stressing importance of adaptation and provide about half of \$30 billion in support 2010-2012	Money likely to be at least partly relabelled ODA	Vulnerable countries are getting financial support, while climate change impacts are getting much worse
“we support the goal to mobilise \$100 billion by 2020 “; public and private money	<ul style="list-style-type: none"> •No commitment to deliver this money; •No mechanisms to generate funding; •No governance structure to manage effective disbursement 	Unclear if there ever will be significant money
Copenhagen Climate Fund established	<ul style="list-style-type: none"> •Nothing how to fill the fund •Nothing on governance (only Panel to study resources) 	Unclear if fund will ever be operational

Copenhagen Accord (3/3)

In	But	Consequence
Establish a REDD + mechanism”	Nothing established and no process to establish it; no rules	Fast start money will partly flow to countries to avoid deforestation; rest unclear
Establish a technology mechanism	No details Negotiations aiming at administrative approach	No effective mechanism to promote technology transfer
Develop market approaches	Nothing about reforming carbon market No hard caps> no market?	No agreement on CDM reform International carbon market uncertain
“provide incentives to developing countries to continue on a low emissions path”	Nothing about Low Carbon Growth Plans	No impact on producing low carbon development plans

CopenhagenDecisions

In	But	Consequence
Decision to continue AWG-LCA and request to deliver outcome by COP16	No statement on legally binding outcome; no process decisions; vague paragapah on Mexico mandate	Totally unclear if there will be serious negotiating process (also in light of acrymoneous debates in CPH)
Decision to continue AWG-KP and request to deliver outcome at COP16	Demands of EU, Japan, Russia , Australia to have legally binding outcome (=Protocol) from LCA ignored; vague paragapah on Mexico mandate	Kyoto Annex B countries may never agree with KP amendment or never ratify

What are the reasons for the Copenhagen failure?

Power has shifted

- US, China (plus India, Brazil, South Africa) now the real powers
- Their current interest is not to have binding deep GHG reductions
- China client states using process to counter developed country positions

UNFCCC process ineffective

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- Top down role of AWG Chairs (and COP presidency) blocked over entire 2 year process; chairs did not force a clash earlier
- Vulnerable countries support China and Saudi Arabia in exchange for money
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US domestic politics

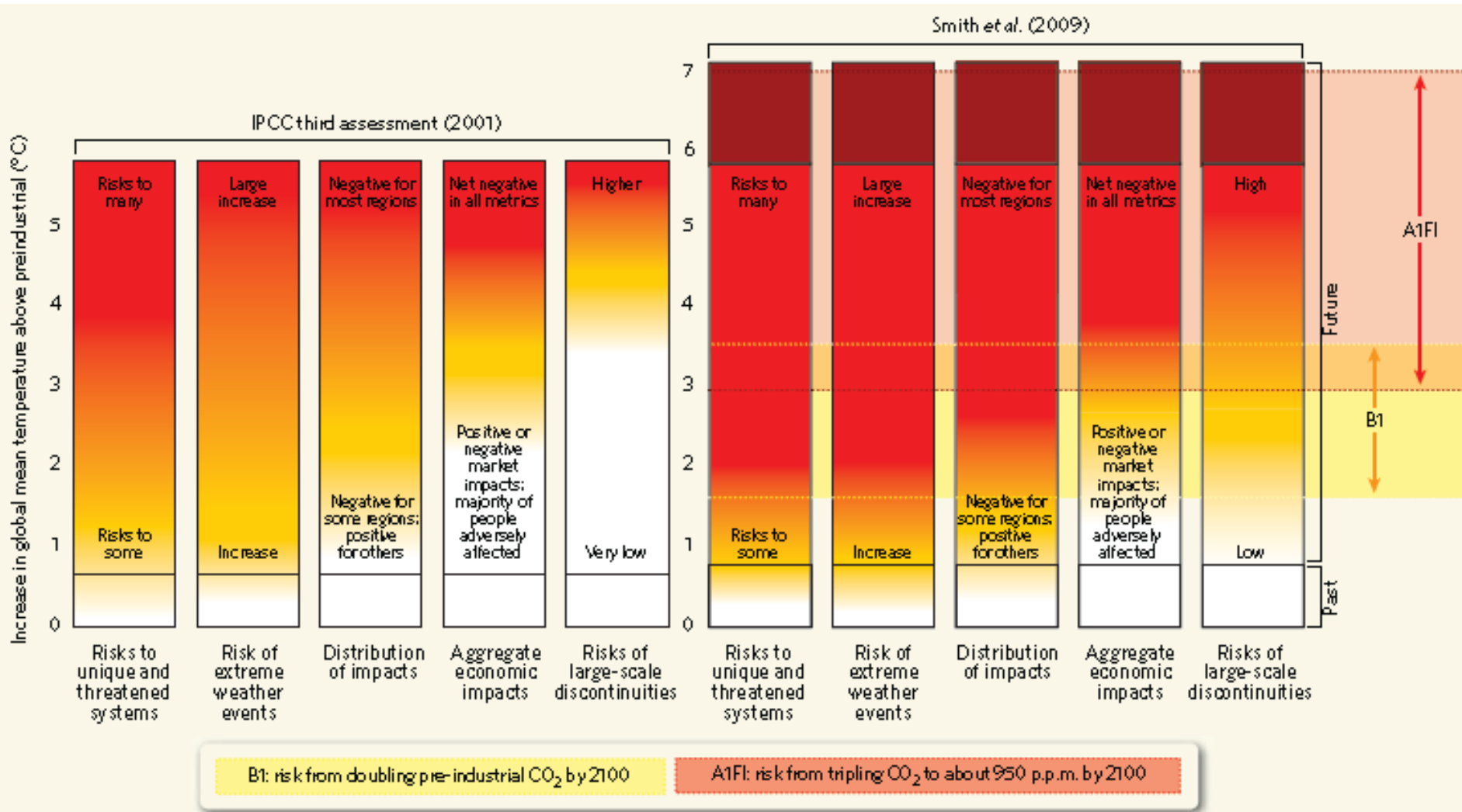
- Uncertain domestic legislation
- Fixation on China and necessity to have trade sanctions in domestic climate law forces China into defensive attitude (no commitments, no verification)
- Hypocrisy on binding others and demanding total freedom for US

EU lacked vision

- Zigzagging on legal outcome
- Strategy too dependent on others (only -30% if others comparable, keeping long-term finance till concessions of G77)
- Not prepared for power play

WHY TAKING ACTION TO CONTROL CLIMATE CHANGE IS VERY URGENT

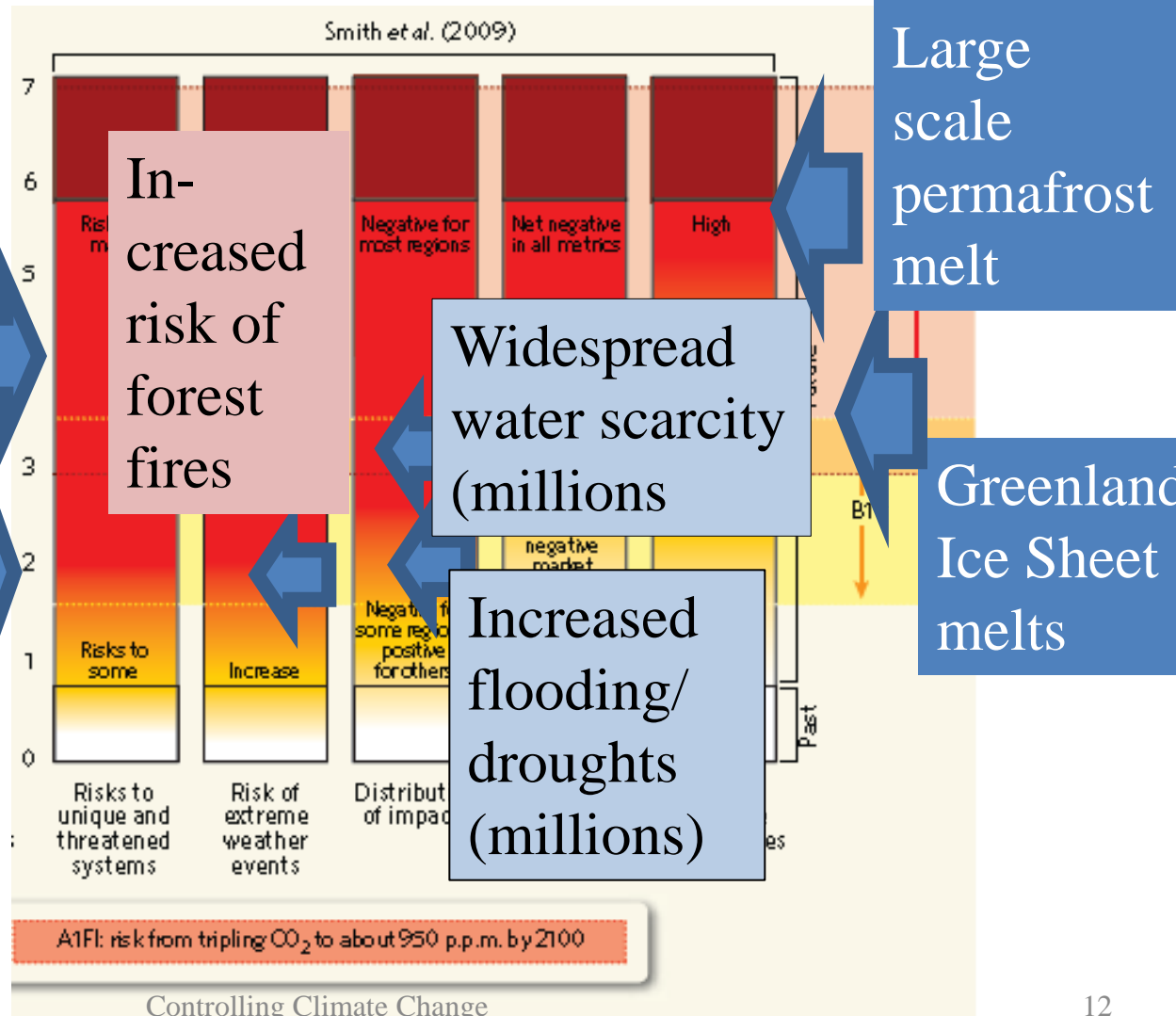
Climate change risks now seen as more serious



Climate change risks now seen as more serious

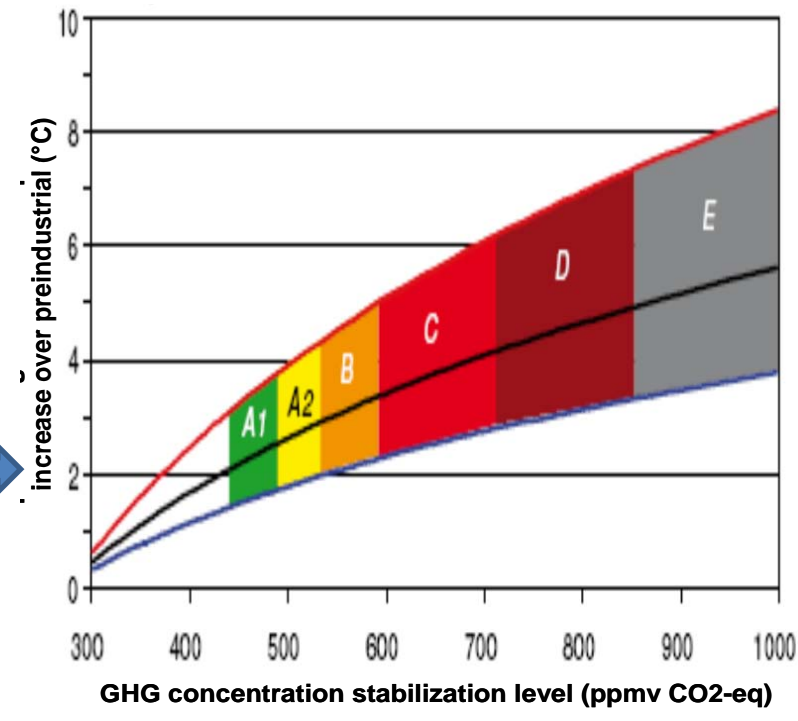
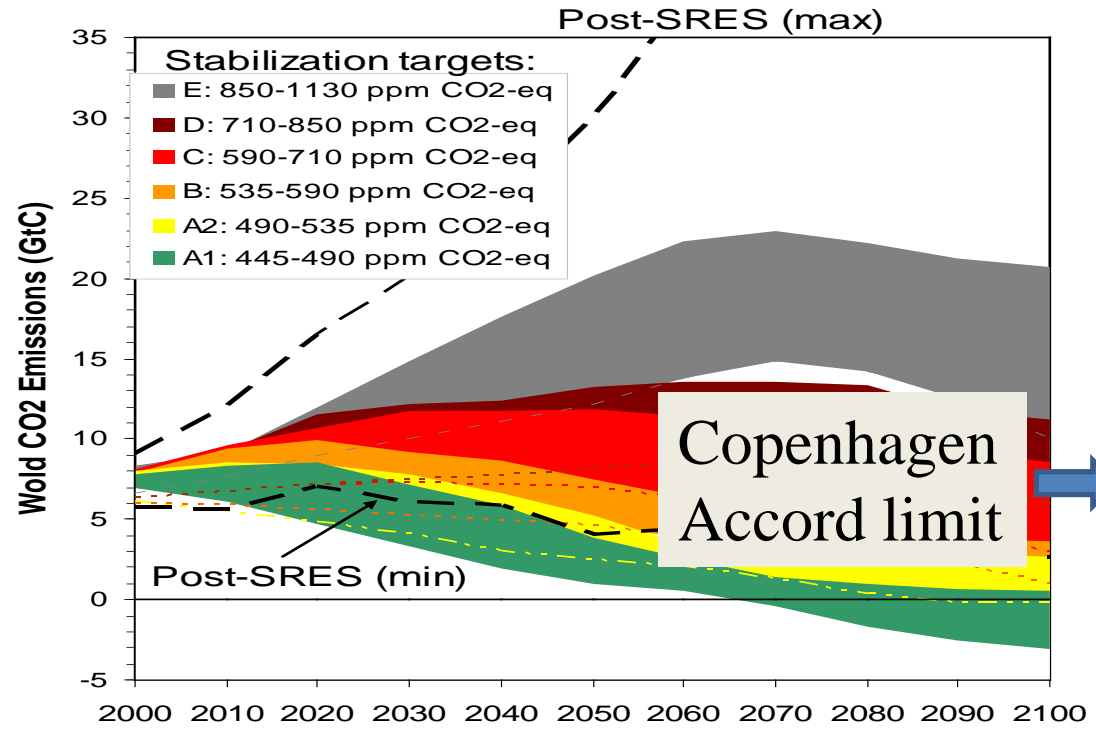
Crop productivity in temperate regions reduced

Crop productivity in tropics reduced



From Schneider, S., Nature, vol 458, April 30 2009, p 1104-1105

Where to draw the line and what that implies for GHG emissions?



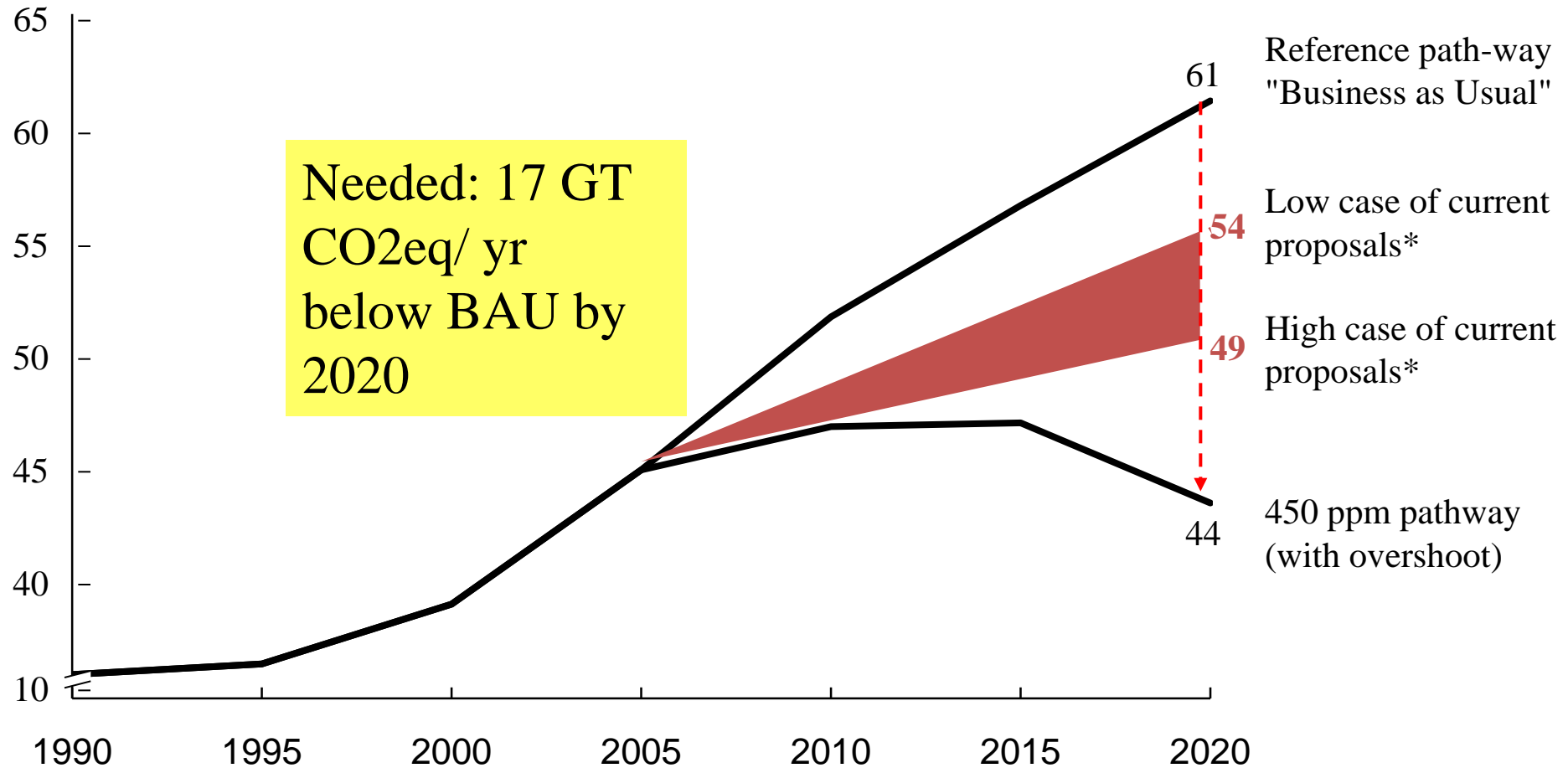
Mitigation efforts over the next two to three decades will have a large impact on opportunities to achieve lower stabilization levels

Stabilization level (ppm CO ₂ -eq)	Global Mean temperature increase at equilibrium (°C)	Year global CO ₂ needs to peak	Year global CO ₂ emissions back at 2000 level	Reduction in 2050 global CO ₂ emissions compared to 2000
445 – 490	2.0 – 2.4	2000 - 2015	2000- 2030	-85 to -50
490 – 535	2.4 – 2.8	2000 - 2020	2000- 2040	-60 to -30
535 – 590	2.8 – 3.2	2010 - 2030	2020- 2060	-30 to +5
590 – 710	3.2 – 4.0	2020 - 2060	2050- 2100	+10 to +60
710 – 855	4.0 – 4.9	2050 - 2080		+25 to +85
855 – 1130	4.9 – 6.1	2060 - 2090		+90 to +140

Current pledges get us within 5 Gt of a 450 ppm pathway if nations deliver upper range of proposals

Global GHG emissions

Gt CO₂e per year

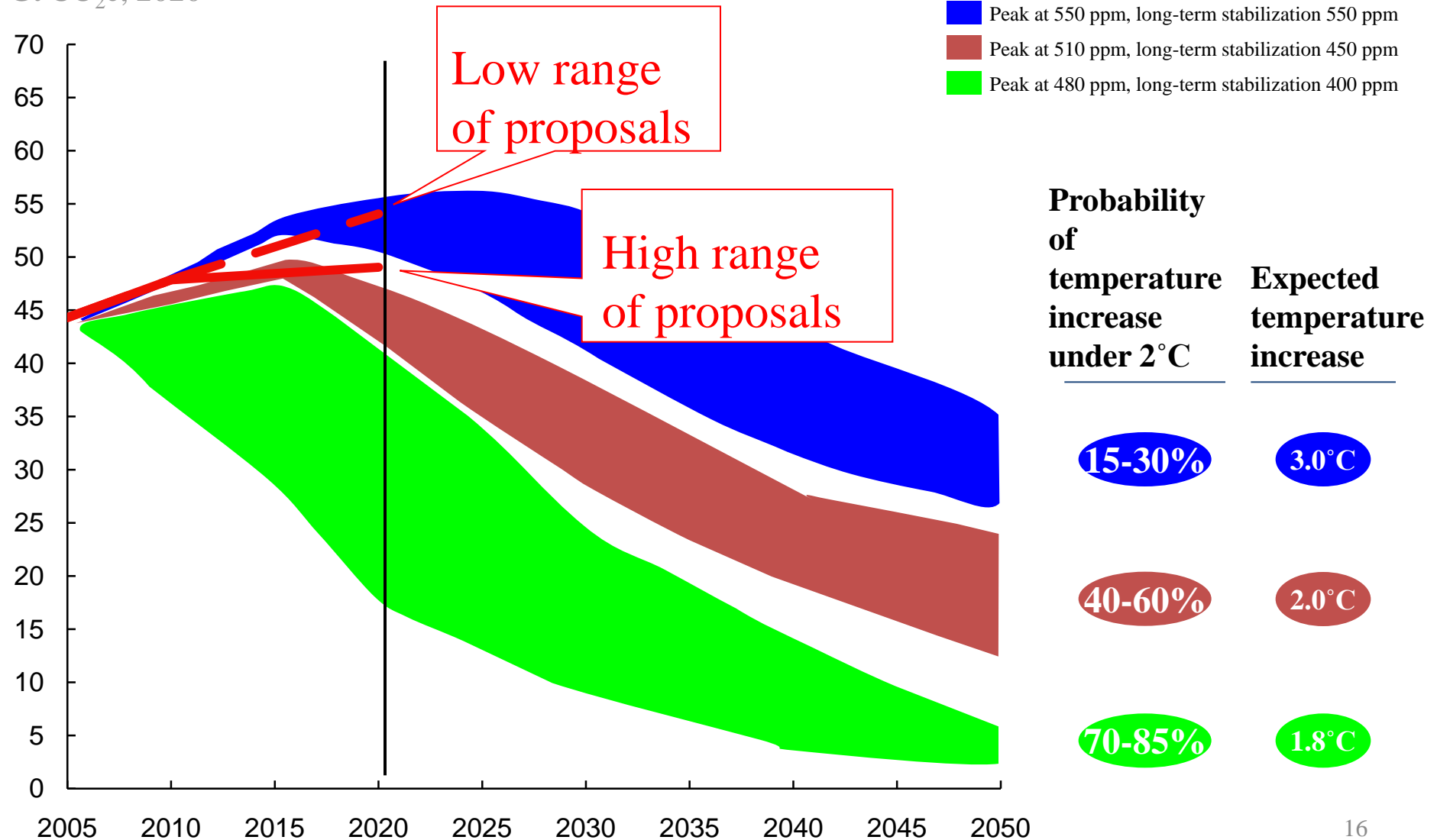


* E.g., 20% vs. 30% below 1990 emissions in the EU – taking into account the effect of the recession and lower expected emissions from deforestation and peat

Source: McKinsey Global GHG Abatement Cost Curve v2.0; Houghton; IEA; US EPA; den Elzen, van Vuuren; Project Catalyst analysis

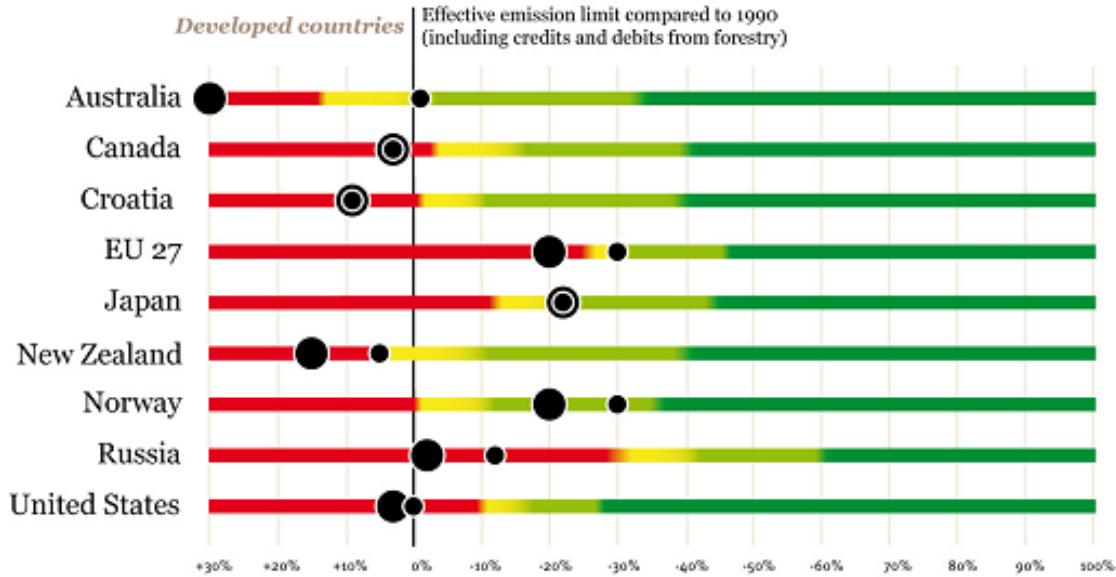
But are putting us on a track to 3 degrees or more.....

Global GHG emissions and pathways for GHG stability
Gt CO₂e, 2020

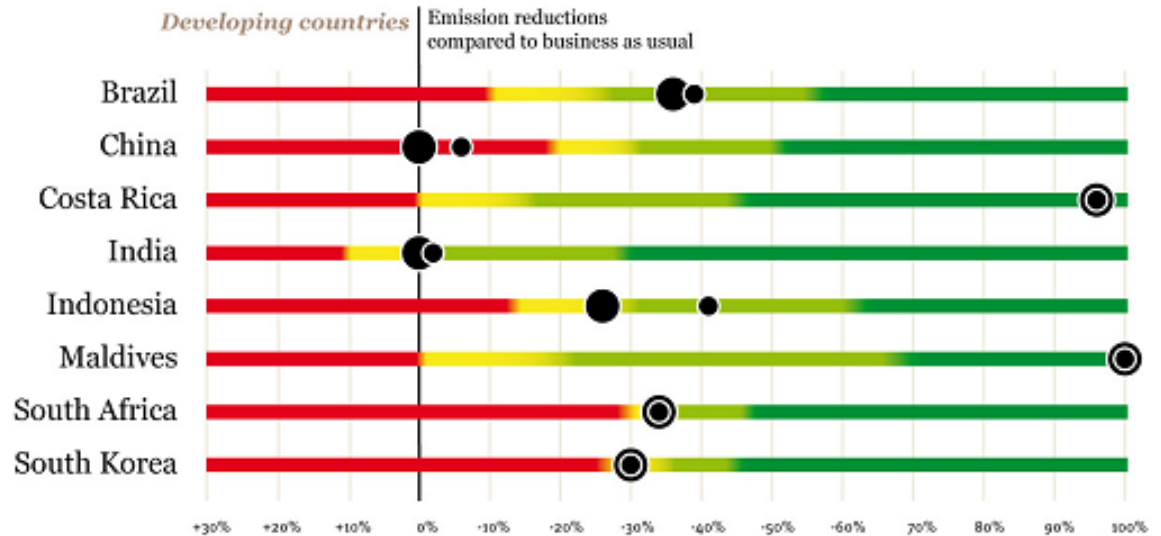


Implications for contributions by countries

Scenario category	Region	2020	2050
A-450 ppm CO ₂ -eq ²⁾	Annex I	-25% to -40%	-80% to -95%
	Non-Annex I	15-30% deviation from baseline in Latin America, Middle East, East 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



Country pledges as of February 1, 2020
(source Ecofys/PIK/Climate Analytics)

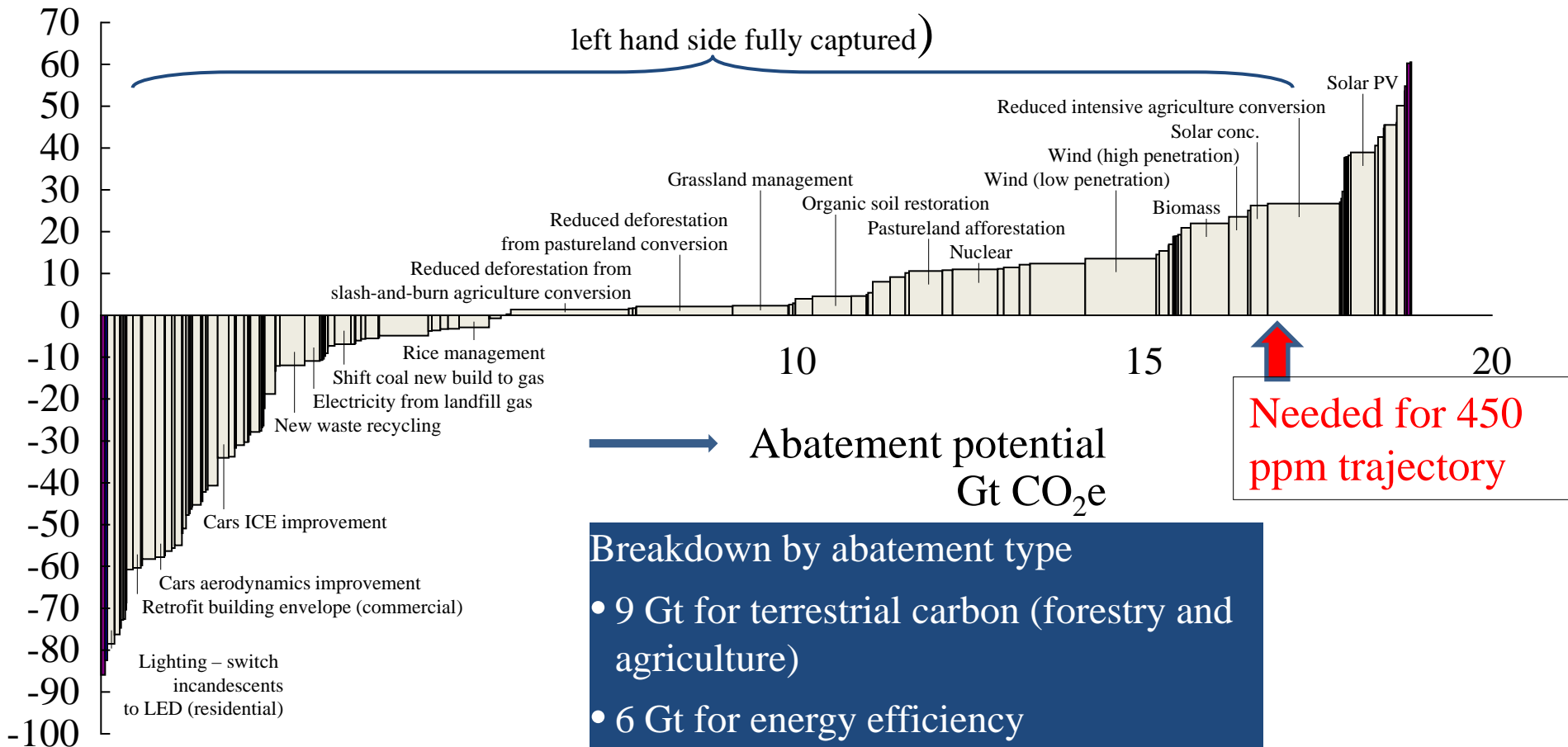


HOW THE NECESSARY REDUCTIONS IN DEVELOPED AND DEVELOPING COUNTRIES CAN BE REALISED

Global abatement cost curve 2020

(up to costs of €60/t, excluding transaction costs, 4% discount rate)

Average cost of opportunities up to 17 Gt = €0/t (if benefits of left hand side fully captured)

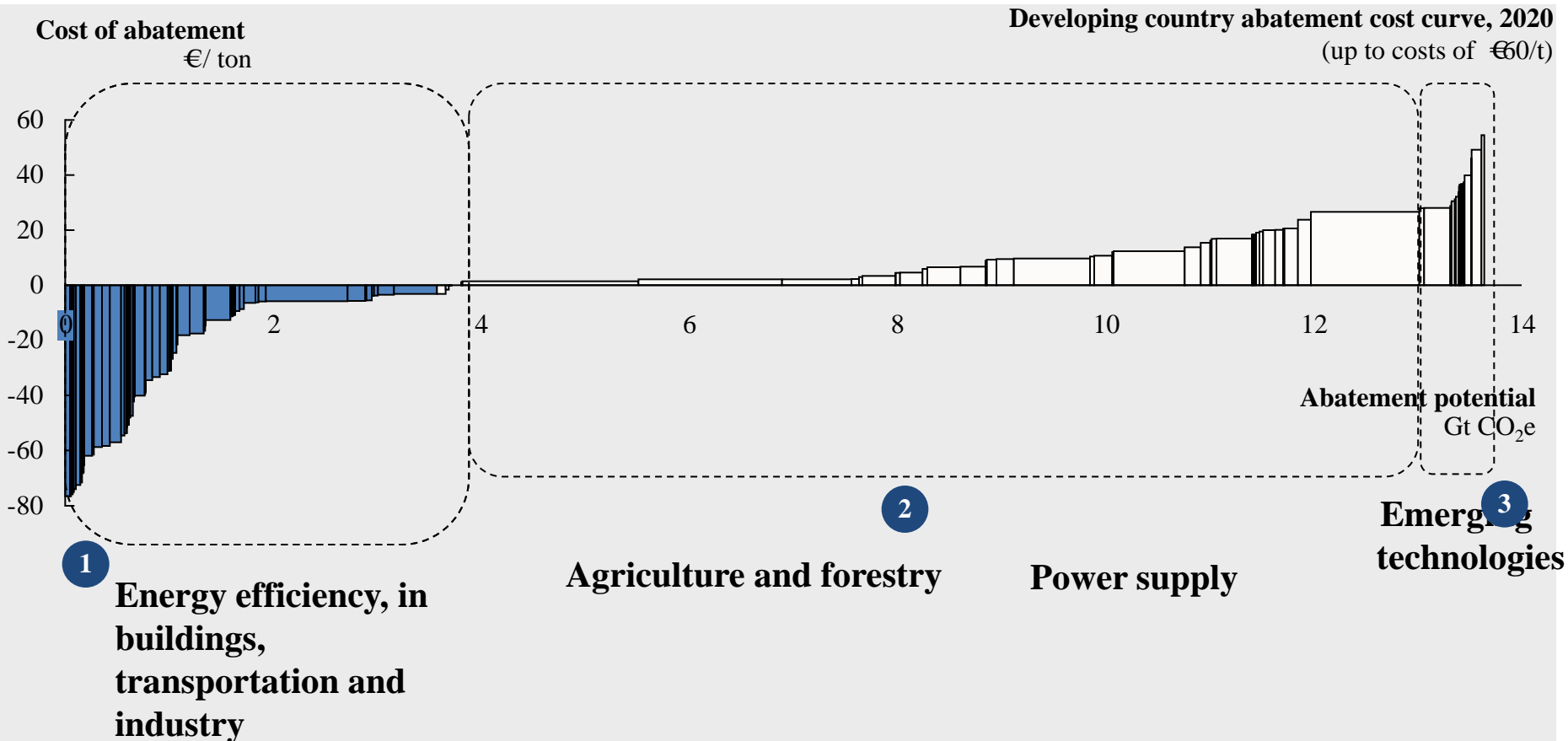


Abatement potential
Gt CO₂e

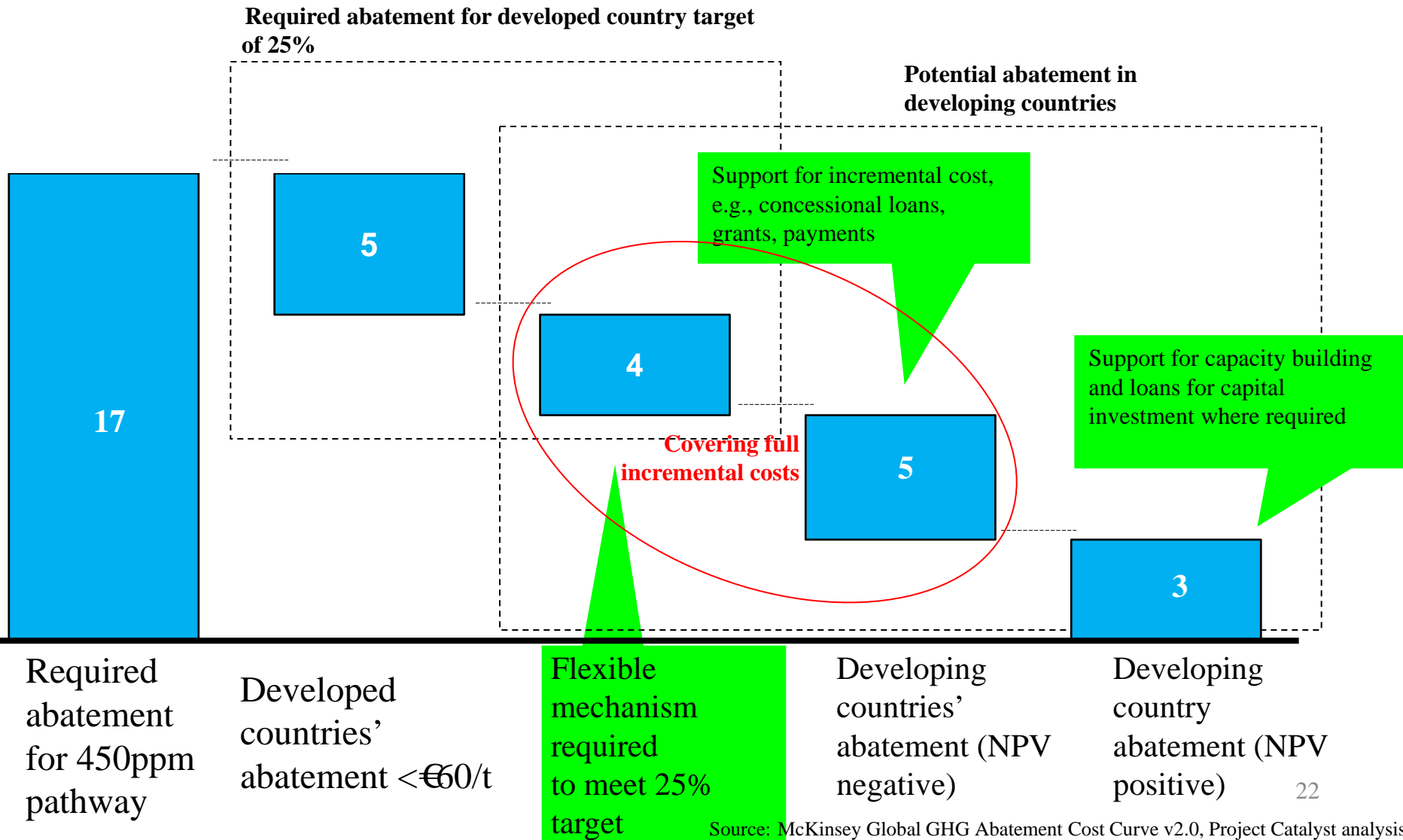
Needed for 450 ppm trajectory

- Breakdown by abatement type
- 9 Gt for terrestrial carbon (forestry and agriculture)
 - 6 Gt for energy efficiency
 - 4 Gt for low carbon energy supply

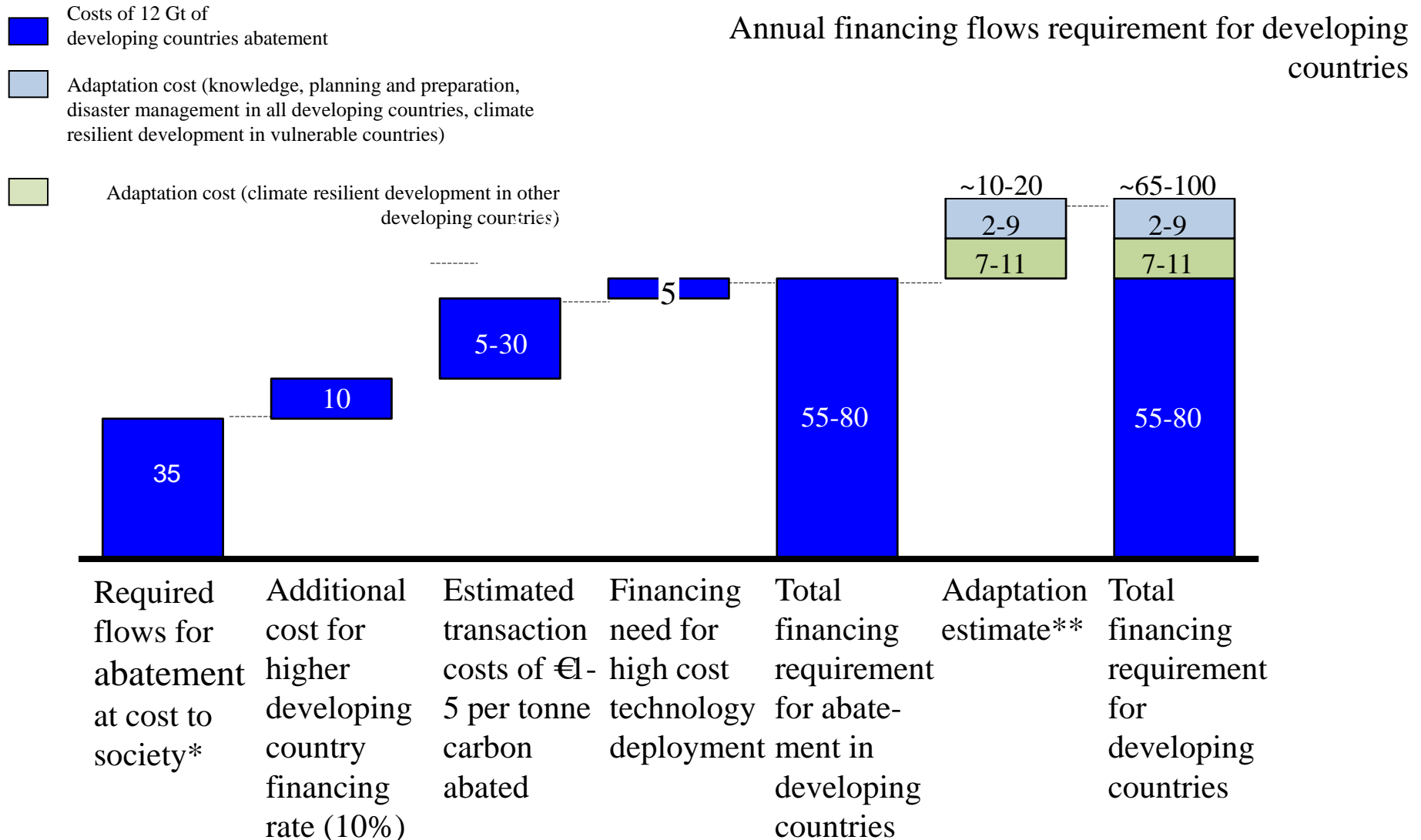
Developing country abatement cost curve 2020



How an equitable distribution of delivering 17 Gt CO₂eq reduction by 2020 can work

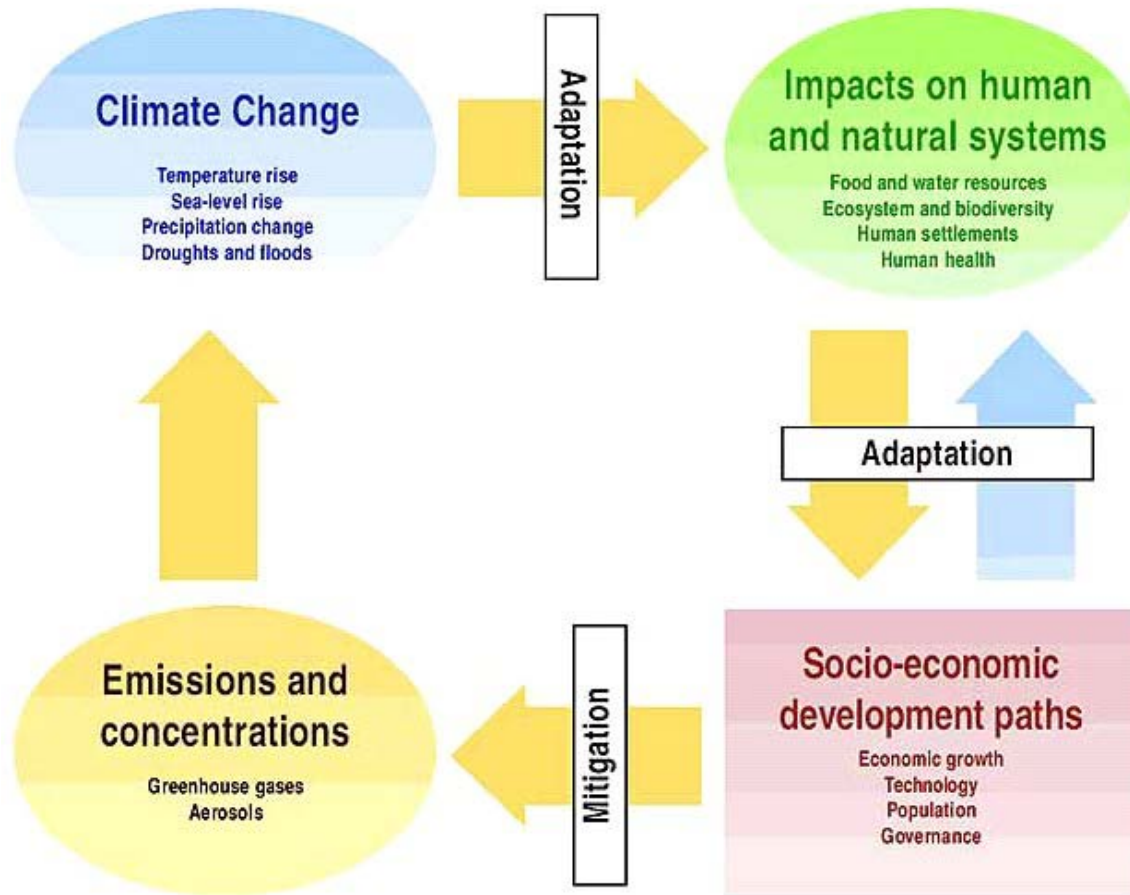


Developing countries would need up to €65-100 billion/yr in incremental cost financing for 2010-20

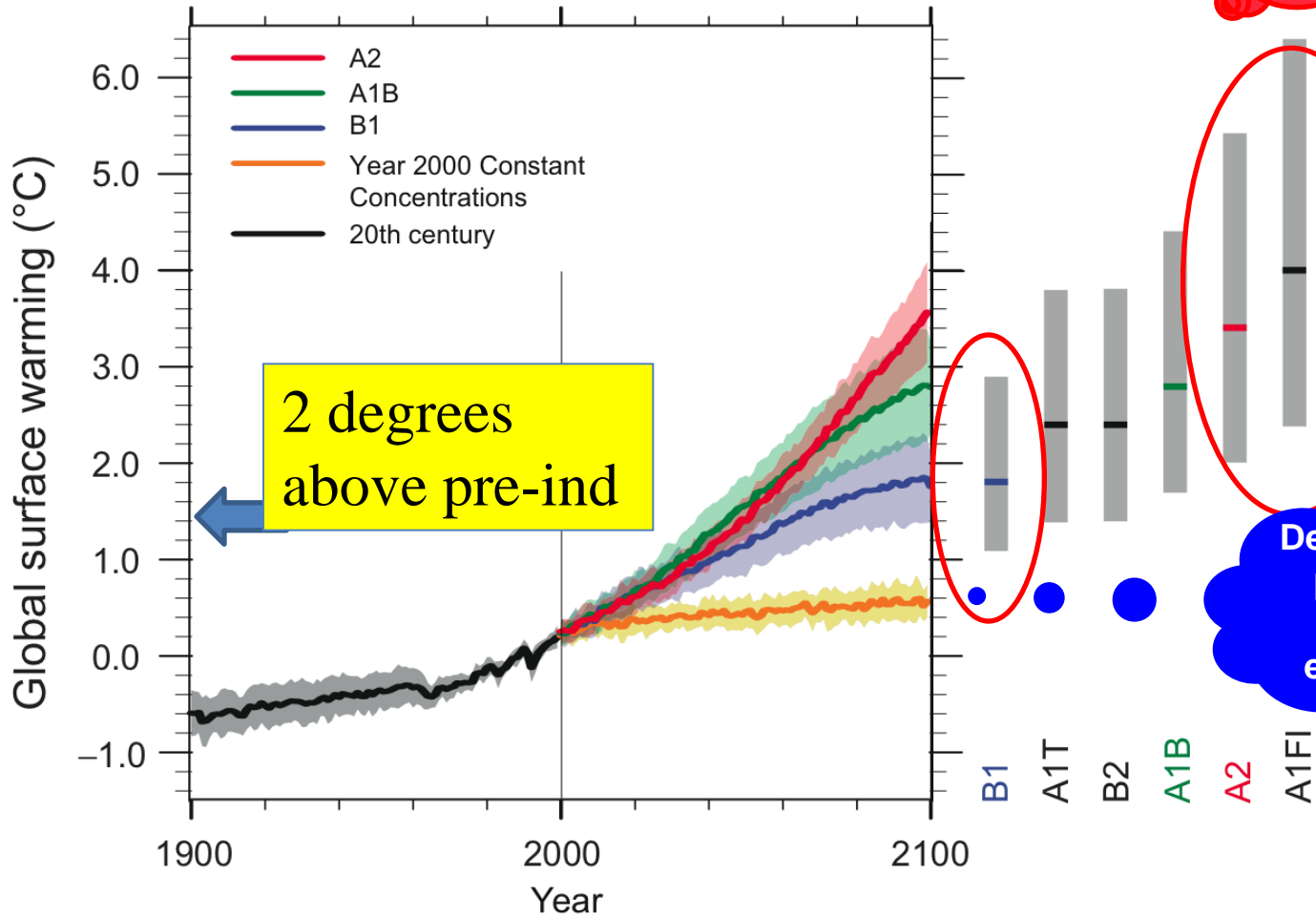


DEVELOPMENT FIRST: WHY MAINSTREAMING CLIMATE CHANGE INTO DEVELOPMENT POLICY IS ESSENTIAL

Development and climate change



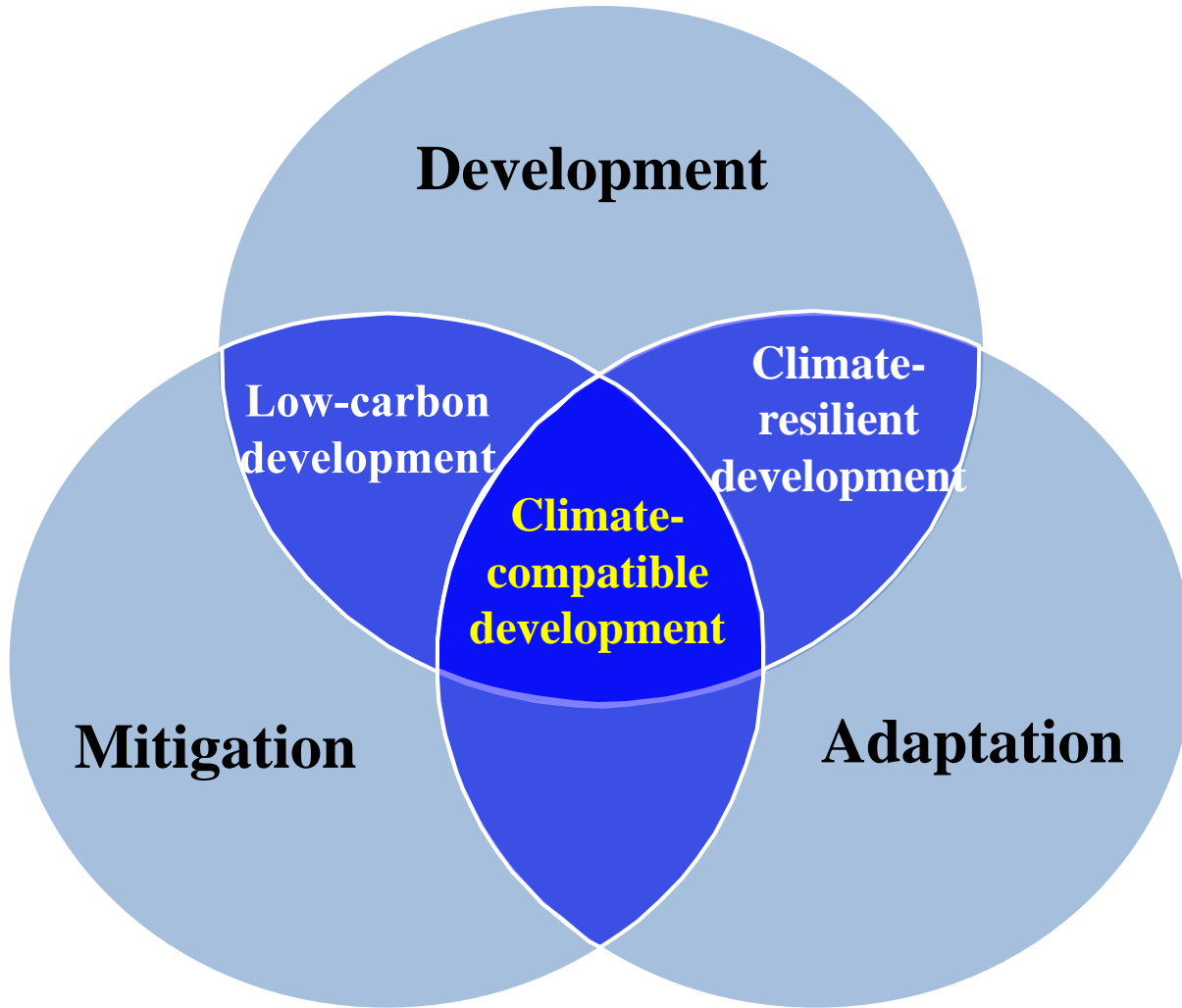
Projected climate change



Development path with HIGH base emissions

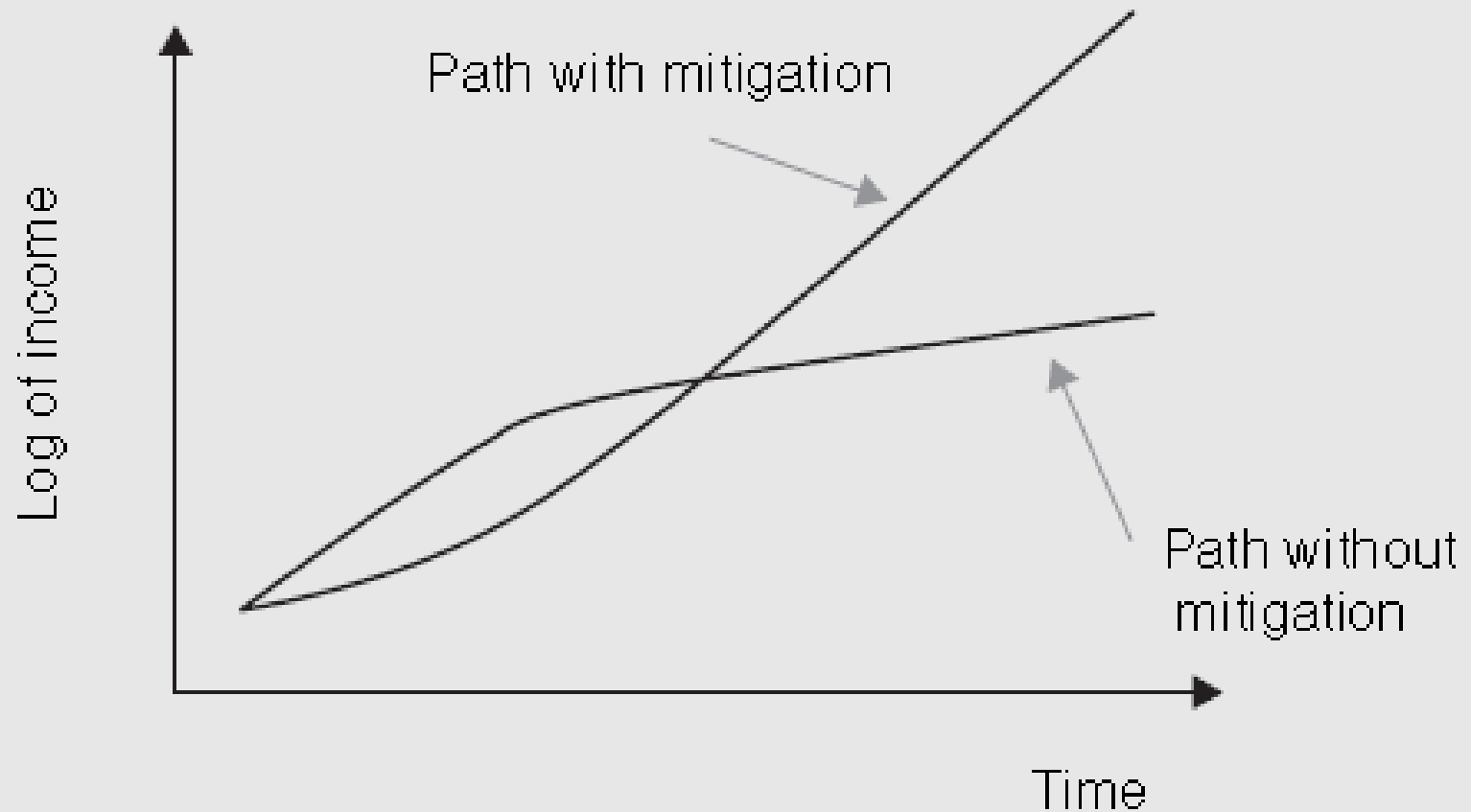
Development path with LOW emissions

The response to climate change must be rooted in development



- Development is essential for eradicating poverty
- Climate change can undermine development
- Low carbon and climate resilient development (“climate compatible development”) as the answer

Low carbon development is economically attractive



Mainstreaming climate change in development policies

- Modernising industry to become competitive
- Improving energy security and reducing oil imports
- Providing clean and efficient transport to people
- Improving air quality to protect health
- Ensuring a strong and sustainable agriculture and forestry sector
- Greening macro-economic policy
- Providing electricity to the poor
- Developing coastal regions sustainably
- Building a good public health system
- Protect nature and biodiversity

How to change development paths?

- Develop capacity for change
- Start at the top
- Coordinate actions
- Climate proofing
- Prepare long term low carbon, climate resilient development plan (= green growth plan)

Low carbon (and climate resilient) growth plans as a strategic instrument for *all* countries to plan their transition

Focus: Development, and mainstreamed mitigation + adaptation

Time horizon: Long term and short/medium term

Content: Priorities, transition strategies, policies/measures and international support

LCGP (=low carbon/ climate resilient growth plans)

Differentiation: Both developing + developed

Process: Ownership, participation, best practices, review, support,

Low carbon development, examples

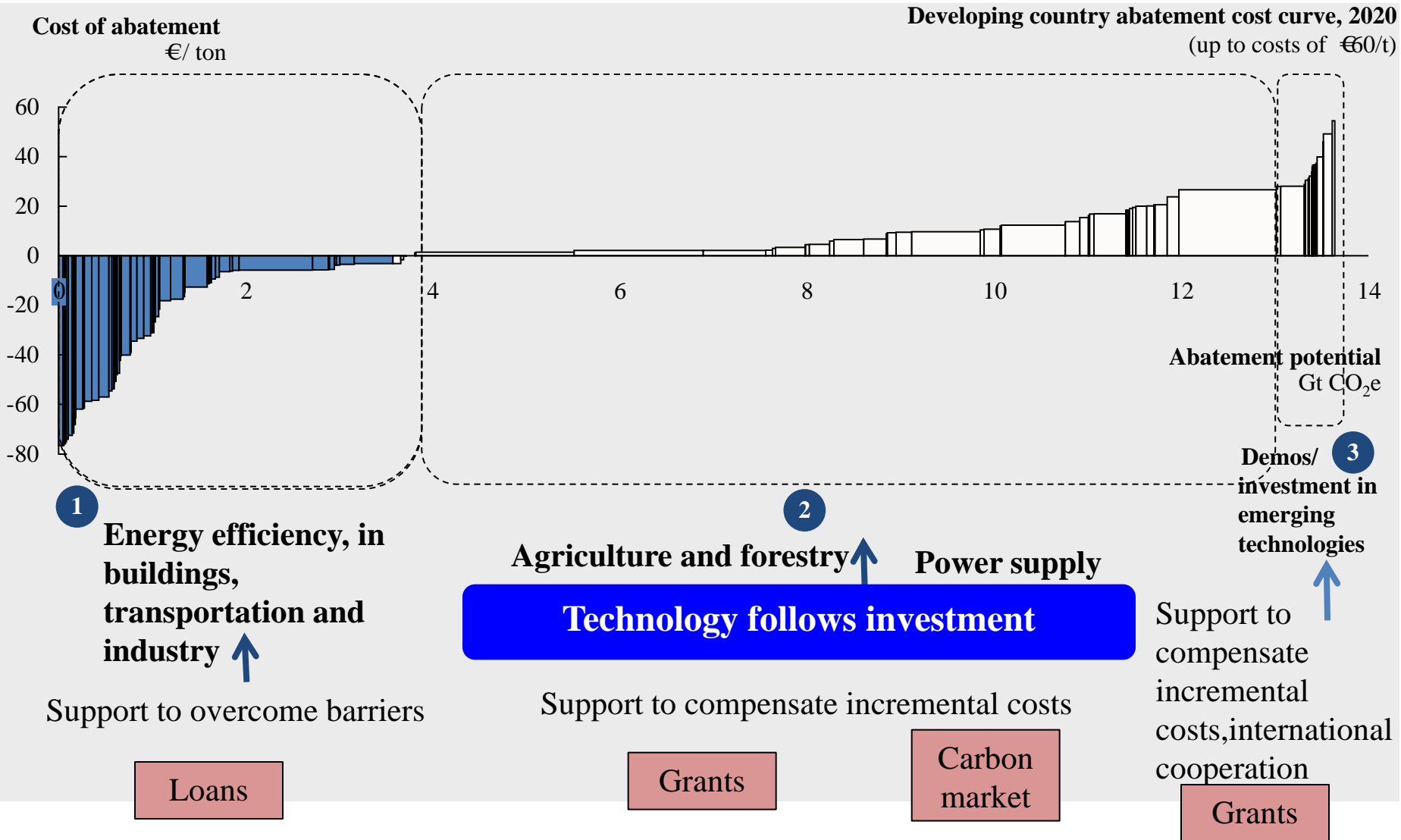
- China:
 - Renewable Energy Law and the Tenth Five-Year Plan: reduce electricity sector emissions by 5 % below BAU in 2020
 - Medium and Long Term Energy Conservation Plan:
 - reduce cement sector emissions by 15 % below BAU levels in 2020
 - reduce iron and steel sector emissions by 9% below BAU levels in 2020
 - Fuel efficiency standards for passenger cars, SUVs, and multi-purpose vans: reduce transportation sector emissions by 5% below BAU levels in 2020
- Brazil:
 - Program for Incentive of Alternative Electric Energy Sources (PROINFA): reduce electricity sector emissions by 14 % below BAU levels in 2020
 - Brazil's ethanol program (flex fuel vehicles and cost competitive ethanol): reduce transportation emissions by 18 % below BAU levels in 2020
 - No net forest cover loss by 2015
 - GHG emissions 20% below 2005 by 2020

Low carbon development, examples (2)

- India:
 - Reduce transportation sector emissions by up to 15 % below BAU levels in 2020
 - 20 MW solar PV capacity by 2020
- Korea:
 - National Green Growth Plan
 - GHG emissions 4% below 2005 by 2020
- South Africa:
 - National long term climate change strategy
 - GHG emissions 34% below BAU by 2020, 42% by 2025 and peaking between 2020-2025 (conditional)
- Indonesia :
 - GHG emission 26% below BAU by 2020
 - 0.5Mha/yr tree planting; 0.3 Mha/yr forest rehabilitation and stop illegal deforestation
- EU:
 - GHG emissions 80-95% below 1990 by 2050
- US:
 - GHG emissions 80% below 1990 by 2050

TECHNOLOGY TRANSFER

Technology follows investment



Technology transfer and development

- Major mechanisms:
 - Foreign Direct Investment
 - Export driven modernisation
 - Domestic green growth
- Supporting measures:
 - Regional centers of innovation
 - Investment Facilitation and Insurance
 - IPR licensing and protection promotion
- R&D:
 - Increase public R&D funding
 - Joint R&D centers
 - Joint demonstration programs

IMPLICATIONS OF COPENHAGEN FAILURE

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What are possible implications?

- Unclear how UNFCCC process can deliver ambitious legally binding treaty by COP16
- MEF/G20 not accepted
- Focus may shift to like-minded country actions:
 - REDD
 - Fast-Start Finance for adaptation and mitigation
 - Technology development
 - Policy coordination
- National actions become more important, and trade measures more likely (self interest)
- Moving towards “low carbon prosperity” paradigm to unlock the situation

THE CASE FOR POLICY COORDINATION

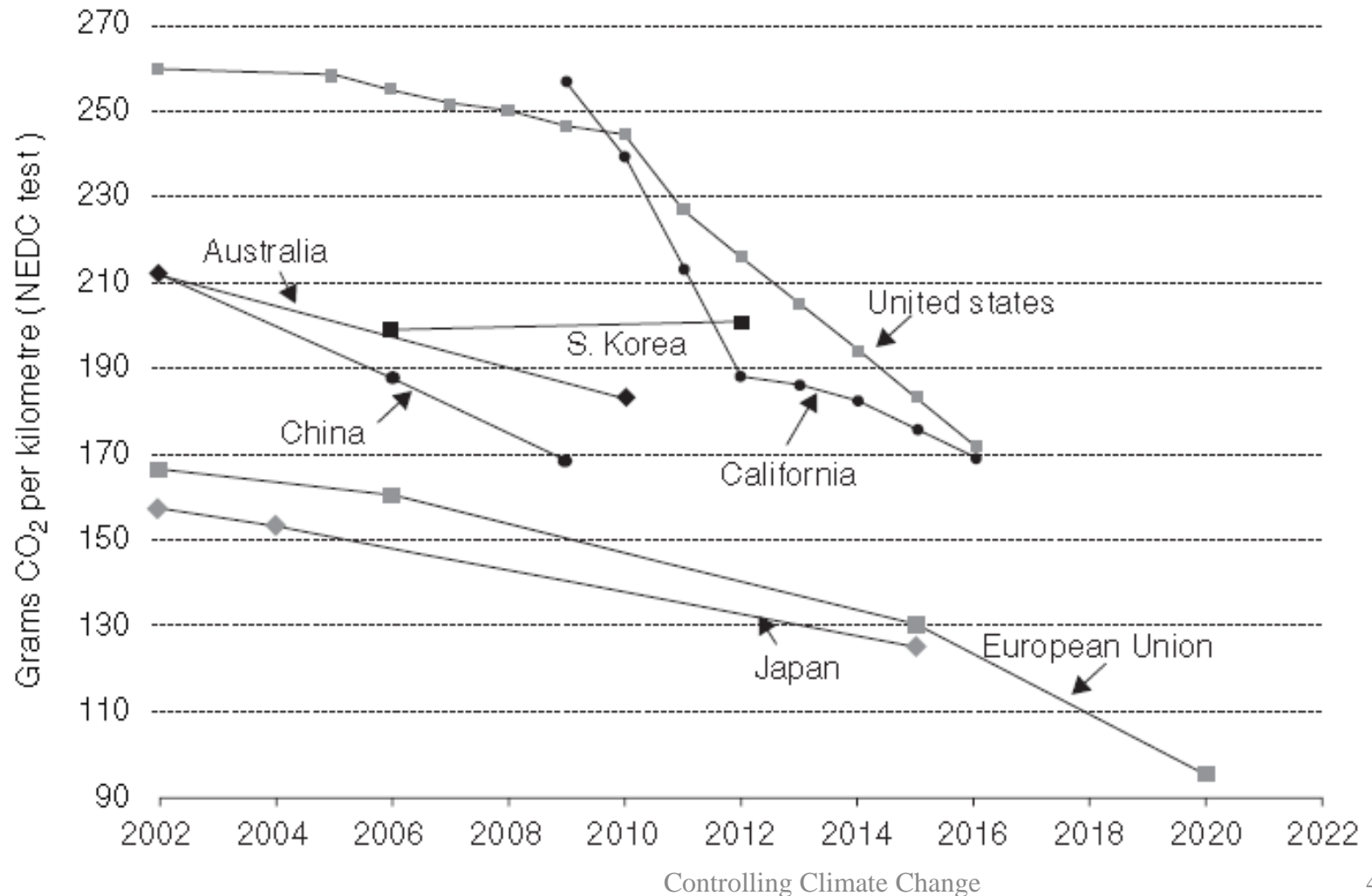
We know what are effective policies

- Energy supply:
 - Reduction of fossil fuel subsidies
 - Taxes/ carbon charges
 - Cap and trade systems
 - Feed-in tariffs
 - Renewable energy obligations
 - Producer subsidies

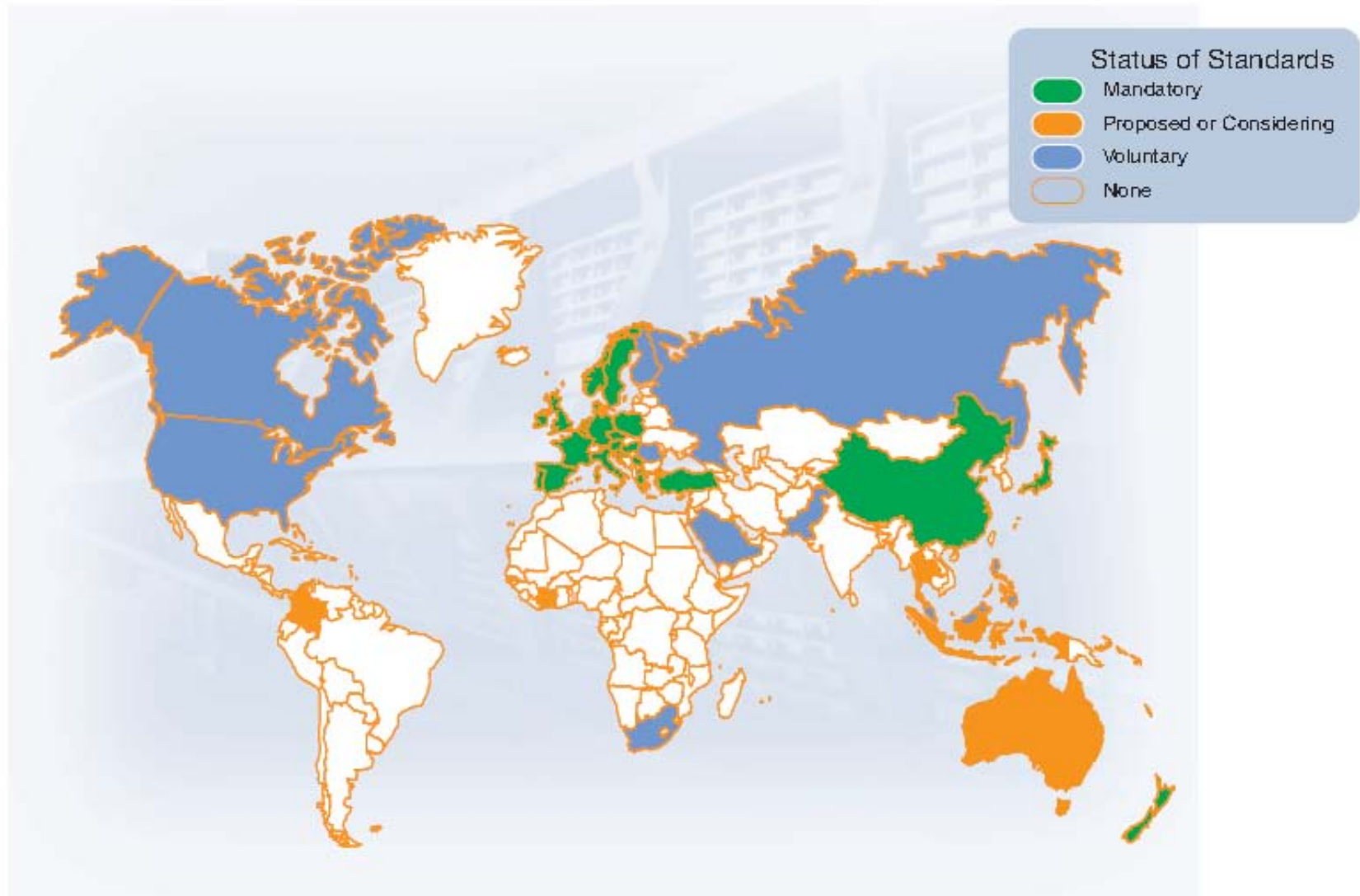
- Transportation:
 - Fuel economy/ CO2 standards
 - Biofuel blending obligations
 - Taxes/ charges/ tax credits on vehicle purchase, registration, road use, parking
 - Investing in public and non-motorised facilities
 - Land-use and infrastructure planning

- Buildings:
 - Building codes
 - Demand side management
 - Appliance standards
 - Public sector procurement
 - Energy Service Companies

Fuel efficiency standards

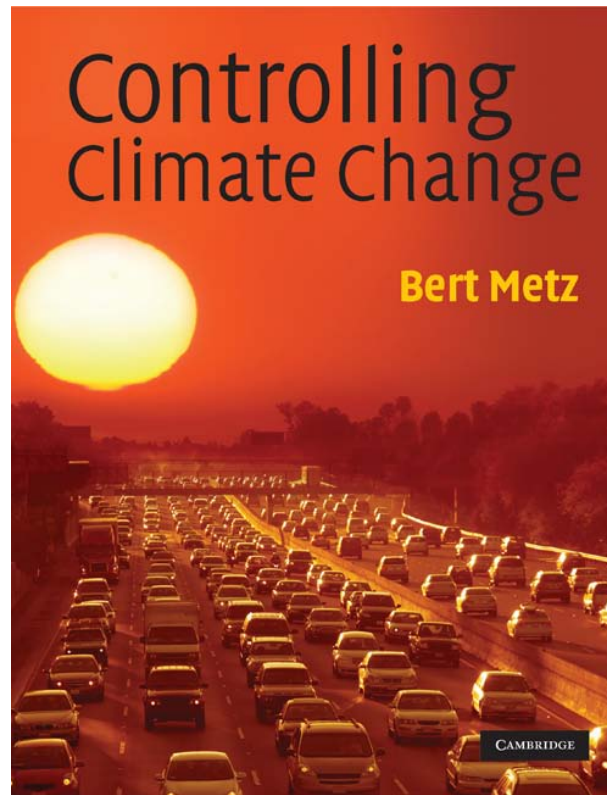


Building codes



For more information:

bert.metz@europeanclimate.org



<http://www.cup.cam.ac.uk/catalogue/catalogue.asp?isbn=9780521747844>