

Why Agreement on Climate Change Stalled at Copenhagen

by Ben Groom, Economics Department, SOAS

The Copenhagen Accord was an attempt to share the costs of the mitigation of climate change between developed and developing countries. However, it lacked any binding commitments, such as on targets for reducing emissions, sharing burdens or transferring resources, which would have been necessary for cooperation.

Cooperation has been achieved on other important international issues, such as small pox vaccinations and the depletion of the ozone by CFCs. So, why has cooperation on climate change been so difficult to reach?

International cooperation depends on many factors. First, a consensus must exist on the **science and empirics** of an issue. This implies agreement that a problem indeed exists, and that both the solution and associated costs and benefits have been identified.

The **structure of incentives** is also of paramount importance. For example, how strong is the incentive to free-ride? Or what is the *intra-* and *inter-*temporal distribution of cost and benefits? The voluntary nature of international agreements means that the sharing of both the burden and the benefit is a central issue.

Ethical issues, such as differences in conceptions of fairness and justice, can sometimes stymie cooperation. The **history** of activities is often also important since past actions can determine outcomes today, as well as perceived responsibilities and levels of trust. Even **luck** can sometimes play a role.

Smallpox and Ozone Depletion

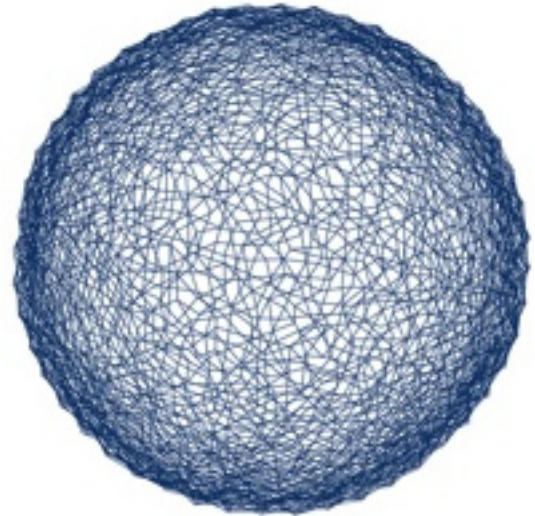
The voluntary provision of global public goods requires that incentives are aligned via agreed benefit and burden sharing. However, some global public goods are easier to supply than others. For example, in 1980 the World Health Assembly in Geneva announced as its goal the eradication of smallpox. And in 1989 the Montreal Protocol on Ozone Depleting Substances was ratified. So, why have these global public goods been provided and not climate change mitigation?

The conditions for success on smallpox and ozone were favourable in many of the respects described above. On smallpox, the science was clear and a low-risk vaccine already existed. Incentives were aligned since the benefits of eradication were large, equally distributed across the developing and developed world, and immediate and tangible.

Fairness deemed that developed countries should bear the larger burden of cost. So the ethics of smallpox were straightforward and arguments about historical responsibility were irrelevant. And the large benefits made burden sharing easy.

For ozone, the science was also clear. The hole in the ozone layer, its cause and impacts were all well understood. The benefits of action were symmetrically distributed across space and time. Also, the benefits, such as reduced skin cancers and cataracts, were immediate and tangible. Crucially, the availability of cheap alternatives to ozone depleting substances made switching technologies cost-effective.

Agreement was reached on providing restorative payments to cover the costs of compliance of developing countries. This was the so-called 'incremental cost' mechanism. This arrangement seemed fair because of income disparities between developed and developing countries and the recognition that developed countries had contributed most to the



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problem. Despite the historical and ethical complications, the benefits were sufficiently symmetric, large and tangible for cooperation to emerge.

Cooperation will fail if a solution is perceived to be unfair. While the 'incremental cost' rule seems fair, it only covers the cost of providing public goods, not the benefits of doing so. For instance, faced with the prospect of minimal transfers to them for biodiversity conservation, Cameroon and Ecuador have issued threats to the international community to deforest the Ngoyla-Mintom and the Yasuni National Parks respectively. They are seeking to receive a greater share of the credits for sequestered carbon.

Such disputes reveal the importance of **bargaining power** and **credible threats**, which can arise from asymmetric endowments of global public goods, such as primary forests (see Groom et al., Forthcoming 2010). Such asymmetries are pertinent to the issue of climate change since payments for avoided deforestation can be crucial to agreement.

The Problem with Climate Change

Climate change is problematic in many of the aspects discussed above. Setting aside uncertainties in the science, mitigation is costly (1-5% of GDP in 2005 according to Stern, 2007). It also requires structural changes to energy, transport and other economic systems. More problematic is that the benefits and costs of mitigation are distributed asymmetrically over space and time.

The benefits accrue only in 50 to 200+ years, making agreement on inter-generational justice crucial to cooperation. Ostensibly, the ethics on this issue are clear: current generations *ought* not to dump their waste 'over the fence' into the future. However, not all countries share this normative view. China and India emphasise the need for growth and poverty reduction *now*.

So disagreements on intergenerational justice preclude a shared view on the urgency of the problem.

Furthermore, the *intra*-generational distribution of the benefits of mitigation heavily favours developing countries. For example, left unmitigated, the cost of climate change could be at least 3% of GDP by 2100 in SE Asia and Africa, compared to only about 1% in developed countries (Stern, 2007). These costs include a drop of agricultural yields of 20% in Africa, for instance.

Given these asymmetries, historical responsibility can guide perceptions of fairness and influence bargaining positions. For instance, the ‘Brazilian Proposal’ prior to the earlier Kyoto Agreement was an attempt to allocate emissions reductions among developed countries on the basis of their historical emissions. In its raw form this approach embodies the principle of *strict liability*: if ‘you broke it, you pay for it’. But many developed countries disagree with this stance, and point to the absence of information on climate change in the past.

So mitigation is costly, and whether across time or space, those who ought to act are usually not those who benefit. Distributional and ethical disputes are then unavoidable, making it difficult to agree temperature limits and emissions reductions, the appropriate sharing of burdens, and the transfers of technology and finance.

The Previous Kyoto Agreement

The Kyoto Agreement recognised such asymmetries in its principle of ‘equal but differentiated responsibility’. It also fostered many flexible mechanisms—such as the Clean Development Mechanism (CDM) and emissions trading—which aim to improve efficiency in mitigation for developed countries.

But the exclusion of developing countries from the Kyoto commitments, the small scale of the EU Emissions Trading System (covering less than 1% of required global emissions reductions), and the inadequacies of the CDM mean that the agreement was inefficient and ineffective due to ‘leakage’: the movement of CO₂ production to developing countries. To be effective, any agreement must deal with CO₂ leakage by setting emissions limits for all. The primal remaining problem is how to share the burden of such targets between developed and developing countries.

With regard to bargaining power, China can afford to wait since it is relatively unaffected by climate change. Both India and China also prioritise present benefits and have strong views on historical responsibility and fairness. But delays on agreement increase the costs of climate stabilisation. To avoid this, transfers of finance and technology will be required soon to change the development paths of these countries.

Developed countries, in contrast, are reluctant to agree transfers without commitments from developing countries, particularly if discussion of transfers remains open-ended. Fundamentally, what is missing is an agreed burden-sharing rule that acknowledges the need for development and yet makes concrete the constraints of climate change.

The Copenhagen Accord

The Copenhagen Accord is weak, though it achieved some successes. The fundamental asymmetries were recognised and consensus was reached on the aggregate target: a ceiling of a 2°C warming. On burden sharing, the Copenhagen Green Climate Fund was established to pay for mitigation and adaptation in developing countries. Funding will increase to US\$ 100 billion annually by 2020. The Accord also contains important text concerning verification and monitoring of emissions. Lastly, Copenhagen was preceded by proposals on CO₂ emissions from China and India.

However, there remains no agreed mechanism to allocate emissions reductions and the sharing of the burden. The commitments to future emissions reductions are not credible without some means of enforcement. Currently, the practical limits of historical responsibility are ill-defined, making transfers to developing countries appear open-ended.

Possibly because of this drawback, developed countries did not make strong commitments on emissions reductions. This precluded cooperation from India. China’s reluctance to agree to greater emissions reductions by *developed* countries probably reflected, in contrast, its preferences for growth and a fear of being similarly bound in the future. Lastly, ring fencing of aid budgets for climate-change assistance will be required to motivate other developing countries to cooperate.

Overall, the Copenhagen Accord made small steps towards defining targets, sharing burdens and identifying mechanisms to overcome asymmetries and secure cooperation. The delay in reaching binding commitments reflects the difficulties of reconciling stark asymmetries in the benefits and costs over time and space, and differences in perceptions of fairness.

Historical Responsibility: Measures based on Temperature Change

Emissions Source (Year of Temperature Change)	Percentage Contribution to Climate Change (Temperature Change)	
	Developed Countries (Annex I)	Developing Countries (Non-Annex I)
All CO ₂ + equivalents e.g. land use change (1990)	61.1	38.9
All Fossil fuels (1990)	81.2	18.8
Energy Sector (1990)	88.0	12.0
Energy Sector (2010)	82.0	18.0
Energy Sector (2020)	79.0	21.0

Source: Adapted from La Rovere et al. (2002)

Rightly or wrongly, historical responsibility has been a crucial principle in driving these perceptions of climate change, but the limits of historical responsibility must be defined somehow. This will entail defining an equitable development path for developing countries given the agreed constraints imposed by climate change mitigation.

Only then will the required transfers of technology and finance from developed countries be defined. The Brazilian Proposal, if extended to include developing countries, provides a good starting point for this process, although many alternative interpretations exist (See Table). Depending on the definition of Emissions Source, developing countries have contributed between 12% and 39% to climate change. Different historical time horizons could also be considered. Irrespective of these factors, it is inevitable that cooperation will require agreeing the time at which history catches up with developing countries and their own responsibilities for mitigating climate change begin.

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