

THE IMPOSSIBLE NECESSITY OF CLIMATE JUSTICE?

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It will be difficult to find an agreed solution to climate change that does not engage with climate justice. It is generally regarded as naïve, when considering international relations, to focus on justice, or to emphasise right over might. In the case of climate change — perhaps uniquely — even the powerful need a genuinely global solution, which cannot be achieved without an engagement with justice. In this instance, might needs right. This think piece focuses on the North–South aspect of climate justice. It starts by unpacking the reasons why climate justice is important. It then argues that to assess whether a climate agreement or proposal is just, we need to examine four factors. Two are positive: that it should involve dramatic reductions in greenhouse gas concentrations; and that it should be fair and take into account both the varied current and historical responsibilities and the differing existing capacities of all involved. Two are negative: that it should not increase inequality; and that it should not increase the potential for international conflict. After outlining each of these components and why they are critical, I assess four broad proposals for dealing with climate change to see how they measure up. These are: equally-shared cuts in emissions; the ‘contract and converge’ model; the greenhouse development rights framework; and geo-engineering.

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I INTRODUCTION

It is clear that our disagreements about climate change have little to do with the science and a great deal to do with ourselves. We have fundamental differences regarding what we value, what obligations we have to others, and how we see our place on this planet. Many politicians are coming to grips with the magnitude of global emissions cuts needed, even if they are not yet acting upon it. At least in developed countries, however, the consideration of climate justice is not yet embedded in policy thinking. Indeed, if no meaningful agreement to tackle climate change is reached at or after the United Nations Climate Change Conference in Copenhagen (‘Copenhagen Conference’) in December 2009, then a key reason for failing to agree will be a failure to address

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climate justice. In this think piece (by a non-lawyer) I will try to explore this argument.

By ‘climate justice’ I mean something both beyond and different from the notion of climate law. Climate law may not always be just; climate justice, on the other hand, involves looking at the extent to which our responses to climate change, whether by cutting emissions (mitigation) or by adapting to it, are fair and equitable. Although short on detail, the *United Nations Framework Convention on Climate Change*¹ recognises that climate change should be tackled on the basis of equity and with ‘differentiated responsibilities’. Similarly, the *Kyoto Protocol to the United Nations Framework Convention on Climate Change*² sets differential targets. The ‘climate justice’ debate is, in part, an attempt to elaborate on what this entails. If there is a limited ‘budget’ of carbon emissions which the atmosphere can tolerate, then how can this be allocated most equitably between nations and individuals? And if the costs of moving to a low-carbon economy are high, then who will bear them?

Approaches to climate justice vary. Some have called for ‘contraction and convergence’ in which each country would end up with equal per capita emissions.³ Others have framed the problem in the language of rights, calling for ‘greenhouse development rights’.⁴ This would entail greater cuts by the already industrialised countries, and allow for more limited cuts, and even growth in emissions in some instances, to give poorer countries and individuals the headroom to develop. Yet others have gone further in the direction of framing the issue as one of individual, rather than national, responsibility.⁵ They argue that reductions should be required of the approximately one billion high emitters globally, regardless of where they live. I will examine these, and other proposals, shortly.

I start by unpacking the reasons why climate justice is important. I then argue that to assess whether a climate agreement or proposal is just, we need to pose four basic questions: does it lead to reductions in CO₂ concentrations?; does it involve an equitable sharing of the burden of change (both mitigating the problem and adapting to its inevitable and already visible consequences)?; does it increase inequality between nations and people?; and does it increase global conflict and insecurity? After outlining each of these components and why they are critical, I assess four broad proposals for dealing with climate change to see how they measure up against the requirements of climate justice.⁶

¹ Opened for signature 4 June 1992, 1771 UNTS 107 (entered into force 21 March 1994) (‘UNFCCC’).

² Opened for signature 16 March 1998, 2303 UNTS 148 (entered into force 16 February 2005) (‘Kyoto Protocol’).

³ See Global Commons Institute, *Contraction and Convergence: A Global Solution to a Global Problem* (1996), available from <<http://www.gci.org.uk>>.

⁴ See Paul Baer et al, *The Greenhouse Development Rights Framework: The Right to Development in a Climate Constrained World* (Heinrich Böll Foundation Report, November 2008) <<http://gdrights.org/wp-content/uploads/2009/01/thegdrsframework.pdf>>.

⁵ See Shoibal Chakravarty et al, ‘Sharing Global CO₂ Emission Reductions among One Billion High Emitters’ (2009) 106 *Proceedings of the National Academy of Sciences of the United States of America* 11 884.

⁶ I will not focus on specific proposals for dealing with climate change as these are continually being developed and adapted, especially ahead of the Copenhagen Conference. Rather, the emphasis here will be on broad-brush proposed ‘lines of march’.

I conclude by suggesting that we find ourselves on the horns of a dilemma. On the one hand, we are unlikely to reach a climate agreement without a significant degree of justice. Equally, however, our experience suggests we cannot neglect the reality of global power and interests, nor the inertia or existing momentum of 'business as usual'. Being caught in this way, as a crisis looms, is a position familiar to international lawyers.

II WHY CLIMATE JUSTICE?

Those arguing for the importance of 'climate justice' rest their case on one or more of four, sometimes interrelated, arguments. The first argument addresses the disjuncture between *responsibility* for climate change and its *impact*. The fact is that industrialised countries have been overwhelmingly responsible for greenhouse gas emissions. This is true of current emissions and is even more marked in relation to historic emissions. And yet those likely to suffer the most as a result of climate change will not only be the poorest and most vulnerable, but also the least responsible for causing the problem. Whilst climate change will exact a price on most of humanity, it seems manifestly unjust that the 'perpetrators' face a lesser penalty than the 'victims'.

The second argument is about *capacity*; that those most affected (the poorest people and poorest nations) lack the resources to make the necessary adaptations. They are likely to have the least resilience when faced with food shortages, flooding and other extreme weather events, and the least capital to invest in protective infrastructure. The arguments about capacity, responsibility and impact are conceptually separate but are often combined in practice. For example, the Global Humanitarian Forum argues that:

Those most vulnerable to climate change today are the world's poorest groups, since they lack the resources and means to cope with its impacts. It is also a clear injustice that these groups suffer the brunt of the impacts of climate change without any responsibility for having caused it.⁷

The third argument is about *development*. Poorer countries argue that their priority is development, and that this entails growing their economies and their capacity to meet the needs of their populations to enable them to emerge from poverty. 'Our people have a right to economic and social development and to discard the ignominy of widespread poverty', argues Indian Prime Minister Manmohan Singh, and '[f]or this we need rapid economic growth'.⁸ It is hard for rich countries to dispute this argument, as it is precisely the path that they have

⁷ See Global Humanitarian Forum, *What Is Climate Justice?* (2009) <<http://www.ghfgeneva.org/OurWork/RaisingAwareness/ClimateJustice/tabid/181/Default.aspx>>. The Forum goes on to say that '99% of the casualties due to climate change occur in developing countries, but 50 of the world's least developed nations account for less than 1% of greenhouse gas emissions that are the main cause of climate change'. In a similar vein, in J Timmons Roberts and Bradley Parks, *A Climate of Injustice: Global Inequality, North-South Politics, and Climate Policy* (2007) 7, the authors have referred to the 'triple inequality' when describing the unequal vulnerability, unequal responsibility, and unequal mitigation and adaptation costs.

⁸ Prime Minister Singh goes on to say: 'But I also believe that ecologically sustainable development need not be in contradiction to achieving our growth objectives': see Ministry of External Affairs, India, *The Road to Copenhagen: India's Position on Climate Change Issues* (Public Diplomacy Division, Ministry of External Affairs Report, 27 February 2009) 13 <http://pmindia.nic.in/Climate%20Change_16.03.09.pdf>.

followed themselves. Almost by definition, such a trajectory involves a large increase in energy usage. In theory, this could be renewable energy but, to date, it has mainly involved the construction of coal-fired power stations, currently the cheapest available option.

The fourth argument is *pragmatic*. Greenhouse gas emissions are a transnational and trans-boundary problem. There is also insufficient atmospheric 'space' to allow developing countries to emit anything like the carbon dioxide emitted by industrialised nations. Therefore, tackling climate change requires some form of global agreement and action. Such an agreement is unlikely to be reached unless it is perceived as 'just' by all the major players. The *Greenhouse Development Rights Framework* links the 'development' and 'pragmatic' arguments: 'The North cannot stabilize the climate without the full commitment of the South, and the South cannot make that commitment if doing so would even threaten to undermine its development'.⁹

These arguments focus only on the North–South aspects of the climate justice debate. They do not address the added complexity of the intergenerational aspect, which will not be examined here.¹⁰ All these arguments suggest why climate justice is important. What flows from this is a consideration of questions we need to ask of any global climate change agreement to see if it addresses the issue.

The *UNFCCC* recognises the problem of climate justice but it is vague on the details of how it might be addressed. Article 3(1) states that 'parties should protect the climate system ... on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities'. For this reason, it established at the outset a category of rich countries (listed in Annex I) with obligations to reduce their emissions, without imposing obligations on the remainder of poor and medium-income countries.

Similarly, art 3(4) of the *UNFCCC* states that 'parties have a right to, and should, promote sustainable development'. However, we now know that 'dangerous climate change' (to use the common expression) would *not* be avoided even if Annex I countries reduced their emissions to zero and other countries only took limited action. We also know that, in practice, the substantial economic growth that has occurred in the last two decades has rarely been ecologically sustainable. Something has to give. If we continue to increase the concentrations of greenhouse gases in the atmosphere, at a certain point we will face the prospect of 'runaway' climate change. This will undoubtedly be brutal, even fatal, for much of humanity. In such a scenario, justice, by any measure, will be hard to find.

⁹ Baer et al, above n 4, 41.

¹⁰ The intergenerational argument is an important one and a key component of any sustainability worldview. It is not examined here for the sake of simplicity. It is philosophically extremely complex, hard to operationalise and, for our purposes, unlikely to be pragmatically important in working towards a global agreement. It does, however, lead to a view which favours deeper emissions cuts, as this reduces the risk of 'runaway' climate change.

III CLIMATE CHANGE SCIENCE

The science is clear.¹¹ Simply put, the increase in greenhouse gas emissions since the pre-industrial period has resulted in higher greenhouse gas concentrations in the atmosphere. This has already triggered a number of climatic changes, and there is a significant risk that, if emissions are not cut dramatically and rapidly, we may reach key ‘tipping points’ and experience ‘runaway’ climate change. This means a significant rise in average temperatures, above the current global average of around 15°C. Rising average temperatures are, in turn, associated with rising sea levels, more frequent extreme weather events, declining crop production and biodiversity, and many other serious effects which have been widely documented and reported.

Current atmospheric concentrations of CO₂ are around 388 parts per million (‘ppm’), and above 460 ppm of CO₂ equivalent (‘CO₂-e’) if other greenhouse gases, such as methane, are included. Concentrations are rising at around 2 ppm annually, mainly as a result of the burning of fossil fuels. Greenhouse gases have the added problem that they remain in the atmosphere for long periods after they have been emitted. Worryingly, there are signs that the rate of increase in concentrations is rising as the ability of key ‘sinks’, such as the oceans and forests, to re-absorb CO₂ declines.

The Intergovernmental Panel on Climate Change (‘IPCC’), the ‘official’ international authority on the science of climate change, estimated in 2007 that if concentrations could be stabilised at 450 ppm, we stand a 50 per cent chance of limiting temperature increases to 2°C.¹² These are not attractive odds, and even a 2°C change will come with many negative effects (such as the destruction of the Great Barrier Reef). More recent science, popularised by www.350.org, suggests that the IPCC’s predictions may be too cautious and that 350 ppm — that is, below current concentrations — is required.¹³ Neither goal is achievable under ‘business as usual’ models.

Some policy analysts express the global solution in terms of a carbon budget. To have a balanced budget by 2050 implies that opting for limited cuts now will require sharper — and more expensive — cuts later. One such study, conducted by researchers from the University of Oxford and the Potsdam Institute for Climate Impact Research, argues that humanity should not emit more than one trillion tonnes of carbon into the atmosphere if we want a 50 per cent chance of limiting temperature increases to 2°C, or 750 billion tonnes for a 75 per cent

¹¹ I simplify here. The science is clear regarding the fact of climate change occurring (including temperature and sea level rises); the link to greenhouse gas concentrations; and that these are largely linked to human activity (anthropogenic). The science is not fully clear on the exact nature of the linkages between different aspects of the climate system and on the resilience of the system as a whole. As a nonlinear system, it is difficult to predict exactly when key ‘tipping points’ will occur. Empirical evidence, such as in relation to the melting of the Arctic, suggests that current modelling frequently underestimates the problem and that ‘tipping points’ may be occurring sooner and at lower greenhouse gas concentrations than previously expected: see Stefan Rahmstorf et al, ‘Recent Climate Observations Compared to Projections’ (2007) 316 *Science* 709.

¹² Gerald Meehl et al, ‘Global Climate Projections: Supplementary Materials’ in Working Group I, IPCC, *Climate Change 2007: The Physical Science Basis* (IPCC Fourth Assessment Report, 2007) 8, available from <<http://www.ipcc.ch>>.

¹³ James Hansen et al, ‘Target Atmospheric CO₂: Where Should Humanity Aim?’ (2008) 2 *Open Atmospheric Science Journal* 217, 229.

chance. Over 500 billion tonnes have already been emitted. On current trends another 500 billion tonnes will be released in the next 40 years. To put these projections into perspective, burning only a quarter of existing oil, gas and coal reserves will result in us crossing the trillion tonnes threshold.¹⁴

According to the science, therefore, we can only avoid irreversible climate change if humanity can dramatically and rapidly reduce global greenhouse gas concentrations by upwards of 70–80 per cent, and by significantly more in industrialised countries.

IV FOUR ELEMENTS OF CLIMATE JUSTICE

In this Part, I offer four considerations that are key to assessing the justice of any global climate action or successor agreements to the existing *UNFCCC*. I will examine each in turn.

The first consideration, effectively a threshold requirement, is that any agreement must result in a *substantial reduction in greenhouse gas emissions* and a stabilisation of concentrations at a ‘safe’ level. Concentrations of around 350 ppm are what the best current science seems to suggest is necessary for a decent chance of stabilisation. It is impossible to overemphasise the magnitude of this change and its implications for our energy and production systems, our current carbon dependence, and our consumption patterns. Regardless of how it is done or who does it, without effectively addressing the core biophysical problem, at a certain point, we face the prospect of ‘runaway’ climate change with severe consequences for much of humanity. In such circumstances, the question of climate justice will be moot. To put the matter starkly: climate action which cuts emissions dramatically, but is in all other respects unfair, will be a more just outcome than an ineffective agreement or no agreement at all.

The second consideration, and the most difficult to define, is that of substantive *fairness*. Procedural fairness in reaching an agreement may be relevant, but arguably the critical consideration is the substantive issue of whether the burden of change is effectively shared.¹⁵ This must take into account both the capacity to shoulder the financial burden of adaptation, and the responsibility for both current and historical emissions. Poorer countries and individuals have relatively fewer resources at their disposal to invest in the technology and infrastructure needed to switch to renewable and low-carbon energy sources, or to invest in physical infrastructure to limit the effects of natural disasters such as storm surges and flooding, or to forgo, for example, cutting down forests to use the wood as fuel or the land cleared to grow crops. The *UNFCCC* recognises this reality and assumes industrialised countries will need to provide financing and technology to developing countries to enable them to decarbonise their economies. To date very little support and assistance has occurred and the main instrument developed, the Clean Development

¹⁴ See Myles Allen and Malte Meinshausen, ‘The Trillion-Tonne “Carbon Budget” We Can’t Exceed’ (2009) 202 *New Scientist* 4.

¹⁵ Shifting to a low-carbon economy is not only a matter of costs. There are also enormous opportunities for those developing substitute technologies and processes. Arguably the opportunities are less relevant to the justice debate, although access to new technologies linked to adaptation is, of course, critical.

Mechanism ('CDM'), is widely regarded as being open to manipulation and ineffective at reducing greenhouse gas emissions significantly.

Historical responsibility is also relevant. Greenhouse gases remain in the atmosphere for a long time. High atmospheric concentrations are a function of past emissions, particularly those associated with the industrial revolution. The poorest 70 per cent of the world's population is estimated to be responsible for only 15 per cent of cumulative emissions.¹⁶ In the 20th century, according to data analysed by the World Resources Institute, the United States, Europe and the former Soviet Union were together responsible for around 70 per cent of all CO₂ emissions.¹⁷

Even ignoring historical responsibility, the responsibility for current emissions is highly differentiated. CO₂-e emissions in Australia in 2005 were around 27 tonnes per capita, comparable to the 23.5 tonnes recorded for the US, and greatly ahead of the 1.7 tonnes per capita of India.¹⁸ China, which now has similar aggregate emissions to the US, still had estimated emissions of 5.5 tonnes per capita in 2005.¹⁹ This is not only about a developed and developing country divide. If, for example, Australia cut its emissions by 60 per cent, it would still have per capita emissions higher than Sweden and similar to those of Japan today.

Complicating the issue of responsibility further still are a number of considerations. How far back into the past should responsibility stretch? Since the industrial revolution in the mid-19th century? Since the connection between greenhouse gas emissions and climate change became clear in the 1970s? Or since the *UNFCCC* was adopted in the early 1990s?

Even within poor countries, individual responsibility for emissions is highly differentiated. One report, *Hiding behind the Poor*, noted that whilst India's average emissions were below two tonnes per capita, the poorest people within the country emitted much less, whereas a large number of wealthy and middle-class families had consumption and emission patterns similar to those in developed countries.²⁰ Socolow makes a similar point when speaking of a study he co-authored with Chakravarty and others: 'Rich people in poor countries', he is quoted as saying, 'shouldn't be able to hide behind the poor people in those countries'.²¹

A case can also be made that territorially-based emissions — the basis of the *UNFCCC* and current climate negotiations — do not take into account the role of

¹⁶ Baer et al, above n 4, 16.

¹⁷ See the world map showing the CO₂ emissions of countries and regions over the course of the 20th century: World Resources Institute, *Contributions to Global Warming: 1900–1999*, <<http://www.wri.org/map/contributions-to-global-warming>>.

¹⁸ These figures were derived from a database on the World Resources Institute website: World Resources Institute, *Total GHG Emissions in 2005* (2008), available from <<http://cait.wri.org/cait.php>>.

¹⁹ *Ibid.*

²⁰ Guruswamy Ananthapadmanabhan, Krishnaswamy Srinivas and Vinuta Gopal, *Hiding behind the Poor* (Greenpeace India Report, October 2007) <<http://www.greenpeace.org/raw/content/india/press/reports/hiding-behind-the-poor.pdf>>.

²¹ Robert Socolow, Co-Director, Carbon Mitigation Initiative, cited in Douglas Fischer, 'Solving the Climate Dilemma One Billion Emitters at a Time: Proposal Aims to Slice through Rich–Poor Divide on Global Emissions Targets', *The Daily Climate* (US) 6 July 2009, available from <<http://www.dailyclimate.org>>.

trade or the 'end user' of the emissions. The most striking example of this relates to China's emissions, much of which are associated with the manufacturing of products for consumption elsewhere. For example, are the emissions associated with the production of an iPod bought in Chicago really Chinese emissions? Indeed, it can be argued that the generally improving emissions efficiency of many developed countries, as opposed to their absolute emissions, are associated with the export of 'dirty' industries to newly industrialising countries.

The current *UNFCCC* and *Kyoto Protocol* regime divides the world into Annex I (mainly rich) countries with obligations to reduce emissions, and non-Annex I (the rest) countries without reduction targets. This is an inadequate approach both because, absent significant voluntary targets by non-Annex I countries, it cannot lead to a sufficient level of emission reductions, and because it fails to differentiate between non-Annex I countries.²²

In short, whilst there are some complexities associated with interpretation, in any conception of climate justice some account needs to be taken of both current and historical responsibility for emissions. And on both pragmatic and ethical grounds, some account must be taken of capacity. The reality is that fairness implies different obligations for different countries; the 'common but differentiated' approach in the *UNFCCC*'s formulation.

India, for example, has indicated that it rejects emissions targets but will commit to not exceeding the per capita emissions of the developed countries.²³ This is a rhetorically strong stance which emphasises the inequity of the situation. But, it is of limited utility in practice as it avoids specifying what a meaningful per capita cap could be, or acknowledging how low it would need to be. The strongest candidates for the 'fair' label are the 'contract and converge' ('C&C') model (with rich and poor countries on different trajectories but converging on equal per capita emissions), and the 'greenhouse development rights framework' (which calculates the share of the burden of global mitigation and adaptation which every country should bear based on an assessment of its responsibility and capacity). We will turn to these shortly.

The third consideration in taking into account the justice of any climate proposal is whether it increases the extent of material *inequality between nations and people*. Climate change will affect the existing patterns of economic power within and between nations, although the exact impacts are difficult to predict. In part, this is because the magnitude of economic change implied by a move to a low-carbon economy is hard to overstate. It calls into question the dominant assumption of endless growth. It challenges the 'take-make-break' model of industrial production and forces us to think about sustainable consumption and production. This, in turn, has implications for existing patterns of trade and production. It compels us to think about how the inherent short-termism of markets can accommodate longer-term considerations and constrain the externalising impulses of profit-maximising entities. It creates economic turbulence with 'winners' and 'losers' as some sectors decline and others emerge. Some countries, like Norway, may even benefit in the medium-term from some warming.

²² For example, both South Korea and Burkina Faso, who have vastly different emissions, fall into this category.

²³ Ministry of External Affairs, India, above n 8, 3.

The Australian emissions trading system as initially proposed by Professor Ross Garnaut addressed the inequality issue in a domestic context, by proposing various cushioning subsidies for low-income families.²⁴ Climate policy cannot be expected to solve the problem of global inequality. However, any climate proposal which is likely to increase material inequality does not meet the climate justice test.

A fourth and final consideration relates to *global conflict and international stability*. Significant climate change raises major security concerns. These will be associated with potential conflict over scarce resources such as water and food, the possibility of extensive movement of people through migration or as climate refugees, or the emergence of border disputes (such as where glaciers define boundaries or over access to the ice-free Arctic). In the absence of a meaningful agreement to tackle climate change, we can expect the risk of conflict to rise dramatically. Not surprisingly, the security agencies of a number of countries are putting efforts into understanding this.²⁵

Of course, one must be cautious about linking climate and security. As one study by the German Advisory Council on Global Change noted, such linkages can

serve to legitimate new areas of military deployment. ... In the context of North–South discourse ... [it can suggest] that the underdeveloped South poses a physical threat to the prosperous North, in that population explosion, migration and resource scarcity necessarily lead to disputes over distribution and conflicts of interest that can be solved only by military means.²⁶

And yet, as even that study noted, it seems undeniable that an issue as fundamental as climate change has implications for conflict and stability, as much as water access has resulted in conflicts between states. In such cases, the weaker parties are most likely to lose out. For this reason, I argue that any climate proposal which increases global insecurity and enhances the potential for conflict between states is unlikely to meet the climate justice test.

In summary then, there are four considerations which, taken together, can be considered essential to any proposal to tackle climate change that seeks to achieve some measure of climate justice. Two are positive: that it *should* involve dramatic reductions in greenhouse gas concentrations; and that it *should* be fair in that it takes into account both the varied current and historical responsibilities and the differing existing capacities of all involved. Two are negative: that it *should not* increase inequality; and that it *should not* increase the potential for interstate conflict.

²⁴ See Ross Garnaut, *Garnaut Climate Change Review: Final Report* (2008) ch 16.

²⁵ Most of this information is not in the public domain. However, see the censored version of the report by the National Intelligence Council, US, *Global Trends to 2025* (US National Intelligence Council Report, November 2008) <http://www.dni.gov/nic/PDF_2025/2025_Global_Trends_Final_Report.pdf>. See also Ministry of Defence, UK, *DCDC Global Strategic Defence Programme: 2007–2036* (Development, Concepts and Doctrine Centre Report, 3rd ed, January 2007), available from <<http://www.dcdc-strategicstrends.org.uk>>.

²⁶ Renate Schubert et al, *Climate Change as a Security Risk* (German Advisory Council on Global Change Report, May 2007) 29–30.

V CLIMATE JUSTICE AND POLICY OPTIONS

What do some of the key policy alternatives look like when examined in view of these considerations? Negotiations around climate action were delayed by the longstanding refusal of the US (and Australia) to sign up to the *Kyoto Protocol* even though they had been parties to the *UNFCCC*. Then US President George W Bush famously argued, in a presidential debate with Al Gore in 2000 that the *Kyoto Protocol* was unfair: ‘I’m not going to let the United States carry the burden for cleaning up the world’s air. Like the Kyoto Treaty would have done. China and India were exempted from that treaty. I think we need to be more even-handed’.²⁷

Variations on this view are by no means dead, even when Bush’s ‘do nothing’ conclusion is repudiated. The Australian Government, for example, eventually ratified the *Kyoto Protocol* and announced a 2050 target of 60 per cent reductions. In doing so, it is still adopting a version of the Bush view — translating the argument for global reductions of 60 per cent (already at the most conservative end of the scientific literature) into a target for its own ultra-high emission economy. This implies it expects all others to make a 60 per cent cut as well. The most generous interpretation is that this is simply a negotiating position.

Nevertheless, it would be fair to say that industrialised countries have generally come to understand that there is a need for them to make deeper cuts than developing countries. The size of the cuts proposed, however, suggests that they have neither fully come to terms with this knowledge, nor found a way to make it politically palatable. Again, using Australia as an example — the most carbon-intensive industrialised economy — it has proposed five per cent cuts by 2020, or 25 per cent if a global deal is reached. A 25 per cent reduction would still leave Australia emitting more per capita than Japan, France or the United Kingdom does today. This is an extreme example, but it is still, at the time of publication (October 2009), the dominant response of the industrialised countries. As such, it fails the critical threshold climate consideration outlined above — it does not reduce concentrations sufficiently to avoid ‘dangerous climate change’. It would also be manifestly unfair, and would exacerbate global inequality and insecurity. This is true even when accompanied by assistance proposals, such as the UK’s proposal (currently an outlier) for rich countries to make £60 billion per annum available to assist developing countries with climate change.

Not surprisingly, the level of cuts proposed by the industrialised countries has elicited a lukewarm response from major developing countries. The most common developing country argument appears to be that only the ‘rich’ countries should be required to set binding reduction targets (currently the Chinese stance), or the Indian view that it will only undertake not to exceed ‘rich’ country per capita emissions. Whilst these arguments are in some respects ‘fair’, they would not lead to a sufficient reduction in greenhouse gas concentrations and therefore also fail the threshold climate change consideration.

²⁷ US Presidential Debate (Winston-Salem, US, 11 October 2000) (George W Bush) <<http://www.debates.org/pages/trans2000b.html>>.

There are four broad policy options that could meet the threshold ‘serious about the climate’ consideration. We will look at each in turn. These are not actual proposals but rather ideal-type categories which capture the logic of different proposals or action options. The relationship to climate justice of each option is summarised in Table 1.

Table 1: Climate Justice and Various Policy Options

	Avoids/Limits Climate Change	Fairness	Global Security	Inequality Effect
Serious and equal cuts for all (70–80 per cent +)	Strong	Unfair	Neutral effect	Neutral
C&C to equal (and low) per capita emissions	Strong	Some degree of fairness	Enhances security	Positive
Greenhouse Development Rights Framework	Strong	High degree of fairness	Enhances security	Positive
Geo-engineering	Potentially/ Unclear	Unclear	Negative	Unclear

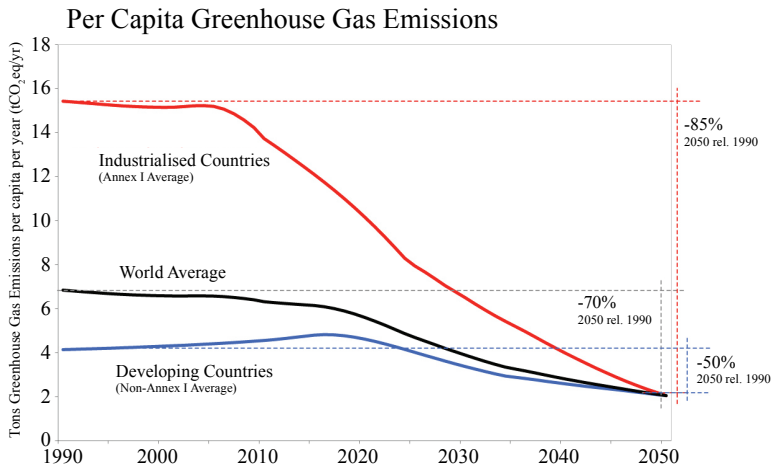
The first is *significant emissions cuts for all* countries in the order of 70–80 per cent by 2050. This would significantly improve the odds of humanity avoiding ‘dangerous’ climate change. It would arguably be neutral in terms of global security and would leave patterns of inequality largely unchanged. However, it manifestly fails the fairness test. By imposing roughly equal cuts on all countries, it does not take responsibility or capacity into account. There is little or no chance of this approach being agreed upon internationally, and little likelihood that it can be imposed on developing countries through trade barriers or by more forceful means. This option is only retained for consideration because if long-term emissions cuts are to be taken seriously, at some level industrialised countries implicitly prefer an approach like this. When push comes to shove, it is unlikely we have heard the last of the Bush view on fairness.²⁸

The second option is the C&C model developed by the Global Commons Institute, or one of its variants. In essence, this model envisages all countries converging on equal per capita emissions of around two tonnes per annum by 2050. It takes into account that global population by then will have peaked at about nine billion. In practice, all but the very poorest economies would need to cut emissions, with the largest cuts coming from the highest emitters. Some allowance is often made for a slight expansion of emissions by developing countries prior to them falling sharply. The C&C model has gained some traction among policy-makers in Europe, although not yet in formal proposals. German Chancellor Angela Merkel has suggested that some variant of it is the only

²⁸ I assert this even whilst being aware that the explicit position is to acknowledge that differential cuts are needed.

ethical and feasible way forward — with developing country emissions rising until they meet the falling per capita emissions of industrialised countries. C&C also has some support from countries like India, although not for the two tonnes per annum target. Brazil has made the case for historical emissions to be taken into account and for binding targets to be placed on developing countries at a later date.

Chart 1: An Example Contraction and Convergence Proposal²⁹



In reality, the only C&C option that would seriously tackle climate change leaves little room for increased emissions from developing countries. Chart 1 presents an example of a C&C proposal. This envisages global emissions cuts of 70 per cent, with average cuts of 85 per cent by industrialised countries, and average cuts of 50 per cent by the remainder by 2050. For a country, like Australia, it would imply emissions cuts in the order of 95 per cent. In short, the C&C approach does, to a significant extent, address the fairness consideration in relation to current responsibility for emissions, and hence for mitigation. It envisages national reduction obligations and is silent on the issue of inequality within countries. It leaves open a range of issues related to the costs of transitioning to a low-carbon economy and the costs of adaptation. It largely avoids the historical responsibility question.

The C&C approach scores relatively well from a climate justice perspective in that, if agreed to, it is unlikely to increase global insecurity and interstate tension. It is also likely, because it would require different patterns of consumption, to reduce global inequality markedly, largely through ‘levelling down’. Of all the approaches considered here, C&C is the most likely to have the ‘legs’ to form the basis of an agreement, especially if combined with significant fiscal transfers for adaptation and technology transfer. However, rich countries, and others

²⁹ This chart was presented as part of a closed seminar given by the CPSL: CPSL, ‘Chart 1: An Example Contraction and Convergence Proposal’ (CPSL seminar, London, 2007) (on file with author).

currently above the two tonnes per capita threshold, are still a long way from embracing the C&C approach.

A third policy approach is the greenhouse development rights framework, developed largely by a coalition of NGOs. This is a first cousin of the C&C model but is conceptually different. It makes the assumption that the cost of transition to a low-carbon economy should be borne by the relatively well-off individuals in every country. It then converts this notional responsibility into a national obligation, whether for cutting emissions or paying for the transition. It calculates the burden each nation should assume based on their responsibility for current and recent emissions (since 1990) and on their capacity, counting only the wealth of those individuals above a certain level of income. By emphasising individuals, the greenhouse development rights framework takes into account inequalities within nations, and stresses effort-sharing. The resulting Responsibility and Capacity Index ('RCI') calculates that the US should bear one-third (33.1 per cent) of the global burden of mitigating and adapting to climate change. The European Union comes in at 25.7 per cent, China at 5.5 per cent (much less than its share of current emissions), and India at a mere 0.5 per cent.³⁰ The greenhouse development rights framework takes some account of historical emissions and calls for deep and rapid cuts in the industrialised countries and significant contributions by them to the global cost of adaptation. Clearly, it scores highly when looked at from a climate justice perspective, but it suffers from having no powerful champions on the global negotiating stage.

A final possibility, climate- or geo-engineering, is not an existing policy proposal, but is included because it is increasingly spoken about in the shadows. Geo-engineering will arguably become a reality if there is no meaningful reduction of emissions and a range of dramatic climate alterations start to manifest themselves: in short, if existing trends continue. Geo-engineering involves large-scale, engineered interventions to combat or limit the effect of changes in the earth's climate. These measures range from the relatively benign to the dystopian. Examples being explored by scientists and entrepreneurs include ways of blocking incoming radiation, such as increasing the amount of soot and smog in the atmosphere or building sunshades, or trying to increase cloud formation artificially, or by increasing the absorptive capacity of the oceans by adding carbonates or phosphorus (ocean fertilisation). Carbon capture and storage ('CCS') and biochar technologies can also be considered forms of geo-engineering. Most of these technologies are untested at scale, and many make exaggerated claims regarding their climate effects.³¹ Nevertheless, it is the policy space to watch — a space of action, although hard to see as the subject of a global agreement.

Such technologies are being explored not only in relation to mitigation, but also in relation to adaptation. For example, Microsoft's Bill Gates was recently reported to be part of a consortium applying for patent rights on a system for lowering ocean temperatures with the aim of reducing hurricane intensity.

³⁰ Baer et al, above n 4, 18.

³¹ Tim Lenton and Nem Vaughan, 'The Radiative Forcing Potential of Different Climate Geoengineering Options' (2009) 9 *Atmospheric Chemistry and Physics Discussions* 2559, 2561, available from <<http://www.atmos-chem-phys-discuss.net>>.

As reported in *The Australian*,

the plan calls for a line of barges to be scattered along the US coastline, ready to be deployed in a hurricane's path. Each barge would have a pair of tubes that thrust warmer surface waters to cooler depths while sucking up colder water.³²

The plan, theoretically plausible, raises a range of issues: 'What if the system works and [Gates] succeeds in deflecting a Florida-bound hurricane towards Cuba?' one scientist was quoted as asking. 'Would that be seen as an act of war?'³³

In desperate times, we are likely to see geo-engineering move from trial to practice. It is unclear whether it would be able to reverse climate change and what consequences it would have for other aspects of the environment. It is unknown how 'fair' it would be, and what impact such measures might have on inequality. Nor is it clear who would have 'permission' to tamper with the earth system in ways which might be advantageous to some but not to others. Arguably, anthropogenic greenhouse gas emissions are themselves a form of climate engineering. Geo-engineering would almost certainly have negative consequences for global security, especially if done unilaterally or without the agreement of major powers.

VI CONCLUSION

I have not given space to considering a number of important issues relevant to climate justice. Can we ignore the mechanisms proposed to address climate change — whether market-based regulation (such as emissions trading) or more traditional mandate-type regulation? Should we be neutral about the mechanisms and focus on the ends? Or are there lessons from the dramatic failure of financial markets which are relevant to climate justice? Similarly, in relation to technology, does climate justice require environmentalists to rethink attitudes to nuclear power, 'clean coal' and similar high-tech proposals? All these questions are worth further exploration in relation to climate justice.

When considering climate change, it is easy to comply with the first part of Gramsci's famous dictum — 'Pessimism of the intellect, optimism of the will'. Finding the optimism is more difficult. Because it looks at climate justice, this think piece, perhaps inevitably, has focused on the costs and burdens of change. There are, of course, also significant opportunities for entrepreneurs with capital and the vision to imagine a low-footprint economy. And there is the attraction of imagining a much better world, one in which we have a more harmonious relationship with nature. In reality, the future is not as neatly predictable as the typology presented here may imply.

It is hard to imagine a unilateral solution to climate change which does not involve extensive geo-engineering. And if we want an agreement then we will need to engage more deeply with climate justice than we have to date. Climate justice is the elephant in the room. A just solution is obviously the first prize in that it tackles climate change seriously and lays a basis for a more equitable global order able to operate within the limits of the biosphere. This in turn has a

³² 'Bill Gates's Cool Plan to Thwart Hurricanes', *The Australian* (Sydney, Australia) 20 July 2009, 8.

³³ *Ibid.*

range of implications for existing power relations and patterns of consumption, production and trade.

A solution that significantly reduces greenhouse gas concentrations but which is unjust, is still, at the end of the day, a solution of sorts. At least it postpones our dash to the edge of the environmental cliff. No climate solution at all is a grim prospect.

It is generally regarded as naïve, when considering international relations, to focus on justice, or to emphasise right over might. In this case — perhaps uniquely — even the powerful need a genuinely global solution, and agreement cannot be achieved without an engagement with justice. We have to hope that the pattern of millennia can be broken. In this instance, might *needs* right. Climate justice is necessary and we can only hope it is possible. It needs to be higher up the policy agenda than it is currently.