# Climate Change:

# Facts and politics; science and art; present and future

**Centre for Science and Environment**

# Inconvenient truth

- Climate change is real
- The world needs to cut emissions **drastically** and **urgently**
- Poorest – not responsible for climate change – are worst impacted
- We will lose development dividend

# Negotiations on economy
# Not ecology

Climate change is about economic growth

No country has built a low carbon economy

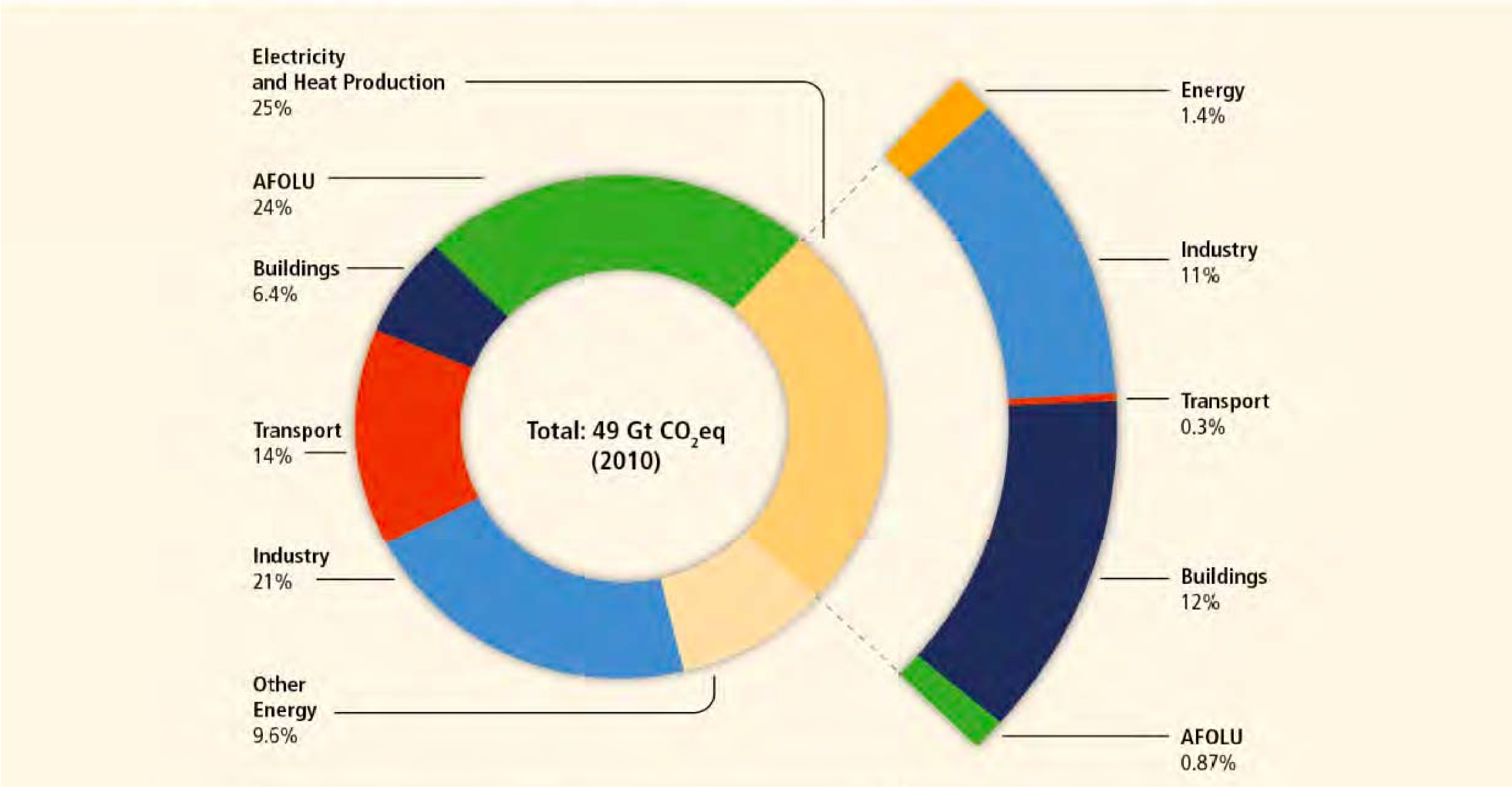
So action is little and too late

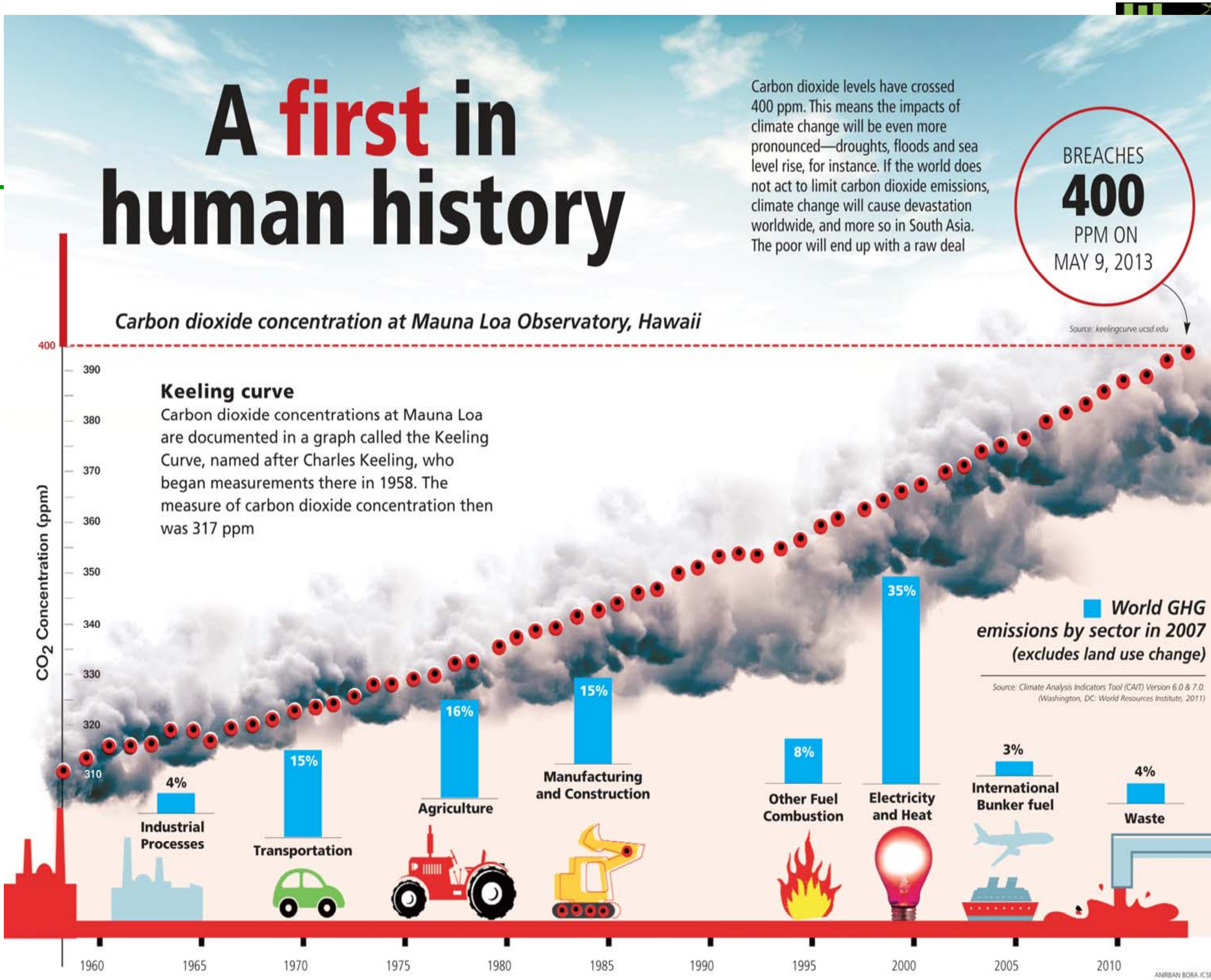
Convention signed in 1992

25 years later world is still talking; procrastinating; **finding excuses not to act**

**Economic growth on line**

# Emissions are about economy




A first in human history
Carbon dioxide levels have crossed 400 ppm. This means the impacts of climate change will be even more pronounced—droughts, floods and sea level rise, for instance. If the world does not act to limit carbon dioxide emissions, climate change will cause devastation worldwide, and more so in South Asia. The poor will end up with a raw deal
BREACHES 400 PPM ON MAY 9, 2013
Carbon dioxide concentration at Mauna Loa Observatory, Hawaii
Source: keelingcurve.ucsd.edu
Keeling curve
Carbon dioxide concentrations at Mauna Loa are documented in a graph called the Keeling Curve, named after Charles Keeling, who began measurements there in 1958. The measure of carbon dioxide concentration then was 317 ppm
CO2 Concentration (ppm)
400
390
380
370
360
350
340
330
320
310
World GHG emissions by sector in 2007 (excludes land use change)
Source: Climate Analysis Indicators Tool (CAIT) Version 6.0 & 7.0. (Washington, DC: World Resources Institute, 2011)
4% Industrial Processes
15% Transportation
16% Agriculture
15% Manufacturing and Construction
8% Other Fuel Combustion
35% Electricity and Heat
3% International Bunker fuel
4% Waste
1960
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
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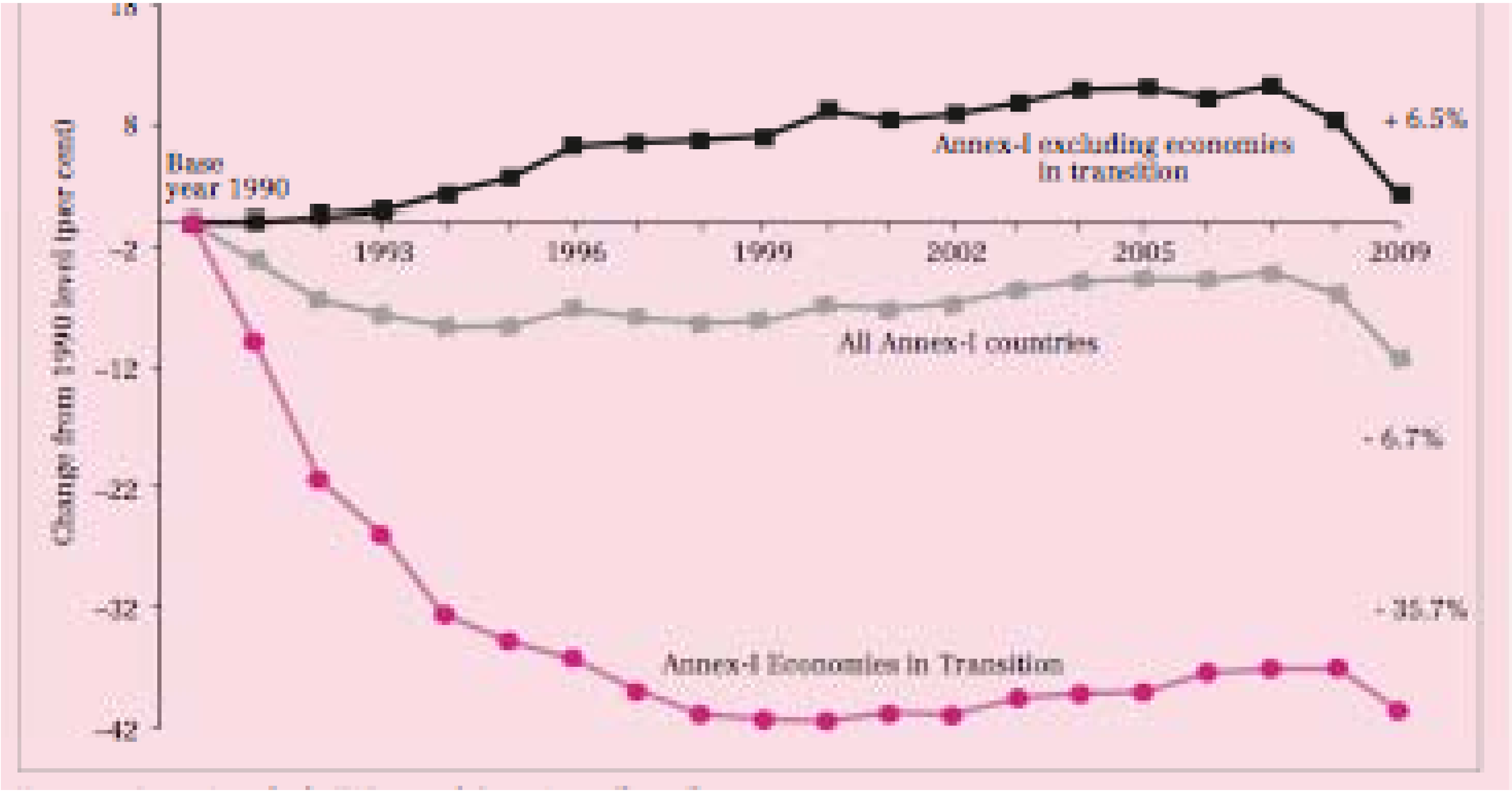
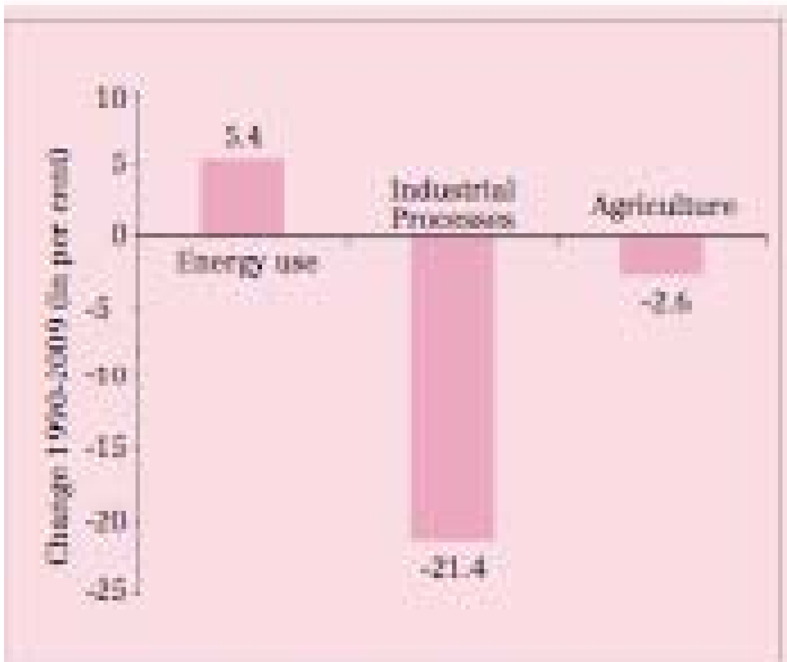
# Rich countries: not meeting Kyoto target

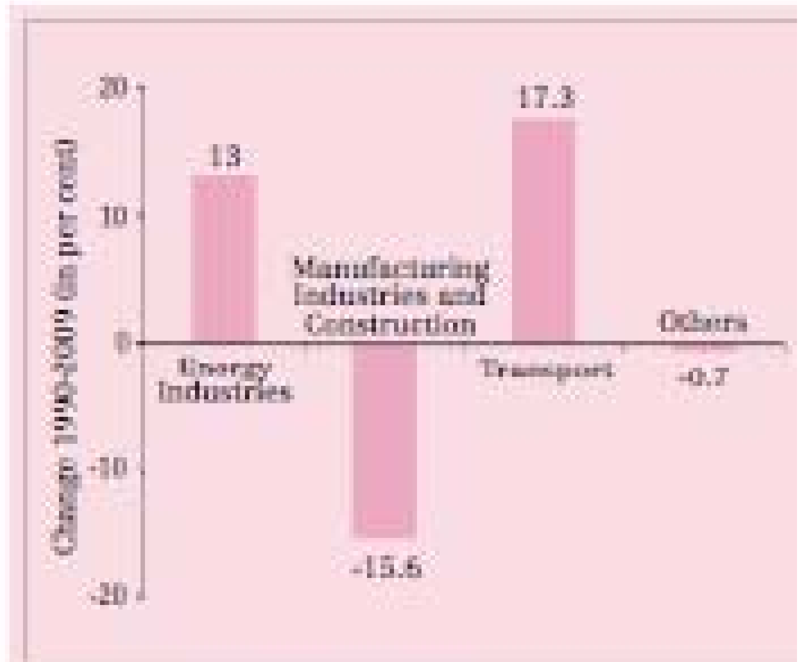


# 1990-2009:
# no transition in energy use

Energy emissions **up**; within energy, industry and transport **up**




Note: Excludes land use change and forestry
Source: GHG data from United Nations Framework Convention on Climate Change, 2011



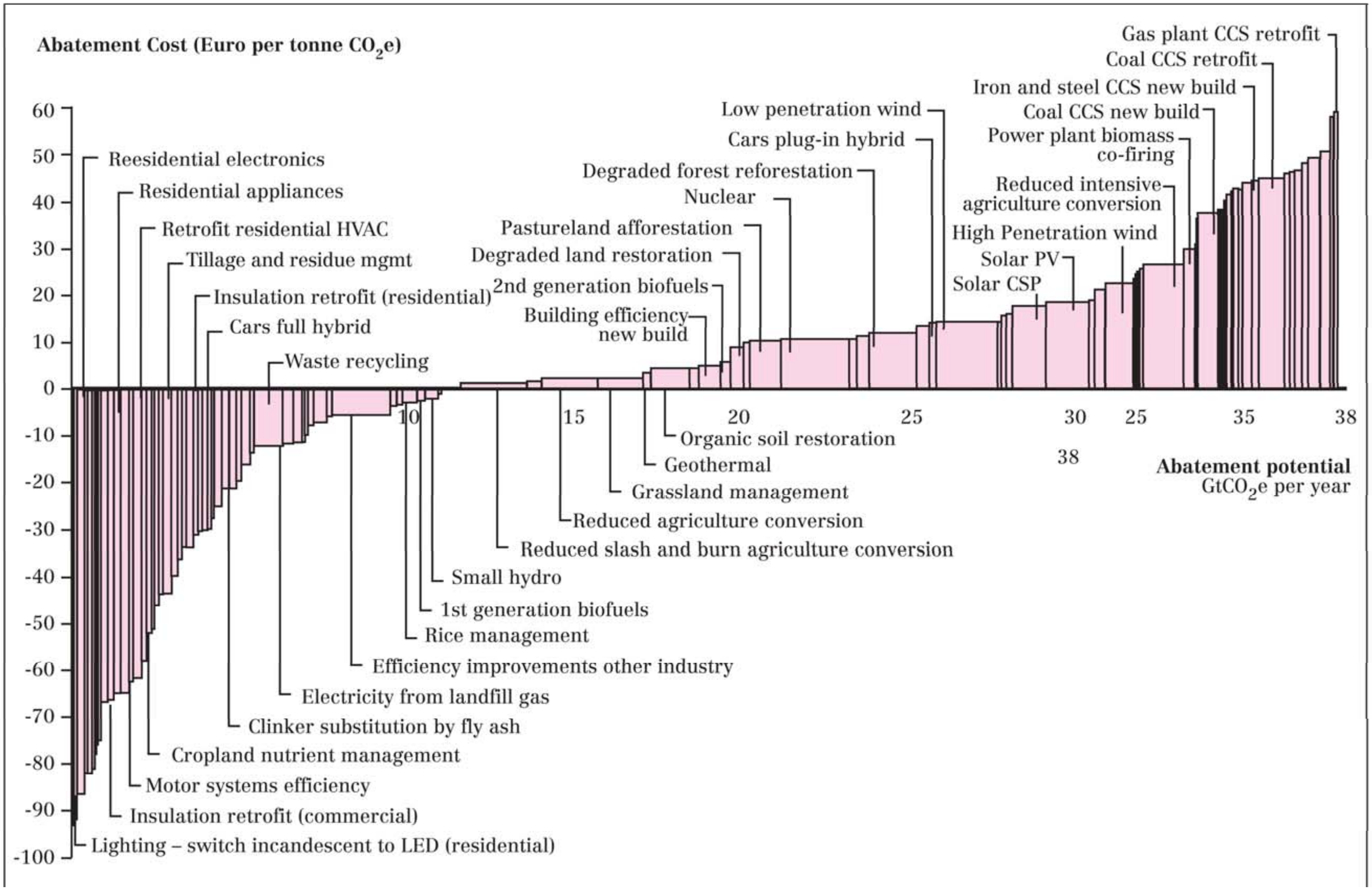

Note: Excludes land use change and forestry
Source: GHG data from United Nations Framework Convention on Climate Change, 2011

# Growth has to be reinvented

- Drastic reduction requires transformation
- Energy basket to be changed – from fossil to non-fossil
- Consumption to be reduced drastically
- As yet, world talks about low-carbon growth but has not found answers

# Soft options used
# Needed is transformation

**Figure 1: McKinsey's global GHG abatement cost curve**



# Growth has to be shared

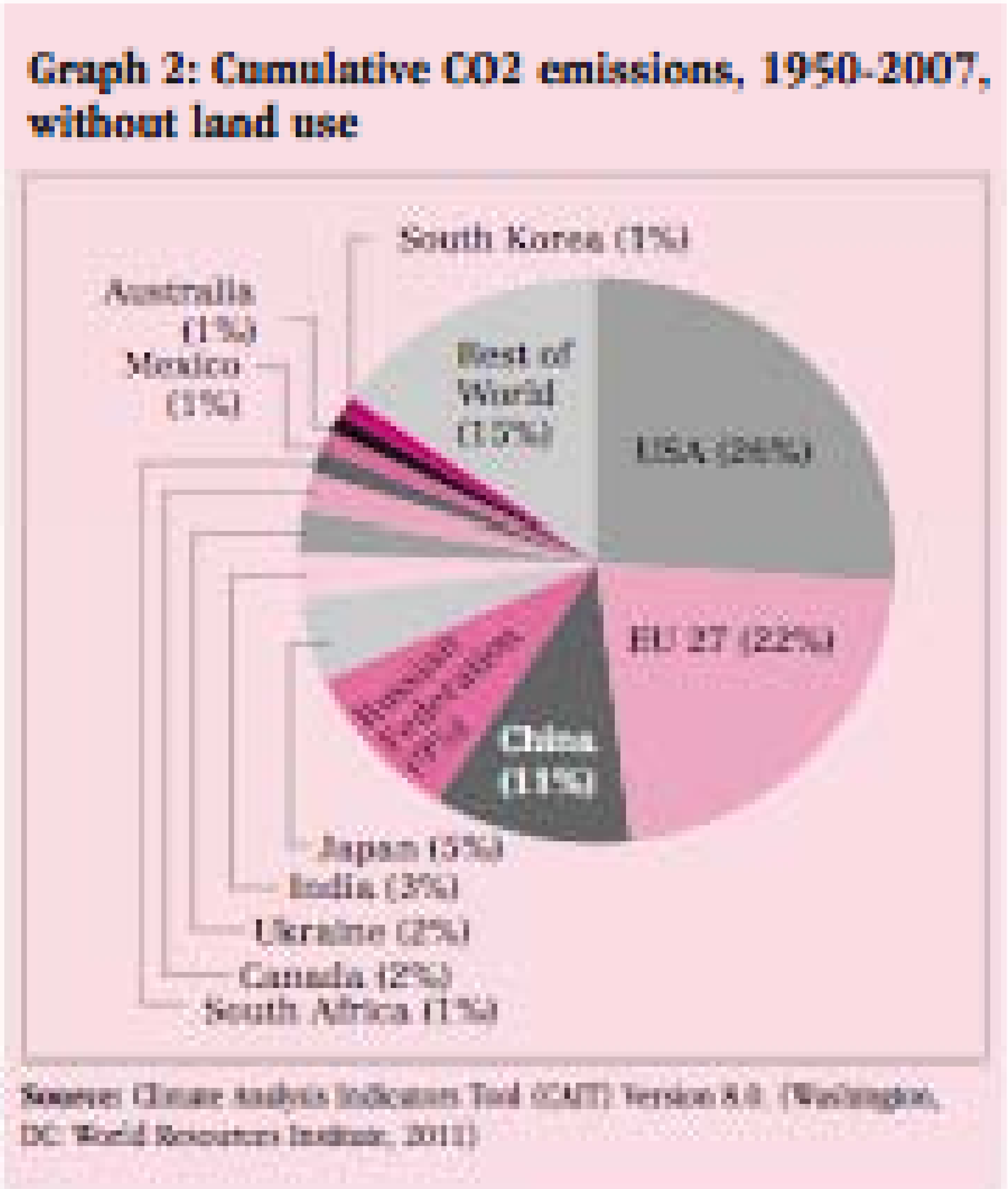
Climate change is about sharing growth between nations and between people

The rich must reduce so that the poor can grow. Create ecological space

Cannot freeze inequity

# Stock and flow
# Historical and current

- Carbon dioxide stays in the atmosphere – 70-100 years
- **Historical emissions**: A tonne of $CO_2$ emitted in 1850 same value as tonne of $CO_2$ emitted in 2005
- Burden is about past, present and future




# Add up ~~and~~ then count

Cumulative Emissions of few

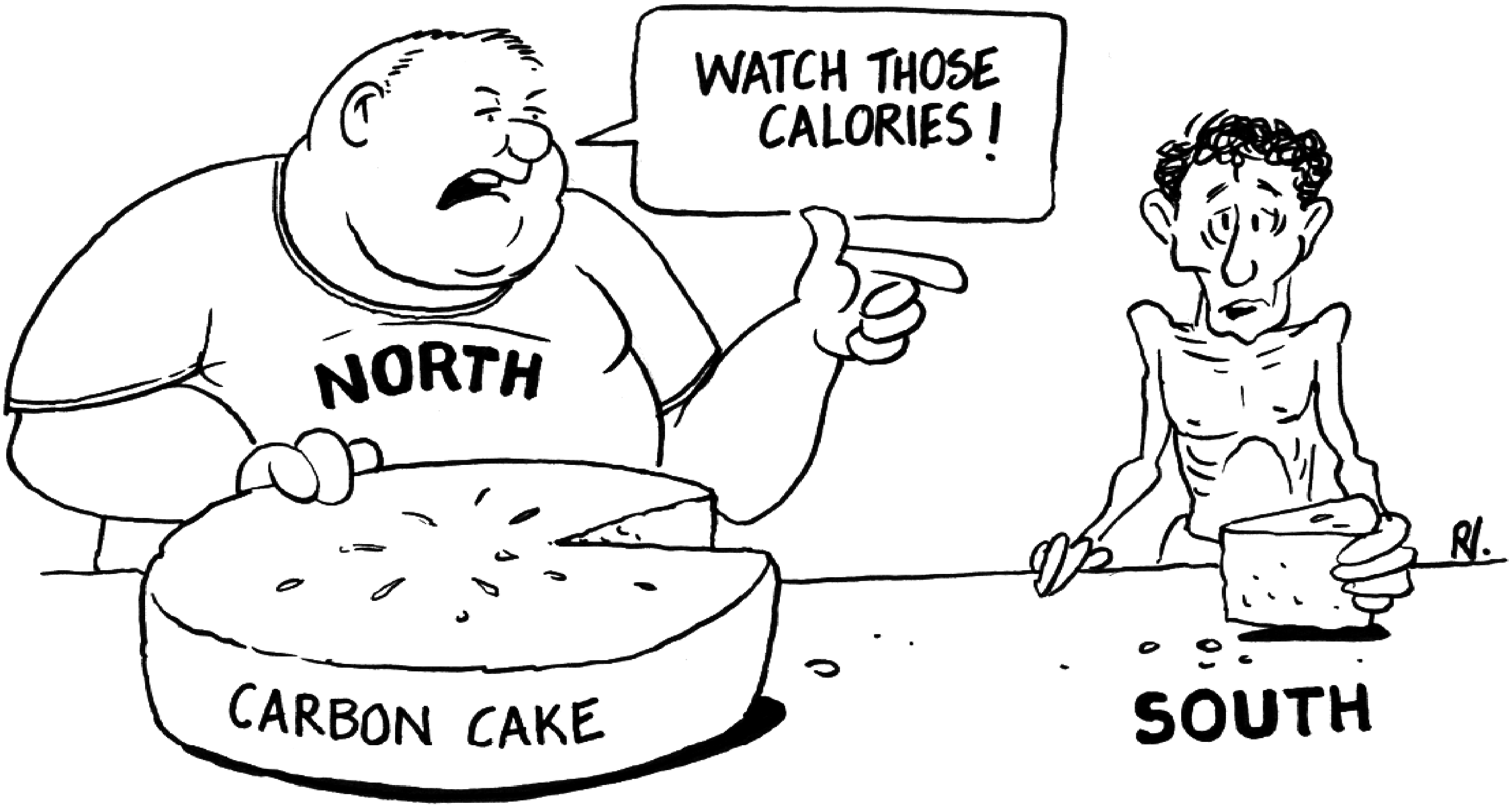
# Present scenario

1 US citizen =

107 Bangladeshis
134 Bhutanese
19 Indians
269 Nepalese

Unacceptable. Need to secure ecological space for growth

# Acceptable???



# Procrastination **no option**

- In our interest to get an **effective deal**
- But also imperative that deal is based on **principles of equity**
- Our right to development secured

- How? **Possible?**

# Agreement in 1992: built on science and good politics

- UN Framework Convention on Climate Change 1992 is based on the principle that a group of countries (Annex 1) created problem; have to reduce emissions first; create space for the rest to grow

- Common but differentiated Responsibilities

# **Principles** are politics

Principles:

- Rights to the global common
- Historical responsibility of some
- Right to development
- Responsibilities of rest to act based on finance and technology access

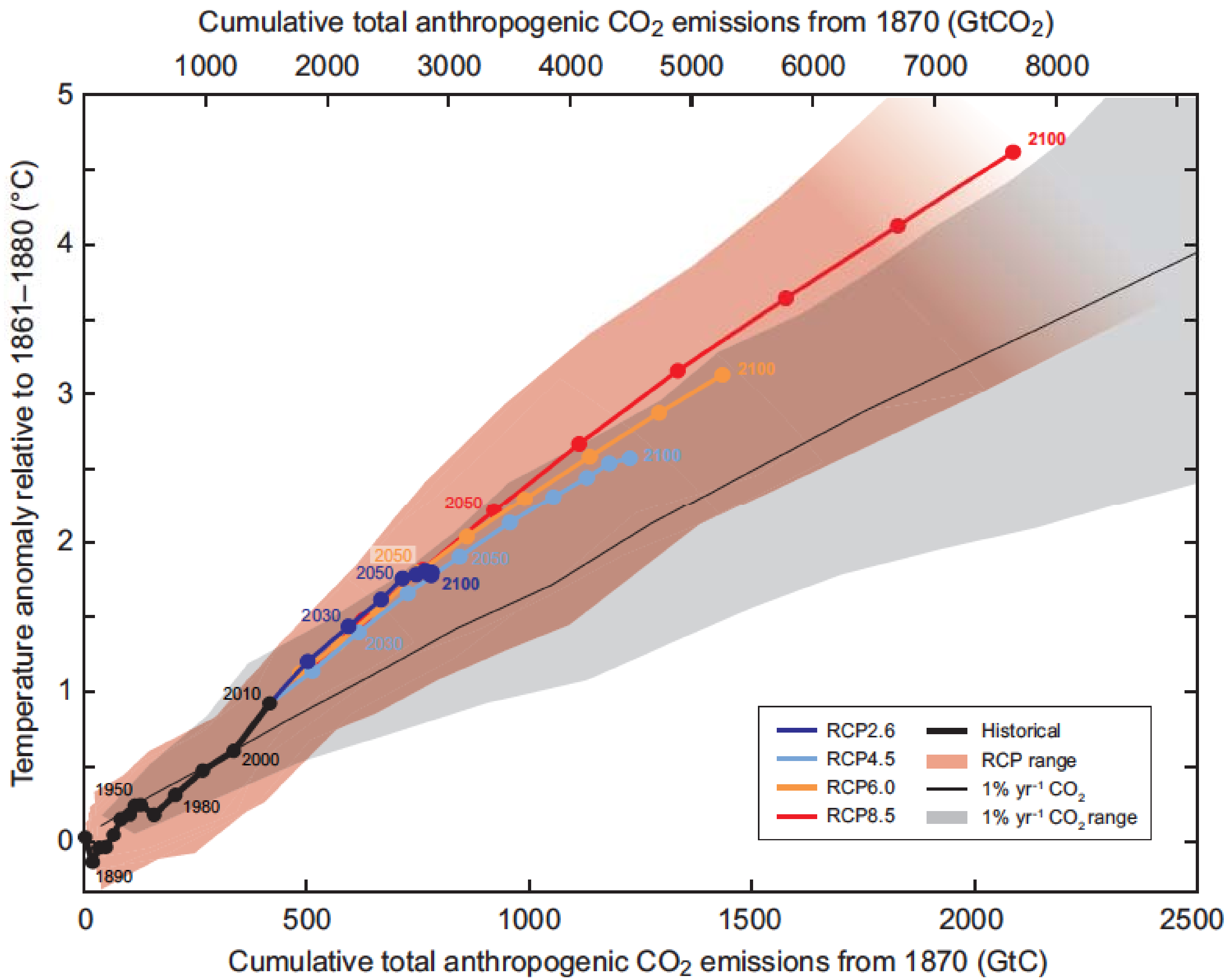
**Inconvenient truth**

# 1992-2014:
## Rio-Peru: world has changed

- 1992 Annex 1 countries = 70 per cent of annual emissions
- 2012 Annex 1 countries = 43 per cent of annual emissions

- **Rich did not reduce**
- **But rest grew to take up space**
- **Now run out of space**

# 1000 Gt = 2 degree temp rise

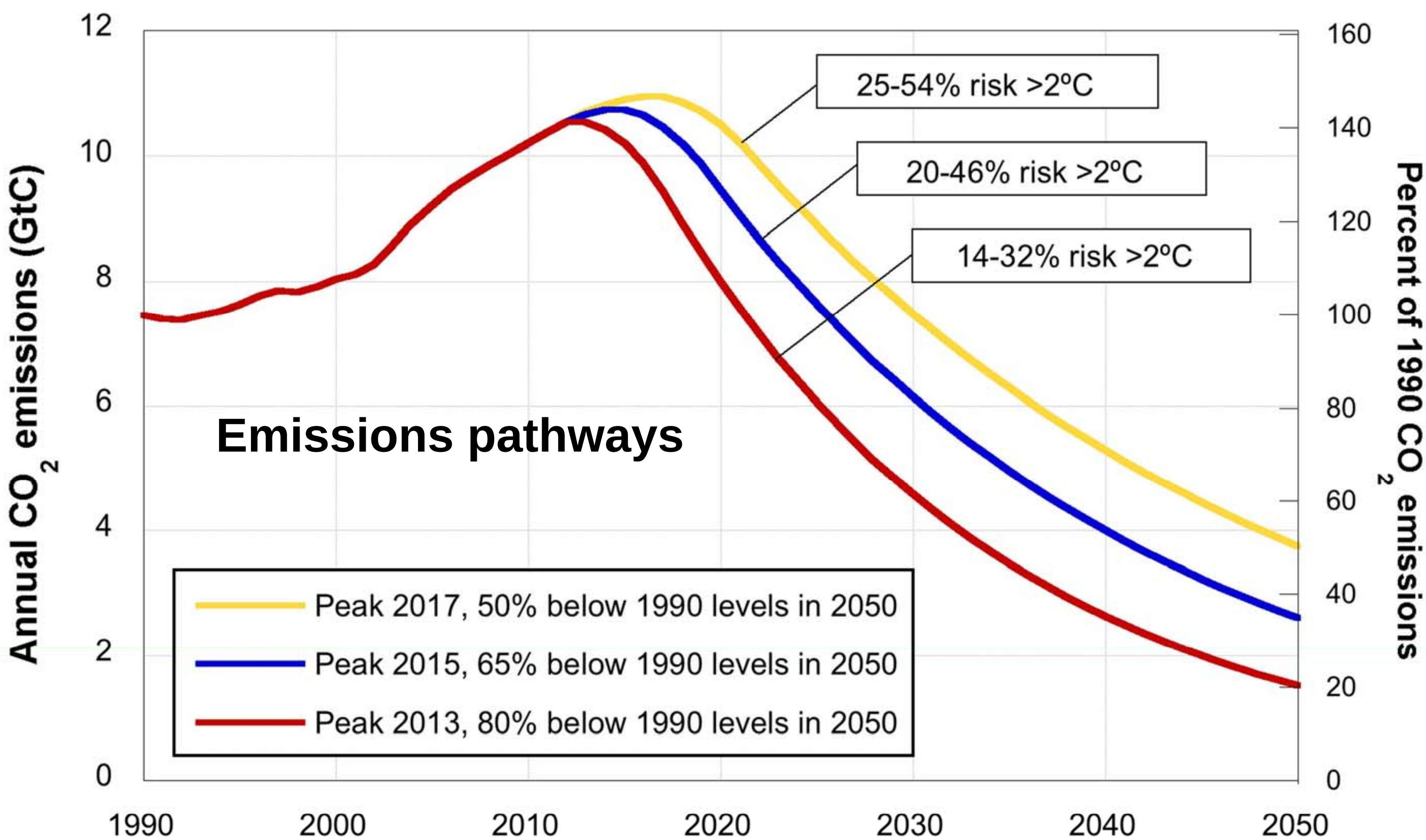


# How to share the past, present and future?

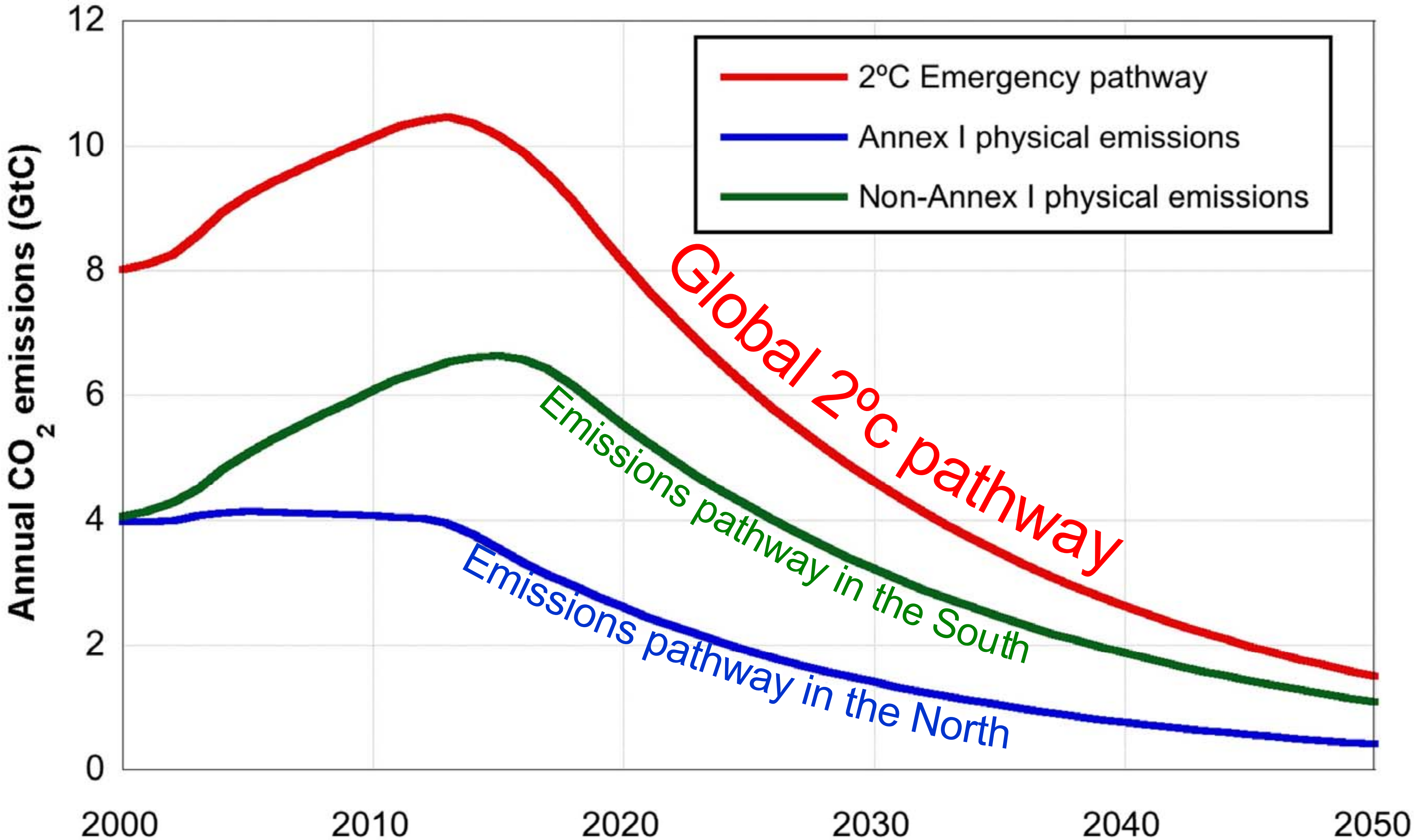
- That is the question

- Developed countries say historical emissions is past, cannot be counted
- Now must talk about what is left to meet 2 degree target
- All must contribute

# How to remain within the budget?



# How to divide the budget?




*What kind of climate regime can enable this to happen…?*

# Tough negotiations ahead

- World is getting warmer
- Impacts are beginning to show
- Rich did not reduce as committed
- Poor are increasing emissions
- Space has been occupied – historical
- Remaining carbon space is limited
- Funds and technology transfer remain empty promise

- **Maneuvering space limited**
- **But no option but to deal**

# Peru-Paris: what will happen?

- Durban 2011 agreed
- New deal by 2015 (Paris) to avoid 2 degree rise in temp above pre-industrial era. Implement by 2020
- Gigatonne Gap before 2020 to be filled
- Funds would be provided – Green Climate Fund set up
- **BUT**

# All or some or all and different

- Durban agreement: new deal will be **“applicable to all”**
- Fight over what this means?
- **Actions**: say developing countries
- **Commitments**: say developed countries
- Final consensus
- **I**ntended **N**ationally **D**etermined **C**ontributions (**INDC**)

# Equity re-defined

- **All** countries will put on the table their INDC
- What they can do and by when
- It is voluntary
- **They decide so it is equitable**
- Will it add up?
- Will it keep world below 2° C?

# Add up and dance: equity reference framework

- By March countries will submit INDC
- These will be ‘added’ to see how the world is above or below its target to reduce
- Then games will begin
- All countries are expected to increase their bids once numbers don’t add up
- This is when things get **hot**

# How to add up?

- How will nationally determined contributions reflect the nationally emitted contributions
- NDC vs NEC?
- Proposal for a equity reference framework put forward by African Union

# Indian government against ‘equity’?

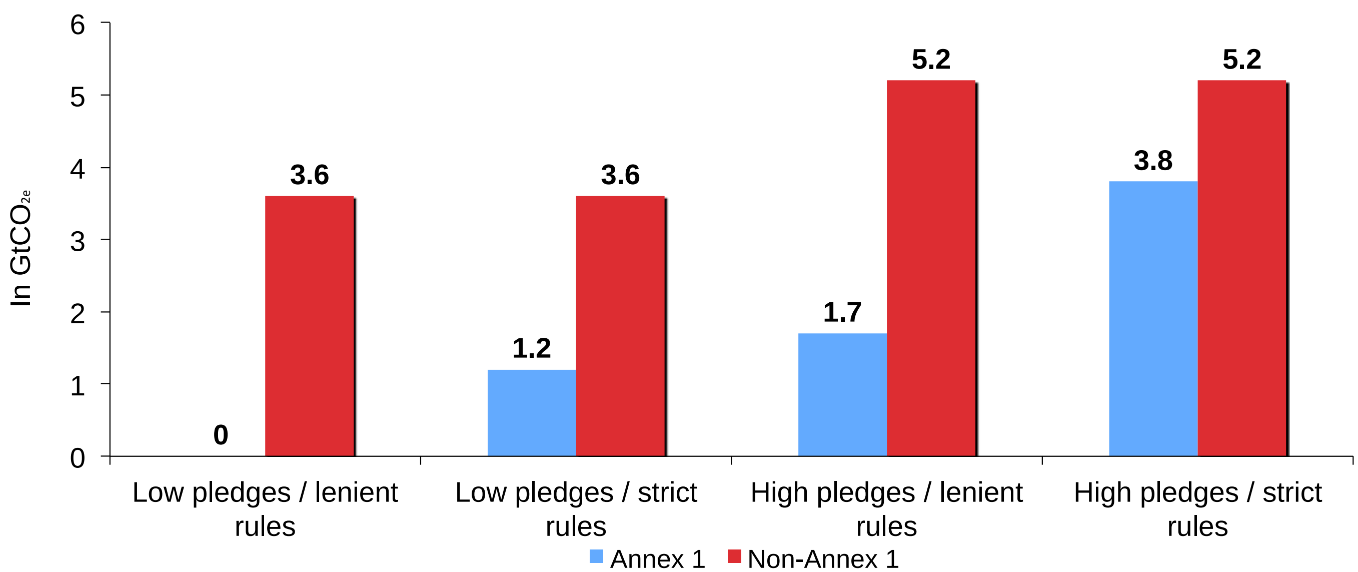
- In Warsaw Indian government blocked discussions on equity reference framework
- But without any counter-proposal
- No idea how to operationalize equity
- Cannot be empty words and negotiating tactic to block discussions

# Between now and 2020

- There is a gap between what countries have agreed to do and what should be done to keep world below 2° C
- **How to fill?**
- US has pledged 17% below 2005 level (roughly 0-3% below 1990 level)
- Already developing countries doing more than their share

# Shifts the burden of transition

- SEI assessment of UNEP report on ‘emission gap’ makes clear ‘**gap is growing**’ – between rich and poor
-



# Short-lived gases or action?

- Rich countries want action on gases that are short lived – get rid of these and get quick relief
- **HFC** – refrigerant/air conditioner coolant
- **Black carbon** – from incomplete combustion of diesel cars and cookstoves
- **Methane** – from rice paddy, livestock and oil and gas (shale gas)

# Funds not coming

- Green Climate Fund: $100 billion by 2020
- **Empty**
- Adaptation Fund: From CDM proceeds
- **Empty**

- Fight is to delink INDC from financial commitment

# Loss and Damage

- Most vulnerable nations have said that adaptation will not be enough
- Need to account for loss, pay for damage
- But ‘lost’ fight as this mechanism is now under the adaptation framework
- Rich countries do not want to discuss liability or compensation

# REDD+

- Cheapest option to reduce emissions is to landuse – in developing world
- Protect forest
- Grow forest
- Agreement on REDD+
- But funds tied to Green Climate Fund
- National entity agreed so rights of forest dwellers national responsibility

# REDD+ whose account

- Brazil has said that REDD+ should not be linked to market instrument
- Rich countries (and India) would like to sell forest as 'offset' to rich countries
- **Should not happen** – countries should account for forest protection and payments to local communities in their accounts

# CSE proposal
# Right to development

- Will involve all countries
- All will live within limits set by the planet
- Emission cuts will be based on science; ambition to cut drastically to stay within **at least** 2°C
- **Limits will be for all**; based on equitable sharing of common atmospheric space

# New deal

**World running out of space and time**

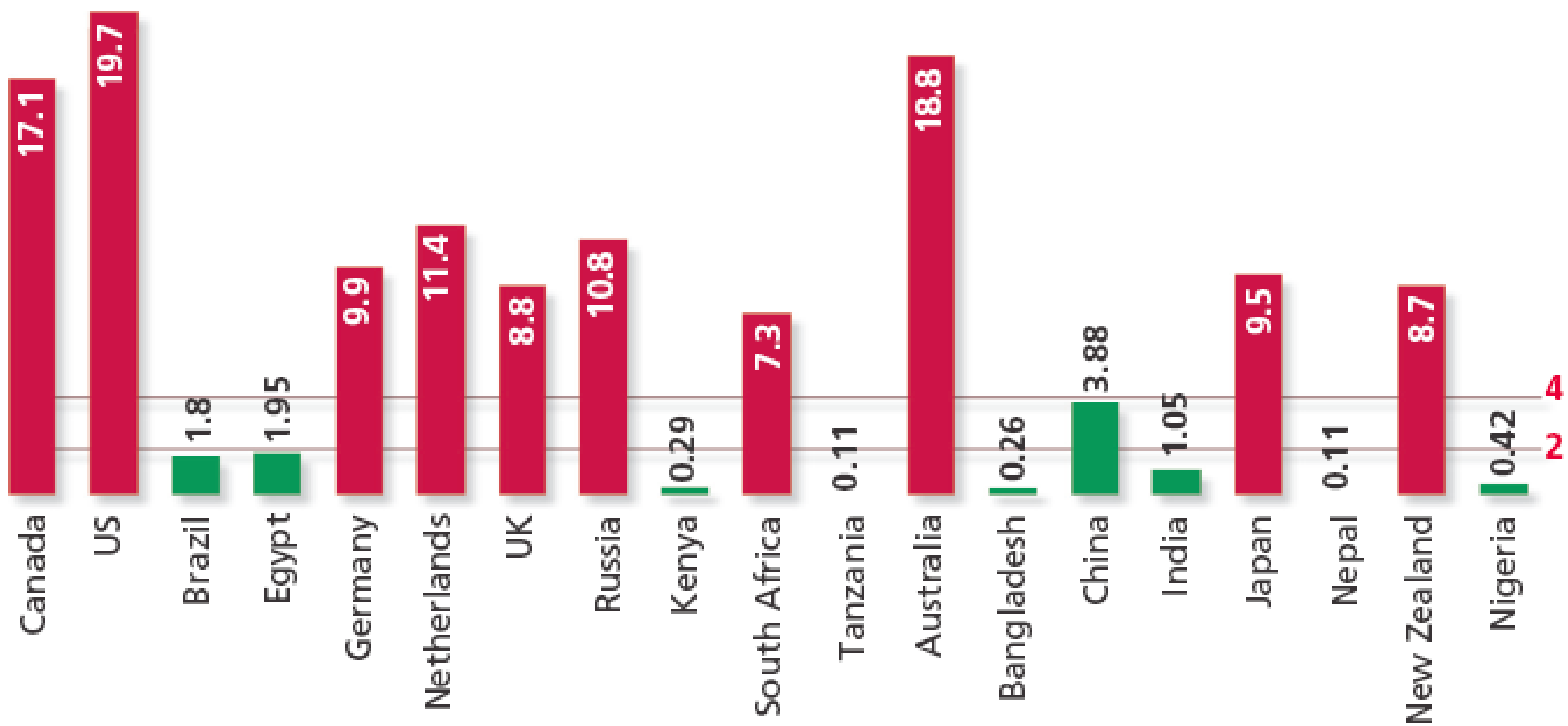
- Must raise ambition
- Must create framework for all to reduce; based on limits for all

**Need deal based on equity and fairness**

No effective global deal without equity

- Will not derail process; will strengthen it

# Limits to be set on all
# Based on planetary boundaries



# Equity is pre-requisite

Is about cooperation. If the rich emitted yesterday, the emerging rich world will do today and tomorrow

Cooperation demands equity and fairness

**Effective action only possible with equity**

# Our proposal

1. Operationalize equity in pre-2020 and post-2020

Count contribution to historical and current together in terms of proportion and what each must cut

# Act big on big global programmes

1. Global Feed-In Tariff – to pay differential between cost of conventional and renewable energy for access
2. Super-efficient appliance programme
3. Community based forestry programme
4. Public transport – get-out-of-cars programme

# Climate change **real**

- Action urgent
- Ambition necessary

- Take national action
- But demand global action to match scale, pace of climate change and contribution to creating the problem