



Centre for  
Climate Change  
Economics and Policy



Grantham Research Institute on  
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# ENVIRONMENTAL JUSTICE AND CLIMATE CHANGE

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# The two defining challenges of our century

Managing climate change and overcoming poverty.

- If we fail to manage climate change: we will create an environment so hostile that lives and livelihoods will be destroyed.
- If we try to manage climate change in ways which put barriers to overcoming poverty: we will not have the coalition we need to manage climate change.

**If we fail on one, we fail on the other**

# The risks are unprecedented for humankind

## Damage from climate change intensifies as the world gets warmer:

- Already at 0.8°C at edge of experience of Holocene and civilisation of last few thousand years. Seeing strong effects now; yet small relative to what we risk. Beyond 2°C is dangerous – risk of tipping points.

Temperature increase of 4 or 5°C or more not seen for tens of millions of years (homo sapiens, 250,000 years):

- Likely be **enormously destructive**, including much more intense extreme events.
- Deserts, coastlines, rivers, rainfall patterns, **the reasons we live where we do, would be redrawn.**
- Potential cause of migration of hundreds of millions, perhaps billions, of people around the world: **likelihood of severe and sustained conflict.**

# What to do to hold warming below 2°C

- Necessary emissions path for 50-50 chance of 2°C:
  - **under 35Gt** in 2030; **under 20Gt** in 2050; zero by end century.
- Can do a little less earlier and a little more later and vice versa but shape of feasible paths similar. Some studies use low forties (GtCO<sub>2</sub>e p.a.) for 2030 for 2°C but requires very strong action later.
- Necessary path likely to require:
  - **zero emissions from electricity** around mid-century.
  - **zero total emissions by the end of century.**
  - **Net negative** in **major sectors** well before **end of century.**
- Can burn (uncaptured) less than half of established hydrocarbon reserves and retain a reasonable chance of holding to 2°C.

# The last decade has taught us so much

- 1. Greater understanding of how economic growth, development, and climate responsibility are intertwined.**
  - Growth and development complement and support climate action (see e.g. NCE “Better Growth, Better Climate”, 2014)
  - Portraying them in conflict misunderstands development and the opportunities of a low-carbon transition → an ‘artificial horse race’
- 2. More intense understanding of the dangers of delay.**
  - Economies are transforming. Next two decades fundamental. Long-lasting investments are being made in urbanisation and energy systems.
  - Our cities will grow from 3.5bn to ca. 6.5bn by 2050. They could be more congested, more polluted, more wasteful → patterns of the past. But can be difficult.
  - Continuing structural change and inadequate management of cities and energy intensifies the danger of delay.
- 3. The damages from fossil fuels (beyond climate) immense and more apparent.**
  - Air pollution destroying many millions of lives and livelihoods per year.
  - China air is equivalent to 40 cigarettes/day, kills 4000/day (Berkeley Earth 2015); India worse; Germany, Korea, and indeed most countries have severe problems.

# Critical importance of infrastructure investment

- Magnitude of global investments needed over next 15 years: order of \$90tn (mostly in developing economies), \$6tn a year on average:
  - We need both better quality and greater scale.
- Lack of infrastructure is one of most pervasive impediments to growth and sustainable development.
  - Good infrastructure: **unshackles and removes constraints** to growth and inclusion. It **fosters** education and health
  - Bad infrastructure: **kills** people, leaves **unsustainable** economic burdens for future.
- Investing in infrastructure can boost demand, raise productivity and long-term growth.
- Unlocking good infrastructure needs action on **both policy and finance**.
- Must expand capacities of development banks and to foster profitable and long-term capital, including from institutional investors.

## Hydrocarbons are very expensive: tackle distortions in the market

- Fossil fuel subsidies, the lack of carbon pricing, and especially a distorted price for coal are pervasive.
- IMF: recently estimated total cost of fossil fuel subsidies (inc. pollution and climate – together contribute 75%): of the order of **\$5.3 trillion a year**.
- **Real price for coal is not \$50/t but well over \$200/t** when we take into account the impact on pollution and climate.
- These are **not abstract externalities** but the killing of people now from air pollution and in the future from climate change – surely **real costs by anybody's standards**.
- **Wrongly and perversely, high carbon is still seen as the low-cost option.**

# Ethics of climate change (I)

- All major approaches to moral philosophy seem to point in same general direction: strong action to reduce emissions is morally required.
- We can examine a number of approaches beyond the standard economics: Kantian, virtue ethics, social contracts, rights/liberty...
- Discounting future *welfare* or *lives*:
  - Weights the welfare or lives of future people lower than lives now (irrespective of consumption/income) purely because their lives lie in the future.
  - It is discrimination by date of birth. Unacceptable relative to notions of rights and justice



# Ethics of climate change (II): Intra-generational issues

- A proposal: Equitable Access to Sustainable Development. Language of COP16 in Cancun, 2010.
  - All are entitled to **sustainable development** as part of **dynamic** and **collaborative** transformation to a zero-carbon world.
  - **Choice of sustainable development** path is determined by nations; for developing countries that path should be **supported by rich countries**.
- Common actions; but rich countries cut faster and generate strong examples; promote flows of finance and technology.
- Contrast with “burden-sharing”, “others should pay incremental cost”, zero-sum games; “common but differentiated responsibility” (CBDR).
- EASD language and concept contain ideas of CBDR but are more dynamic, collaborative, focused on opportunity, and explicit on equity.

# Leadership is critical: politically and morally

- Political will for action is not yet sufficiently strong:
  - It must be founded in evidence, argument and discussion and in values.
- Moral arguments for combining growth and climate responsibility are overwhelming.
  - Degrading the environment (via climate change or otherwise) **denies all (including those yet to be born) the right to development.**
- His Holiness the Pope has shown extraordinary leadership in taking that discussion to the world.
- We now see that **we can effectively combine rising living standards and the responsible management of climate change.**
- Only by combining political and moral leadership and social movements will the necessary decisions be taken with the urgency required.

## Implications for Paris (I): Identifying the gap and ramping up ambition

- Closing the gap to 2°C. Current pledges look around 55-60 GtCO<sub>2</sub>e per annum in 2030. An important improvement on BAU (ca. 65-68).
- **Strong efforts needed to ramp up** ambition before and after Paris: most or many 2°C paths would be around 40 by 2030.
- Paris should **not be regarded as a one-off opportunity** to fix targets. It should be the first step of many, including regular reviews.
- Must now recognise that high emission levels over the next 20 years imply **zero carbon** by the second half of this century looks necessary (G7 Communique, Elmau, Germany 2015)
- More broadly, Paris is chance to build understanding not only of threats and **risks** but of the great **opportunities** that lie in the transition to the low-carbon economy.

## Implications for Paris (II): Creating understanding and mutual confidence

- Poverty reduction, sustainable development and climate action support each other: **“Better Growth, Better Climate”**
- Much or most of the necessary action, country-by-country, is in the **vital interest of the country itself**
- The **urgency is still greater than we thought**: great danger of lock-in to high-carbon systems as our economies are transformed and rapidly urbanised.
- **Importance of collaboration to generate the scale and quality of investment necessary gets still stronger:**
  - Finance and technology,
  - Rich countries setting strong examples, and
  - Clarity, soundness and stability of policy, nationally and internationally.
- Examples will come from everywhere: we can now enter a period of extraordinary **creativity, innovation, investment and growth**.
- We can rise to the two challenges of our century – **overcoming poverty** and **managing climate change**. If we fail on one, we fail on the other.