Global Climate Justice and China's Responsibilities

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Abstract

This research develops a distinctive theory of climate justice that addresses important gaps in the existing literature, and provides an account of China's ethical responsibilities in the context of climate change. China is the world's largest emitter of greenhouse gases and a key actor in international climate negotiations. The Chinese Government has offered various arguments to justify its current climate policy, which includes a commitment to reduce the energy intensity of the Chinese economy while rejecting an absolute limit on Chinese emissions. This research critically examines five key aspects of the Chinese position: (1) the bearers of climate responsibilities are states; (2) the right to development should excuse developing states from binding emissions limits; (3) consumers should be held responsible for the embedded emissions in the goods that they consume; (4) developed states bear more responsibility for tackling climate change because of their greater historic emissions; and (5) China can fulfil its climate responsibilities by reducing the energy intensity of its economy. Cumulatively, this analysis produces a distinctive theory of climate justice and an accompanying account of China's climate responsibilities. More specifically, this thesis defends a Revised Beneficiary Pays Principle, which takes into account: (1) distinctions between subsistence, development and luxury benefits; (2) the degree to which benefits have been voluntarily accepted; and (3) the degree of influence that beneficiaries might have had over the quantity of emissions generated. Based upon the proposed theory of climate justice, the thesis offers a qualified defence of China's commitment to reduce emissions intensity in the context of a fair global climate agreement.

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Glossary

ACFTU	All-China Federation of Trade Unions
APP	Ability to Pay Principle
AR	Assessment Report
BPP	Beneficiary Pays Principle
CBDR	Common But Differentiated Responsibilities
CDM	Clean Development Mechanism
CEO	Chief Executive Officer
CER	Certified Emission Reduction
CO_2	Carbon Dioxide
COP	Conference Of the Parties
DEFRA	Department for Environment, Food and Rural Affairs
EIA	Energy Information Administration
ETS	Emissions Trading Scheme
EU	European Union
GDP	Gross Domestic Product
GDR	Greenhouse Development Rights
GHG	Greenhouse Gas
GNI	Gross National Income
GNP	Gross National Product
HDI	Human Development Index
ICCPR	International Covenant on Civil and Political Rights
ICESCR	International Covenant on Economic, Social and Cultural Rights
IEA	International Energy Agency
IMF	International Monetary Fund
IPCC	Intergovernmental Panel on Climate Change
LPG	Liquefied Petroleum Gas
MER	Market Exchange Rate
MMT	Million Metric Tonne
NGOs	Non-Governmental Organisations
OECD	Organisation for Economic Co-operation and Development
OHCHR	Office of the High Commissioner for Human Rights
PPP	Purchasing Power Parity
PPP	Polluter Pays Principle
RBPP	Revised Beneficiary Pays Principle
RMB	Chinese Yuan Renminbi
TNC	Transnational Corporations
UK	United Kingdom
UN	United Nations
UNDP	United Nations Development Programme
UNEP	United Nations Environment Program
UNESCO	United Nations Education, Science and Culture Organisation
UNFCCC	United Nations Framework Convention on Climate Change
USA	United States of America
WCED	World Commission on Environment and Development
WMO	World Meteorological Organisation
WTO	World Trade Organisation
WWF	World Wildlife Fund

Chapter 1

Introduction: Climate Change, Justice and China

Climate change justice is a relatively new but rapidly developing field. However, to date, much work is general and can not easily be applied to the actual political situation or individual country-specific issues. This work will make an original contribution to the literature by critically reviewing the position taken by China, of one of the key actors in the climate change debate, on several key issues of climate justice. It will, therefore, provide an important bridge between policy and political philosophy. The focus on China will offer a distinctive lens through which to examine existing theories of global climate justice. Through detailed analysis of key questions in the climate justice literature, I will develop a distinctive account of climate justice. In turn, this will enable a better understanding of the responsibilities of the world's largest emitter of greenhouse gases.

In this introduction, I will first present the political context of international climate negotiations, in which agreement on climate action has been fraught with arguments about "fairness" from all sides. I will then give a brief overview of the scientific basis of climate change and its predicted impacts, in which to situate the urgency of the need for action, given the likelihood of harmful effects if climate change is not mitigated. I will then discuss China's position within the global sphere of climate change politics and explain why the focus on China is of key importance. Following this, I will show that climate change must be addressed as a problem of justice, highlighting the need for robust, philosophical analysis. This is particularly important since we are beginning to see greater recognition of the ethical issues at stake, highlighting the political importance of thorough and rigorous treatment of the moral issues. I will provide an overview of some of the work that has been done so far within the field of political philosophy, before locating the cosmopolitan approach I will take within the wider debates around global justice and their relevance to climate change. I will then present my general assumptions and methodology, as well as the limits of the research. Finally, I will discuss my five key research questions and lay out the structure of the thesis.

1.1 The Political and Scientific Context

In the last twenty-five years, international negotiators have attempted to develop a response to the collective action problem of global climate change. In the late 1980s, the world began to acknowledge the serious threats posed by climate change and began to develop specialised bodies through which international collaboration could be grounded. In 1988, the Intergovernmental Panel on Climate Change (IPCC) was set up through a joint partnership between the United Nations Environment Program (UNEP) and the World Meteorological Organisation (WMO), with the aim of 'provid[ing] the world with a clear scientific view on the current state of knowledge in climate change and its potential environmental and socio-economic impacts'.[1] The IPCC has produced five 'assessment reports' since 1990, analysing global research on climate change and models of the climate alongside possible policy responses. These reports represent the 'gold standard' in climate science research, giving detailed, up-to-date reviews of the scientific consensus on climate change as well as potential actions the global community might take and their impact.[2] Recognising the political nature of the need to work together globally to respond to climate change, a new treaty was also agreed at the 1992 'Earth Summit' in Rio-de-Janeiro.[3] It was here that the United Nations Framework Convention on Climate Change (UNFCCC) came into being, a convention which today is made up of 195 parties which meet at a high-level once a year during the 'Conference of the Parties' (COP) meetings. Through the creation of these new specialised institutions, the mainstream narrative of climate change has been dominated by scientific and economic analyses.

As a result, global action to date has been decided through multilateral agreements between states following periods of negotiations. The political nature of these international negotiations often appear to descend into a power struggle in which each party is trying to balance national interests with the requirements of a changing climate. Unsurprisingly, this has led to few meaningful actions regarding climate change, with global emissions increasing by 35% between 1990, around which time the potentially serious risks became widely recognised with the first IPCC assessment report, and

[1] IPCC, 'Organization' (n.d.) [Online] (http://www.ipcc.ch/organization/organization.shtml). [Accessed
[2] Nature, *'Wanted: an IPCC for biodiversity'* (3 June 2010): 525; Joss Garman, 'Climate scientists are losing ground against deniers' disinformation.', *The Guardian* (15th February 2010) [Online] (http://www.theguardian.com/environment/cif-green/2010/feb/15/climate-science-ipcc-sceptics). [Accessed 4th June 2014].
[3] UNFCCC, 'Background on the UNFCCC: The international response to climate change', (n.d.) [Online] (http://unfccc.int/essential_background/items/6031.php). [Accessed 12 August 2014].

2010.[4] Whilst climate change has become a major issue, the politicisation of decisions relating to what to do about it has led to a distinct lack of progress.

The most significant outcome of the UNFCCC process to date is the creation of the Kyoto Protocol which came out of the third meeting of the COP in 1997 in Kyoto, Japan. As part of the agreements, the 'Annex I' countries, the developed states, were to limit their emissions, 'with a view to reducing their overall emissions of [greenhouse] gases by at least 5 per cent below 1990 levels in the commitment period 2008 to 2012'.[5] Notably, however, the United States was a signatory to the Protocol but did not ratify it, and therefore was not subject to any binding emission reduction target. This was due to a resolution passed in the Senate which states:

'(1) the United States should not be a signatory to any protocol to, or other agreement regarding, the United Nations Framework Convention on Climate Change of 1992, at negotiations in Kyoto in December 1997, or thereafter, which would –

> *(A) mandate new commitments to limit or reduce greenhouse gas emissions for the Annex I Parties, unless the protocol or other agreement also mandates new specific scheduled commitments to limit or reduce greenhouse gas emissions for Developing Country Parties within the same compliance period'.*[6]

The United States took the view that the emerging economies would have an unfair advantage for growth if they were allowed to increase emissions whilst developed states were required to reduce their emissions. The Kyoto Protocol aimed to fairly balance the development needs of some states with the global requirement of reducing emissions by requiring 'common but differentiated responsibilities' (CBDR):

'The Parties should protect the climate system for the benefit of present and future generations of humankind, on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities. Accordingly, the developed country Parties should take the lead in combating climate change and the adverse effects thereof.'[7]

As a developing country, China was not required to commit to any greenhouse gas emission limitations. At the same time, developed countries agreed to 'acknowledge the responsibility that they bear in the international pursuit of sustainable development in

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[4] United States Environmental Protection Agency, 'Climate Change Indicators in the United States' (May 2014) [Online] (http://www.epa.gov/climatechange/science/indicators/ghg/global-ghg-emissions.html). [Accessed 30 June 2014].
[5] UNFCCC, 'Kyoto Protocol to The United Nations Framework Convention on Climate Change' (1998) [Online] (http://unfccc.int/resource/docs/convkp/kpeng.pdf). [Accessed 25 April 2011].
[6] United States Senate, 'Senate Resolution 98', *US Government Printing Office*, (12th June 1997) [Online] (http://www.gpo.gov/fdsys/pkg/BILLS-105sres98is/pdf/BILLS-105sres98is.pdf). [Accessed 4 June 2012].
[7] UNFCCC, 'Convention on Climate Change – Article 3', (n.d.) [Online] (https://unfccc.int/essential_background/convention/background/items/1355.php). [Accessed 17 December 2010].

view of the pressures their societies place on the global environment and of the technologies and financial resources they command.'[8] As such, the language of the UNFCCC 'demands' consideration of fairness between states.[9]

Whilst this idea of equity is embedded in the documentation of the UNFCCC, the negotiations themselves and discussions around climate change have tended to focus on economic analysis of action or inaction.[10] But as Soltau argues, 'decisions on combating climate change cannot be determined by the costs of action alone because the understanding of costs is informed by assumptions about what we value, and those assumptions relate to ethical and moral values that stand outside economics.'[11] Whilst engagement with the economics of climate change action is important, it cannot be the sole basis upon which we decide what actions we can 'afford' to take. The ethical issues surrounding climate action have not been adequately addressed, with the principle of CBDR the only significant principle of fairness to regularly feature in international texts. However, the ambiguity of the principle of CBDR means that different actors are able to make their own interpretation of the principle and thus justify their own negotiating position. The impasse surrounding this principle has led to a strong division between 'developed' and 'developing' countries, with only the former group being required to commit to binding climate measures.

This division was engendered by the original categorisation of states into Annex I and non-Annex I countries. As we saw previously, the idea behind the principle is the need to balance a reduction in global emissions with development needs, as well as unequal causal responsibilities due to differing historic emissions. However, the binary division, whereby parties are considered either developed and eligible for full climate duties, or developing and exempted from any binding commitments, cannot be said to be an adequate representation of the ethical issues at stake. This would require a much higher degree of differentiation, given the highly globalised system of global trade, as well as the vast inequalities within states.

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[8] UNCED (United Nations Conference on Environment and Development), 'Rio Declaration on Environment and Development', (3-14 June 1992) [Online] (http://www.unep.org/Documents.Multilingual/Default.asp?DocumentID=78&ArticleID=1163). [Accessed 21 December 2010].
[9] Friedrich Soltau, *Fairness in International Climate Change Law and Policy*, (Cambridge: Cambridge University Press, 2009): 3.
[10] Nicholas Stern, *The Economics of Climate Change: The Stern Review,* (Cambridge: Cambridge University Press, 2006).
[11] Soltau, *Fairness in International Climate Change Law and Policy*, 14.

The effect of having only two categories means that the group of developing countries includes very poor countries such as Bangladesh and Mali as well as much more affluent countries such as South Africa, South Korea and, most relevant to our discussions, China.[12] As Bortscheller argues, 'the principle of C[B]DR, as currently applied, does not distinguish among developing nations in a way that recognizes the critical importance of emerging economies like China.'[13] State-level analyses do recognise the higher average cumulative emissions of developed states, compared to developing states, as well as their greater financial capacities. However, there is dramatic variation in both responsibility and capacity in both categories, the result of which is an extreme oversimplification of the issues of fairness at stake. The political division is reflected in the literature on climate change, which regularly defines the difficulties in sharing the global burden of climate change as an issue of developed versus developing countries. Whilst this differentiation may be a useful shorthand for the issues of equity at play, highlighting the differentiation between different climate stakeholders, a thorough analysis of climate change must go deeper than the developing-developed division if issues of fairness are to be taken seriously.

In order to present the context in which the importance of the need to develop a just global response to climate change is grounded, it may be useful to consider an overview of the scientific basis of climate change and the predicted impacts. A brief point to note is that climate science is based upon climatic models, which 'cannot be an exact science'.[14] The IPCC has therefore created a 'calibrated language for describing quantified uncertainty' along a scale of likelihood, in which the probability of an event determines the language used to refer to the statistical confidence in the predicted outcomes given by climate models.[15] For example, an event that is 'virtually certain' to happen must have a likelihood of at least ninety nine per cent, 'extremely likely' requires at least a ninety five per cent statistical likelihood, and on the other end of the scale 'very unlikely' is the term used for events with less than ten per cent likelihood of

[12] UNFCCC, 'List of Non-Annex I Parties to the Convention', (n.d.) [Online] (http://unfccc.int/parties_and_observers/parties/non_annex_i/items/2833.php). [Accessed 16 July 2014].
[13] Mary Bortscheller, 'Equitable But Ineffective: How The Principle Of Common But Differentiated Responsibilities Hobbles The Global Fight Against Climate Change', *Sustainable Development Law & Policy,* 10:2 (2010): 49.
[14] Anthony J. McMichael et al, 'Climate change and human health: present and future risks', *The Lancet*, 367:9513 (2006): 859.
[15] IPCC, 'Guidance Note for Lead Authors of the IPCC Fifth Assessment Report on Consistent Treatment of Uncertainties' (6-7 July 2010) [Online] (http://www.ipcc.ch/pdf/supporting-material/uncertainty-guidance-note.pdf). [Accessed 4 June 2014].

happening.[16] So, though there is uncertainty about *what* exact effects will happen *where* at exactly *what time*, scientists using climate models are able to estimate the risk or probability of many of the effects of rising greenhouse gas emissions. There is broad scientific consensus that the climate is changing, with the IPCC stating that this is 'unequivocal'.[17] Furthermore, it is 'extremely likely' that the main cause of the warming is anthropogenic:

'It is extremely unlikely (less than 5%) that the global pattern of warming during the past half century can be explained without external forcing, and very unlikely that it is due to known natural external causes alone. The warming occurred in both the ocean and the atmosphere and took place at a time when natural external forcing factors would likely have produced cooling.'[18]

Climate change is taking place, and an 'extremely unlikely' alternative cause notwithstanding, it is being caused by the cumulative emissions of humanity which have built up in the atmosphere since the industrial revolution. Climate science tells us that the atmosphere has a finite capacity to absorb greenhouse gases. These gases therefore accumulate in the atmosphere, taking in some of the energy that originally comes from the sun but that in normal circumstances would be 're-radiated' back into space.[19] As such, this heat remains trapped around the Earth, much like a blanket, causing what is known as the 'greenhouse effect' leading to an unnatural warming of the Earth which in turn affects the temperature of the oceans and the Earth's surface.[20] The climate system is highly sensitive, and if 'dangerous anthropogenic interference with the climate system' occurs, meaning that global temperatures rise above certain 'tipping points', which are 'thresholds for abrupt and irreversible change', the impacts on the world's ecosystems and human health will be severe.[21] Increasingly severe and widespread impacts are positively correlated with greater increases of global surface temperature, though there is 'high confidence' that climate change is already posing a

[16] IPCC, 'Guidance Note for Lead Authors of the IPCC Fifth Assessment Report on Consistent Treatment of Uncertainties', 3.
[17] IPCC, 'Climate Change 2007: Synthesis Report - Summary for Policymakers', (12-17 November 2007) [Online] (www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_spm.pdf) [Accessed 7 February 2012].
[18] IPCC, 'Climate Change 2007: Synthesis Report - Summary for Policymakers'.
[19] IPCC, 'The 1992 IPCC Supplement: Scientific Assessment', (1992) [Online] (www.ipcc.ch/ipccreports/1992%20IPCC%20Supplement/IPCC_Suppl_Report_1992_wg_I/ipcc_wg_I_1992_suppl_report_scientific_assessment.pdf) [Accessed 23 June 2014].
[20] IPCC, 'The 1992 IPCC Supplement: Scientific Assessment'.
[21] IPCC, 'AR5 Summary for policymakers', in: C. B. Field et al, eds., *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, (Cambridge: Cambridge University Press, 2014): 11, 14.

'moderate' risk for increased 'extreme events, such as heat waves, extreme precipitation, and coastal flooding'.[22]

In the future, impacts of climate change are likely to be wide reaching and in some cases extremely severe, causing loss of life and habitat. These impacts will include (with very high confidence) 'greater likelihood of injury, disease, and death due to more intense heat waves and fires', as well as 'increased risks from food and waterborne diseases'.[23] In low lying islands, there is an increased risk of displacement as well as 'risk of death, injury, ill-health, or disrupted livelihoods … due to storm surges, coastal flooding, and sea-level rise.'[24] The expected distribution of the severe impacts of climate change is likely to be extremely variable from country to country, though many of those with the lowest capacity to adapt happen to be situated in the parts of the world which will receive the most severe impacts. The IPCC states, 'many key risks constitute particular challenges for the least developed countries and vulnerable communities, given their limited ability to cope.'[25]

The most recent significant response from the international community was the 2009 Copenhagen Accord of the COP 15. Parties pledged to limit warming to two degrees, based upon the IPCC's AR4 report, which modelled several potential emissions pathways the world could take. It defined the lowest temperature increase, above which 'risks to unique and threatened systems' and 'risks of extreme events' become substantial, as 1.5-2.5 degrees Celsius above pre-industrial temperatures.[26] Several commentators have criticised this figure as too high, stating that '2 °C warming would have major deleterious consequences'. [27] Others have questioned the feasibility of limiting warming to only two degrees, stating that we are 'increasingly likely to

[22] IPCC, 'AR5 Summary for policymakers', 12.
[23] IPCC, 'AR5 Summary for policymakers', 19.
[24] IPCC, 'AR5 Summary for policymakers', 12.
[25] IPCC, 'AR5 Summary for policymakers', 13.
[26] UNFCCC, 'Report of the Conference of the Parties on its fifteenth session, held in Copenhagen from 7 to 19 December 2009', (7-19 December 2009) [Online] (http://unfccc.int/resource/docs/2009/cop15/eng/11a01.pdf) [Accessed 12 November 2010].
[27] James Hansen et al, 'Assessing 'Dangerous Climate Change': Required Reduction of Carbon Emissions to Protect Young People, Future Generations and Nature', *PLOS One*, 8:12 (2013): 2; See also: Elizabeth Kolbert 'Two degrees of disaster', *The New Yorker*, (10 November 2011) [Online] (http://www.newyorker.com/news/daily-comment/two-degrees-of-disaster) [Accessed 10 July 2014]; Jeffrey D. Sachs, 'How to decarbonise the global economy', (8 July 2014) [Online] (http://jeffsachs.org/2014/07/how-to-decarbonise-the-global-economy/) [Accessed 10 July 2014]; Lavanya Rajamani, 'The Increasing Currency and Relevance of Rights-Based Perspectives in the International Negotiations on Climate Change', *Journal of Environmental Law,* 22:3 (2010): 410.

experience warming well in excess of 2 °C this century'.[28] The world is therefore in the predicament of coping with both the mitigation burden of reducing global emissions in order to reduce the risks of dangerous climate change, and the adaptation burden of coping with the impacts of climate change which are already occurring or will occur in the future. Together, these two problems form what I will term the 'burden of climate change' that must be shared globally.

1.2 The Importance of China

The research presented in this thesis will develop an account of global climate justice and the implications for China. The choice of China in this context comes from China's unique position on the global stage of climate change negotiations and global politics more broadly.[29] There are several key factors that lead to China's position being unique. China is considered to be a developing country, yet is a key economic competitor for the United States due to its high Gross Domestic Product (GDP) and rapidly growing economy. As such, China's energy policies and position on global climate agreements are both extremely important in any global approach to mitigate climate change. As we saw earlier, the United States did not ratify the Kyoto Protocol as a result of the lack of commitments from developing countries, of which China, as the world's second largest economy and biggest emitter of greenhouse gases, accounting for 21% of total global carbon emissions, and with an annual growth rate of 8% over the past decade, is the most prominent.[30] The result of this stalemate between these two key players in international climate politics and global economics has been a failure to develop an acceptable global agreement on climate change. But there are further issues that complicate the situation. Whilst China's GDP and emissions are high on a state level, China is still a developing country and has comparatively low levels of per capita GDP and emissions. In comparison with the United States, China emits 6.2 metric tons of CO_2 per capita compared with 17.6 metric tons per US inhabitant.[31] GDP per capita shows similar differences, with China's GDP per capita at $10, 924 compared with the

[28] Todd Sanford et al, 'The climate policy narrative for a dangerously warming world', *Nature Climate Change,* 4 (2014):164.
[29] Ross Garnaut et al, 'China's rapid emissions growth and global climate change policy', in Ligang Song and Wing Thye Woo eds., *China's dilemma: Economic growth, the environment and climate change* (United States of America: Brookings Institution Press, 2008): 170-189.
[30] Amy Heinzerling, 'Global Carbon Dioxide Emissions Fall in 2009', *Earth Policy Institute* (20 July 2010) [Online] (http://www.earth-policy.org/indicators/C52/carbon_emissions_2010) [Accessed 8 May 2014].
[31] World Bank, 'CO_2 emissions (metric tons per capita)', (n.d.) [Online] (http://data.worldbank.org/indicator/EN.ATM.CO2E.PC?order=wbapi_data_value_2010+wbapi_data_value+wbapi_data_value-last&sort=desc) [Accessed 15 September 2014].

United States at $51, 689.[32] As a large developing country, China has argued that the right to development entitles it to increasing emissions, particularly due to China's low historic emissions. Furthermore, China has a very large manufacturing industry which produces goods to be consumed around the world, and has therefore claimed that a share of the responsibility for its emissions should be borne by the developed states where those goods are consumed.

Global action on climate change will require cooperation from many different actors. Determining how to address the issues raised by China in a theory of global climate justice is essential for two reasons. First, it enables us to improve our understanding of global climate justice by addressing issues that so far have not been adequately addressed in the literature. Second, it is important practically since China views these issues to be of great importance. Fair consideration of these issues within any approach to climate change is therefore essential in ensuring China's participation in a global agreement.

1.3 Climate Change - A Question of Justice

Whilst I have discussed the fact that the dominant narratives surrounding climate change are scientific and economic in nature, climate change is unavoidably an issue of justice. In general terms, the vast majority of historic greenhouse gas emissions have come from the developed states through processes of industrialisation spanning the previous two centuries. The predicted distribution of the impacts is likely to cause the poorest, and those who have received the least benefit from greenhouse gas emissions, to suffer the most from climate change. This unfairness is further compounded in considering that those predicted to suffer the most are also least able to cope with the impacts due to existing issues of international distributive justice in which much of the world is living in poverty while a small percentage live in luxury.[33] As Vanderheiden explains, 'the net effect of [this] is a shifting of ecological costs of the high consumption rates of the world's affluent to those who can least afford to bear them and are also least responsible for the phenomenon that generates them … [This] present[s] a unique case of global injustice, where the ongoing failure to adequately address the

[32] OECD, 'GDP per head, US $, current prices, current PPPs', (n.d.) [Online] (http://stats.oecd.org/index.aspx?queryid=558) [Accessed 15 September 2014].
[33] Henry Shue, 'The Unavoidability of Justice', in Andrew Hurrell and Benedict Kingsbury, eds., *The international politics of the environment* (Oxford: Oxford University Press, 1992): 373–97.

problem exacerbates the global inequality that is part and parcel of the problem itself.'[34] Climate change thus poses questions of global distributive justice – how to share the cost of the burden between current people, and intergenerational justice – how to balance current and future needs.

Civil society organisations have produced some work on this issue, recognising the issues of social and environmental justice. Oxfam has suggested that we should view the issues at stake via the metaphor of a doughnut shape, and that we should aim to 'liv[e] within the doughnut', meaning within a 'safe and just space' that all of humanity can inhabit.[35] Within the figurative doughnut, environmental resources are sustainably used so that current needs are fulfilled according to the criteria of eleven 'social priorities' (these fill the space inside the hole of the doughnut) and in which the 'planetary boundaries' (which set the limits around the outside of the donut) are not crossed.[36] If we respect the limits placed upon us from both sides, we 'creat[e] a closed system that is bounded by both human rights and environmental sustainability. The resulting space – the doughnut – is where inclusive and sustainable economic development takes place. It implies no limit to human well-being: indeed, within this space is humanity's best chance to thrive.'[37] The doughnut model provides us with a metaphorical image of the requirements of current and intergenerational climate justice within a broader theory of global distributive justice more generally. The finite nature of the atmosphere's capacity to absorb greenhouse gases means that there must be a limit on how much can be emitted globally. Within this climate-safe defined emissions limit, different actors may be allowed to emit different amounts:

'The planet's atmosphere is a common good that provides vital climatic services to all the world's persons, with its absorptive capacity allowing for a finite quantity of GHG emissions before heat-trapping gases begin to accumulate in the atmosphere, destabilising those climatic services and causing harm to persons and peoples. When viewed this way, several problems for cosmopolitan justice are revealed, and a powerful claim for recognising the terms of justice applied among the world's nations and persons becomes more apparent.'[38]

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[34] Steve Vanderheiden, *Atmospheric Justice: A Political Theory of Climate Change* (Oxford: Oxford University Press, 2008): xiv.
[35] Kate Raworth, 'A safe and just space for humanity: Can We Live Within The Doughnut?', *Oxfam*, (February 2012) [Online] (http://www.oxfam.org/sites/www.oxfam.org/files/dp-a-safe-and-just-space-for-humanity-130212-en.pdf). [Accessed 19 June 2014].
[36] Raworth, 'A safe and just space for humanity: Can We Live Within The Doughnut?'.
[37] Raworth, 'A safe and just space for humanity: Can We Live Within The Doughnut?', 5.
[38] Vanderheiden, *Atmospheric Justice,* 104.

Climate justice is a relatively recent but quickly developing field of study in the broader field of global political theory. Theorists are recognising the essential need for thorough engagement with the moral issues raised by climate change. Without a rigorous ethical basis, the decisions made on a political level may be unjust and are unlikely to be accepted on a global scale. Most political work outside of the field of political philosophy relies upon economic and scientific analysis, though there is evidence that there is growing realisation of the importance of defining a fair set of moral guiding principles.

Since the research on this thesis began, the United Nations Education, Science and Culture Organisation (UNESCO) has produced a document entitled 'The Ethical Implications of Global Climate Change', with a longer term view to developing a 'framework of ethical principles and responsibilities for climate change policies'.[39] As such, UNESCO, a main body of the United Nations, has recognised the 'vital role' of ethics 'not just in analyzing climate change, but also in shaping responses', since, 'climate change cannot be dealt with adequately and properly if [its] ethical dimensions … are not highlighted, well understood, and taken into account in decisions about responses'.[40]

Within the IPCC's assessment reports, progress has been made. Indeed, in the most recently released report, the AR5, there is an extended chapter focused specifically on issues of 'equity', which recognises the fact that it is 'morally proper to allocate burdens associated with our common global climate challenge according to ethical principles.'[41] The relevance of justice-based approaches to climate change is garnering increasing attention amongst international institutional bodies. This makes careful attention to the moral issues and rigorous theoretical analysis more politically salient. As Miller argues, 'we need political philosophers to think and talk about climate change, not as an alternative to the work of [others] but as an essential complement to it – indeed as a

[39] COMEST, 'Background for a Framework of Ethical Principles and Responsibilities for Climate Change Policies', *UNESCO*, (May 2013) [Online] (http://unesdoc.unesco.org/images/0022/002204/220486e.pdf). [Accessed 11 November 2012].
[40] COMEST, 'Background for a Framework of Ethical Principles and Responsibilities for Climate Change Policies', 3; UNESCO, *Ethical Implications of Global Climate Change,* (Paris: UNESCO, 2010): 38.
[41] IPCC, 'Working Group III contribution to the IPCC 5th Assessment Report', (17 December 2013) [Online] (http://report.mitigation2014.org/drafts/final-draft-postplenary/ipcc_wg3_ar5_final-draft_postplenary_chapter4.pdf). [Accessed 9 September 2014]: 16.

bridge between the empirical researches of climate scientists and economists and the practical work of politicians.'[42]

1.4 Climate Justice within Political Theory

Within the field of global justice more broadly, several theorists have begun to recognise the relevance of global justice to the issue of climate change, and the field of political philosophers working on climate justice is growing.[43] As Gardiner argues, 'climate change is fundamentally an ethical issue. As such, it should be of serious concern to both moral philosophers and humanity at large.'[44] In a very general overview of some of the main debates that have animated the literature to date, two key themes stand out: (1) Many of the main debates focus on the moral principles that should guide a fair distribution of the costs of climate change; (2) Most discussions take a simplistic view to the approach of who the duty bearers are, assuming that states are the only candidates.

On the first theme, there has been much discussion about the merits of 'fault-based' principles such as the 'polluter pays principle' (PPP), as opposed to 'no-fault' principles, such as the 'ability to pay principle' (APP).[45] As one of the first philosophers to take an interest in applying moral principles to climate change, Henry Shue's work is especially significant.[46] As Shue explains, fault-based principles such as the PPP make the claim that 'the moral responsibility for contributing to the solution of the problem is proportional to the causal responsibility for creating the problem'.[47] Neumayer has also supported this principle, since it 'ensures that the payment is indeed undertaken by the polluter and not by the victims of pollution.'[48] Alternatively, approaches based upon an ability to pay, claim that 'alleged fault [is] completely irrelevant to the assignment of the responsibility to pay', since, all that is relevant is that 'those with the most should

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[42] David Miller, 'Global Justice and Climate Change: How should responsibilities be distributed?' *The Tanner Lectures on Human Values, delivered at Tsinghua University, Beijing* (2008): 119.
[43] Derek Bell, 'How should we think about climate justice?', *Environmental Ethics*, 35:2 (2013).
[44] Stephen M. Gardiner, 'Ethics and Global Climate Change', *Ethics,* 114:3 (2004): 556.
[45] For a defence of historic responsibility based upon the polluter pays principle, see: Eric Neumayer, 'In Defence of Historical Accountability for Greenhouse Gas Emissions', *Ecological Economics*, 33 (2000): 185–192. For discussion of both principles see: Baer et al, 'The Greenhouse Development Rights Framework', *EcoEquity* (November 2008) [Online] (http://www.ecoequity.org/docs/TheGDRsFramework.pdf). [Accessed 20 October 2010]; Vanderheiden, *Atmospheric Justice*; Stephen M. Gardiner, *A Perfect Moral Storm,* (Oxford: Oxford University Press, 2011).
[46] See, for example, Henry Shue, 'Global environment and international inequality', *International Affairs*, 75:3 (1999): 531-545; Henry, Shue, 'Subsistence Emissions and Luxury Emissions', *Law and Policy*, 15:1 (1993): 39-59.
[47] Shue, 'Subsistence Emissions and Luxury Emissions', 52.
[48] Neumayer, 'In Defence of Historical Accountability for Greenhouse Gas Emissions', 187.

pay at the highest rate.'[49] Simon Caney's 'particularly noteworthy' work has also discussed these principles at great length.[50] Caney has supported a 'hybrid view', in developing a two-stage process for distributing climate duties. First, this is according to the 'Poverty-Sensitive Polluter Pays Principle', with responsibility that cannot be allocated by the first principle (for past emissions, for example) being allocated according to the 'History-Sensitive Ability to Pay Principle'.[51] But such principles have not responded to the growing issue caused by the development of global trade and the global class of affluent citizens. My account will aim to fill this gap, and I will shortly present my key research questions.

Caney has also made an observation about the second key theme I wish to highlight in the existing literature, which is the limited nature of the discussions around *who* should bear climate duties. As Caney states, 'many of those who adopt a PPP approach to climate change appear to treat countries as the relevant unit.'[52] Indeed, this is not only relevant to proponents of a PPP. Many theorists do not consider the possibility that there may be other actors who might bear climate duties. Shue, for example, concludes that his principles 'all converge upon the same practical conclusion: whatever needs to be done by wealthy industrialised states or by poor non-industrialised states about global environmental problems like ozone destruction and global warming, the costs should initially be borne by the wealthy industrialised states.'[53] Often, the assumption that duties must be state-level converges with the dominant developed-developing country discourse I previously mentioned, here referred to as 'wealthy industrialised' and 'poor non-industrialised' by Shue. In contrast to the many statist accounts, Paul Harris stands out in the literature. He has explicitly argued that climate duties should fall 'on the shoulders not only of governments but also of individuals.'[54] Harris argues that the dominant focus on the rights and responsibilities of states is both unfair and unlikely to lead to an adequate global response to climate change, and that instead we should focus on the duties of individuals. There is very little debate, however, between

[49] Shue, 'Subsistence Emissions and Luxury Emissions', 51-52.
[50] Paul G. Harris, *World Ethics and Climate Change: From International to Global Justice* (Edinburgh: Edinburgh University Press, 2010): 110; See for example, Simon Caney, 'Climate Change and the Duties of the Advantaged', *Critical Review of International Social and Political Philosophy* 13 (2010): 203-228; Simon Caney, 'Cosmopolitan Justice, Responsibility, and Global Climate Change', *Leiden Journal of International Law*, 18 (2005): 747–775; Simon Caney, 'Environmental Degradation, Reparations, and the Moral Significance of History', *Journal of Social Philosophy*, 37:3 (2006): 464-482.
[51] Simon Caney, 'Climate Change and the Duties of the Advantaged', 218.
[52] Simon Caney, 'Cosmopolitan Justice, Responsibility, and Global Climate Change', 754.
[53] Henry Shue, 'Global environment and international inequality', 545.
[54] Harris, *World Ethics and Climate Change: From International to Global Justice,* 118.

these two positions, with most simply assuming the statist position. My research will take on this debate, and consider whether the focus on states alone is justified.

In doing so, I will take a human rights based cosmopolitan approach to questions of global justice. Before sketching out the basis of my theoretical approach, it is worth briefly considering two other main theoretical approaches. In this way, we can situate the cosmopolitan approach in the broader range of debates surrounding global political theory.

One approach to global political theory is 'realism'. As Caney notes, 'characterising realism is a highly controversial matter', so my brief discussion of it here will aim to highlight some of the key features that differentiate realism from other approaches to global justice.[55] The philosophical origins of realism go back many centuries, with one of the earliest realist thinkers considered to be Thomas Hobbes. As Williams explains, 'the name of Thomas Hobbes and the tradition of realism have become virtually synonymous.'[56] Hobbes, of course, famously described his view of the 'state of nature' as one in which 'if there be no power erected, or not great enough for our security; every man will and may lawfully rely on his own strength and art, for caution against all other men.'[57] Accordingly, Gilpin argues that the 'assumption [… that] characterizes realist thinking is the primacy in all political life of power and security in human motivation.'[58] As sovereign powers, states are the key political actors in realist approaches, and realism claims that it is a normative requirement of states to 'pursue their national interest'.[59] In the state of nature, other states will pursue their own national interests, and so the normative requirement is justified since a state bears responsibility for the good of its citizens; if it does not also pursue its own national interests it will place its citizens at risk.[60] Acting in any other way would be irrational, since it is claimed that 'there is no place for morality in international relations'.[61] Realists thus deny principles of global justice, since 'in a self-help system, with conflict

[55] Simon Caney, *Justice Beyond Borders* (Oxford: Oxford University Press, 2005): 7.
[56] Michael C. Williams, *The Realist Tradition and the Limits of International Relations*, (Cambridge: Cambridge University Press, 2005): 19.
[57] Alexander Moseley, 'Political Realism', *Internet Encyclopaedia of Philosophy* (n.d.) [Online] (http://www.iep.utm.edu/polreal/) [Accessed 20 July 2014].
[58] Robert G. Gilpin, 'The richness of the tradition of political realism', *International Organization*, 38:02 (1984): 290.
[59] Caney, *Justice Beyond Borders*, 7.
[60] Caney, *Justice Beyond Borders*, 7.
[61] WJ Korab-Karpowicz, 'Political Realism in International Relations', *Stanford Encyclopaedia of Philosophy,* (2 April 2013), [Online] (http://stanford.library.usyd.edu.au/entries/realism-intl-relations/) [Accessed 30 July 2014].

to be expected, states have to be concerned with the means required to sustain and protect themselves.'[62] The 'dominance of the realist paradigm in the study of international relations' partly explains the lack of ethical considerations in mainstream approaches to climate change.[63] Two key thinkers who have taken a realist approach to 'climate change justice' are Posner and Weisbach, who 'reject the claim that certain intuitive ideas about justice should play a major role in the design of a climate agreement'.[64] The realist underpinning of their argument is evident in their claim that an acceptable climate change treaty 'must satisfy' their principle of 'International Paretianism', in which, 'all states must believe themselves better off by their lights as a result of the climate treaty … [since] states only enter treaties that serve their interests.'[65] I will come back to discussion of Posner and Weisbach's approach in Chapter Two, but for now, suffice to say that I reject realist approaches to climate change at the normative level of the claim that global relations must be amoral, with each state mercilessly pursuing self-interest. The idea that all states must believe that their cooperation in a climate agreement will further their own self-interests is likely to be very difficult to achieve, given the need for a global agreement, and such an agreement is likely to involve only very weak climate pledges. As Soltau argues, 'an agreement with shallow commitments may secure broad participation and full compliance but could fall short with respect to effective mitigation.'[66] Climate change provides us with a context in which engagement with principles of justice is essential, both practically, due to the diverse stakeholders and interests at stake, since a fair treaty is more likely to be accepted, and morally due to the risk of severe violations of human rights.

Nationalism is another key approach in global political theory. As O'Leary explains, nationalism 'holds that the nation should be collectively and freely institutionally expressed, and ruled by its co-nationals.'[67] Key theorists include David Miller, Yael

[62] Kenneth Waltz, *Man, the State, and War: A Theoretical Analysis*, (Chichester: Columbia University Press, 1954): xi.
[63] Jack Donnelly, *Realism and International Relations,* (Cambridge: Cambridge University Press, 2000): 15.
[64] Eric A. Posner and David Weisbach, *Climate Change Justice* (Woodstock: Princeton University Press 2010): 5.
[65] Posner and Weisbach, *Climate Change Justice*, 6.
[66] Soltau, *Fairness in International Climate Change Law and Policy*, 239.
[67] Brendan O'Leary, 'On the Nature of Nationalism: An Appraisal of Ernest Gellner's Writings on Nationalism', *British Journal of Political Science*, 27:2 (1997): 191.

Tamir and Ernest Gellner.[68] Nations are important since they are 'ethical communities' which are 'powerful source[s] of personal identity'.[69] With regards to global justice, nationalism claims that there are 'special national responsibilities … [that] present a limiting principle against the principle of global egalitarianism'.[70] So nationalism does not deny moral relations beyond national borders, but the duties we owe to fellow nationals are greater than those owed to non-compatriots. With regards to climate change, 'principles [of climate justice] apply, in the first place, to nation-states as the collective agents capable of coordinating individual behaviour on a scale that can meet the challenge of climate change.'[71] Nationalist approaches to climate change therefore also treat nation-states as the relevant focus of duties. As Miller argues, a key implication of the nationalist approach for climate change is that 'climate-change policies [should] encroach as little as possible on national self-determination.'[72] Nationalist approaches would therefore be unlikely to support global individual climate duties, since according to nationalism an individual's key duties are towards fellow nationals. It follows, therefore, that the costs individuals should bear should be decided by each nation-state separately, since 'such questions will be answered differently in different societies, according to [the] prevailing conceptions of social justice'.[73] Nationalism also has implications for the extent of a nation-state's participation in an international climate agreement. If nation states should prioritise their citizens over non-nationals then they might be reluctant to contribute to mitigation strategies that will protect the interests of non-nationals, instead preferring to prioritise local adaptation measures.

Finally, 'cosmopolitan' approaches to global justice treat individuals as the relevant focus of moral consideration, and most importantly, cosmopolitanism claims that principles of justice apply globally, and not just within the nation or state. Indeed, some 'radical' forms of cosmopolitanism would claim that there are no duties of distributive justice within the state, and only global duties.[74] But here we shall be primarily concerned with 'mild' cosmopolitanism which 'simply affirms the positive claim' that

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[68] David Miller, *On Nationality*, (Oxford: Oxford University Press, 1995); Yael Tamir, *Liberal Nationalism,* (Chichester: Princeton University Press, 1993); Ernest Gellner, *Nations and Nationalism,* (New York: Cornell University Press, 1983).
[69] Miller, *On Nationality,* 11, 68.
[70] Kok-Chor Tan, 'National responsibility, reparations and distributive justice', in Helder De Schutter and Ronald Tinnevelt (Eds.) *Nationalism and Global Justice: David Miller and His Critics*, (London: Routledge, 2010): 91.
[71] Miller, 'Global Justice and Climate Change: How should responsibilities be distributed?', 121.
[72] Miller, 'Global Justice and Climate Change: How should responsibilities be distributed?', 122.
[73] Miller, 'Global Justice and Climate Change: How should responsibilities be distributed?', 122.
[74] Simon Caney, 'International Distributive Justice', *Political Studies*, 49 (2001): 975.

there are global duties of justice.[75] The 'central claim' of cosmopolitanism is that 'every human being has a global stature as the ultimate unit of moral concern'.[76] As Beitz explains:

'The force of moral cosmopolitanism is clearest when we consider what it rules out: cosmopolitanism stands opposed to any view that limits the scope of justification to the members of particular types of groups, whether identified by shared political values, communal histories, or ethnic characteristics.'[77]

Cosmopolitans all endorse this central moral claim, but their interpretation of the action required by this moral claim is likely to differ depending on their specific theoretical approach. Some approaches require positive duties of distributive justice, whilst others entail negative duties based upon the moral importance of the non-violation of human rights. For example, Peter Singer, a prominent scholar of utilitarian cosmopolitanism, has famously argued that affluent individuals have positive duties to alleviate poverty in other parts of the world by donating money to charity unless doing so would cost them something 'of comparable moral importance'.[78] Utilitarianism judges actions based upon the 'balance' of the outcome, in which the aim is to maximise 'utility', which can be defined in terms of 'happiness'.[79] As such, utilitarian approaches to cosmopolitanism aim to maximise global utility. The morally correct balance is found in requiring those with more to share with those that have less, where donating does not decrease overall utility since it does not require the sacrifice of anything of 'comparable moral importance.'[80]

In contrast to utilitarian approaches, we might refer to forms of cosmopolitanism that take a deontological approach, in which the emphasis is on 'the rights and […] obligations we have under the moral law', rather than the aim to maximise overall utility.[81] One such proponent of this approach is Thomas Pogge, who has notably argued for institutionally bound *negative* duties to alleviate 'severe poverty', which is a 'human rights violation'.[82]

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[75] Caney, 'International Distributive Justice', 975.
[76] Caney, *Justice Beyond Borders*, 105; Thomas Pogge, *World Poverty and Human Rights* (Second Edition) (Cambridge: Polity Press, 2008): 169.
[77] Charles R. Beitz, 'Cosmopolitanism and Global Justice', *The Journal of Ethics,* 9:1-2 (2005): 17.
[78] Peter Singer, 'Famine, Affluence and Morality', *Philosophy and Public Affairs*, 1:1 (1972): 231.
[79] J. H. Burns, 'Happiness and Utility: Jeremy Bentham's Equation', *Utilitas*, 17:1 (2005): 48.
[80] Singer, 'Famine, Affluence and Morality', 231.
[81] Nicholas Rengger, 'Cosmopolitanism', in Roland Axtmann, ed., *Understanding Democratic Politics* (London: Sage Publications Ltd, 2003): 324
[82] Thomas Pogge, 'Severe Poverty as a Human Rights Violation', in Thomas Pogge (ed), *Freedom from Poverty as a Human Right* (Oxford: Oxford University Press, 2007): 11-53.

Cosmopolitan approaches that prioritise human rights can also be applied to climate change. Bell and Caney have both defended such an approach, arguing that there is a human right not to suffer from dangerous climate change. According to Caney, 'even using […] minimal conceptions of human rights, anthropogenic climate change violates human rights.'[83] Similarly, Bell has argued:

'If we accept the argument for human rights to life, physical security, subsistence and health, it also seems a relatively straightforward step to the claim that anthropogenic climate change violates – or threatens to violate – these human rights."[84]

In the context of climate change, the weight of the urgency of avoiding human rights violations warrants the imposition of climate duties upon those that can influence greenhouse gas emissions. An approach based on human rights can therefore 'justify urgent action on climate change.'[85]

1.5 The Approach of the Research

My approach to climate justice will be underpinned by a commitment to human rights within the scope of a cosmopolitan approach to global justice. The serious impacts of climate change are liable to violate the human rights of near and distant future individuals. Whilst recognising that there may be some practical constraints on actions of individuals in the current state-oriented system of global politics, the moral basis of my approach is formed by a commitment to cosmopolitan principles of global justice and human rights.

The research presented will be applied normative and analytical political philosophy. This research will embody two key methodological commitments, supported by two general assumptions. First, it will employ the method of 'wide reflective equilibrium'.[86] This approach 'constitutes an attempt to get our moral views in order, so that our judgements are supported by theories, and these theories are in turn supported by our judgements.'[87] This approach demands coherence between general moral and political principles, and particular moral judgements, considered in the light of relevant facts generated by the natural and social sciences. The research questions were developed

[83] Simon Caney, 'Climate Change, Human Rights and Moral Thresholds' in: Stephen Humphreys et al, *Human Rights and Climate Change* (Cambridge: Cambridge University Press, 2009): 75.
[84] Derek Bell, 'Climate Duties, Human Rights and Historic Emissions', in Paul G. Harris ed., *China and Global Climate Change* (Hong Kong: Lingnan University, 2009): 131-132.
[85] Derek Bell, 'Does anthropogenic climate change violate human rights?', *Critical Review of International Social and Political Philosophy* 14.2 (2011): 102.
[86] John Rawls, *A Theory of Justice,* (Cambridge: Harvard University Press, 1971).
[87] Graham Long, *Relativism and the Foundations of Liberalism*, (Exeter: Imprint Academic, 2004): 6.

from my initial research on climate justice and China's position. Each forms the basis of a key issue of relevance to China, which must be resolved by any plausible theory of climate justice, and has not adequately been done so in the existing literature. As Kymlicka explains, 'the ultimate test of a theory of justice is that it cohere with, and help illuminate, our considered convictions of justice.'[88] Therefore, in 'wide reflective equilibrium', particular judgements on China must cohere with the principles of global climate justice, which the thesis will develop. These principles will in turn provide moral judgements about implications for China's climate responsibilities.

Second, the research will adopt a 'realistic utopian' approach.[89] As Rawls explains, 'political philosophy is realistically utopian when it extends what are ordinarily thought of as the limits of practical political possibility.'[90] The methodology embodied within the research will accept that certain issues of practicality and feasibility may play a role in what is possible, without accepting that the status quo is unchangeable. The possibility of theory engendering practical change is a worthwhile agenda, following the powerful words of Kant:

'I therefore cannot and will not see it as so deeply immersed in evil that practical moral reason will not triumph in the end, after many unsuccessful attempts, thereby showing that it is worthy of admiration after all. On the cosmopolitan level too, it thus remains true to say that whatever reason shows to be valid in theory, is also valid in practice.'[91]

The methodological concepts will be supported by a general assumption about the universal nature of human rights. I will assume the deontological importance of human rights, as inviolable, universal rights owed to each individual simply 'by virtue of being a person', regardless of nationality, religion or cultural beliefs.[92]

In developing a theory of global climate justice and the implications for China, I will engage with China's position, but I accept the limitations of applied political philosophy to direct specific action plans or exact policy measures. I will develop normative arguments for principles that are coherent with the theory of climate justice, but it is not within the scope of this research to provide exact answers to questions of how exactly the implications of the principles can be applied practically.

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[88] Will Kymlicka, *Contemporary Political Philosophy: An Introduction (Second edition)* (Oxford: Oxford University Press, 2002): 6.
[89] John Rawls, *The Law of Peoples,* (London: Harvard University Press, 1999).
[90] Rawls, *The Law of Peoples,* 6.
[91] Immanuel Kant, 'On the common saying: This may be true in theory, but it does not apply in practice', in H. S. Reiss, ed., *Kant Political Writings* (Cambridge: Cambridge University Press, 1970): 92.
[92] Jack Donnelly, 'Human Rights as Natural Rights', *Human Rights Quarterly,* 4:3 (1982): 391.

The focus on China is due to China's unique situation within the global sphere. Although I will engage with China's position within this context, this will not require expert knowledge of domestic Chinese politics. I will rely upon English language documents from the Chinese government and international bodies for my empirical data on China's position within the domain of international climate politics.

In assessing and developing the applied aspects of the theory, I will engage with areas of economic theory and thought. An example of this is the assumption about the actions of individuals as consumers as well as behaviour of corporations, in which I will assume that 'remunerative incentives' can explain the behaviour of individuals and corporations when making choices.[93] Although the research does not sit within the field of economics, basic economic presumptions such as this will be present. I will engage with these presumptions where the applied nature of the normative arguments will be strengthened by such engagement.

1.6 Five Substantive Chapters for Five Key Research Questions

During my initial research on the subject, I highlighted five key interconnected research questions that a theory of climate justice must respond to, each of which is provoked by the position that China has taken in global climate negotiations.

The first research question, and the focus for Chapter Two, asks: 'Who are the relevant actors to bear climate duties?' Within the existing literature, most theorists focus on the duties of states. My investigation of other potential duty-bearers provides a distinctive contribution to the literature and defends a multi-actor approach, which subsequently can inform the argument of the rest of the thesis. This issue is important in the context of our examination of China's climate responsibilities because China is a developing country with a very large population and very large inequalities between its richest and poorest citizens. Uneven economic growth in China has led to a dramatic rise in the number of 'new consumers' that are affluent and generate large quantities of emissions, but due to the statist focus of climate change politics, these individuals are not required to mitigate climate change since developing states face no binding emissions limitations.[94] Harris has argued that 'as long as the new consumers hide behind their states' poverty, practical and politically viable solutions to climate change will be very

[93] Paul M. Johnson, 'A Glossary of Political Economy Terms: Incentive', *Auburn University* (6 July 2014) [Online] (http://www.auburn.edu/~johnspm/gloss/incentive). [Accessed 29 July 2014].
[94] Harris, *World Ethics and Climate Change: From International to Global Justice,* 7.

difficult to realise.'[95] The corporation is another potential candidate for climate duties. Corporations are responsible for releasing high amounts of greenhouse gases and have growing amounts of legal and influential power. Chapter Two will provide a thorough investigation of these issues and argue that the dominant focus on the rights and responsibilities of states is both unfair and unlikely to lead to an adequate global response to climate change. I will argue that the interconnected nature of the behaviour of states, individuals and corporations means that it is important that they are all considered as potential climate duty bearers. This will form the basis of a general assumption for the rest of the thesis, which will take a multi-actor approach to climate duties.

The second research question, and focus of Chapter Three, is based upon China's claim that the right to development allows it to prioritise development needs and not cap emissions. Politically, such arguments from developing countries and emerging economies are a key issue at the heart of the current impasse in UNFCCC negotiations. So, the third chapter addresses the question: 'Does the right to development justify increasing emissions?'

The first part of this chapter will argue that the right to development should be understood as an individual right. The primary bearers of the duty to fulfil the right are states, but the rights-bearers are individuals. I will develop Henry Shue's definition of emissions as falling within two distinct categories of 'subsistence' and 'luxury' by proposing a third class of morally important 'development emissions'.[96] The idea of 'development emissions' is a novel concept within a literature that tends to focus on a binary division of subsistence and luxury emissions. Using this new terminology, I will argue that an overall state-level increase of emissions is justified if this is as a result of the need for subsistence and development emissions, and not of an increase of luxury emissions of affluent citizens. I will defend this claim against two objections: (1) development should be sustainable; (2) in order for the state to be justified as a fit duty bearer for the right to development, it must be operating a wider context of rights fulfilment. In response, first, I will emphasise the importance of sustainability on a global scale, in which the costs of sustainable development should be largely borne by affluent actors including developed states and corporations. Second, I will consider the implications when a state is not considered to be a fit actor to fulfil its role as key duty

[95] Harris, *World Ethics and Climate Change: From International to Global Justice*, 7.
[96] Shue, 'Subsistence Emissions and Luxury Emissions'.

bearer of the right to development of its citizens, before suggesting that we must adopt a non-ideal approach. The state should be required to take measures to move towards wider rights-fulfilment, but emissions increases should be allowed where the alternative will lead to a lesser fulfilment of the right to development.

The fourth chapter begins with China's claim that developed states should bear responsibility for the emissions that are embedded in the goods they consume even when those goods are produced in China. China is a leading global manufacturer, producing 19% of the world's goods.[97] This chapter therefore considers the question: 'How should we allocate responsibility for emissions?'

The first part of this chapter investigates the relative merits of consumption-based accounting for emissions and the current system of territorial accounting. I argue that consumption accounting would be preferable to territorial accounting, but develop this conclusion by defending benefit as the relevant moral link between an actor and emissions processes. I then develop an account of responsibility based upon a revised version of the beneficiary pays principle, which is consistent with the multi-actor approach and the right to development. I term this the 'revised beneficiary pays principle', or RBPP. Within my approach, the RBPP considers the receipt of benefit above the level of subsistence as the necessary condition for responsibility. The level of responsibility an actor bears is then adjusted according to three modulating factors: (1) level of development to which the benefits contribute; (2) ability to exert influence over the emissions from which the benefit is gained; (3) degree of voluntariness with which benefits are accepted. This approach to accounting for emissions makes a distinctive original contribution to the discussion of principles of climate justice in the existing literature. I defend the principle against two objections: (1) it is counterintuitive in comparison to the PPP; (2) it is simply a reworking of the PPP. Finally I consider potential implications for the application of the principle.

Chapter Five investigates the issue of historic responsibility. The relevance of this question is based upon China's claims that developed states should bear the greatest

[97] Peter Marsh, 'China noses ahead as top goods producer', *Financial Times* (13 March 2011) [Online] (http://www.ft.com/cms/s/002fd8f0-4d96-11e0-85e4-00144feab49a,Authorised=false.html?_i_location=http%3A%2F%2Fwww.ft.com%2Fcms%2Fs%2F0%2F002fd8f0-4d96-11e0-85e4-00144feab49a.html%3Fftcamp%3Drss&_i_referer=&ftcamp=rss#axzz1H93gONBN). [Accessed 5 March 2013].

responsibility due to their historic emissions. It responds to the question: 'Do historic emissions matter?'

The chapter first considers existing approaches to historic responsibility, primarily the 'fair shares' argument. I reject arguments of this kind that rely on egalitarian principles in order to distribute emissions rights. Instead, I develop a distinctive version of the fair shares approach, which considers historic emissions to be morally relevant when an actor has taken more than their fair share of benefits. An unfair share of benefits is considered to be a share that exceeds that required for subsistence and development. I defend this approach against the excusable ignorance objection, concluding that full moral responsibility for historic emissions in not justifiable. I will defend limited liability, considering the specific implications of the RBPP for the different climate actors, recognising the particular relevance of the question to state-level responsibilities. I then defend my argument against the objection of non-identity, showing that: (1) the objection does not undermine liability of actors with long historical existences; (2) the threshold definition of benefit is not subject to the criticisms raised by the non-identity objection.

Chapter Six investigates the implications of the account of climate justice developed in the preceding chapters for China's political commitment, focusing on China's pledge to cut emissions intensity by 40-45% by 2020 (relative to 2005 levels).[98] This chapter responds to the question: 'Is China's emissions intensity reduction target consistent with principles of climate justice?'

In this chapter, I offer a prima facie defence of China's position, before responding to five objections: (1) the metric of emissions relative to gross domestic product (GDP) is not a reliable method of measuring emissions intensity changes; (2) fulfilment of the target will not require any discernable effort from China; (3) China's emission intensity target is consistent with an unfair absolute increase in emissions; (4) Chinese cities should be required to cap their emissions; (5) China's target is not consistent with intergenerational justice and protecting the rights of future people. I defend the Chinese state's target against these objections, whilst suggesting that China would be expected to commit to a more demanding target if contributions towards the means to develop using sustainable technology were forthcoming from developed states and corporations.

[98] Mo Hong'e., 'China announces 16 pct cut in energy consumption per unit of GDP by 2015', *Chinese Government's Official Web Portal* (5 March 2011) [Online] (http://english.gov.cn/2011-03/05/content_1816947.htm). [Accessed 29 August 2013].

Finally, I present my conclusions in Chapter Seven. This brings together the ideas developed and defended in the five substantive chapters, and defends a multi-actor approach to climate change, in which benefit above the level of subsistence is the necessary condition for generation of responsibility for emissions. The extent of the climate duties an actor is expected to bear is adjusted according to the fulfilment of the three modulating factors of the RBPP. Importantly, the RBPP provides an account in which the right to development is respected and which can also respond to the requirements of the multi-actor approach. I consider the implications of the account in terms of global climate justice and the implications for China. Finally, I suggest important avenues of further research that would strengthen the defence of the account proposed in the thesis and further develop its practical applicability.

Chapter 2

Which are the Relevant Actors to Bear Climate Duties?

This chapter will do the important job of setting the boundaries from which to develop my theory of climate justice by determining the scope of the account. To do this, I will answer the question: 'Which are the relevant actors to bear climate duties?' This question is motivated by key issues relating to China's position. China is not required to commit to the same level of climate change action as developed countries. However, closer inspection reveals that China has a large and quickly developing affluent class of 'new consumers'.[99] Whilst China as a state may be 'developing', these individuals in the new, middle class of consumers within China have high living standards. As Harris has argued, there are 'hundreds of millions of affluent [individuals … that] have the power to consume as much as, and sometimes more than, people in developed countries.'[100] Harris argues that it is therefore a matter of climate necessity, as well as a requirement of fairness that we 'direct more attention to the obligations of affluent people everywhere', rather than focusing solely on state level responsibilities that ignore individual responsibility.[101] Chinese politics have long been dominated by the importance of the state, and although this may not be explicitly specified in their statements relating to climate change, it would be reasonable to assume that China's view is that a statist position is the correct one.[102]

The importance of this question comes from the need for global action on climate change, which has the potential to cause serious harms that will violate the human rights of future people. Determining which are the relevant actors that should bear duties for the protection of these rights is of key importance. This chapter will engage with different standpoints in order to develop an argument to defend the extent of the scope necessary for a theory of climate justice.

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[99] Harris, *World Ethics and Climate Change: From International to Global Justice.*
[100] Harris, *World Ethics and Climate Change: From International to Global Justice,* 123.
[101] Harris, *World Ethics and Climate Change: From International to Global Justice,* ix.
[102] Lucian W. Pye, 'The State and the Individual: An Overview Interpretation', *The China Quarterly*, 127 (1991): 443-466.

Most current approaches to climate change justice treat states as the relevant actors to bear climate duties. This is generally just assumed, as there is little philosophical discussion about whether states are the only relevant duty-bearers. Several theorists have argued elsewhere, outside of the field of climate justice and more generally in political theory, that the statist system should be overturned entirely, and a new system entailing only global governance should be introduced.[103] I will not engage with these arguments since the need to reduce global emissions is urgent. The time that would be needed to change from the current status quo in which states decide about how to share the climate burden between themselves to a system with a global system of networked and dispersed sovereignty would be too long given the complex nature of such a change. So, for the purposes of the current research, I am not questioning the need to assign some duties to states, which are powerful actors with organised discussion and decision-making structures that are able to implement the kind of measures that must play a big part in any attempt to reduce global emissions. However, this chapter will challenge the idea that the current literature's almost exclusive focus on the duties of states is justified in a fully worked out theory of global climate justice.

In this chapter, I will consider four accounts of which 'actors' should bear climate duties. I will defend a distinctive multi-actor approach to the type of agents that can bear moral responsibility for tackling climate change. States, individuals and corporations can all be bearers of climate responsibilities. I begin by considering two existing statist approaches, both of which discuss the possibility of individual duties. The first considers and then rules-out individual duties entirely, and the second accepts limited individual duties which are delegated to citizens by states, and thus are secondary to the duties of states. I will then consider two further approaches that do consider other actors to be suitable bearers of climate duties. The first of these two approaches argues for the main focus to be individual duties, and the second argues for a multi-actor approach. I will devote a separate section of the chapter to each account. I will then defend a multi-actor approach through consideration of five separate 'problems' informed by the arguments of the different accounts considered.

This chapter has important implications in the context of the thesis as a whole, since focusing on different actors is likely to have different implications for the duties that we

[103] See, for example: Daniele Archibugi, *The Global Commonwealth of Citizens: Toward Cosmopolitan Democracy* (Oxford: Princeton University Press, 2008); David Held, *Democracy and the Global Order: From the Modern State to Cosmopolitan Governance* (Stanford: Stanford University Press, 1995).

expect not only the Chinese state to bear, but also for other relevant actors such as Chinese individuals or corporations. An important outcome of this chapter is to determine the scope of my account of global climate justice. Expanding the scope beyond state actors, means that the answers to the four other research questions will consider not only states, but what the implications might be for all relevant climate actors. As such, this will enable me to develop a distinctive and more robust approach to climate justice. Thorough engagement with issues of justice will create the foundations for an approach that will be fairer and therefore more acceptable to the different parties concerned.

2.1 Four Approaches

2.1.1 Posner and Weisbach's Statist Approach

The first approach that I will look at is one taken by Eric Posner and David Weisbach in their 2010 book *Climate Change Justice*. Some background about their general approach to the subject and general claims made in the book may be useful in order to set the context for their discussion of the relevant agents to bear climate duties. As I discussed in the previous chapter, Posner and Weisbach's approach is realist in the sense that it treats states as the relevant moral actors, claiming that states will only act in their own interests. Therefore, any climate treaty 'must fulfil' the principle of 'International Paretianism' in which each state believes that its interests are being furthered by the treaty.[104] Posner and Weisbach make both a practical and principled argument against individual duties.

Although they claim that 'the moral weight of individuals transcends spatial and temporal boundaries', and that 'wealthy people in rich nations have an obligation to help poor people, including poor people who live in developing countries', they also state that 'however plausible cosmopolitan arguments might be in principle, they must come to terms with the fact that the world is divided into nations [which] must be viewed as a basic constraint on ethical arguments.'[105] This is the basis of their practical argument against individual climate duties. They claim that it would be impracticable to allocate global duties to individuals given the statist way in which the world operates.

Posner and Weisbach also offer a principled argument in which they claim that individuals cannot be held morally responsible for climate change because each

[104] Posner and Weisbach, *Climate Change Justice,* 6.
[105] Posner and Weisbach, *Climate Change Justice,* 169, 173.

individual act in itself cannot be linked to a specific climate harm. They claim that assigning duties to individuals would entail a necessity to 'identify particular individuals who, through their activities (for example, driving), have caused damage to the climate that has harmed other individuals.'[106] As this is not possible, Posner and Weisbach reject the idea of individual duties.

So, Posner and Weisbach argue that practically, individual duties would be unworkable, and furthermore, individuals cannot bear moral responsibility for effects that cannot be directly linked to their specific acts. I will call these two challenges the problem of feasibility, and the problem of exactness, respectively, and I shall address them in section 2.2.

2.1.2 Miller's Statist Approach

I shall now introduce a second statist approach. David Miller approaches climate duties from a nationalist perspective. Miller's account is statist to the extent that states map onto nations. He does not deny that individuals are potentially relevant moral actors for climate responsibilities. However, for Miller, these can only ever be derivative duties that are distributed domestically by nation-states that bear the primary duties since nation-states are the only relevant actor on the international stage:

'We should see the problem of distributing responsibility as occurring in two stages. First, the costs of combating global warming are distributed to states in the form of required reductions in greenhouse-gas emissions or actions they must take to offset the effects of the warming that will nonetheless occur or both. Second, states distribute these costs among their citizens according to guidelines that are agreed internally (and that may be expected to vary somewhat from one state to the next). For example, they may decide to control emissions by taxing the industries that mainly produce them, or they may decide to give each individual citizen a carbon budget that limits their use of emission-generating resources to a total that they can exceed only by buying a slice of somebody else's'.[107]

According to this account, the overall climate 'burden' should be first divided up amongst states. Only once this has been done do individuals have duties to act, and this is only if their state has decided that is the best way of fulfilling their responsibilities. As Miller suggests, instead of passing on costs directly to citizens, a state might instead decide to levy a tax on highly polluting industries. In the case that a state does decide to require its citizens to take on responsibilities, these are derivative individual duties that stem from the duties borne by the state in which the individual lives. In this sense,

[106] Posner and Weisbach, *Climate Change Justice*, 101-102.
[107] Miller, 'Global Justice and Climate Change', 121.

individuals have duties as citizens of their countries to obey the laws set by their states. Miller offers both a practical and principled argument to back up his approach. The practical argument does not differ significantly from the practical reasoning given by Posner and Weisbach in the first approach we considered, which is rooted in the claim that nothing else will work. Miller states:

'Were we to try to move directly to the individual level, then even if we could perform the necessary calculations and give each person an emissions target, we would simply have created a massive collective-action problem with no agency capable of solving it. Each person would have an incentive to overshoot their target, and there would be no effective constraint to stop them from doing so.'[108]

Since there is no global sovereign capable of making sure that individuals in all states are all doing their fair share, Miller proposes a practical argument that primary-level individual duties are not feasible. Whilst similar to Posner and Weisbach's argument about the infeasibility of individual duties, Miller stresses the lack of effective enforcement at the global level, given that nation states are sovereigns in their own right, whilst Posner and Weisbach's argument is based on a more realist critique that individuals lack the power to be able to instigate any meaningful change in a state system. Whilst slightly different in their reasoning, both critiques question the feasibility of individual duties, and therefore a response to both of these critics will involve rejecting the claim that individual duties are not feasible. I will come back to this later on, when I consider the problem of feasibility.

Miller also offers a principled argument for his statist approach. He claims that states must be the primary climate duty bearers due to the importance of national self-determination. He states:

'We should want our climate-change policies to encroach as little as possible on national self-determination. Rather than imposing policy solutions from above, it is far better to agree upon targets for each nation, and then to allow policies for meeting those targets to be decided internally, ideally through a process of democratic debate. Practical changes of the kind required to combat global warming have significant implications for other areas of national policy, especially economic development and employment. They impinge also on questions of social justice, since if individuals are going to be asked to bear certain costs when climate-change policies are implemented, decisions have to be made about how those costs will be distributed [and] such questions will be answered differently in different societies, according to prevailing conceptions of social justice.'[109]

[108] Miller, 'Global Justice and Climate Change', 121.
[109] Miller, 'Global Justice and Climate Change', 121-122.

Miller's principled approach is nationalist in theory. Whilst he recognises the need for individual actions to combat climate change, he argues that primary global individual duties would impinge on nations' right to self-determination, since the duties of individuals should be decided internally by each state depending on that particular state's conception of social justice. In Miller's account, then, individual duties are not primary but delegated duties, derived from the weight of the burden assigned to the nation in which each individual lives.

Before moving on to examine Miller's argument in more detail, let us first look at a third approach which provides an argument for individual duties by highlighting a feature of climate change which cannot be combatted with state duties alone.

2.1.3 Harris's Individualist Approach

Harris argues that we should approach climate change in such a way as to focus on individuals as the primary bearers of climate duties as opposed to existing statist approaches which, he argues, cannot adequately address the problem of climate change.[110] Harris's proposal is a dual-actor approach which treats individuals as the relevant focus of duties, but accepts that states must play a role in enabling individuals to fulfil their duties in the current global political system, acting as 'facilitators of global climate justice'.[111] Harris argues that there are several hundred million 'new consumers' living in the developing world. This is the term Harris uses for rich persons who live in developing countries. These affluent individuals are exempt from climate duties under the current system since climate responsibilities are divided up between states. Assessing responsibility on a state-to-state level uses averages of indicators such as income and emissions. Developing countries have lower average incomes than developed countries, and since industrial processes are responsible for a large amount of emissions, developing countries that are still in the process of industrialising also tend to have lower per capita levels of emissions. For these and other reasons, developing countries, or non-Annex-I countries in the UNFCCC terminology, are currently exempt from binding climate duties. Harris's argument is that this system of assessing responsibility at the state level means that we are ignoring the impact of several million affluent individuals who are contributing to the build-up of greenhouse gases in the

[110] Paul G. Harris, 'Inviting People to Climate Parties: Differentiating National and Individual Responsibilities for Mitigation', *Ethics, Policy & Environment*, 15:3 (2012): 310.
[111] Harris, *World Ethics and Climate Change: From International to Global Justice*, 144.

atmosphere and who are affluent enough to bear climate duties without impoverishing themselves.

The reasoning behind Harris's argument is primarily practical, though he also makes a principled argument. He provides two justifications for his practical argument. First, Harris argues that it will not be possible to stop dangerous climate change from occurring if individuals all over the world do not have the duty to reduce their emissions. The size of large developing countries such as China and India means that there are several hundred million 'new consumers' polluting at high and uncontrolled levels in the developing world. Harris states:

'If the behaviours of these people are not constrained in some way, GHG pollution from developing countries will increase markedly, and there will be no hope of averting climate catastrophe—even if developed states were to live up to their legal and moral obligations to reduce their emissions.'[112]

The practical implication is that rich people in developing countries must be made to share the burden of climate change mitigation by assigning primary duties to individuals. If this does not happen, Harris argues that it will be impossible to avert dangerous climate change since the number of 'new consumers' is increasing so rapidly that their polluting effect on the atmosphere will soon outweigh any mitigation actions taken by the developed countries alone. The inclusion of individual duties is a practical necessity.

Harris's second claim is also essentially practical, although it has an underlying theme of fairness. We might call this the political necessity/fairness claim. Harris claims that actors in the developed world will be unwilling to commit to the reductions necessary to combat climate change whilst there are affluent polluters in developing countries who are producing similar levels of greenhouse gases, yet who are exempt from climate duties. Harris argues that the current system is demanding more of poor individuals in developed countries than rich citizens in developing countries, which seems intuitively unfair. Harris frames this argument in terms of political necessity; a purely statist approach is impractical because the developed states will be unwilling to sign up to an agreement which they see as unfair since it does not place the same demands on affluent or high polluting individuals in developing countries. Harris argues that this is likely to lead to a situation in which the developed states are unwilling to sign up to a new burden sharing agreement, resulting in a political stalemate which will allow climate change to continue unabated.

[112] Harris, 'Inviting People to Climate Parties', 310.

Before moving on, we might make an observation about the defence of the second argument. Harris claims that individual duties are politically necessary in order to garner the support of developed states that will otherwise see as unfair the fact that the growing number of rich individuals in developing countries such as China are not required to share in the burden. However, the claim of political necessity could also be made from the opposite side. For example, an individualist approach such as Harris's which demands that rich individuals all over the world should bear climate costs might seem unacceptable to developing states who may thus refuse to sign up to a treaty that requires their citizens to bear climate costs which they think should be borne by the developed states. Harris's argument focuses on what the developed states might find unacceptable, without considering that there may be other factors that certain developing states, including China, might find unjust. The key point here is that different states adopt different conceptions of justice. A climate proposal that one state thinks is justified and acceptable may be unacceptable to another state. The issues surrounding climate change involving historic responsibility and development are strongly emotive to many states, which makes the problem of agreeing on a just approach even more pronounced. Because of this, it is likely that there will be disagreement between some states about the fairness of any approach, and dismissing an approach as impractical each time one side feels it is unjust is likely to leave us with no possible solution. So Harris's argument that a statist approach is impractical simply because the developed states will not accept it is not a strong argument, since there is no approach that will fit with all parties' conceptions of justice.

However, Harris's position is underpinned by an important normative argument rather than an empirical one. Harris might therefore argue that not all claims about the injustice of climate proposals are equally valid. One group's reservations about a proposal may not be as defensible as another's. In defending his individualistic position, Harris's second practical claim must therefore rely on his principled claim that it is unjust for rich or highly polluting individuals anywhere in the world to be exempt from paying climate costs, particularly while poorer individuals living in developed states are required to pay simply because of their nationality. He asks, 'who is more responsible for the suffering of someone in, say, India: a lavishly well-off fellow Indian … or a badly off person – in, say, Britain?'[113] Harris assumes the response to be intuitively evident, and states, 'it should not be the case that we focus entirely on state obligations

[113] Harris, *World Ethics and Climate Change: From International to Global Justice*, 116.

to cut greenhouse gases and to aid those suffering from climate change … [instead] we should focus … on the obligations of people'.[114] Harris's principled defence of his position comes from his support of the 'cosmopolitan corollary', in which 'responsibility for climate change impacts is primarily a cross-level distributive justice issue among *all actors* causing climate change impacts and *all actors* harmed by climate change impacts.'[115]

The argument that one side will simply not be willing to accept a specific proposal can be made from different positions and therefore cannot be made in defence of one particular position. However, fair consideration of the rights and duties of all individuals, regardless of nationality, is both a practical necessity and a requirement of justice. Assessing responsibilities for the costs of tackling climate change based upon state averages is both unfair to poor individuals living in developed states, and also fails to recognize the practical need to regulate emissions from actors all over the world in order to successfully mitigate climate change.

Before critically engaging with issues raised in Harris's approach as well as the previous two accounts, I shall consider one further approach to climate justice. This final account supports a multi-actor account, and will provide the basis from which I will defend the scope of my theory of climate justice.

2.1.4 Caney's Multi-Actor Approach

A fourth account suggests that we consider several different actors that might be potential candidates for climate duties. This account is motivated by Caney's assertion that 'a wholly statist analysis is incomplete because it omits the importance of corporations, individuals and supra-state political institutions and practices.'[116] Caney has not defended this approach in detail. However, he has suggested that climate change may call for a multi-actor approach, particularly if causal contribution is an important consideration in determining the allocation of duties. Many of the arguments for state responsibility rely on this principle of causal responsibility generating duties. As Caney states, 'it is simply not true that [states'] actions are the sole causes of global warming'.[117] So, if the argument for state responsibility is largely based on this

[114] Harris, *World Ethics and Climate Change: From International to Global Justice*, 113.
[115] Harris, *World Ethics and Climate Change: From International to Global Justice*, 116 (original emphasis).
[116] Simon Caney, 'Environmental Degradation, Reparations, and the Moral Significance of History', *Journal of Social Philosophy,* 37:3 (2006): 467.
[117] Caney, 'Environmental Degradation, Reparations, and the Moral Significance of History', 467.

principle of causal responsibility, then, following the same logic, other actors should also bear climate duties. Caney suggests that we might consider corporations, individuals and supra-state institutions. Corporations contribute causally to climate change in many ways, coal-burning factories, for example, or high emissions caused by the transportation of goods. Caney states that 'any comprehensive analysis of climate change must include a [corporation level] component.'[118] Individuals causally contribute to climate change in several ways, such as flying in airplanes and driving cars. Caney argues that many of these actions are undertaken by choice, and that individuals could choose to fly less or to 'buy cars which do not use up enormous amounts of petrol'.[119]

This fourth account, based on Caney's suggestion of a multi-actor approach, is based on a similar principled argument to that of Harris, which is that those who causally contribute to climate change have a moral responsibility to reduce their emissions. Assigning responsibility to states alone does not target all of the causal actors involved in climate change. The causal contribution argument makes two distinct moral claims. First, those who emit high levels of greenhouse gases must share in the responsibility for the costs associated with resulting harms. This is a normative claim about bearing responsibility for the costs caused by one's actions. Second, those who emit high levels of greenhouse gases have a moral responsibility to reduce their emissions due to the human rights dangers posed by dangerous climate change. The moral weight of this claim comes from the importance of protecting the rights in question. As such, the multi-actor account does not depend solely on the acceptance of the idea of retributive responsibility. Furthermore, the second claim is supported by a practical claim based on empirical research concerning the need to control global emissions to prevent dangerous climate change, and therefore to require all emitting actors to reduce their emissions. As Harris has argued, the only way we can tackle the problem of climate change is to regulate the actions of actors that either emit or significantly influence the emissions of other actors.[120]

[118] Caney, 'Environmental Degradation, Reparations, and the Moral Significance of History', 468.
[119] Caney, 'Environmental Degradation, Reparations, and the Moral Significance of History', 468.
[120] There might be claims for further expanding the scope. However, it is not clear that other actors should bear direct duties that are more than the sum of duties of their members: Civil society organizations are voluntary organisations that should only act in ways that are consistent with the individual duties of their members; Supra-state institutions are controlled directly by the state-actors that make up their membership; Sub-state governments such as cities or US states do also have climate responsibilities, but their duties are likely to be best dealt with by being delegated from the state level duties.

I have so far introduced and briefly considered four accounts of climate justice, each discussing the key question of which actors should bear climate duties. Through the discussion, we have seen some good reasons to extend climate duties beyond the level of the state. There are several other actors capable of moral agency that are also contributing to climate change. Within a statist approach, these actors are not required to bear any responsibility for climate change beyond the duties imposed on them as a result of the laws passed by the state in which they are located. However, the actions of these actors will need to be regulated in order to prevent dangerous climate change. I have argued that it is also unjust that the consideration of whether a highly polluting entity is required to bear responsibility for its actions is based solely on the arbitrary consideration of which country it is located in, and the laws that country has set based upon its share of the climate burden at the international level. Developing countries are currently exempt from bearing binding responsibilities in international climate agreements or treaties, and therefore affluent, highly polluting companies or individuals who are living in the developing world are also exempt, even though they have a similar standard of living and effect on the environment as their counterparts who are based in developed states. It would seem unjust to argue that rich, highly polluting states should pay the costs of climate change without also being open to the possibility that rich, highly polluting individuals and corporations in other parts of the world should also be included in the group of global burden sharers. In the remainder of this chapter, I will defend a multi-actor approach against five potential counter-arguments, including the arguments offered by advocates of the other accounts that I have outlined in the first part of this chapter. The five arguments are: (1) We cannot specify with exactness what harms are caused by individual greenhouse gas emissions; (2) Not all actors that have causally contributed to climate change still exist; (3) Nations are the morally relevant actors; (4) Individual and corporation level duties should be limited to respecting the law; (5) Individual level responsibilities are not feasible. I shall begin by considering the first counter-argument, which is that of exactness.

2.2. Responding to the critics – Five Problems

2.2.1 The Problem of Exactness

The first objection, raised by Posner and Weisbach, relates to the problem of exactness. Let us investigate the basis of this claim. Climate change is caused by the accumulation of acts by a large number of actors. The individual duties proposed cannot therefore fit the paradigm of direct duties such as the duty not to harm another human being in

which the duty bearer's relationship with those he is not to harm is direct and obvious. It is not possible to link a specific act of pollution to a specific effect of climate change. Posner and Weisbach therefore argue that individuals should not bear moral responsibilities for climate harms, since we cannot say exactly what harm each individual has caused. This argument implies that individuals can only be responsible for direct harms in which the causal chain between actor and effect is simple and obvious. Assigning climate responsibilities to individuals would require deviating from direct, causal principle for duty allocation, and resorting to some kind of 'rough justice'.[121]

I will defend the multi-actor approach against this objection by proposing three possible responses. In doing so, I will show that this problem does not pose a significant challenge to our multi-actor approach.

First, several theorists have argued that individuals can bear duties in cases where the action-effect relationship is complex. For example, Thomas Pogge has famously argued that individuals in the developed world bear causal responsibility for the dire situation of the global poor. Pogge argues that 'the citizens and governments of the wealthy societies, by imposing the present global economic order, significantly contribute to the persistence of severe poverty and thus share institutional moral responsibility for it.'[122] Pogge's argument leads him to advocate a negative duty not to uphold unfair institutions. Clearly, in this example, as in the case of climate change, the link between duty bearers and rights bearers is complex and indirect. It would be extremely difficult to identify the effect of an act of an individual person in the developed world on a poor person in the developing world, and yet, by advocating a negative individual duty, Pogge is claiming that individuals in the developed world share in the causal responsibility for the poverty that exists in the developing world. To defend his claim, Pogge appeals to institutionally grounded duties, since institutions are capable of having an effect on the lives of those in poor countries and also of being upheld or affected by those in developed countries in the current global order. The institution carries the link between individual duty bearer and end effect. This is one example of a situation in which it is impossible to identify a precise causal chain between specific action of an individual and effect, yet in which individual duties are advocated.

[121] Posner and Weisbach, *Climate Change Justice*, 117.
[122] Pogge, *World Poverty and Human Rights,* 121.

In the case of climate change, Cripps has also argued for individual responsibilities. She addresses the contentious complex nature of the relationship between individual actions and climatic effects, specifically addressing the fact that 'it is difficult, if not impossible, to pin down *individuals* responsible for climate change', due to the fact that climate change is caused by the actions of many individuals.[123] However, this does not lead her to the conclusion that individuals can therefore not be bearers of climate duties, but simply that we must look at the relationship in a different way. Cripps instead argues that 'demands on individuals in such cases are most appropriately identified by reference to the harm for which *we*, collectively, are responsible, and our corresponding *collective* duty to do something about it.'[124] This does not require identifying a collective with a specific identity, but simply requires awareness that the individuals are part of a 'putative' group, which, as a whole, is responsible for dangerous levels of pollution. As Cripps argues, 'collections of individuals who do not constitute formalized, acknowledged groups can and do cause great, and morally regrettable, harms.'[125] It would be wrong, therefore, to dismiss individual responsibilities in such cases simply because the type of relationship between action and effect is complex. Cripps therefore defends a principle of 'weak collective responsibility' in which three criteria must be met in order to hold individuals responsible for actions caused by a collective. First, the harm must have been 'reasonably expected to have been foreseen', thus meaning that the individuals were not reasonably unaware of the possible impact of their actions.[126] Second, the individuals must have been reasonably expected to be aware that there were other individuals whose combined efforts would be enough to bring about the harm. Third, the harm must have been 'collectively avoidable', meaning that there were alternate ways in which the individuals who constitute the 'putative group' could have acted to avoid the harm.[127] In the case of climate change and individuals as duty bearers, we can see that there are many individual persons whose actions can be considered to fulfil all three criteria. We do not need to show the exact causal chain between action and effect, but simply that the person in question had enough knowledge about the likely effects that his or her actions would have. This is enough to confer moral responsibility on the actor as part of a group of actors who also share the responsibility.

[123] Elizabeth Cripps, 'Climate change, collective harm and legitimate coercion', *Critical Review of International Social and Political Philosophy*, 14:2 (2011): 172.
[124] Elizabeth Cripps, 'Climate change, collective harm and legitimate coercion', 173.
[125] Elizabeth Cripps, 'Climate change, collective harm and legitimate coercion', 173.
[126] Elizabeth Cripps, 'Climate change, collective harm and legitimate coercion', 175.
[127] Elizabeth Cripps, 'Climate change, collective harm and legitimate coercion', 175.

A second response questions the logic of Posner and Weisbach's argument. They argue against individual duties, whilst affirming state duties. However, it is not clear that the problem of exactness disappears when we are considering state actions. Whilst we can establish estimations of historic emissions of states, and could use this to calculate an approximate share of 'blame' if we so wished, the problem of exactness is still there. For example, we cannot say which exact harms the emissions of the United States or China have caused. The argument raised against individual duties does not seem to be an argument against individual duties specifically. Instead, it amounts to an argument against climate duties in themselves, where this argument relies upon a backward-looking principle that can never be exact. So if we think that causal responsibility for past emissions is at all relevant for an account of climate duties then we cannot use the problem of exactness as a reason to dismiss individual duties specifically.

The argument of the second response relates to Posner and Weisbach's allocation of responsibility for emissions that have already taken place. However, we also need principles for distributing responsibility for limiting current and future emissions. This raises a third objection. These principles are independent to claims of historic responsibility, and are less sensitive to the problem of exactness. This is because we can make plausible general predictions about the effects of our combined actions. We know that climate change is not a direct, instant action-harm problem, but the effects of emissions on the climate are foreseeable and we can make use of this knowledge in making choices about our actions. Scientific research tells us that the build up of greenhouse gases in the air is causing the climate to change and beyond a certain point this will lead to serious harms. This is the key concept of foreseeability that Cripps refers to. When we consider the problem of exactness and current responsibilities, it is clear that the foreseeability of climate harms enables actors to make informed choices about their actions. It is this foreseeability of the effects of the actions that can be used to justify the attribution of responsibilities to various actors.

I have provided three responses to the problem of exactness. First, I showed that whilst individual effects on the climate cannot be calculated in an exact matter, individuals can contribute to climate change in a very real way as part of the aggregate of actors that are contributing to climate change. Their contribution to this group links them to the impacts caused as a result of the cumulative emissions. Second, I showed that Posner and Weisbach's backwards-looking claim was not only applicable to individual level duties but also state level duties, which they accept. Third, I argued that their argument

was not relevant to forwards-looking principles, and therefore did not undermine the argument for individual duties for current and future emissions. The problem of exactness, therefore, does not provide us with good reason to reject our multi-actor approach.

2.2.2 The Problem of Existence

A second possible critique of a multi-actor approach is the problem of existence. This argument claims that our multi-actor account is troublesome because not all of those causally responsible for climate change still exist, so causal responsibility cannot be the basis for an account of moral responsibility for climate costs if all are to share in the costs. It claims that it would be unjust to make the causal actors alive today pay for climate costs since they will be paying more than their far share since there are several 'shares' which can no longer be paid by those responsible since they are no longer alive.

This argument attaches too much importance to a misplaced claim of fairness which states that current individuals would be bearing more than their fair share if they are required to bear climate duties since past individuals did not bear the same responsibility. The key point is that the past people are quite simply past people. We cannot change what they did. If we think that there is a relationship of unfairness between the behaviour of past and present individuals, then we must also support the idea of justice between current and future individuals. The scientific basis of climate change means that with each generation that does not act, the weight becomes more burdensome for the next generation and the tipping point beyond which some serious harms are no longer preventable gets nearer and nearer until it is passed. The question here is not of bearing responsibilities as a form of reparation or punishment for the emissions of previous generations, which were quite clearly not the fault of current generations. Instead, we should recognise that the very fact that we think this is unfair means that we have a responsibility to future generations to avoid the same behaviour. Now that the link between manmade greenhouse gas emissions and climate change is 'unequivocal', continuing to delay climate action would be worse than the behaviour that the argument objects to.[128] We cannot change what past individuals did, but we can prevent further harms from occurring.

[128] Rajendra Pachauri and Andy Reisinger (Eds.), 'Climate Change 2007 – Summary For Policy Makers', *Intergovernmental Panel on Climate Change,* (12-17 November 2007) [Online] (http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_spm.pdf). [Accessed 1 May 2009]: 2.

In a similar way to our response to the problem of exactness, the force of the problem of existence is affected by the direction in which our principle is looking. A backwards looking principle which aims to distribute blame and reparative duties faces a more serious challenge from the problem of existence than a forwards looking principle does. Historic emissions will likely need to be addressed separately, and the boundaries of the backward-looking principle further defined. I will return to the issue of historic responsibility in Chapter Five. A key importance for an account of global climate justice is how to respond to future and current emissions, since it is these emissions that we can affect today in order to mitigate climate change. The problem of existence is not relevant for forward-looking principles, since the question of justice in this case is the relationship between current and future individuals, and what justice requires of current individuals. The failure of past generations to control their emissions does not excuse inaction from current and future generations. The fact that some causally responsible individuals no longer exist does not change the fact that current individuals can foresee that they have the power to impact the lives of individuals in the future.

2.2.3 The Problem of Nationality

A further problem is raised by the claim that nations are morally important. In emphasizing the moral importance of national boundaries, Miller is sceptical about global principles of justice. According to Miller's approach individual duties are necessarily derivative from the duties of the nation because of the importance of national self-determination and the special responsibilities between fellow nationals. However, as climate change is a global problem, it does not seem fair that an individual should contribute less to climate costs simply because of his nationality when there are others in less fortunate positions who are required to pay higher costs due to their nationality. Furthermore, as Harris's argument claims, it is important to consider all of the actors that are causally contributing to climate change on a large scale if we are to prevent dangerous climate change. Miller might reply that the rich who live in poor countries only have duties of distributive justice to their fellow nationals. These duties will be more or less expansive depending on the principles of distributive justice accepted in that particular society, but nations should be allowed to distribute duties within their own boundaries.

In this section I will claim that the national boundaries are not as important as Miller claims. I will first show that nationalism can accept some duties of global responsibility when human rights are at stake. Second, I will show that individual climate duties are

not inconsistent with nationalist claims of special duties to compatriots, and need not undermine a nation's right to self-determination. Third, I will claim that Miller's assertion that individuals can only feel affinity to fellow nationals is unfounded. Fourth, I will make the claim that in some cases, the importance of national self-determination might be best served by some degree of individual duties. Finally, I will claim that these arguments have shown that the arguments about the importance of national boundaries are simply misplaced in the case of climate change duties.

First, Miller acknowledges that the global community has a responsibility when human rights are at stake:

'Protecting human rights is not just a matter of each state protecting the rights of its own citizens, even though this is one of its primary functions and (arguably) a condition of its legitimacy. For various reasons that I will come to shortly, making human rights protection purely an internal responsibility of states is not going to be effective in many cases. So the wider responsibility falls on that rather elusive entity 'the world community''[129].

As we saw in Chapter One, there is good reason to talk of human rights violations when we discuss the harms that climate change is likely to cause if global emissions are not reduced urgently. There are good reasons for thinking that the scope of climate duties must extend beyond nation-states, since climate change has the potential to impact the lives of individuals all over the world. Miller's assertion that human rights cannot be effectively protected if each state is concerned only with its internal functioning might seem to lend support to the argument for global climate duties. This first claim shows that nationalism is not entirely unresponsive to the idea of certain duties of the international community.

However, Miller thinks that the responsibility of the global community to protect human rights from the threat of climate change should still be borne in the first instance by nation-states. In Miller's view, individual duties would call for a system of global equality of opportunity, which would not respect national self-determination. He states:

'What can justice mean in a world made up of culturally distinct communities each enjoying some degree of political autonomy? It cannot require that everyone everywhere must enjoy the same bundle of freedoms, opportunities, and resources—a view that I shall refer to as global equality of opportunity. It cannot require this because people in different communities will want to have these advantages distributed

[129] David Miller, 'The Responsibility to Protect Human Rights' in Lukas H. Meyer (ed), *Legitimacy, Justice and Public International Law* (Cambridge: Cambridge University Press, 2009): 232.

in different ways. In particular, they will attach different relative weights to different components of the bundle.'[130]

Miller's position is that a global scheme of egalitarian distributive justice could not work since those in different nations have different preferences for their particular balance of goods. So, whilst the first point has shown that nationalism can accept duties that are not decided entirely by the nation-state in certain situations where human rights are at risk, Miller wishes to claim that these global responsibilities would still best be served by national duties.

In response to this I will make a second argument, highlighting the difference between an entirely global system of distributive justice, and a system in which individuals can bear climate duties according to their personal situation. Miller's concerns about global equality of opportunity are unfounded in relation to individual climate duties. Such duties do not require a commitment to global equality of opportunity, and can be supported without denying the claim that individuals have special responsibilities to fellow nationals.[131] For example, due to the fact that states currently function separately and have national accounts and budgets for many services, compatriots are required to pay their taxes in order for the state to run properly. This is an example of a special duty that cannot currently be met by individuals in other states in the current global set-up. But it does not mean that there cannot be some duties that expand beyond national boundaries. The argument for individual climate duties requires only that the better off in poor countries pay a fair share of the costs of climate change, and does not make any broader claims about distribution of opportunities. So, the argument that individual duties would require a system of global equality of opportunity that does not respect national self-determination is unfounded in the case of climate duties. As such, this aspect of the argument for nationalism does not threaten the idea of individual climate duties.

A third argument contests Miller's assertion that acceptability is a key issue in implementing individual climate duties:

'Climate-change policies can be successfully implemented only if there is general consent to their introduction [and so] allowing nations to map their own route within

[130] David Miller, 'National Responsibility and International Justice', in Deen K. Chatterjee (ed), *The Ethics of Assistance: Morality and the Distant Needy* (Cambridge: Cambridge University Press, 2004): 125

[131] Caney, International Distributive Justice, 981.

the constraints on emissions set internationally not only respects their rights of self-determination but is likely to produce a higher level of compliance in the long run.'[132]

Miller's argument is that individuals identify with their national boundaries and so will be unwilling to enter into distributive agreements that expand beyond the nation-state. He argues:

'Any view holding that people can make claims on one another that go beyond simple non-interference - must presuppose a background set of social relationships against which claims of this sort would appear legitimate […] We can only expect [people] to consent to institutions that enforce the preferred distribution if they regard themselves as bound to the beneficiaries by strong ties of community.'[133]

The nation is the largest type of community that can fulfil these criteria according to Miller, and therefore global duties of justice between individuals are unrealistic since people would not consent to such principles outside of their nation. In Miller's account national boundaries represent the limits beyond which interpersonal affinities are non-existent.

However, we might argue that Miller's assumption that people are emotionally bound to their national boundaries in an unalterable way is too quick. As Beitz argues, people's affinity to certain groups is not 'static', and is indeed changeable over time.[134] He states:

It is a commonplace that the size of the circle of affinity is historically variable and that, under favorable institutional and cultural circumstances, the range of sympathetic concern can extend well beyond those with whom people share any particular ascriptive characteristics … The modern multicultural state would be inconceivable if this were not true … If motivational capacities are variable and subject to change with the development of institutions and cultures, then it gets things backward to assume any particular limitations on these capacities in the structure of a political theory.[135]

We might therefore expect Beitz to respond to Miller's nationalist approach by arguing that the claim that individuals will only agree to enter into systems of distribution with fellow nationals is an assumption that is not consistent with the potential for change in human behaviour that we have seen throughout history. Therefore, to limit our conceptions of the scope of justice in this way is too restrictive since it does not allow for the possibility of changing institutional structures which may very well have an impact on the affinity individuals feel towards other individuals. For example, the fact that individuals can affect other individuals by way of affecting the climate may well

[132] Miller, 'Global Justice and Climate Change', 122.
[133] David Miller, 'In What Sense must Socialism be Communitarian?' *Social Philosophy and Policy,* 6:2 (1989): 59.
[134] Simon Caney, 'International Distributive Justice', *Political Studies,* 49 (2001): 981.
[135] Charles R. Beitz, 'Rawls's Law of Peoples', *Ethics*, 110:4 (2000): 683

give rise to more expansive ideas of institutional structures. We might say that Miller takes the wrong starting point. He mistakenly takes the existing status quo to be evidence of human affinity to compatriots. Instead, we should consider the possibility that, inversely, this feeling may have been developed following the implementation of the current status quo, and therefore other conceptions of distributive schemes may well be possible.

So, I have so far shown that: (1) Miller's nationalism is sensitive to the fact that protecting human rights might sometimes require duties of the international community. I have shown that two of his reasons for claiming that the nation-state is the right actor to delegate these duties is undermined since: (2) individual climate duties do not require a denial of the nationalist claim of special duties between co-nationals, and do not necessitate the kind of global equality of opportunity against which Miller protests; and (3) Miller's claim that individuals will not accept responsibilities to those outside of their nation is unfounded.

A fourth argument might be suggested that would support some individual duties, from a nationalist perspective. It might be argued that national sovereignty is itself threatened by climate change. As climate change is a global problem, the emissions of foreign actors can affect the risk of human rights harms domestically. We might say that climate change itself is capable of encroaching on a state's sovereignty since the harms that affect the citizens of one nation-state may have been caused by actions of foreign actors. Therefore, protecting a nation's right to self-determination might well depend on mitigating climate change. In extreme cases, the harms of climate change might include the disappearance of the land on which a nation lives, thereby seriously jeopardizing its ability to continue to exist as a self-determining nation. In this sense, the idea of reciprocity to which Miller appeals may entail nations being best able to protect the human rights of their own compatriots as well as those in the wider world by entering into a global agreement in which all have the duty to mitigate against climate change, regardless of the average responsibility of the state in which they live. As Parks and Roberts argue:

'The notion of the nation-state contributing to, being vulnerable to, and responding to climate change may obscure important intra-country distinctions. Many developing

nations now have a sizeable middle class that affects and is affected by warming of the Earth's atmosphere much differently to the rest of [their] society'.[136]

Harris argues that 'there will be no hope of averting climate catastrophe' without requiring the new consumers in the developing world to bear climate duties.[137] If this is the case, then it may be that the best way to protect the human rights of fellow nationals is to support a system that would require these rich individuals in poor countries to bear climate duties. As such, the special duties individuals have to fellow nationals, might require them to support individual duties, since this might be the only way to protect the rights of their fellow nationals not to suffer from dangerous climate change.

We might further reconcile Miller's argument with that of Harris's by adopting the approach suggested in Baer et al's Greenhouse Development Rights Framework. In their approach, state-level duties are calculated not on state averages but based upon the aggregate of responsibility and capacity held by individuals within the state.[138] In other words, it is the individual actors that bear primacy in determining the weight of duties of a state, rather than the state average that is indifferent to high emitting individuals within developing states. So, national self-determination is not affected, but the duties of a nation-state are proportional to the number of affluent actors within the state and not a state average. This would still rely on the acceptance of some degree of global duties, but could be a bridge to garner acceptance from a wider theoretical audience whilst remaining true to the claim that all emissions must be regulated. This option might be the most readily accepted in the current state-led system, as it would still allow nation-states to distribute responsibility according to their own domestic systems of distribution. However, this approach relies on nation-states differentiating fairly between the different situations of their citizens. There is no guarantee that the individuals with the most responsibility or capacity would end up paying their fair share of the costs. As such, this approach is an improvement from the current state-led system in which responsibility is determined by state averages, but it cannot ensure that the actors with the greatest capacity or responsibility are the ones that end up paying their fair share of the costs.

Nationalism can support the claim that there may be global duties where human rights are at stake. I have claimed that the argument made by nationalism that individuals have special duties to compatriots is not inconsistent with the claim that individuals might

[136] Harris, *World Ethics and Climate Change: From International to Global Justice*, 114.
[137] Harris, 'Inviting People to Climate Parties', 310.
[138] Baer et al, 'The Greenhouse Development Rights Framework'.

also have climate duties, since this does not require expanding national schemes of distributive justice to the global level, but simply recognizing that there are certain duties which individuals everywhere must adhere to. In this sense, nationalism can be consistent with the idea that there may be some individual duties that exist on a global scale. The ability of a nation-state to self-determine may well be jeopardized if dangerous climate change is not mitigated, so if multi-actor duties are likely to be the most successful at preventing this as well as protecting human rights, then nationalism itself may well be able to support some degree of global individual duties. Indeed, as the Greenhouse Development Rights approach suggests, there may be ways of keeping national self-determination whilst also accurately dividing responsibility based on the aggregate responsibility of individuals within a nation. However, the discussion has shown that the arguments for nationalism do not provide us with a legitimate reason to believe that individual duties for a global problem should be determined by nationality.

2.2.4 The Problem of Legality

Let us now consider a fourth criticism of the idea of a multi-actor approach. A critic might argue that individuals and corporations are only under a duty to respect the laws of the countries in which they are located. This critic argues that the only relevant moral duty that individuals and corporations have is the duty to obey the law. On this account, individuals and corporations can be held responsible for climate costs when their actions are illegal, but this is because they have broken the law, and not because they can be considered as moral agents who bear climate duties separate to the demands of the law.

A first point to be made is that laws are not set in stone and can be modified, removed or created. Laws are rules that have been decided by decision-making bodies throughout history as a way of institutionalising normative claims about what is right and wrong. As the world develops and changes, it is entirely possible that it may become apparent that some moral concepts are not fully captured within the legal system, and so new laws may be created to accommodate these concepts. It follows, therefore, that the lack of illegality of an act does not automatically imply that it is morally acceptable, for laws are not always as they should be.[139] For example, let us consider the case of slavery in the United States. The slave trade was not legally abolished until 1808, having been

[139] Jean-Jacques Rousseau, *Du contrat social* (Paris: Flammarion, 2011).

signed into law by President Thomas Jefferson in 1807.[140] So, before this date, it was not illegal to engage in the slave trade. However, the morality of the issue was discussed in the public sphere for very many years before the law was actually passed, and it would be difficult to argue that those who were profiting from the slave trade had no moral obligation to stop their activities simply because there was no law in place. As Hart states, there is an 'intersection of law and morals', in which 'there are rules that have every moral qualification to be laws and yet are not laws.'[141] The moral principle that it is wrong to enslave another human being did not simply appear with the institutionalisation of the law which condemned it, and the act did not suddenly become wrong only once the law had appeared.

We can make similar claims about the responsibility to act in the case of climate change. The serious harms which are predicted to occur to human beings and natural ecosystems if global emissions do not decrease means that we can morally call upon highly polluting actors to contribute to the task of reducing global emissions, even if the law does not oblige them to do so. As far as individuals are concerned, it is not unusual for claims of moral responsibilities to be made for cases in which the acts are not enshrined in law. For example, this can be the case in situations where not bearing such moral duties would cause harms to others. For example, most states of the world do not legally require individuals to prevent harms to other individuals where the harm occurring to the suffering individual is not related to the first individual's conduct. Let's say two individuals are swimming in a lake and one begins to drown. The other swimmer is under no legal responsibility to go to the aid of the struggling swimmer, even if he could do this very easily and save the person's life. This failure to help is not punishable under law, and yet most would argue that this individual was wrong not to help and he acted immorally. There may be reasons given, for example, the accused swimmer might have been unsure that he could help without endangering his own life, or that there may have been others in a better position to help. But for the purposes of this discussion let us assume that this is an uncontroversial case in which the first swimmer could have very easily saved the life of the other swimmer without endangering himself or others, and that he was aware of this and could foresee that the swimmer in trouble would die without his help. This is a case in which it would seem relatively uncontroversial to claim that the strong swimmer had a moral duty to rescue the swimmer in trouble. Not

[140] TED Case Studies, 'Abolition of the Atlantic Slave Trade in the United States', (7 April 1999) [Online] (http://www1.american.edu/ted/slave.htm). [Accessed 12 January 2014].
[141] H. L. A. Hart, 'Positivism and the Separation of Law and Morals', *Harvard Law Review,* 71:4 (1958): 598, 626.

all acts or omissions can be fully covered by law, and some may be institutionalised into law as time goes by. Our swimming story gives one such example of a situation in which we would expect an individual to act in a certain way in order to fulfil a moral duty that is not required by law. So the argument that individuals should not be considered as bearers of climate duties because individuals only have a duty to obey the law is too restricted and cannot provide the basis of a defence for a purely statist account to climate duties.

As far as corporations are concerned, the problem of legality is less straightforward, since the claim that corporations are fully-fledged moral persons is controversial. For example, Becker has argued that corporations' responsibilities are limited to 'maximis[ing] stockholder value, adhering to contracts, implicit as well as explicit, and obeying the laws of the different countries where they operate'.[142] In other words, Becker argues that corporations are not moral agents, and their only responsibility is to their shareholders to whom they have a duty to maximise profit within the boundaries of the law. Similarly, Morawetz has claimed that 'although a corporation is frequently spoken of as a person or unit ... the existence of a corporation independently of its shareholders is a fiction'.[143] On the other hand, French argues that corporations 'can be full-fledged moral persons and have whatever privileges, rights and duties, as are, in the normal course of affairs, accorded to moral persons.'[144] Space will not allow me to debate the intricacies of the debate about corporate moral personhood. However, without defending a fully-fledged definition of the corporation as a moral person, I will offer three arguments to defend the position that corporations do, in certain circumstances, have certain minimum moral obligations that go beyond and are distinct from their legal obligations.

First, this claim is intuitively persuasive. For example, a corporation might not be breaking any laws by exploiting loopholes in the law, or by shifting money and profit between countries in order to avoid paying tax. However, this is generally seen as wrong. A recent example is highlighted by the publicity given to the case of coffee chain Starbucks, which was forced into admitting it had paid only £.8.6m of corporation

[142] Gary Becker, 'Do Corporations Have a Social Responsibility Beyond Stockholder Value?', *The Becker-Posner Blog* (24 July 2005) [Online] (http://www.becker-posner-blog.com/2005/07/do-corporations-have-a-social-responsibility-beyond-stockholder-value-becker.html). [Accessed 25 September 2011].
[143] Sandford A. Schane, 'The corporation is a person: the language of a legal fiction', *Tulane Law Review*, 61 (1987): 566.
[144] Peter A. French, 'The Corporation as a Moral Person', *American Philosophical Quarterly,* 16:3 (1979): 207.

tax in the UK over a period of 14 years between 1999 and 2013.[145] Starbucks had not acted illegally, and yet was heavily criticised for 'aggressive' tax avoidance by several newspapers and also publicly by the British Prime Minister David Cameron.[146] Companies such as these are condemned by the public for such immoral acts even when those acts are not illegal. The expectation that corporations will not exploit loopholes in tax laws seems to be based on the idea that corporations have a moral duty to pay their share as members of the community. If the claim was simply related to abiding by the law, then tax avoidance would not be worthy of criticism since the tax avoidance actions are not 'illegal'.

Second, the normative claim that corporations have responsibilities that go beyond their legal obligations is supported by UN agreements on the kinds of behaviour that is acceptable from corporations. Indeed, certain kinds of moral behaviour are required from corporations as part of the implementation of the United Nations' "Protect, Respect and Remedy" Framework. The document, 'Guiding Principles on Business and Human Rights' produced by the UN Office of the High Commissioner and endorsed by the Human Rights Council in resolution 17/4 on June 16th 2011, states:

'The responsibility to respect human rights is a global standard of expected conduct for all business enterprises wherever they operate. It exists independently of States' abilities and/or willingness to fulfil their own human rights obligations, and does not diminish those obligations. And it exists over and above compliance with national laws and regulations protecting human rights.'[147]

The United Nations asserts the responsibility of corporations to respect human rights, thereby affirming the moral intuition that corporations have duties over and above maximising profit for shareholders. Corporations are 'specialized organs of society', which, as members of society have the responsibility to make sure that their actions do not impinge on the ability of the human members of the wider society to achieve their rights as embodied in the International Bill of Rights.[148] This does not require corporations to take on the same moral responsibility as other actors which more straightforwardly fulfill the criteria for full moral personhood, but it does serve as a

[145] Larry Elliot and Heather Stewart, 'David Cameron makes swipe at Starbucks as he promises focus on tax', *The Guardian* (24 January 2013) [Online] (http://www.theguardian.com/politics/2013/jan/24/david-cameron-starbucks-focus-tax). [Accessed 25 January 2014].
[146] Elliot and Stewart, 'David Cameron makes swipe at Starbucks as he promises focus on tax'.
[147] Office of the High Commissioner for Human Rights (OHCHR), 'Guiding Principles on Business and Human Rights', *United Nations* (2011) [Online] (http://www.ohchr.org/Documents/Publications/GuidingPrinciplesBusinessHR_EN.pdf). [Accessed 9 January 2014]: 13.
[148] OHCHR, 'Guiding Principles on Business and Human Rights', 1.

minimum moral requirement which corporations are expected to adhere to. In particular, 'enterprises should respect the human rights of individuals belonging to specific groups or populations that require particular attention, where they may have adverse human rights impacts on them.'[149]

The complex nature of the relationship between emissions and impacts of climate change should not reduce this responsibility. These harms are foreseeable, and a forward-looking principle of climate responsibilities requires this to be taken into account. Corporations are rightly condemned if they engage in activities that result in serious immediate harms, for example, to individuals living in the vicinity of their factories. A recent example of this can be seen in China's 'cancer villages', which are towns in which cancer rates and deaths have soared since the arrival of polluting factories that use toxic compounds, banned in many countries of the world, yet not illegal in China.[150] Stories such as these have appeared in the media around the world, and are clearly, and rightly, considered to be shocking. Several of these cases have resulted in successful legal demands for compensation from the families of victims, which shows that the law can also recognise that corporate behaviour can be punished as immoral in certain cases where harms are great. However, future individuals who will suffer the effects of harms caused by climate change are not able to go back in time and sue the corporations whose high levels of emissions have contributed to their harms. Furthermore, even if this were possible, paying reparations once a harm has occurred cannot make up for the serious nature of the predicted impacts of climate change, many of which are 'non-substitutable' and may involve irreversible damage to land and ecosystems. Corporations should therefore abide by the UN's guiding principles to support and respect human rights. Where it is foreseeable that the use of certain methods of production or certain actions are likely to cause serious harms, it is morally unacceptable for corporations to undertake these actions in the pursuit of profit. The fact that the harms of climate change are not as obvious and direct should not undermine their duty. The intergenerational nature of the harms that are likely to be produced by the effects of climate change should not lessen the importance we attach to them. So, as part of the global aggregate of polluters, corporations have to bear their share of the responsibility to prevent serious harms to persons by mitigating climate change.

[149] OHCHR, 'Guiding Principles on Business and Human Rights', 14.
[150] Jason Burke, 'Scandal of the cancer villages lurks behind China's 'green' makeover', *The Guardian* (22 June 2008) [Online] (http://www.theguardian.com/world/2008/jun/22/china.olympicgames2008). [Accessed 10 January 2014].

Third, the claim that corporations should bear distinct climate duties above their legal responsibilities is further strengthened when we consider the power of corporations today. Transnational corporations (TNCs) are not bound to any one state, and can move their assets between countries to avoid laws that they do not like. As Rondinelli states, 'the ability of TNCs to create separate legal entities to shield shareholders from liability in different countries around the world, their location in multiple jurisdictions, and the political reluctance of some governments to enforce laws against large investors and employers all tend to weaken conventional concepts of national sovereignty.'[151]

Corporations are also applying their influence in law and decision-making at the highest levels. As we discussed previously, laws can be made and changed. In the process of making this happen, governments often consult with community actors before such changes.[152] As important contributors to the economy, corporations are often involved in these processes, and can in this way influence the laws that are made. Furthermore, the emergence of supra-state trade agreements is giving power to corporations to legally challenge state policies that threaten their commercial interests. One such example is the 'Transatlantic Trade and Investment Partnership', a potential new trade agreement between state and business actors in the United States and Europe, which has been proposed to include an 'investor-state dispute settlement' clause.[153] This clause would give corporations throughout the trading area the right to legally challenge states in international tribunals where these corporations felt that actions by the state were damaging its investments. Senior corporate lobbyists have specifically mentioned that this would allow them to legally challenge 'public policy objectives, including human and labour rights'.[154] Similar existing clauses in other trade partnerships have led to cases where multinational corporations have sued states for such 'crimes' as attempting to protect the health of their citizens with anti-smoking laws in the case of Philip Morris vs. Australia, or for putting environmental protection laws into place in the case of Lone Pine vs. Canada.[155] The fact that such agreements are not only discussed but already exist in some parts of the world and may soon exist between Europe and the United

[151] Dennis A. Rondinelli, 'Transnational corporations: international citizens or new sovereigns?', *Business strategy Review,* 14:4 (2003): 14.
[152] United Kingdom Environment Agency, 'New and future legislation', (n.d.) [Online] (http://www.environment-agency.gov.uk/business/144676.aspx). [Accessed 15 January 2014].
[153] Corporate Europe Observatory, 'A transatlantic corporate bill of rights', (3 June 2013) [Online] (http://corporateeurope.org/trade/2013/06/transatlantic-corporate-bill-rights). [Accessed 10 June 2014].
[154] Corporate Europe Observatory, 'A transatlantic corporate bill of rights'.
[155] Corporate Europe Observatory, 'A transatlantic corporate bill of rights'.

States of America shows the power which corporations hold, given that states are potentially signing away the rights of their citizens.

In the past, states could control corporate behaviour more easily with laws, but the growth and expansion of powerful, transnational corporations means that the claim that national laws are sufficient in regulating the actions corporations take is outdated, and is likely to become even more outdated as treaties that place corporate investments above public social policies become more frequent. On top of the power they hold, corporations also play a large part in causal responsibility for climate change. A recent study claims that ninety corporations are responsible for two thirds of historic emissions.[156] The growing power of corporations allows them to conduct much of their business above the law whilst at the same time influencing political decisions. This fact, combined with the polluting effect that corporations have on the climate, shows that simply requiring them to obey the law is no longer enough if global efforts to reduce greenhouse gas emissions are to be successful. States are not able to adequately control the behavior of the relevant polluting agents. As such, I reject the claim that there is no need for individual and corporation level duties.

2.2.5 The Problem of Feasibility

Finally, let us now return to a criticism raised by both Posner and Weisbach and Miller, which is the problem of feasibility. Both of these approaches raise a practical objection to the idea of individual duties, stating that they are not workable. Posner and Weisbach state simply that the statist division of the world is a 'basic constraint' on duties, which must therefore be state-led.[157] Miller argues, firstly, that individual duties that are not governed by the state are not workable because this would lead to 'a massive collective-action problem with no agency capable of solving it', and secondly, that individuals would be unlikely to fulfill their duties since each would have an incentive to free ride by 'overshooting' their individual target.[158] How can we respond to this contention that individual duties are unworkable?

A first point to note is that the feasibility objection is a practical argument. It does not rely on a moral claim that it is wrong to allocate duties to multiple actors, but relies on a practical claim about the feasibility of doing so. I will respond to this objection by

[156] Suzanne Goldenberg, 'Just 90 companies caused two-thirds of man-made global warming emissions', *The Guardian* (20 November 2013) [Online] (http://www.theguardian.com/environment/2013/nov/20/90-companies-man-made-global-warming-emissions-climate-change). [Accessed 22 January 2014].
[157] Posner and Weisbach, *Climate Change Justice*, 173.
[158] Miller, 'Global Justice and Climate Change', 121.

directly contesting it, by claiming that *not* approaching climate duties from a multi-actor approach is impractical, since state duties alone will not be enough to prevent dangerous climate change. The discussion so far has shown us several reasons why a statist approach is too limited in the case of climate change. Consider, for example Harris's claim about the rising emissions of new consumers in the developing world, or our discussion of the supra-governmental power of corporations and their high emissions. A purely statist account cannot respond to these key points, and is likely to be unsuccessful at preventing dangerous climate change since key actors are overlooked. The causal contribution each polluting actor has on climate change requires all actors to reduce their emissions, and this cannot be regulated by states alone. This is the first reason why our approach must be multi-actor.

But the practical need for a multi-actor approach does not stop there. The need for a multi-actor approach is more complicated than the impact that each actor can have on the environment directly, since it is also bound in the influence that each actor can have on the polluting actions of the other actors. Actors are both contributing to climate change through their own polluting actions *and* through the influence they have on other polluting agents. For example, let us think back to our previous discussion related to the problem of legality and the case of the coffee chain that was avoiding paying tax. Individuals were critical of the tax-avoidance behaviour that Starbucks had shown. Following protests, the company 'promised to pay £20m over two years, amid fears of a consumer boycott.'[159] This is a situation in which individuals were able to put pressure on the company by threatening a boycott if it did not change its tax policies and begin paying tax at the appropriate rate in their country. As we have seen, multinational corporations do not fall under the jurisdiction of any one government, meaning that states no longer hold the power they once did over corporations. Individuals, on the other hand, can influence the behaviour of corporations, as the previous illustration highlights. Individuals can choose to support companies that produce goods in sustainable ways, and boycott those that are highly polluting. Amongst others, individuals can play different roles as consumers, voters, employees, and shareholders. In each of these roles, they can influence the actions of other actors, and therefore influence the levels of emission caused by these other actors. As voters, individuals can give their support to candidates whose policies are morally sound and in this way influence the action of their state by voting in governments who are more likely to put

[159] Elliot and Stewart, 'David Cameron makes swipe at Starbucks as he promises focus on tax'.

in policies that will reduce national emissions. As consumers, individuals can boycott companies which are acting immorally, or choose to support companies which are local or making attempts to reduce their carbon emissions. The duties that we may assign to individuals are likely to involve a wide-spectrum of possible acts and are certainly not limited to asking them to reduce their individual carbon footprint. For example, these might involve moral responsibilities to vote for green politicians, to support civil society groups in raising awareness about climate change or to advocate just institutional structures to coordinate global efforts to reduce emissions.[160]

Corporations can also influence state actions in the ways we have previously discussed, such as lobbying. They can also influence individual choices by aggressive marketing campaigns that encourage consumers to buy their products over more environmentally sound alternatives. This can be either supported by governments to encourage public spending and increase growth, or discouraged by governments by subsidising local companies whose policies are greener. States can implement policies which make it easier for businesses to protect human rights without worrying about losing out financially to other companies who are not doing the same. For example, as stated in the Guiding Principles for Businesses on Human Rights, 'states should set out clearly the expectation that all business enterprises domiciled in their territory and/or jurisdiction respect human rights throughout their operations [thereby] ensuring predictability for business enterprises by providing coherent and consistent messages'.[161] Each actor can affect the behaviour of the other actors, and for this reason it is essential that they are all targeted as bearers of climate duties in order to have the best chance of working together and reducing global emissions. The practical argument of feasibility is therefore rejected since responding effectively to climate change makes it a practical necessity that the actions of all climate actors are regulated.

2.3. A Multi-Actor Approach to Climate Change

In this chapter, I have defended a distinctive multi-actor approach to climate change in which individuals, states and corporations are all considered to be bearers of climate duties. The main argument for this approach rests on the practical claim that many different types of actors can foreseeably contribute to climate harms. In order to prevent dangerous climate change we must morally 'regulate' the behavior of all of them. The

[160] Aaron Maltais, 'Radically Non-Ideal Climate Politics and the Obligation to at Least Vote Green', *Environmental Values,* 22:5 (2013): 589-608.
[161] OHCHR, 'Guiding Principles on Business and Human Rights', 3-4.

defense of this argument comes from six key claims, four principled and two practical. First, it is unfair to assign responsibilities using state-level averages because this would be unfair to poor individuals in developed states. Second, the foreseeable effects of greenhouse gas emitting actions means it is not necessary to be able to trace the specific causal link between one actor's emissions and someone suffering climate harms to defend forward-looking climate duties. Third, the claim that past generations acted unfairly does not excuse inaction from current individuals. Fourth, the moral duties of actors are not exhausted by the duty to obey the law. Fifth, states cannot adequately regulate the behavior of all other actors, and so appeals to nationalism or legal responsibilities only are also practically insufficient. Sixth, the actions of different types of actors are intertwined in complex ways such that we need all actors to have moral duties to support each other to avoid or prevent climate harms. The practical necessity stems from the fact that not only do polluting actors contribute themselves to atmospheric levels of greenhouse gases but they also exert influence on the polluting actions of other actors.

While states must play a key role in any realistic theory of climate justice, due to the current international political system and the urgency of the need to respond, purely statist accounts fail to capture the reality of the global problem that climate change poses, which will require all capable actors to contribute to efforts to reduce global emissions, rather than just the richest states. The most important implication of the multi-actor approach for China is that some individuals in China may be expected to bear climate duties due to their individual greenhouse gas emissions when they would be exempt from such duties under a statist approach. But this is consistent with China's claims that those who are most responsible and more capable should bear greater responsibility. On a state level, developed states will still be expected to bear greater responsibility since they have higher percentages of individuals who are eligible candidates to bear climate duties. A requirement for affluent or high emitting actors everywhere to contribute to climate costs is likely to engender further cooperation on a state-level from developed states who have argued that China should be expected to make climate change commitments. Corporate-level duties will make the transfer of technology a moral duty and will help China to reduce emissions produced within Chinese borders as a result. We will see further implications of the multi-actor approach for China in subsequent chapters, as we consider the right to development, responsibility for embedded emissions and historic responsibility.

This chapter has responded to the question: 'Which are the relevant actors to bear climate duties?' In doing so, it has determined the scope of my account of climate justice, which will be multi-actor in nature, considering individuals, states and corporations to be the relevant duty bearers. The next step in the development of the account is to determine the importance of the claim made by China that developing countries should be permitted to prioritise development, and I will now move on to considering this in Chapter Three.

Chapter 3

Climate Change and the Right to Development

As we have seen in the previous chapters, responding to climate change effectively requires a global response. Within the UNFCCC negotiations, state actors have been working towards creating a new international treaty to control global carbon emissions and distribute duties related to preventing and adapting to climate change. To date, this process of negotiations has been wrought with disagreement about how the 'burden' of climate change should be fairly shared. The relationship between a new climate burden sharing agreement and the right to development is one such area of contention. As Yi Xianliaing, an official from China's Foreign Ministry, stated in 2009, 'the diplomatic and political wrangling over climate change that is opening up will be focused on the right to develop'.[162] China has argued that climate change 'is ultimately a development issue and it can only be addressed in the course of sustainable development.'[163] It is clear that China's willing cooperation in any burden sharing agreement is contingent upon what it views as the appropriate level of respect for its right to development, since 'sustainable development and poverty eradication remain urgent challenges and *overriding priorities* for [China].'[164]

This chapter will respond to the question: 'Does the right to development justify increasing emissions?' This is an issue of key importance to China. As an issue raised by a key actor in the climate change negotiations, it is therefore important that a theory of global climate justice can respond to this question. Having set the boundaries for the scope of my account in Chapter Two, I will now develop the framework for the account further by considering the relevance of the right to development.

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[162] Chris Buckley, 'China says "development right" key in climate talks', *Reuters* (21 December 2009) [Online] (http://www.reuters.com/article/2009/12/21/us-china-climate-idUSTRE5BK0MQ20091221). [Accessed 17 March 2011].
[163] Feng Qinghu, 'Climate change and the right to develop', *China Daily* (31 October 2007) [Online] (http://www.chinadaily.com.cn/opinion/2007-10/31/content_6218475.htm). [Accessed 17 March 2011].
[164] Embassy of India, 'Joint Statement Issued at the Conclusion of the Ninth BASIC Ministerial Meeting on Climate Change, Beijing, China, 1 November 2011', (1 January 2011) [Online] (http://ifg.org/pdf/durban_update12.pdf). [Accessed 17 March 2011]. (Emphasis added).

In this chapter, I will first set the importance of the issue within the wider political context of the right to development. I will show that the right to development features in several international texts and declarations, which have been widely accepted by developing and developed countries. I will then briefly discuss the context of China's claim within the political discussions.

In section 3.2, I will discuss the idea of development, and how it is currently measured. I will consider two existing approaches to development. First, I will discuss economic development, which is measured by Gross Domestic Product (GDP) or Gross National Income (GNI). Second, I will consider human development, measured by the Human Development Index (HDI). I will then argue that neither of these measures can accurately tell us about the fulfilment of the right to development, since the right to development is not a right of states, and so cannot be fully captured by state-level average measures. I will argue that the right to development is a right of individuals, and its fulfilment entails a process in which individuals become more developed as they have the opportunity to fulfil a wider range of their human rights. I will then provide a prima facie defence of China's position. Taking account of the important role that carbon emissions can play in development, I will argue that the Chinese state is justified in increasing its emissions where these are needed for the fulfilment of the right to development of its citizens.

In sections 3.3, and 3.4 I will consider two key objections to the prima facie defence. Section 3.3 will engage with the first objection, which claims that development must be sustainable. I will begin by considering a strong version of the claim, which would limit development where this cannot take place without increasing greenhouse gas emissions. I will respond to this claim by making reference to the different ends that can be met by greenhouse gas emissions. I will argue that there are two categories of morally important types of emissions, both fulfilling human rights-based needs, and a further category that involves emissions for 'luxury' ends. As a result, I will defend the claim that a globally sustainable system can be consistent with increases in morally important emissions processes, if these are counter-balanced by greater reductions in 'luxury' emissions. Following this, I will argue that the sustainability of development should be supported by developed countries and affluent actors, in order to prevent 'lock-in' of carbon intensive systems. I will then discuss two potential measures for implementing this, informed by the Clean Development Mechanism and the Greenhouse Development Rights Framework.

Section 3.4 will consider the second key objection to the prima facie defence, based upon a holistic approach to human rights. This argument will claim that commitment to one right entails commitment to other, connected rights. The objection will claim that China may not be a fit actor to fulfil its role as the key duty bearer for the right to development of its citizens, as it has not demonstrated a commitment to other human rights that the right to development aims to protect. I will assess this objection by considering China's commitment first to civil and political rights, and secondly to socio-economic rights. I will show examples which illustrate ways in which the state does not enable citizens to fulfil many of these rights. I will claim that the argument that developing countries should prioritise socio-economic rights before civil and political rights is unfounded, before arguing that even if this were the case, Chinese individuals are not able to fulfil their full range of socio-economic rights either. I will conclude that the state of China does not fulfil the criteria to be considered a fit actor by a holistic approach to rights. However, I will conclude that the important 'gatekeeping' role played by the state means that the best response here might be one which engages the Chinese state despite this shortfall.

The chapter will conclude with discussion about the implications of the discussions for China's responsibilities, as well as the responsibilities of other climate duty bearers. In doing so, the argument presented in the chapter will enable the further development of my account of global climate justice.

3.1 The Wider Political Context

The first section of this chapter will discuss the political context of the right to development in order to locate the issue within political discussions and highlight the importance of the issue. I will first discuss the institutional documents that refer to the right, before considering its importance in the political negotiations surrounding climate change.

The Right to Development has been formally institutionalised in the Universal Declaration on the Right to Development, which was adopted by the United Nations General Assembly in 1986. It went through by majority vote, with the United States the only country to vote against the resolution, although eight other countries abstained.[165] However, by 1993, a global consensus including the United States was reached with the

[165] Arjun Sengupta, 'On the Theory and Practice of the Right to Development', *Human Rights Quarterly*, 24 (2002): 840.

adoption of the Vienna Declaration, which 'reaffirms the right to development, as established in the Declaration on the Right to Development, as a universal and inalienable right and an integral part of fundamental human rights.'[166]The institutionalisation of the right to development affirmed its status as a human right, universal and inalienable in nature, therefore owed to each and all persons. The global agreement of the Vienna Declaration shows that states were in agreement about this fact, with China aligning itself with the majority of states in affirming this right in 1986. A statement from China emphasises the important role that the international community should play in the fulfilment of the right to development:

'To the people in the developing countries, the most urgent human rights are still the right to subsistence and the right to economic, social and cultural development. Therefore, attention should first be given to the right to development. China appeals to the international community to attach importance and give attention to the developing countries' right to development and adopt positive and effective measures to eliminate injustice and unreasonable practice in the world economic order. An earnest effort must be made to improve the international economic environment, alleviate and gradually eliminate factors disadvantageous to developing countries and establish a new international economic order … A favourable international environment must be created for the realization of the right to development.'[167]

China's demand for a 'favourable international environment' is backed by the text of the Declaration on the Right to Development as well as the Vienna Declaration, which both place an obligation on the international community to work together to ensure the fulfilment of the right to development. Article 4(2) of the Declaration on the Right to Development reads:

'Sustained action is required to promote more rapid development of developing countries. As a complement to the efforts of developing countries, effective international co-operation is essential in providing these countries with appropriate means and facilities to foster their comprehensive development.[168]*'*

The Vienna Declaration features a similar proclamation:

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[166] UN General Assembly, 'Vienna Declaration and Programme of Action', (25 June 1993) [Online] (http://www.ohchr.org/EN/ProfessionalInterest/Pages/Vienna.aspx). [Accessed 4 April 2011].
[167] Chinese Government, 'Active Participation in International Human Rights Activities', (n.d.) [Online] (http://www.china.org.cn/e-white/7/7-L.htm). [Accessed 4 April 2011].
[168] UN General Assembly, 'Declaration on the Right to Development', (4 December 1986) [Online] (http://www.un.org/documents/ga/res/41/a41r128.htm). [Accessed 3 March 2011].

'States should cooperate with each other in ensuring development and eliminating obstacles to development. The international community should promote an effective international cooperation for the realization of the right to development and the elimination of obstacles to development. Lasting progress towards the implementation of the right to development requires effective development policies at the national level, as well as equitable economic relations and a favourable economic environment at the international level.[169]*'*

The Declaration on the Right to Development also emphasises the importance of the fulfilment of wider human rights in the process of development, stating that:

'In order to promote development, equal attention and urgent consideration should be given to the implementation, promotion and protection of civil, political, economic, social and cultural rights.'[170]

Considered in isolation from issues of climate change, the previous discussion shows that the duty of states to enable the fulfilment of the right to development through their international cooperation is institutionalised within several international declarations.[171] There has, however, been much disagreement about how to implement the right to development. The differing interpretations of the right to development, and in particular how much of the burden to fulfil this right falls on developed countries, are at the root of this lack of consensus. For example, developed states might interpret the requirement for a 'favourable economic environment' merely as an environment that does not inhibit development. Developing countries on the other hand might be inclined to view this duty as a more demanding requirement of global distributive justice. The difficulty in coming to a political consensus on the right to development is further complicated by issues raised by climate justice. I will now provide an overview of the interconnected nature of development and climate change, and present some of the political positions on the issue taken by different states.

Climate change itself poses a threat to development. First, climate change measures can have an impact on a state's capacity to develop since processes of development involve increased energy use, and this normally entails increased carbon emissions since the most affordable technologies and the technologies which developing countries have the best access to tend to use carbon as their energy source. Developing countries have argued that they have no reasonable choice but to increase their carbon emissions if they wish to develop. Second, if developing countries do not prioritise development for their

[169] UN General Assembly, 'Vienna Declaration and Programme of Action'.
[170] UN General Assembly, 'Declaration on the Right to Development'.
[171] However, it should be noted that there is not widespread consensus on the legal status of the right to development, which is often given a lower legal status than other human rights, with many states, including the United States, instead preferring to develop their own specific policies regarding this right.

citizens now it is likely that they will be less able to adapt to the changing climate, which will in turn make the fulfilment of the right to development more difficult.

Whilst an effective mitigation response to climate change will require a global effort to reduce emissions, China and other developing countries have argued that the right to development means that they are justified in prioritising their development. Practically, this means that their emissions will 'peak' at a later moment in time, continuing to increase in the meantime as a result of development. In support of this argument, China has made reference to the principle of Common but Differentiated Responsibilities, and the 'Principle of Sustainable Development', in which 'the overall framework of sustainable development, economic development, poverty eradication and climate protection should be considered in a holistic and integrated manner so as to reach a win-win solution and to ensure developing countries secure their right to development.'[172] This requires the developed states to take the lead on climate change as part of 'effective international cooperation for the realization of the right to development and the elimination of obstacles to development'.[173]

The contested nature of the requirements of the right to development has become a sticking point in international negotiations on climate change. Developing countries have claimed this right justifies their increasing emissions, and developed countries have refused to sign up to agreements which do not also impose binding duties on large developing countries, such as China. For example, prior to the COP17 meeting in Durban, the United States Climate Envoy, Todd Stern, stated:

'[The kind of agreement that would be acceptable to the United States] would have to cover all the major Parties in a full way, so it would bind with equal legal force. Everybody who made commitments would be bound fully, unconditionally, no kind of escape hatches in the text, and it would also have to be based on something different in terms of the categories of countries than the 1992 categories, which are already quite outdated and will be that much more outdated ten years from now.'[174]

[172] Chinese Government, 'China's Position on the Copenhagen Climate Change Conference', Permanent Mission of the People's Republic of China to the UN, (20 May 2009) [Online] (http://www.china-un.org/eng/chinaandun/economicdevelopment/climatechange/t568959.htm). [Accessed 29 August 2014].
[173] UN General Assembly, 'Vienna Declaration and Programme of Action'.
[174] United States Diplomatic Mission to South Africa, 'Briefing with U.S. Special Envoy for Climate Change Todd Stern' (6 December 2011) [Online] (http://southafrica.usembassy.gov/mediahub_cop17_stern_11-12-06.html). [Accessed 9 January 2012].

Stern's statement is referring to the economic development many of the developing states have gone through in recent years since the division of Annex I – non-Annex I was first agreed. The United States has been reluctant to commit to climate measures whilst countries such as China, which is viewed as a key economic competitor, are not required to undertake similar commitments.

On the other side of the argument, China is not alone in its claim that the developing countries should be exempt from emissions caps. For example, India has released several press statements on this issue. One such release states:

'It is inevitable that the pursuit of social and economic development by developing countries will result in an increase in their GHG emissions, for the foreseeable future. This is recognized in the UNFCCC itself.'[175]

In a statement to the G77, Bolivian President Evo Morales has also argued this point, claiming that it is essential that developed countries reduce their emissions 'so that developing countries might satisfy the needs of their populations without affecting planet Earth'.[176]

Existing climate treaties have not required developing countries to commit to any limits on their emissions, a situation which has become contentious during subsequent negotiations. As Vanderheiden argues, this is the result of considerations of fairness but also political realism, which has led to ineffective agreements that do not require anyone to do enough to tackle the problem of climate change. He states:

'Denying developing countries sufficient GHG emissions allowances to accommodate development would have been tremendously unfair (and unacceptable to them), but adjusting the assigned emissions allowances within the industrialized nations to reflect significant per capita increases in India and China while allowing the same global aggregate emissions levels would have been hugely unpopular, and even less likely to be accepted by the relevant parties.'[177]

Before engaging further with the arguments surrounding the right to development and climate change, the following section will spend some time reviewing the idea of

[175] Government of India, 'India's Position on Climate Change issues' (4 July 2009) [Online] (http://pib.nic.in/newsite/erelease.aspx?relid=49738). [Accessed 24 May 2014].
[176] Evo Morales, 'Speech by President Evo Morales to the G77 at the United Nations', *World People's Conference on Climate Change and the Rights of Mother Earth* (17 June 2011) [Online] (http://pwccc.wordpress.com/2010/05/07/speech-by-president-evo-morales-to-the-g77-at-the-united-nations/). [Accessed 14 January 2014].
[177] Steve Vanderheiden, 'Climate Change, Environmental Rights, and Emissions Shares', Paper presented at *Western Political Science Association Meeting* (Duluth: Minnesota, 2006): 13-14.

development and what it represents, in order to develop a clearer idea of the importance of the right to development.

3.2 Development

The language of development is familiar, with the terms 'developing' or 'developed' country widely used. However, the meaning of 'development' is unclear. I will consider two different ways of approaching and measuring development, both of which are widely used in political and philosophical discussions. First, I will examine economic development and economic statistics as a measure of development. Second, I will consider the Human Development Index. I will then argue that neither of these state level analyses can accurately represent fulfilment of the right to development, which is a right of individuals and not states. I will argue that the right to development is a process of human development, the importance of which lies in the ability to fulfil human rights and achieve a standard of life in which important 'functionings' can be achieved.[178]

3.2.1 Economic Development

The first approach to development treats development as an issue that is determined by economic measures. I will outline the basis of this approach before arguing that it is too narrow in its approach to fully encompass what development entails, since development requires the fulfilment of more than economic measures.

An economic conception of development considers development to be the attainment of a certain level of wealth or income, and evaluates a country's level of development using its progress along a scale towards the 'high income' status. The World Bank states: 'The main indicator of economic development is increasing GNP per capita (or GDP per capita), reflecting an increase in the economic productivity and average material wellbeing of a country's population. Economic development is closely linked with economic growth.'[179] The two most commonly used statistics which represent the economic status of a country are gross domestic product (GDP) and gross national income (GNI). GDP is the value of all the goods and services produced within a state's borders over a set period of time. GNI is the sum of GDP plus the value created by that state's citizens abroad, minus the value created domestically by foreign citizens. GNI

[178] Ingrid Robeyns, 'The Capability Approach', *Stanford Encyclopedia of Philosophy* (14 April 2011) [Online] (http://plato.stanford.edu/entries/capability-approach/). [Accessed 20 April 2011].
[179] World Bank, 'Glossary' (n.d.) [Online] (http://www.worldbank.org/depweb/english/beyond/global/glossary.html). [Accessed 17 March 2011].

therefore denotes the overall net national 'income' created by citizens both domestically and abroad. Following this method, the World Bank considers countries to be developed once they have reached the 'high income' status of $12,616 gross national income (GNI) per capita.[180] Economic development is therefore a measure of development that is entirely based on the economy of a country. It is made comparable across states by using per capita figures that show a state's average product or income per inhabitant, as opposed to an overall income figure, which is influenced by population size. Since 2004, China's GNI per capita has been growing annually, and has more than doubled from $4,340 in 2004 to $10,890 in 2012.[181] In terms of economic development, or economic growth, China is a developing country following a path that is improving the average economic development level of its inhabitants, moving towards the level of income that would define the Chinese state as developed.

An economic measure of development might therefore exempt states with per capita GNI below $12,616 from climate duties that would limit their growth, since, if development is measured by the attainment of a level of economic income then the right to development must entitle states to continue their growth until they reach the 'developed' level of per capita income. However, it does not seem clear why the cut-off point of $12,616 per capita should be of such great importance in distributing climate duties on the basis that some actors have a right to development. The implication of China's claim would be that countries below that level should be permitted to prioritise development needs above mitigation policies, while countries above this threshold would be required to actively decrease their emissions, since they are 'developed'. It is difficult to see why this point should be chosen as the point at which countries suddenly gain the capacity to be able to pay for emissions reductions. A scale along which more and more responsibility was gradually accrued would seem to be fairer. The implications of this would weaken China's claim, since, if only economic development matters, then with a GNI per capita of $10,890, China is much further along this scale than many of the other developing countries, and might, therefore, be expected to take on more responsibility than other developing countries. China is less than $2000 below the level of per capita GNI, which would make it a developed country, and in this sense it does not seem justified for China to expect to have the same reduced level of responsibility as other developing countries that have much lower financial capacity.

[180] World Bank, 'Country and Lending Groups', (n.d.) [Online] (http://data.worldbank.org/about/country-classifications/country-and-lending-groups#Lower_middle_income). [Accessed 17 March 2011].
[181] World Bank, 'GNI per capita, PPP (current international $)', (n.d.) [Online] (http://data.worldbank.org/indicator/NY.GNP.PCAP.PP.CD?page=1). [Accessed 19 June 2014].

Such a threshold might be of more relevance at the lowest end of the scale of economic development in order to determine a level of economic development below which actors cannot be expected to contribute to climate measures since these are quite simply unaffordable. For example, Baer et al suggest that such a threshold might fall at $7,500 per year.[182] According to their argument, this is 'the level at which the southern "middle class" begins to emerge', and thus the point at which it begins to be fair to ask people to contribute to the costs of climate change.[183] This threshold might be useful therefore in defining a minimum level below which the economic capacity of the state is considered to be insufficient to cope with contributing to climate measures without further impoverishing those within the state already living in poverty.

However, whilst economic development may be part of what is needed for development to take place, development is about more than poverty alleviation. As the 1986 Declaration on the Right to Development states, 'development is a comprehensive economic, social, cultural and political process'.[184] Its complexity cannot possibly be captured by a single measure of economic growth. GNI or GDP per capita of a state are simply indicators that tell us the average income of a state. Economic measures can give us a picture of the financial status of a country but they cannot tell us about the fulfilment of the right to development in that country because economic growth may be a precursor to development but economic growth does not equal development. As Costanza et al note, 'GDP measures mainly market transactions. It ignores social costs, environmental impacts and income inequality.'[185] We can see this in the example of China, whereby the state is moving rapidly towards the income of a developed state, yet hundreds of millions of people are still living in poverty. A growing economy does not mean that the right to development of individuals within the state is being fulfilled. As Sengupta argues, 'economic growth, attended by increased inequalities or disparities and rising concentrations of wealth and economic power, and without any improvement in indicators of social development, education, health, gender balance and environmental protection respecting the human rights standards and, what is most important, if such growth is associated with any violation of civil and political rights, it cannot fulfil the human right to development.'[186] Sengupta's claim highlights the fact

[182] Baer et al, 'The Greenhouse Development Rights Framework'.
[183] Baer et al, 'The Greenhouse Development Rights Framework', 17
[184] UN General Assembly, 'Declaration on the Right to Development'.
[185] Robert Costanza, et al, 'Development: Time to leave GDP behind', *Nature* (15 January 2014) [Online] (http://www.nature.com/news/development-time-to-leave-gdp-behind-1.14499). [Accessed 23 June 2014].
[186] Sengupta, 'On the Theory and Practice of the Right to Development', 848.

that economic growth may increase quite independently of other areas important to development, and without measuring these we cannot use economic indicators as a measure of development.

This section has argued that economic measures such as GDP or GNI are not representative of the level of fulfilment of the right to development within a state. Although economic growth brings greater capacity to implement the policies needed for human development, the right to development is much more complicated than this, and measures of economic development such as GDP or GNI cannot give us an accurate portrayal of a state's progress towards the fulfilment of the right to development.

3.2.2 The Human Development Index

I shall now consider an alternative measure, the Human Development Index (HDI). This is another key measure used in development literature. I will first argue that the HDI is a better measure of the right to development than economic measures, since it includes indicators of human development in its analyses. However, I will argue that as a state-level, composite indicator combining only three different factors, it does not fully represent fulfilment of the right to development.

The HDI is a composite indicator, which combines markers of human wellbeing, represented by life expectancy and educational attainment, with GNI per capita. In this way, it is a more expansive measure of development than economic development alone, as it also factors in indicators of health of its citizens, measured by life expectancy, and social development, measured by years of schooling. The HDI is 'a widely used measure of national development', which can tell us more than purely economic measures about development progress.[187] The HDI was developed as part of the United Nations Development Programme's Human Development Reports.

'Given the imperfect nature of wealth as gauge of human development, the HDI offers a powerful alternative to GDP and GNI for measuring the relative socio-economic progress at national and sub-national levels. Comparing HDI and per capita income ranks of countries, regions or ethnic groups within countries highlights the relationship

[187] Cathy Maguire and Robin Curry, 'Measuring Ireland's Sustainability. Measuring sustainable development: the integration of environmental data into macroeconomic models', *Sustainability and Resource/Comhar Sustainable Development Council Institute Working Paper* (November 2007).

between their material wealth on the one hand and their human development on the other.'[188]

The Human Development Index was intended to be a more expansive measure of development, which supplements an economic indicator with measures of the fulfilment of human 'capabilities' based on Amartya Sen's theories of development. The 'capabilities approach' treats the ability to fulfil important human functions as the goal of development, and thus places human wellbeing, and not material wealth at the centre of the aims of development, in line with the rights based approach embodied in the right to development. Sen supports Aristotle's claim that 'wealth is evidently not the good we are seeking; for it is merely useful and for the sake of something else'.[189] Increasing income may form part of the conditions necessary for development and is therefore a useful indicator of capacity to develop, but the aim of development, to which the right pertains, is achievement of a state in which humans are capable of achieving certain 'functionings' that are essential to human wellbeing.[190] Working alongside Sen, the UNDP developed the HDI to be 'an index that captures the three essential components of human life … longevity and knowledge refer to the formation of human capabilities, and income is a proxy measure for the choices people have in putting their capabilities to use.'[191] The HDI gives equal weighting to each of the three indicators and uses the geometric mean of the three indices to calculate the HDI, which is a figure between 0 and 1. The nearer the index is to 1, the higher the level of development is considered to be within the state. Comparisons can then be made between countries to compare varying levels of development. For example, according to the 2013 report, Norway has the highest level of development of all the countries assessed, with an HDI of 0.955.[192] This is classed as a 'very high level of development', as a figure higher than 0.905.[193] Of the 195 countries that feature, China comes in 101st place according to the rank of HDI figures, with 0.699. According to the report, this classes China as having 'medium human development' which includes countries with an HDI between 0.64 and 0.758.

[188] UNDP, 'Human Development Index (HDI)', (n.d.) [Online] (http://hdr.undp.org/en/statistics/hdi). [Accessed 2 March 2010].
[189] Amartya Sen, *Development as Freedom* (Oxford: Oxford University Press, 1999): 14.
[190] Ingrid Robeyns, 'The Capability Approach'.
[191] Jeni Klugman et al, 'The HDI 2010: New Controversies, Old Critiques', UNDP (April 2011) [Online] (http://hdr.undp.org/sites/default/files/hdrp_2011_01.pdf). [Accessed 21 March 2012]: 255.
[192] UNDP, 'Human Development Index and its components', (2012) [Online] (https://data.undp.org/dataset/Table-1-Human-Development-Index-and-its-components/wxub-qc5k). [Accessed 29 March 2012].
[193] UNDP, 'Human Development Index and its components'.

The HDI is a wider measure of development than GDP or GNI since it combines other indicators that are not income-based. However, as I shall now discuss, an increased HDI is not an appropriate way to think about what the right to development entitles people to since it does not capture an essential part of the right to development, which is the fact that this is a right of individuals and not of a state.

Whilst the HDI is based on an idea of human development that is consistent with the right to development, the HDI itself is a simplified index, which cannot grasp the enormity of the processes involved in development.[194] Whilst it should be noted that the HDI is only one of a number of indicators developed by the UNDP within their annual Human Development Reports, the HDI is none-the-less the most well-known and widely used of these indicators and many sources use the HDI alone in discussions of development without reference to the more expansive set of indicators present in the reports. Sen himself has referred to the HDI as a 'crude index', which 'could not be but a very limited indicator of development'.[195] Several types of criticism have been raised against the HDI.[196] Many authors have criticised the limited nature of the index in considering only three measures. For example, Dar has stated that whilst the HDI is 'unambiguously an improvement over the previous measure based on economic growth […] it is a summary, not a comprehensive measure of human development, and the search for a better approach continues.'[197] He therefore suggests adding other values to the calculation of the index such as measures of democracy and freedom. Ranis et al state, 'It has long been recognized that the HDI is a very incomplete measure of human development, leaving out many aspects of life that are of fundamental importance.'[198] They propose 11 other areas, which they argue should be included in any measure of human development. They also claim that the indicator of health chosen for the HDI would be better represented by under-five mortality rate, thus questioning not only the limited number of indicators but also the measures chosen for the HDI.

[194] UNDP, *Human Development Report 1999* (Oxford: Oxford University Press, 1999): 23.
[195] UNDP, *Human Development Report 1999,* 23.
[196] For an overview of some of these issues see: Klugman et al, 'The HDI 2010: New Controversies, Old Critiques'; and Milorad Kovacevic, 'Review of HDI Critiques and Potential Improvements', UNDP (February 2011) [Online] (http://hdr.undp.org/sites/default/files/hdrp_2010_33.pdf). [Accessed 13 June 2014].
[197] Humayon A. Dar, 'On making human development more humane', *International Journal of Social Economics,* 31:11-12 (2004): 1071.
[198] Gustav Ranis et al 'Human Development: Beyond the Human Development Index', *Journal of Human Development,* 7:3 (2006): 324.

Another type of criticism argues that the HDI is not a good measure of development since it gives only an average picture of a state, without considering the differences between individuals. Chatterjee (2005), for example, has argued:

'A drawback of the [HDI] is that, while it more or less takes account of the general level of quality of life in the population, it ignores the extent of inequality in quality of life over the members of the population, and a population cannot be regarded as having a high degree of human development if the general level of quality of life in it is high but there is too much inequality among its members.'[199]

Similarly, whilst noting that the HDI is 'readily comprehensible, attractive, and popular', Seth argues that it 'ignores an important aspect of the measurement of human development', since it is 'completely insensitive to inequality across people'.[200]

As such, while the HDI is a more expansive measure of development than a purely economic statistic, several types of criticism support the claim that it is too limited in terms of the capabilities it assesses (life expectancy, GDP per capita and years of schooling) and it is also only able to tell us about the level of fulfilment of the state on average. Inequality within the state cannot be captured by the HDI and it is therefore capable of being skewed by extremes. In this sense it does not tell us very much about the level of fulfilment of the right to development of those living within a state since the right to development is a right of individuals and cannot be accurately represented by an average state-level figure.

Whilst recent Human Development Reports have responded to some of these critiques by introducing measures such as the Inequality-Adjusted HDI, the Gender Equality Index and the Multidimensional Poverty Index, these are still not commonly used. The HDI remains the flagship measure of human development, and therefore the most relevant for our discussions. The HDI itself was 'never intended to be an overarching definitive measure of development'.[201] It was designed to provide a new alternative to the previously dominant economic measures, thus being simple and easily accessible without being 'as blind to social aspects of human lives as GNP is.'[202] The discussion on the HDI has shown that as an alternative to the first example of economic development, this index might be seen as a step in the right direction towards a more

[199] Shoutir Kishore Chatterjee, 'Measurement of Human Development: An Alternative Approach', *Journal of Human Development*, 6:1 (2005): 32.
[200] Suman Seth, 'Inequality, Interactions, and Human Development', *Journal of Human Development and Capabilities,* 10: 3 (2009): 376.
[201] Klugman et al, 'The HDI 2010: New Controversies, Old Critiques'.
[202] Sen, *Development as Freedom*, 23.

expansive notion of development. However, as a simple composite index that gives a measure of the average level of human development within a state based upon the three indicators embodied in the HDI, it cannot capture the importance of the right to development, which is in enabling individuals to develop a level of wellbeing in which they are able to fulfil their human rights.

Having considered the two key ways in which development is measured in economic and political literature, I have concluded that neither of these two measures can give us an accurate representation of the fulfilment of the right to development. I will now move on to defining the right to development, making reference to its importance for individuals.

3.2.3 The Human Right to Development

Measures such as GDP or the HDI may be useful for showing a country's progress on a macro scale. However, they cannot tell us about the lives of individuals within the state, and it is to individual lives that the right to development is important. For example, an increase in a country's HDI score may be achieved in a context of increasing inequality within a state or in the presence of continued human rights violations. As Amnesty International's Secretary General, Salil Shetty states, 'the poorest, most disadvantaged and marginalised groups are being let down. Governmental drives to meet targets often ride rough-shod over basic human rights […] Governments need to stop paying lip service to human rights and make it central to the sustainable development agenda; otherwise targets are being achieved at the expense of deepening inequalities, discrimination and injustice. There is a widening gap between rich and poor and between men and women and those from minority groups.'[203] In state-level analyses of development it is entirely possible for human rights violations and inequalities within these faceless statistics to go unrecognised, since state level analyses of development, such as the Human Development Index, can only show averages of what is happening on a state level.

As stated in Article 1 of the 1986 Declaration on the Right to Development, 'The right to development is an inalienable human right by virtue of which every human person and all peoples are entitled to participate in, contribute to, and enjoy economic, social,

[203] Amnesty International, 'UN Millennium Development Goals: Human rights must not be marginalized in post-2015 agenda', (23 September 2013) [Online] (http://www.amnesty.org/en/news/un-millennium-development-goals-human-rights-must-not-be-marginalized-post-2015-agenda-2013-09-) [Accessed 20 June 2014].

cultural and political development, in which all human rights and fundamental freedoms can be fully realized'.[204] Development involves 'a process of expanding the real freedoms that people enjoy'.[205] It is important because of what it brings to individual human persons.[206] As such, it is 'the human person [that] is the central subject of the development process [and] development policy should therefore make the human being the main participant and beneficiary of development'.[207] The right to development is not, therefore a right of states, but a right of individuals. Fulfilment of the right to development cannot be captured by state level analyses and statistics. It is measured in the wellbeing of individual lives; their ability to fulfil their needs and rights, and the freedom to do so. As Sen states, 'the basic concern [of freedom] is with our capability to lead the kind of lives we have reason to value.'[208]

A detailed account of what the right to development entails is given by Arjun Sengupta, the 'Independent Expert on the Right to Development' for the Human Rights Commission. He states:

'The right to development refers to a process of development which leads to the realization of each human right and of all of them together and which has to be carried out in a manner known as rights-based, in accordance with the international human rights standards, as a participatory, non-discriminatory, accountable and transparent process with equity in decision-making and sharing of the fruits of the process. Equity—which is essential to any notion of human rights derived from the idea of equality of all human beings in rights, dignity and opportunity, and is associated with fairness or the principles of a just society—is basic to that process. Secondly, the objectives of development should be expressed in terms of claims or entitlements of right-holders, which duty-bearers must protect and promote. The identification of the corresponding obligation at the national and the international level is essential to a rights-based approach. As the Declaration on the Right to Development itself points out, the primary responsibility for implementing the right to development belongs to states. The beneficiaries are individuals. The international community has the duty to cooperate to enable the states to fulfil their obligations.'[209]

What we refer to when we discuss the right to development is therefore not a right of a state to economic growth, or an increase in an index measuring the state average, but a process of human development in which human rights fulfilment plays a key role. This development is a process that goes from initially lifting people out of dire poverty to a situation in which they have the opportunity to fulfil a broad range of human rights.

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[204] UN General Assembly, 'Declaration on the Right to Development'.
[205] Sen, 'Development as Freedom', 3.
[206] Sen, 'Development as Freedom', 285.
[207] UN General Assembly, 'Declaration on the Right to Development'.
[208] Sen, 'Development as Freedom', 285.
[209] Sengupta, 'On the Theory and Practice of the Right to Development', 846.

States are key actors in the process of development, not as rights-holders but as key duty bearers of the responsibility to fulfil this right, as embodied in Article 3,which reads, 'States have the primary responsibility for the creation of national and international conditions favourable to the realization of the right to development.'[210] I will now present a prima facie defence of the claim that the right to development can justify increasing greenhouse gas emissions within a state that requires emissions to fulfil this right.

3.2.4 A Prima Facie Defence of China's Position

I have so far argued that the right to development is a right of individuals to a process of development, in which they have the capability to lead a life in which they are able to realise their human rights. The right to development places the duty on states both to pursue domestic development policies that will enable their own citizens to fulfil their rights to development, and also to cooperate internationally to create a fair international system in which individuals in other states also have the opportunity to fulfil their rights to development. As article 2(3) of the Declaration on the Right to Development indicates, 'states have the right and the duty to formulate appropriate national development policies'.[211] In line with this, developing countries, such as China, may argue that this justifies their prioritisation of national development policies, and that the international community must allow this in accordance with its role of secondary duty bearer responsible for providing the conditions for development to take place. The process of fulfilling the right to development is likely to require increasing emissions for China, and other developing countries, since fossil fuels often provide the most inexpensive means of generating energy. As Baer explains:

'The only proven routes to development – to water and food security, improved health care and education, and secure livelihoods – involve expanding access to energy services, and, given today's inadequate, expensive, low-carbon energy systems, and the South's limited ability to afford them, these routes inevitably threaten an increase in fossil fuel use and thus carbon emissions.'[212]

Restricting emissions growth might therefore jeopardise the processes that are needed to enable development. Given the essential rights embodied in the right to development, developing states may be justified in claiming that their citizens have a right to development and that taking on costly climate measures or capping carbon emissions

[210] UN General Assembly, 'Declaration on the Right to Development'.
[211] UN General Assembly, 'Declaration on the Right to Development'.
[212] Baer et al, 'The Greenhouse Development Rights Framework', 15.

would jeopardise their efforts to make the realisation of the right to development possible.

In the following section, I shall address two key objections to the prima facie defence of China's position, which has defended the claim that emissions increases can be justified if these are needed to fulfil the right to development. Section 3.3 will address the objection that development should be sustainable, and thus emissions increases in developing states are not justified. Section 3.4 will then address the objection raised by the 'holistic approach' to human rights, which claims that China might not be a fit actor for fulfilling the right to development of its citizens, due to the lack of commitment China has shown to defending wider human rights fulfilment domestically.

3.3 The Sustainable Development Objection

The first objection to the prima facie defence of China's position is that development must be sustainable. This objection does not deny a right to development, but places a constraint on the means that may be used to develop. I will first discuss the meaning of the term 'sustainable development', and it's use in international climate documents. I will then show that the 'strong version' of the sustainable development argument is unfounded since it is not sensitive to the fact that not all emissions are fulfilling morally important ends. I will make reference to Henry Shue's two category distinction between 'subsistence' and 'luxury emissions', before arguing that we should support a third category of 'development emissions'.[213] I will argue that the high level of global luxury emissions should be reduced before development emissions. As such, the argument for sustainable development is not inconsistent with an increase in development emissions, as long as the overall balance of emissions is reduced. I will further argue that the duty to develop sustainably should be primarily borne by developed actors and corporations, who should work together to provide the means for this to take place. Finally, I will consider two possible suggestions for the implementation of the duty to enable sustainable development. I will begin with an outline of the objection.

This objection claims that there is a right to *sustainable* development, entitling rights-bearers to develop sustainably. In recent years, the term 'sustainable development' has seen widespread growth in its use, and importance in international discussions. Principle three of the 1992 Rio Declaration states:

[213] Shue, 'Subsistence Emissions and Luxury Emissions'.

'The right to development must be fulfilled so as to equitably meet developmental and environmental needs of present and future generations.'[214]

Twenty years later, at the Rio+20 Conference, the parties 'reaffirm[ed] the need to achieve sustainable development'.[215] The outcome document makes specific references to the implications for climate change agreements. Article 25 states that parties:

'Acknowledge that climate change is a cross-cutting and persistent crisis and express our concern that the scale and gravity of the negative impacts of climate change affect all countries and undermine the ability of all countries, in particular, developing countries, to achieve sustainable development and the Millennium Development Goals and threaten the viability and survival of nations. Therefore we underscore that combating climate change requires urgent and ambitious action, in accordance with the principles and provisions of the United Nations Framework Convention on Climate Change.'[216]

The addition of the sustainability clause to the idea of development has significant implications for what rights-holders can reasonably demand, and how processes of development should take place. We might refer to the following definition from the UN World Commission on Environment and Development (WCED) in 1987, which is the first time the term was used in an official context to denote the link between environmental and developmental needs:

'Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.'[217]

Global emissions must sharply decline in order to avoid tipping the climate into a state of irreversible change, which would have dire consequences for the future of the planet and its human and non-human inhabitants. The idea of developing *sustainably* recognises the need to develop in such a way that the fulfilment of current development needs does not impinge on the needs of future generations.

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[214] UNCED, 'Rio Declaration on Environment and Development', (3-14 June 1992) [Online] (http://www.unep.org/Documents.Multilingual/Default.asp?DocumentID=78&ArticleID=1163). [Accessed 21 December 2010].
[215] UNCSD, 'The Future We Want', (20 June 2012) [Online] (http://www.uncsd2012.org/content/documents/727The%20Future%20We%20Want%2019%20June%201230pm.pdf). [Accessed 25 October 2012].
[216] UNCSD, 'The Future We Want'.
[217] UN, 'Our Common Future: Report of the World Commission on Environment and Development', (1987) [Online] (http://www.un-documents.net/ocf-02.htm). [Accessed 4 March 2014].

3.3.1 The 'Strong Version' of the Sustainable Development Argument

I will now present the 'strong version' of the argument for sustainable development. This claims that in the event that the means for sustainable development are unavailable, a limit should be placed on the process of development. For example, the unavailability of resources might be due to sustainable technologies being too expensive or beyond the technological competences of the state in question. This strong version of the sustainability condition claims that it is not justifiable for states to increase their emissions in order to meet the development needs of current individuals since emissions increases will jeopardise the rights of future individuals. Such development would be unsustainable. The implications of the strong version of the sustainability condition would likely be widespread non-realisation of the right to development due to the limited energy solutions available in most parts of the world. Figures show that currently only 19% of the world's energy production is met using renewable energy sources, many of which are much more costly than fossil fuels.[218] This limited capacity to produce energy in a carbon neutral way on a global scale means that in most cases individuals do not have much choice about the source of their energy, and many developing states do not have the capacity to provide sustainable options to their citizens. Indeed, within developing countries, 60% of people do not even have access to any form of 'modern fuels', which includes 'electricity, liquid fuels (such as kerosene), and gaseous fuels (such as liquefied petroleum gas (LPG), natural gas), and excludes traditional biomass and coal.'[219] From the perspective of the rights-bearers, they may have little choice about the type of energy sources they can use. Since access to energy resources is highly precarious in many parts of the world, and developing states may not be readily able to provide their citizens with the means to develop sustainably, it may be argued, therefore, that developing countries have no reasonable choice but to increase their carbon emissions if they wish to develop.

The strong version of the sustainability condition, which implies that current individuals should be obliged to stay in poverty if their only way of developing involves increasing carbon emissions, is clearly morally dubious. While the risks of serious impacts that would jeopardise the human rights of future people provide strong support for the

[218] REN21, 'Renewables 2014: Global Status Report', (2014) [Online] (http://www.ren21.net/Portals/0/documents/Resources/GSR/2014/GSR2014_KeyFindings_low%20res.pdf). [Accessed 1 July 2014].
[219] Gwénaëlle Legros, et al, 'The Energy Access Situation in Developing Countries', *UNDP* (November 2009) [Online] (http://www.undpcc.org/undpcc/files/docs/publications/Energy_Access_Situation_in_DCs-Final%20Report.pdf). [Accessed 1 July 2014]: 13.

sustainability condition, it seems unfair to current individuals living in poverty to argue that any increase in emissions in order to fulfil their right to development is unjustified. However, a more modest version of the sustainability condition may be more plausible. The strong version considers the emissions that an individual is using for development in isolation, yet it is at the global level that emissions must decrease. As such, an overall decrease in global emissions may not be inconsistent with an increase in some parts of the world as long as this is counterbalanced by a greater decrease in other parts. In what follows, I will defend a modest version of the sustainable development argument, which locates the responsibility for reducing global emissions with affluent actors, including developed states, corporations and rich individuals everywhere, rather than placing this responsibility on those that are using emissions as a means to fulfil their right to development. I will base my argument upon the assertion that some types of emissions are more morally important than others, and that those of least moral importance should be reduced before we require a limit on emissions serving development needs.

3.3.2 Subsistence Emissions and Luxury Emissions

In literature on climate justice, emissions are generally considered to fall into two distinct classes. Henry Shue's widely referenced paper 'Subsistence emissions and luxury emissions' first developed the idea of these two distinct categories of emissions. First, there are 'subsistence emissions'. These emissions are produced to meet essential ends without which human beings cannot live. For Shue, subsistence emissions include those which are needed to fulfil a person's 'basic rights', including such interests as 'adequate food, adequate clothing [and] adequate shelter.'[220] Subsistence emissions are necessary both in the nature of the essential ends they fulfil but also due to the fact that they are the only option for energy generation where there are no affordable or safe alternatives which do not produce greenhouse gas emissions. Subsistence emissions are therefore positively correlated with poverty. Luxury emissions, on the other hand are emissions that are fulfilling needs that are superfluous to important human interest, and are associated with high levels of income.

Latest figures from the World Bank show that 310 million people in China (or 23.2% of China's population) are living below the international poverty line of $2 per day.[221] There is some debate about the level of income which should denote an international

[220] Henry Shue, *Basic Rights: Subsistence, Affluence, and U.S. Foreign Policy* (Princeton: Princeton University Press, 1996): 23.
[221] World Bank, 'Poverty and Equity: China', (n.d.) [Online] (http://povertydata.worldbank.org/poverty/country/CHN). [Accessed 25 June 2014].

'poverty line', with the World Bank classing 'extreme poverty' as being below what some have argued to be an 'outrageously low' figure of $1.25 per day.[222] Pogge has argued that $2.50 per day would be 'a more adequate poverty line', which would increase the poverty headcount to 427 million Chinese individuals, or 32% of the population.[223] These figures show that the number of people living in poverty in China is more than the whole population of the United States (318 million), with approximately 110 million more added to that if we use the $2.50 poverty line.[224] The large number of individuals living in poverty in China means that a large proportion of China's emissions are going towards the fulfilment of the subsistence needs of these people. So, many of China's emissions are fulfilling morally important needs to subsistence. As we saw earlier, the process of development is likely to require increasing emissions. The hundreds of millions of Chinese citizens that are on the low end of the development scale are likely to need to cause an increase in emissions as they move along the process of development. Globally, engaging with activities that produce emissions is fulfilling different needs for different actors. The emissions of those that are engaging with emission-processes in order to fulfil their human rights needs are of much greater moral importance than emissions being produced by others elsewhere which are not meeting essential ends. As the key duty bearer for the right to development of Chinese citizens, the Chinese state may therefore be justified in refusing to cap emissions, since a large number of individuals in China are using emissions to fulfil their vital human needs. As Shue argues:

'The CO2 emissions of most countries that contain large percentages of the human population will be rising for some time. I believe that the emissions from these poor, economically less-developed countries also ought to rise insofar as this rise is necessary to provide a minimally decent standard of living for their now impoverished people … Those living in desperate poverty ought not to be required to restrain their emissions, thereby remaining in poverty, in order that those living in luxury should not have to restrain their emissions.'[225]

Shue's differentiation between two classes of emissions highlights the unfairness in the claim that emissions due to development must be 'restrained' whilst there are non-

[222] Keane Bhatt, 'Thomas Pogge on the Past, Present and Future of Global Poverty', *Truthout* (29 May 2011) [Online] (http://truth-out.org/news/item/792:thomas-pogge-on-the-past-present-and-future-of-global-poverty). [Accessed 10 January 2014].
[223] Bhatt, 'Thomas Pogge on the Past, Present and Future of Global Poverty'; World Bank, 'Poverty and Equity: China', (n.d.) [Online] (http://povertydata.worldbank.org/poverty/country/CHN). [Accessed 25 June 2014].
[224] US Census Bureau, 'U.S. and World Population Clock' (continually updated) [Online] (http://www.census.gov/popclock/). [Accessed 30 June 2014].
[225] Shue, 'Subsistence Emissions and Luxury Emissions', 42.

essential 'luxury' emissions taking place in the world. The idea that there are two classes of emissions, 'subsistence' and 'luxury', is widely cited within the literature on climate justice and seems intuitively plausible. It enables us to differentiate between that which is essential, and that which is not, in order to give priority to the former when atmospheric space for emissions is limited. As Shue argues, 'justice requires that one not begin by slowing the economic development of the countries in which considerable numbers of people are already close to the edge of starvation so that the affluent can retain more of their affluence than they could if the poor countries contributed less'. He concludes, 'poor nations, therefore, ought not to be required to make sacrifices in their sustainable development.' In this way, developing countries may be justified in claiming that their emissions should be allowed to increase in the short term, if these emissions are fulfilling subsistence rights, whilst affluent states and individuals continue to emit high levels of luxury emissions. We can dismiss the strong version of the sustainability condition, which states that no emissions increases are acceptable, since increasing subsistence emissions can be counter-balanced by decreasing luxury emissions. As Shue states, 'the central point about equity is that it is not equitable to ask some people to surrender necessities so that other people can retain luxuries.'[226]

3.3.3 A Third Category of 'Development Emissions'

However, as we have seen, the process of development is complex, and goes far beyond meeting the basic subsistence needs of individuals. Not all emissions used for development can be considered to be subsistence emissions, but they can hardly be considered to be luxury emissions either. The two-category division, whereby emissions are either subsistence or luxury, may lead to the conclusion that all emissions which are not fulfilling subsistence needs must therefore be luxury emissions. On this account, emissions that are for human development ends above the level of subsistence are placed in the same category as emissions that are fulfilling luxury ends. However, it is quite clear that the process of fulfilling the human right to development should not be considered a 'luxury', unless 'luxury' means only that which is not essential for survival. If this is the way we interpret the term, we may need a way of distinguishing between different types of 'luxury' that are more or less morally important. However, what may be considered to be an extravagance or luxury in one society may be the norm in another society. As Kemp states:

[226] Shue, 'Subsistence Emissions and Luxury Emissions', 56.

'The perception of what is necessity and what is luxury does vary from society to society despite the apparently constant nature of basic human needs. Moreover, although the status of goods as luxuries is partly determined by social perception, it is possible for different people to disagree as to whether particular commodities are luxuries or necessities.'[227]

Since the idea of luxury may be context dependent, I suggest defining a third class of emissions rather than attempting to compare the relative 'luxury' of all emissions above the subsistence level. The fulfilment of the right to development is likely to involve increased energy use. Emissions produced in the pursuit of realising this right are of a much higher moral importance than emissions produced for luxury ends. It seems intuitively plausible, therefore, to distinguish between these types of emissions. Let us call this third class of emissions 'development emissions'. Whilst the idea of 'development emissions' is novel in the existing literature, we might infer a similar idea from Traxler's statement that 'emissions become progressively more excusable as we move from inexcusable luxury emissions to fully excused subsistence emissions.'[228] Whilst subsistence emissions are morally justified, development emissions represent a third category in the scale, which become gradually less excusable as an actor moves along the path to development. The right to development provides a morally important reason for engaging with emissions-processes, where the ends being fulfilled by the emissions are meeting human rights. It is on the basis of the need for subsistence or development emissions that a state may appeal to the international community to allow it space to increase emissions. As Vanderheiden states:

'While the right to develop cannot trump the right to survival emissions (nor can it trump the equally basic right to an adequate environment), the former must be recognized as making a more compelling claim to limited atmospheric space than do those de facto claims now being made upon that space by the relatively affluent residents of industrialized nations, who selfishly seek to protect and enlarge their undeserved advantages by denying to the less advantaged a prerogative (i.e. sufficient emissions for development) upon which their present prosperity is largely based.'[229]

Along with Traxler's statement, Vanderheiden's claim also lends support to the idea of developing a third class of emissions which fall below subsistence emissions in terms of their moral importance but are clearly more important than 'excessive luxury emissions'.[230]

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[227] Simon Kemp, 'Perceiving luxury and necessity', *Journal of Economic Psychology,* 19:5 (1998): 593.
[228] Martino Traxler, 'Fair Chore Division for Climate Change', *Social Theory and Practice,* 28 (2002): 109.
[229] Vanderheiden, 'Climate Change, Environmental Rights, and Emissions Shares', 19.
[230] Vanderheiden, 'Climate Change, Environmental Rights, and Emissions Shares', 19.

In the context of our discussion, we need to consider where these 'development emissions' fit in to our account of sustainable development. Whilst subsistence emissions are entirely excusable, and those who produce them should be exempt from liability for the costs of climate change mitigation, what should we say about development emissions beyond subsistence? The right to a hospitable environment is a basic human right that the sustainable development argument aims to protect by limiting emissions and preventing lock-in of unsustainable ways of generating energy. Whilst the right to development is an issue of human rights, human development above the subsistence threshold cannot outweigh the right of future people to a hospitable environment, without which their very survival is untenable. Development emissions cannot provide a moral justification for increasing emissions where this will jeopardise the basic rights of future people. So, the sustainability condition on the right to development does not limit subsistence emissions, but does limit development emissions where those emissions might lead to the subsistence rights of future generations being compromised.

However, the three classes of emissions enable us to differentiate between emissions based upon their moral relevance, and weigh up the moral importance of the ends being met by these emissions with the right of future people to a safe and healthy environment. Subsistence and development emissions are both meeting human rights needs. Whilst an increase in global emissions jeopardises the human rights of future people, the global picture of emissions involves a third type of emission which is not fulfilling any need of comparable moral importance. The empirical reality of climate change means that we do not need to make a choice between the fulfilment of *human rights* of current and future people. Whilst development emissions might be limited for the sake of subsistent emissions, they should not be limited for the sake of luxury emissions. Given this, the question arises as to why those using emissions for development needs should bear responsibility for sustainability when the developed world and affluent individuals everywhere are using many times more emissions for comparatively luxurious ends. The primary responsibility for reducing global emissions must fall on those who are responsible for high levels of luxury emissions, including developed states, corporations and affluent individuals everywhere.

3.3.4 Preventing Lock-in in Developing Countries

So far, I have argued that more affluent states, whose populations have higher levels of development and are producing luxury emissions, should be held responsible for

enabling less affluent states to fulfil their duty to their citizens to secure their citizens' right to development. I have suggested that this implies that less affluent states can continue to increase both their subsistence and their development emissions while more affluent states should reduce their luxury emissions. But there is one further consideration. If we allow development to take place using unsustainable means, we are likely to find that the same means used for development will continue to be used once human development is achieved. In other words, it is likely to lead to lock-in of 'dirty' technologies. It is therefore important that the international community of states and corporations work together to prevent such 'lock-in' of unsustainable energy systems, since whilst development is taking place and most emissions are subsistence and development, developing states are unlikely to have the resources or technological know-how to implement sustainable technologies on a large scale. The costs of setting up large-scale energy production systems will mean that these systems are likely to continue being used even once human development reaches a satisfactory level within the state. This is known as 'lock-in', and is indeed one of the further arguments for *sustainable* development, which is to avoid developing countries being locked-in to carbon-intensive energy production systems.[231] If a country develops its energy system by building coal-plants, for example, it is likely that it will continue to use this form of energy generation for several decades since it takes 30-40 years for the returns from the investment in the original plant to be recovered.[232] The fact that advanced energy systems may not yet be in place in many developing countries means that this is an opportunity to prevent future emissions before they occur by making the initial energy systems sustainable. Research from leading global management consulting firm McKinsey& Company states, 'any new investment in "clean" alternatives (nuclear and renewable energy) needs to arrive before any major expansion of coal-based power generation. Pre-empting the lock-in effect is critical for China given its stage of economic development and the scale of its population.'[233] Within economic circles this is often referred to as 'green growth', which 'offers a development pathway that

[231] W. Brian Arthur, 'Competing Technologies, Increasing Returns, and Lock-In by Historical Events', *The Economic Journal,* 99 (1989): 116-131.
[232] McKinsey and Company, 'China's Green Revolution', (February 2009) [Online] (http://www.mckinsey.com/~/media/mckinsey/dotcom/client_service/sustainability/cost%20curve%20pdfs/china_green_revolution.ashx). [Accessed 24 June 2014]: 49.
[233] McKinsey and Company, 'China's Green Revolution', 49.

reconciles the urgent need for sustained growth with the imperative of avoiding lock-in to unsustainable growth patterns and irreversible environmental damage.'[234]

The current 'developed countries' developed in largely unsustainable ways, producing a large proportion of carbon emissions, which we now refer to as historic emissions. I will discuss this further in Chapter Five. The aim of sustainable development is to avoid the currently developing countries being 'locked-in' to the same carbon-intensive system of fossil fuel based energy production. However, since developing countries may lack the resources to prevent this 'lock-in', and since developed states have high levels of technological know-how as well as high levels of luxury emissions, as members of the international community with the responsibility to enable the right to development, the initial responsibility for the costs of preventing lock-in and enabling sustainable development lies with the developed states. As Baer et al argue, the 'industrialised states' must fulfil their 'dual obligation to not only make major domestic cuts but also to make equally ambitious commitments to support international mitigation and adaptation.'[235] As development takes place, the governments of developing countries have more and more responsibility to ensure that their development is sustainable. For example, this might involve putting into place laws, which regulate energy standards of new buildings, or making sure that the resources provided by developed countries are equitably shared amongst their populations in order to make it possible for development to take place sustainably. China is taking this type of measure already, for example, the Chinese state has introduced a new policy to exempt buyers of electric cars from paying the standard 10% tax on their vehicles, as well as providing subsidies for the cost of the cars themselves.[236] Developed states have the responsibility to bear the initial costs of sustainable development in order to enable developing states to then develop policies to fulfil the right to development of their citizens in a truly sustainable way.

3.3.5 Enabling Access to Sustainable Development

The previous discussion has argued that states and affluent actors should bear responsibility for sustainability. The way in which this should be implemented in

[234] World Bank 'FAQ: Inclusive Green Growth', (n.d.) [Online] (http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTSDNET/0,,contentMDK:23185024~pagePK:64885161~piPK:64884432~theSitePK:5929282,00.html). [Accessed 10 June 2014]; See also: OECD, 'Green growth and sustainable development', (n.d.) [Online] (http://www.oecd.org/greengrowth/oecdworkongreengrowth.htm). [Accessed 10 June 2014].
[235] Baer et al, 'The Greenhouse Development Rights Framework', 6.
[236] AFP, 'China makes new electric cars tax-free', *The Guardian*, (10 July 2014) [Online] (http://www.theguardian.com/environment/2014/jul/10/china-exempts-electric-cars-from-tax). [Accessed 10 July 2014].

practice is a further question. The issue of providing 'equitable access to sustainable development' has made progress politically, being mandated by decision 1/CP.16 of the COP16 meeting in Cancun in 2010.[237] Existing work suggests there are different ways in which this distribution of costs for sustainable development might be implemented practically, though to date the practical solutions have not been entirely effective. For example, one of the 'two objectives' of the Clean Development Mechanism (CDM), which forms part of the Kyoto Protocol, is to enable sustainable development funded by developed countries to take place in developing countries.[238] In order to make this appealing to the funding countries, they are allowed to deduct the reductions in emissions (compared to a hypothetical level which would have otherwise occurred) from their own national emission totals. In this way, the Clean Development Mechanism aims to 'stimulate sustainable development and emission reductions, while giving industrialized countries some flexibility in how they meet their emission reduction or limitation targets.'[239] The effectiveness of the CDM in fulfilling this goal of sustainable development has, however, been questioned by several commentators. Sutter and Parreno argue that 'the absence of international sustainable development standards alongside a highly competitive supply side of the CDM is likely to cause a trade-off in favour of the cost-efficient emission reduction objective.'[240] Olsen comes to a similar conclusion, arguing that the CDM 'does not work' in its current form since its market-based nature means that there are 'trade-offs between the two goals of the mechanism in favour of producing low-cost emission reductions at the expense of achieving sustainable development benefits'.[241] Bumpus and Cole 'concur with other authors that the CDM as it stands does not 'deliver' sustainable development'.[242]

So, 'as it stands', the CDM does not contribute to the right to development. It is more useful as a tool to enable emissions reductions to take place globally in the most cost

[237] UNFCCC, 'Report of the Conference of the Parties on its sixteenth session, held in Cancun from 29 November to 10 December 2010', (15 March 2011) [Online] (http://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf). [Accessed 6 June 2014]: 3.
[238] Christoph Sutter and Juan Carlos Parreño, 'Does the current Clean Development Mechanism (CDM) deliver its sustainable development claim? An analysis of officially registered CDM projects', *Climatic Change,* 84 (2007): 75.
[239] UNFCCC, 'Clean Development Mechanism (CDM)', (n.d.) [Online] (https://unfccc.int/kyoto_protocol/mechanisms/clean_development_mechanism/items/2718.php). [Accessed 17 June 2014].
[240] Sutter and Parreno, 'Does the current Clean Development Mechanism (CDM) deliver its sustainable development claim?', 76.
[241] Karen Holm Olsen, 'The clean development mechanism's contribution to sustainable development: a review of the literature', *Climatic Change,* 84 (2007): 67.
[242] Adam G. Bumpus and John C. Cole, 'How can the current CDM deliver sustainable development?', *Wiley Interdisciplinary Reviews: Climate Change,* 1 (2010): 541-547.

effective manner. A similar measure which placed less emphasis on allowing developed countries to choose the lowest cost options for achieving certified emissions reductions, and instead placed sustainable development at its core might be effective. An alternative approach could follow Baer et al's Greenhouse Development Rights (GDR) Framework, which is based directly upon the right to development of individuals everywhere, and is therefore justice-based rather than purely economic with a sustainable development add-on. They state:

'The core of the GDRs framework is the right to sustainable development, from which we derive an effort-sharing system that combines a measure of responsibility (historic contributions to greenhouse gas pollution, excluding emissions associated with meeting basic necessities) with a measure of capacity (broadly, the ability to pay for mitigation and adaptation, without sacrificing necessities).'[243]

As such, Baer et al propose a framework that requires developed countries with the greatest financial and technological capacity, as well as greater historic emissions, to undertake or pay for a share of the mitigation measures in developing countries in order to promote global emissions reductions as well as sustainable development. This might involve creating a global fund to support sustainable development.

In response to the objection that development must be sustainable, I have argued that subsistence and development emissions are morally excusable in a global system that includes so many luxury emissions. I have defended the claim that actors become gradually more responsible for the sustainability of their energy systems as they move along the development path, while the initial responsibility for the costs of enabling sustainable development lies with the developed states. Duties lie with affluent actors in all states, including China, who can reduce their own emissions to make atmospheric space for development emissions, and corporations who must play their role in enabling the transfer of technology. Whilst subsistence and development emissions are excusable, development is a process in which human needs are fulfilled, and is not an excuse for economic growth for the sake of growth. As people begin to have their needs fulfilled, they also gradually become part of the group of actors that we expect to bear climate duties. The term 'sustainable development' thus also embodies the idea that whilst essential needs at the beginning of the path to development may justifiably be achieved using whatever means possible, as individuals and groups become more developed, their responsibility for the emissions they are producing also increases.

[243] Baer et al, 'The Greenhouse Development Rights Framework', 49.

It does not seem to make sense to talk of a certain point or a threshold at which liability for development emissions suddenly become the responsibility of those who are developing. This may differ in different cases depending on ease of access to alternative methods of energy production and also the specific levels of human development and rights that are being fulfilled. It seems reasonable, therefore, to claim that development must be *sustainable* in the sense that rights bearers should gradually take on responsibility for their actions. Emissions are morally justifiable when they are used for subsistence, excusable at the lower ends of development, becoming gradually less excusable as their development needs are fulfilled until they become fully responsible for controlling their 'luxury' emissions.

The sustainable development objection has led us to the conclusion that the right to development should be achieved sustainably, but that liability for this is initially with the duty bearers and not with the rights holders. As development takes place, the rights holders gradually accrue greater responsibility for their actions as they become more developed and have greater capacity to adopt cleaner technologies and therefore less justification in using 'whatever means necessary' for their own development needs. The implications for developing countries' claims that their right to development entails reduced climate responsibilities will depend on the situation of peoples within each country.

As we saw earlier, the situation within China involves almost 400 million people living in poverty, and who are therefore likely to be using subsistence and development emissions. To the extent that China is unable to fulfil the needs of its citizens at the lowest end of the development scale without emissions increases, the sustainable development argument obliges states and corporations with the capacity to provide clean technologies to do so. But China might also be required to be ensuring that emissions increases are contributing towards human rights fulfilment. As I will discuss in the following section, China might be required to repurpose some of its emissions towards sectors that contribute to human rights. State-level emission increases can only be justified if they are required to fulfil subsistence and development needs. This means that developing states that are permitted to increase their emissions should ensure that increases are fulfilling these needs, and are not the result of luxury emissions of rich actors within their borders. This is a key point. As our multi-actor account showed, individuals and corporations are also responsible for climate duties, and we must not let state level negotiations allow those within the state who have the capacity to contribute

to climate change mitigation to 'hide behind their states' poverty'.[244] So whilst China's poor may warrant reduced national climate duties, this must be in line with China's most affluent fulfilling their separate duties as capable climate actors whose emissions are not needed for subsistence or development.

3.4 A Holistic Approach to Human Rights

Let us now move on to the second major objection to the claim that the right to development entitles developing countries to reduced climate responsibilities. The objection is that if a state is not a 'fit agent' to fulfil the role of primary duty bearer for the right to development of its people, for example, because it fails to respect or protect their human rights, then it cannot claim that their right to development justifies increasing emissions. So, if China is not fit to fulfil the role of primary duty bearer for the right to development of Chinese citizens, then, in line with our multi-actor approach, this objection claims that other actors in the international sphere should seek to work directly with the rights bearers to promote their right to development. In this section, I will argue that China is not fit to fulfil that role, based upon the claim that China has not demonstrated a domestic commitment to enabling human rights fulfilment. However, I will concede that it is likely to be extremely difficult for other actors to work around the Chinese state. Therefore, the right to development of Chinese citizens might justify a reduction in the climate responsibilities of the Chinese state because imposing demanding climate responsibilities on the Chinese state (if it were possible to do so) would be likely to lead to the further impoverishment of those in the most need of help to achieve development. So, this section will consider the implications of the holistic approach to China's position.

As Caney explains, 'the acceptance of some specific rights entails the acceptance of some other specific rights', since, 'the rationale grounding one right also grounds another distinct right'.[245] This is known as 'rights holism'.[246] The right to development entails the fulfilment of several different human rights that are essential to the process of development. Claiming the importance of the right to development thus entails the acceptance of the importance of certain other rights. Article 6.2 of the 1986 Declaration states:

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[244] Harris, *World Ethics and Climate Change*, 7.
[245] Simon Caney, *Justice Beyond Borders*, 83.
[246] For further discussion, see Cecile Fabre, *Social Rights under the Constitution: Government and the Decent Life* (Oxford: Oxford University Press, 2000); Henry Shue, *Basic Rights: Subsistence, Affluence, and U.S. Foreign Policy*.

'All human rights and fundamental freedoms are indivisible and interdependent; equal attention and urgent consideration should be given to the implementation, promotion and protection of civil, political, economic, social and cultural rights.'[247]

It would be inconsistent for an actor to pledge a commitment to the right to development whilst simultaneously denying one or several of the human rights that form a key part of the process of development. As states are the key duty bearers for the right to development of their citizens, a requirement for being a fit actor to fulfil this right is respecting other human rights. The Vienna Declaration also refers to the 'interdependent and mutually reinforcing' nature of the issues necessary for the right to development, further affirming the need for a holist approach to the fulfilment of the right to development.[248] The implication of this for our purposes is that a claim to a right to development as a reason for continuing growth of emissions, despite the need to mitigate climate change, places responsibility upon the state in question to ensure that it has adopted a holistic approach to rights fulfilment within its borders. A state claiming the right to development of its people as a reason for increasing emissions is increasing the burden on other states to reduce their own emissions. If the claim to the right to development is legitimate, then this may well be justified since declarations on the right to development have committed the international community to create an environment in which the right to development can be fulfilled.

I have argued that the right to development entitles rights bearers to sustainably develop in order to reach a decent standard of well being and that this right entails a process of development in a broader context of respect for human rights in general. Viewed in this way, China's claim to its right to development seems to be weakened by its stance on human rights. Despite having a key role in the drafting of the UN Declaration on Human Rights, with the Vice Chairman of the drafting committee representing China, and voting in support of the adoption of the Declaration in the UN General Assembly of 1948 when the Declaration was formally adopted, China has been widely criticised by human rights organisations, civil movement groups and other states, for its record on human rights.[249] In this section I will first argue that China has not demonstrated a

[247] UN General Assembly, 'Declaration on the Right to Development'.
[248] UN General Assembly, 'Vienna Declaration and Programme of Action'.
[249] For example, see BBC News, 'UN criticizes China's rights record at Geneva meeting' (22 October 2013) [Online] (http://www.bbc.com/news/world-asia-china-24611657). [Accessed 9 November 2013]; United States Department of State, 'Country Reports on Human Rights Practices for 2013: China' (n.d.) [Online] (http://www.state.gov/j/drl/rls/hrrpt/humanrightsreport/index.htm?year=2013&dlid=220186#wrapper).

commitment to civil and political rights. I will consider the claim that developing states should prioritise socio-economic rights, which I do not find persuasive. However, even if we accept this claim, I will argue that China's position with regards to the fulfilment of socio-economic rights does not demonstrate a commitment to these rights either. As such, I will claim that according to the holistic approach China does not currently fulfil the criteria of a fit actor to bear the responsibility for the fulfilment of the right to development of its citizens. However, I will conclude that in order to protect the right to development of Chinese individuals, our best response would be to engage with China's position, whilst requiring improvement on commitment to human rights.

3.4.1 Civil and Political Rights

I shall first consider the situation in China with regards to civil and political rights. The rights I will discuss here are included in the International Covenant on Civil and Political Rights, which is referenced in the preamble of the Declaration on the Right to Development. Article 9 of the covenant states that 'No one shall be subjected to arbitrary arrest or detention.'[250] However, this is a key area of human rights for which China is often criticised. Reports from independent human rights agencies claim that arbitrary detentions are not unusual in China. A sample of organisations that have produced reports which give examples of this include Amnesty International and the World Organisation Against Torture.[251] A related civil and political right is found in article 14 of the covenant, which states:

'All persons shall be equal before the courts and tribunals. In the determination of any criminal charge against him, or of his rights and obligations in a suit at law, everyone shall be entitled to a fair and public hearing by a competent, independent and impartial tribunal established by law.'[252]

Human Rights Watch have produced a 142-page document detailing the 'control, intimidation and harassment of lawyers in China', in which it claims that 'lawyers often face violence, intimidation, threats, surveillance, harassment, arbitrary detention,

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[Accessed 18 February 2014]; Agence France-Presse, 'Hollande evoque les droits de l'homme devant son homologue chinois' (26 March 2014) [Online] (http://www.liberation.fr/politiques/2014/03/26/hollande-evoque-les-droits-de-l-homme-devant-son-homologue-chinois_990610). [Accessed 5 May 2014].

[250] UN General Assembly, 'International Covenant on Civil and Political Rights' (23 March 1976) [Online] (http://www.ohchr.org/en/professionalinterest/pages/ccpr.aspx). [Accessed 22 October 2012].

[251] Amnesty International, 'Arbitrary detention/Fear of torture and other ill-treatment' (02 February 2009) [Online] (http://www.amnesty.org/en/library/asset/ASA17/004/2009/en/f810d704-f14a-11dd-b725-0b1f440fe647/asa170042009en.html). [Accessed 29 November 2012]; World Organisation Against Torture, 'China: Arbitrary detention and disappearance since March 2014 of Mr. Choeying Kalden', (16 May 2014) [Online] (http://www.omct.org/urgent-campaigns/urgent-interventions/china/2014/05/d22675/) [Accessed 3 August 2014].

[252] UN General Assembly, 'International Covenant on Civil and Political Rights'.

prosecution, and suspension or disbarment from practicing law for pursuing their profession', and that 'this is particularly true in politically sensitive cases.'[253] Furthermore, the report claims that lawyers working to protect civil rights are 'disproportionately affected'.[254]

Consider next freedom of expression, which includes the 'freedom to seek, receive and impart information and ideas of all kinds'.[255] In China the media is highly controlled, including television, news outlets and the internet. Many internet pages including international news sites, such as the New York Times, and social networking sites, such as Twitter, YouTube and Facebook, are inaccessible from within China.[256] Information that Chinese citizens have access to is therefore severely controlled by government censorship.

These few examples raise fundamental questions about China's commitment to civil and political human rights. We have seen that within China, citizens are not able to exercise the full range of capabilities that their civil and political rights should afford them. Given the holistic nature of the approach required to fulfil the right to development, it may be that China cannot be regarded as a fit agent to fulfil this role.

3.4.2 Socio-economic vs. Political Rights

However, China might respond that as a developing state it must prioritise economic and social rights above political and civil rights. So whilst civil and political rights might currently be unsatisfactorily fulfilled, this is due to the pressing nature of socio-economic rights, which must be given priority. China made this claim in its 1991 Government White Paper entitled 'Human Rights in China' in which it states:

'China must give priority to political stability and economic rights over political rights – 'right[s] to subsistence' must take priority over political and civil rights in a large, poor nation such as China.'[257]

We can see further evidence of this stance in the fact that China has signed and ratified the International Covenant of Economic, Social and Cultural Rights, yet whilst it is a

[253] Human Rights Watch, 'Walking on Thin Ice', (2008) [Online] (http://www.hrw.org/sites/default/files/reports/china0408_1.pdf) [Accessed 9 August 2012]: 3.
[254] Human Rights Watch, 'Walking on Thin Ice', 3.
[255] United Nations, 'Universal Declaration of Human Rights', (n.d.) [Online] (http://www.un.org/en/documents/udhr/) [Accessed 4 March 2014].
[256] Blocked in China (http://www.blockedinchina.net/). (n.d.) [Online] [Accessed 7th February 2014].
[257] Juhyung Cho, 'Ideological competition between the United States and China in the field of human rights: Consequences for Chinese diplomacy', *Eras*, 12:2 (2011): 9.

signatory to the International Covenant on Civil and Political Rights, it has not ratified this treaty.[258] China argues that its 'national conditions' mean that it must prioritise certain rights over others. Consider the following statement from China regarding its reasons for its rights prioritisation:

'It is a simple truth that, for any country or nation, the right to subsistence is the most important of all human rights, without which the other rights are out of the question. The Universal Declaration of Human Rights affirms that everyone has the right to life, liberty and the security of person. In old China, aggression by imperialism and oppression by feudalism and bureaucrat-capitalism deprived the people of all guarantee for their lives, and an uncountable number of them perished in war and famine. To solve their human rights problems, the first thing for the Chinese people to do is, for historical reasons, to secure the right to subsistence.'[259]

It would be reasonable to suppose, therefore that China might respond to the holistic argument by claiming that as a developing country it must prioritise economic and social rights. This requires being able to defend itself and its sovereignty in order to create a stable environment in which Chinese citizens can then work to fulfil their civil and political rights. Without the creation of a stable domestic environment, human rights cannot be fulfilled.

I will argue that this response is unsatisfactory for two reasons. The first questions the legitimacy of the argument itself and the second aims to show that there are also many social and economic rights that Chinese citizens are currently unable to realise due to government policies, thereby undermining China's commitment to the rights it claims to be prioritising.

3.4.3 Prioritising 'Asian Values'

Let us first consider the claim that socio-economic rights should be prioritised over political and civil rights in a developing country. There is much debate on this subject. Much of this debate focuses on the different cultural norms between Western societal ideologies and 'Asian values' or 'Third World views', which are often seen to be

[258] UN General Assembly, 'International Covenant on Civil and Political Rights'; UN General Assembly, 'International Covenant on Economic, Social and Cultural Rights', (3 January 1976) [Online] (https://treaties.un.org/pages/viewdetails.aspx?chapter=4&lang=en&mtdsg_no=iv-3&src=treaty) [Accessed 21 November 2011].
[259] Chinese Government, 'The Right to Subsistence -The Foremost Human Right The Chinese People Long Fight for', (n.d.) [Online] (http://www.china.org.cn/e-white/7/7-I.htm). [Accessed 6 May 2013].

conflicting on this issue.[260] Space prevents a full discussion of the conflicting arguments, but the argument put forward by China that socio-economic rights must come before political and civil rights seems unpersuasive. As Donnelly argues:

'[This argument] fails to consider the contribution of civil and political rights to the realization of economic and social rights. The right to vote may have a major impact on the amelioration of living conditions in countries run by inept, corrupt, or vicious government.'[261]

Furthermore, where limited resources require making priorities and therefore choices, there is a difference between prioritising certain rights over others by allocating more resources to their fulfilment yet still respecting those which are deemed less urgent, and prioritising certain rights whilst actively restricting the 'secondary' civil and political rights. For example, it might be claimed that developing countries may not have the resources available to put into place expensive institutional bodies. One example of this could be a judiciary system of law courts, which would be necessary for the fulfilment of political and civil rights. The argument would claim that these rights can be fulfilled only once economic rights have been fulfilled. We might call this the 'affordability of rights'.[262] As Li explains:

'There are expensive rights (as well as cheap ones) … For example, poor societies may not have the necessary resources to build legal institutions that safeguard everyone's right (as specified in the ICCPR) "to a fair and public hearing by a competent, independent and impartial tribunal established by law"'.[263]

Whilst this might indeed be an expense that some developing countries could not afford, as we have seen, the problem in China relating to fair trials does not relate to the lack of infrastructure, but instead relates to the fact that these are controlled by the government, meaning that the independence needed for a fair trial is not possible. This is not a question of resources, but rather a question of political will.

Given the points considered above, it is difficult to see why an appeal to the 'right to development' should allow China reduced responsibilities in a climate burden sharing agreement. It does not seem consistent to claim a commitment to the right to development, a key part of which is to ensure access to human rights, whilst the state is currently restricting the ability of its citizens to fulfil these rights. Furthermore, the state

[260] See Sen, *Development as Freedom*; Jack Donnelly, 'Recent Trends in UN Human Rights Activity: Description and Polemic', *International Organization*, 35:04 (1981): 633-655.
[261] Donnelly, 'Recent Trends in UN Human Rights Activity: Description and Polemic', 645.
[262] Xiaorong Li, 'A question of Priorities: Human Rights, Development, and "Asian Values"', *Philosophy and Public Policy Quarterly*, 18:1 (1998): 8.
[263] Xiaorong Li, 'A question of Priorities: Human Rights, Development, and "Asian Values"', 8.

violation of other human rights puts into question the commitment of that state to the right that it claims entitles it to reduced climate duties. A cynical observer may call this hypocritical or even accuse China of using the 'right to development', which invokes the powerful resonance of the language of rights, as an excuse to continue its growth unhindered by climate responsibilities. The right to development specifically refers to 'an inalienable human right by virtue of which every human person and all peoples are entitled to participate in, contribute to, and enjoy economic, social, cultural and political development, in which *all human rights and fundamental freedoms* can be fully realized.' [264] It also states that, 'the promotion of, respect for and enjoyment of certain human rights and fundamental freedoms cannot justify the denial of other human rights and fundamental freedoms.'[265] It is difficult to provide a moral defence of the claim for special treatment due to the 'overriding priority' of fulfilling one right, whilst at the same time preventing another right that forms an integral part of the right being claimed.

3.4.4 Socio-economic Rights within China

The first response has questioned the moral justification of prioritising socio-economic rights over civil and political rights, from a strict holistic approach, which requires equal respect for political, civil and socio-economic rights. However, the second response will show that we do not have to appeal to the strict holistic argument of the mutual indivisibility of *all* rights in order to see that there is an inconsistency in China's position based on the rights which China claims are important for its development. In order to be considered a fit-actor in a holistic approach to human rights, the actor in question must, at the very least, show genuine commitment to the set of rights that it claims to be prioritising. Therefore, China's stated prioritisation of socio-economic rights must be consistent with domestic policies that affect these rights.

However, if we look at the effects of the Chinese state's policies on the fulfilment of the socio-economic rights of Chinese citizens, we are likely to have some concerns. For example, consider Article 8 of the International Covenant on Economic, Social and Cultural Rights (ICESCR):

'The States Parties to the present Covenant undertake to ensure the right of everyone to form trade unions and join the trade union of his choice, subject only to the rules of the

[264] UN General Assembly, 'Declaration on the Right to Development'. (Emphasis added)
[265] UN General Assembly, 'Declaration on the Right to Development'.

organization concerned, for the promotion and protection of his economic and social interests.'[266]

Within China, this right is not fulfilled, as there is only one legally recognised trade union. This is the 'All-China Federation of Trade Unions' (ACFTU), which is a government-controlled organisation. Chan argues that the ACFTU 'is an arm of the party–state', which, 'rejects criticisms of Chinese human and labour rights violations'.[267] Yu makes similar criticisms, stating 'the ACFTU tends to prioritize the state's goals over its function in representing workers' right and interests', since it 'lack[s] autonomy in relations with Chinese party-state and employers'.[268] The right to strike is another labour right that is not recognised in China, having been removed from the Chinese constitution in 1982.[269] A further right, which features in Article 13 of the ICESCR, is the right to education. The widely varying levels of fulfilment of this right are linked to the broader problem of growing inequality within China despite high levels of economic growth.[270] Rapid urbanisation and movement of migrant workers has created a situation in which many children living in urban areas are not eligible for their local schools due to the two tier 'household registration' system known as 'hukou' in which urban and rural individuals are granted different rights to access state social provisions.[271] This 'hierarchical system' has resulted in 'large populations of rural migrant children living in Chinese cities without urban hukou [being] effectively shut out of the public school system with few other viable options.'[272] As well as being denied access to education, these 'rural-urban migrants' are also 'treated as second-class citizens in the cities', and face a 'considerable wage disadvantage in comparison with nonretrenched [sic] urban workers.'[273] Such inequality alongside the non-realisation of socio-economic rights is surely inconsistent with any approach to human rights, which,

[266] UN General Assembly, 'International Covenant on Economic, Social and Cultural Rights'.
[267] Anita Chan, 'Racing to the bottom: international trade without a social clause', *Third World Quarterly,* 24:6 (2003): 1022, 1013.
[268] Xiaomin Yu, 'Impacts of Corporate Code of Conducton Labor Standards: A Case Study of Reebok's Athletic Footwear Supplier Factory in China', *Journal of Business Ethics,* 81 (2008): 518, 525.
[269] Hong Kong Liaison Office (IHLO), 'Industrial Strikes should be allowed to help build Harmonious Labour Relations' (October 2008) [Online] (http://www.ihlo.org/LRC/W/001008.html). [Accessed 17 June 2014].
[270] World Bank, 'GINI index', (n.d.) [Online] (http://data.worldbank.org/indicator/SI.POV.GINI). [Accessed 29 August 2014].
[271] Xiaogang Wu, 'The Household Registration System and Rural-Urban Educational Inequality in Contemporary China', *Chinese Sociological Review,* 44:2 (2011): 31-51.
[272] Kam Wing Chan, 'The Chinese Hukou System at 50', *Eurasian Geography and Economics*, 50:2 (2009): 203; Jessica L. Montgomery, 'The Inheritance of Inequality: Hukou and related barriers to compulsory education for China's migrant children', *Pacific Rim Law and Policy Journal,* 21:3 (2012): 592.
[273] John Knight, 'Inequality in China: An Overview', *The World Bank Research Observer,* 29:1 (2013): 5.

by the very nature of being concerned with human rights must treat humans as being worthy of equal respect and dignity.

Given the examples above, it is not clear that China is effectively prioritising socio-economic rights above civil and political rights, since there are several examples in which important socio-economic rights are not being fulfilled. So, even if we put aside the non-realisation of political and civil human rights and accept China's claim that certain rights must be prioritised above others in the path to development, the examples above give us strong reason to question the Chinese state's true commitment to rights in general since even the rights which are supposedly supported are not being fulfilled in practice. There is much progress that needs to be made before China could realistically be considered a fit actor for the right to development even in a highly diluted version of the holistic approach, which would overlook failures in political and civil rights fulfilment.

3.4.5 The Gatekeeping Role of the State

The current domestic policies within China make it difficult to justify the claim that its climate responsibilities should be reduced because of its citizens' *rights* to development. However, whilst we might have reason to reject the Chinese state's use of this argument in climate negotiations, we should not forget that Chinese citizens still have the individual human right to development.

In such a situation, there appear to be two options for the international community. The first option would involve denying the state any emissions increases since it is not a fit actor to bear the duty to fulfil the right to development of its citizens. However, this is likely to have a detrimental effect on the realisation of the right to development because it is likely that emissions increases would be required to fulfil the subsistence and development needs of its citizens. In the current global system of states, individuals are highly reliant on their governments to provide the means for their development. Imposing strict limits on China's state level emissions might have a very detrimental effect on the human rights of Chinese citizens.

Therefore, the international community might adopt a second option when it is dealing with the government of a developing state that does not fulfil the criteria to be a fit agent to bear the duty to secure the right to development for its own citizens. In order to protect the subsistence and development emissions of the rights bearers, the

international community should agree to emissions increases from the state in question. However, it might make such an agreement subject to 'human rights conditionality', in which agreement is conditional upon certain human rights requirements.[274] Within this conditionality, the international community would require measurable progress on human rights against a specified timescale, with sanctions in the case that progress is not achieved. Such measures may be doubly effective, both on climate change mitigation and human rights, by, for example, repurposing emissions from heavily polluting industries that do not promote human rights fulfilment towards emissions processes for human development. Similarly, we might see resources diverted from the police and military sectors, which are extremely carbon-intensive, and yet which are also implicated in the restriction of individuals' rights to freedom and liberty. As Berners-Lee and Clark explain, 'modern armed forces are rapacious consumers of energy and kick out vast quantities of carbon – emissions that may contribute towards human harm well beyond the battlefield.'[275] If there are measures that can be taken within the state to repurpose existing emissions towards human rights fulfilment, then the state has the responsibility to do so, and the international community should encourage such behaviour.

It might be argued, from states such as China, that such 'human rights conditionality' would challenge their sovereignty. For example, in a 2011 white paper relating to foreign aid, China states that foreign aid should 'impos[e] no political conditions […and] respect recipient countries' right to independently select their own path and model of development … believ[ing] that every country should explore a development path suitable to its actual conditions.'[276] They might, therefore be reluctant to agree to the terms of the conditionality. However, as human rights organisations have argued, the argument of sovereignty is not justified, and amounts to an 'attempt' to 'avoid acknowledging their obligations to account for their failures in the promotion and protection of human rights.'[277] Where the state is unwilling to comply with such measures, the international community would be morally justified in imposing on the sovereignty of a government that is not fulfilling its duty to secure the right to

[274] Elena Fierro, *European Union's Approach to Human Rights Conditionality in Practice* (The Hague: Kluwer Law International, 2003).
[275] Mike Berners-Lee and Duncan Clark,' What's the carbon footprint of … the Iraq war?', (08 July 2010) [Online] (http://www.theguardian.com/environment/green-living-blog/2010/jul/08/carbon-footprint-iraq-war). [Accessed 3 June 2014].
[276] Chinese Government, 'China's Foreign Aid', (April 2011) [Online] (http://english.gov.cn/official/2011-04/21/content_1849913.htm). [Accessed 30 July 2014].
[277] Eva Brems, *Human Rights: Universality and Diversity* (The Hague: Kluwer Law International, 2001): 73.

development of its citizens. This might even involve taking side-measures to aid the individuals themselves to realise their human rights. For example, this might involve campaigns of micro financing directly to individuals or macro-credit lending to communities.[278] In reality, a mix of bargaining with the state to encourage progressive realisation of human rights and direct action on human development, where possible, is likely to be the best solution.

Section 3.4 has discussed the objection raised by the holistic approach to human rights, which claimed that a state was not a fit duty bearer to fully secure the right to development of its citizens if it was not also enabling the fulfilment of further, connected human rights. Through engagement with China's domestic situation regarding civil, political, social and economic rights, I have argued that China is not currently fulfilling the role as it is required to do. I rejected the 'Asian values' argument, which claimed that developing states should prioritise socio-economic rights. I then argued that even if we accepted such a minimal conception of the requirements of the holistic approach, China would not be considered a fit duty bearer as many socio-economic rights are currently not secured in China. Finally, I suggested that despite the concerns of the holistic approach, the importance of the gatekeeping role played by the state means that the best response might be to engage with China's demands, whilst making agreement conditional upon human rights improvements.

3.5 Conclusion

This chapter has provided a response to the question: 'Does the right to development justify increasing emissions?' I have argued that the right to development can justify emissions increases where these are needed for morally important development needs. As such, I have defended the importance of the right to development in theory of global climate justice, arguing that it is important to differentiate between emissions that are being used for subsistence, development and luxury ends. An account of climate justice must be sensitive to the importance of the human development needs embodied in the right to development. This chapter has argued that China's position on the right to development and climate change duties is largely justified, though the international community may require further action from the Chinese government on human rights fulfilment more broadly within China.

[278] For example, see: Adeolu B. Ayanwale and Taiwo Alimi, 'Microfinancing as a Poverty Alleviation Measure', *Journal of Social Science,* 9:2 (2004): 111-117.

After locating the relevance of the issue in the political context of climate change negotiations, I first considered different approaches to development, arguing that neither GDP nor HDI were accurate measures of the fulfilment of the right to development. I argued that as a human right, its importance lies in the fulfilment at the level of the individual, and so it cannot be captured by state-level averages. Whilst these averages might be useful in comparing overall progress of different states, they should not be considered to be a fully representative measure of the fulfilment of the right to development. The right to development is an individual human right, and is encompassed in a process that lifts individuals from poverty to a state in which they have the capability to fulfil a broad range of human rights. States are the duty-bearers for enabling the process of development, and are therefore justified in implementing development policies as a priority. Having established the basis of the right to development, I then provided a prima facie defence of the claim that emissions increases are justified where these emissions are needed in order to enable the fulfilment of the right to development of citizens. The process of development will in most cases require increasing energy use. For example, developing infrastructure and access to health-care and education, energy systems to heat houses and cook food are all important to the process of development. Having provided an initial defence of the position, I defended this against two key objections: (1) development must be sustainable, and (2) according to rights holism, the state must be committed to the connected rights in order to be fit actors for climate duties.

The first objection claimed that the right to development must be sustainable. I first considered a strong version of the objection, which claimed that where a state could not provide the means for its citizens to develop cleanly, development should be limited. I responded to this claim by arguing that whilst sustainability required global emissions to decrease, this was not inconsistent with emissions increases in some parts of the world if these increases were counter-balanced by greater reductions in other areas. To support this argument, I made reference to Shue's categories of 'subsistence' and 'luxury' emissions, in order to highlight the fact that not all emissions are of the same moral importance. Some are ensuring rights fulfilment of the very basic needs for human survival, and others are fulfilling luxury desires. I argued that we should also support a third class of emissions, known as 'development emissions' that are fulfilling non-subsistence, yet still morally important development needs. I claimed that development emissions should not be subject to caps whilst there are high levels of

luxury emissions in the world. This formed the basis of the modest version of the sustainable development condition, in which development emissions must take precedence over luxury emissions. I argued that actors at the very lowest levels of development are completely justified in their emission use, and that emissions become gradually less excusable as actors move towards having their development needs fully satisfied. The liability for the sustainable aspect of the right to development falls with the duty bearers, although as development level increases, the rights bearer becomes gradually more responsible for the means being used for energy production. Beyond a certain level of well being, individuals are required to use sustainable means or slow their development since at this point the benefits they gain from development can no longer be considered of equal moral significance to the rights of future people that will be threatened by dangerous climate change. I briefly considered two different practical approaches which might be used to implement the requirement to enable sustainable development. I argue that the Clean Development Mechanism (CDM) is not currently suitable. I suggested that a variant of the CDM, or Baer et al's Greenhouse Development Rights Framework could be used as a practical tool in which affluent actors could fulfil their duty to enable sustainable means of development. Having responded to the sustainable development objection, I then moved on to consider the second key objection, which considered the implications of 'rights holism' for China's claim.

The second objection claimed that a state is not justified in increasing emissions due to the right to development if it was not considered to be a fit actor from a holistic approach to rights. The holistic approach requires that the bearer of the duty to fulfil the right in question is taking an approach that also respects other human rights that are closely connected to the right to development. The right to development embodies a process in which individuals are able to reach a good level of well being, and in which they are able to achieve fulfilment of their human rights, including political and civil rights. The Chinese state is justified in increasing emissions if these are needed to fulfil the right to development of its citizens. However, the state must also be respecting and enabling the fulfilment of the connected human rights, which are an integral part of the right to development in itself. I first engaged with the situation in China relating to the fulfilment of civil and political rights, showing that there was much progress to be made on enabling these rights within China. I then considered an argument that fulfilment of civil and political rights was preceded by the need to fulfil socio-economic rights. This

argument claimed that civil and political rights could only be fulfilled once socio-economic rights had been prioritised. I argued that this was not a persuasive position. Furthermore, though examination of the level of fulfilment of socio-economic rights in China, I showed that this argument did not support China's position anyway, since many socio-economic rights are also widely unfulfilled. As such, I concluded that according to the holistic approach to rights, China does not currently fulfil the criteria of a fit actor to bear the duty for the fulfilment of the right to development. The Chinese government has not shown a commitment to several other human rights that the right to development aims to protect. However, I concluded that the importance of the role of the state means that the best approach is to engage with China's position and to permit an emissions increase, which is justified by the right to development of the many individuals within China. Where a state is not properly fulfilling its role as duty bearer, the international community might place conditional requirements upon such an agreement, in which the state is required to improve its domestic policies to enable fuller realisation of human rights.

A theory of climate justice should recognise the importance of the right to development. In line with the multi-actor approach, states and non-state actors, whose rights to development have already been fulfilled, have the responsibility to reduce their own emissions and to enable access to sustainable technologies. Affluent individuals within China must contribute to sustainable development by supporting new legislation and complying with the state's aim to develop sustainably, thereby reducing their own luxury emissions. The importance we assign to historic responsibility, which will be discussed in Chapter Five, will also have an impact on whether recently developed individuals who now have the financial capacity to live carbon-intensive lives should be required to reduce their emissions as much as individuals in developed countries who have spent their whole lives using relatively large amounts of luxury emissions. If historic responsibility is important, we might expect those individuals in developed states to contribute more to current mitigation strategies than those who have fewer historic emissions, even if current levels of emissions are approaching similar levels. However, as we have seen, the question of how to share the burden of mitigating climate change is not just a question of global distributive justice, but, as the sustainability clause shows, it is also about intergenerational justice. So, whilst a principle of intra-generational justice might allow recently developed individuals to pollute more than lifelong affluent individuals, the issue of sustainability might well

consider it unjustified for individuals in developing countries to raise their levels of emissions to the level of those in developed countries. Whilst it may be argued that it is unfair to place a cap on the emissions of recently developed individuals whilst those in the developed countries have produced many more emissions historically, we are no longer considering emissions which are being used for development or subsistence rights, but purely for luxury ends, and as Sachs argues, 'in a closed environmental space, the claim for justice cannot be reconciled any longer with the promise of material-intensive growth'.[279] There is no right to such emissions, and the consumption model of western societies cannot be sustained without severely jeopardising the rights of future individuals. Since we are now well aware of the impact of carbon emissions on the climate, it is not justifiable for currently developing states to follow the same path of development which goes far past the actual human needs of its citizens, even if this is what developed states have done, and affluent individuals within developing states gain this moral responsibility as they move towards being highly developed. Two wrongs do not make a right, and 'instead of living more like Americans, affluent people in developing countries ought to upstage them by showing how living simpler, more environmentally benign lives can make them happier and can be more rewarding.'[280] The right to development, therefore, justifies an increase in emissions on a state level, where these emissions are needed for the fulfilment of the right to development of the citizens of that state.

This chapter has responded to the second research question and as such has developed the implications of issues raised by China's position for a theory of climate justice. I have so far argued that the scope of a fair account of climate justice must target multiple actors and must be sensitive to the right to development. In the following chapter, I will develop the deeper implications of this approach for climate change by considering how we should account for emissions. I will defend a principle that is capable of responding to the requirements of the multi-actor approach, as well as being sensitive to the right to development.

[279] Wolfgang Sachs, 'Development: The Rise and Decline of an Ideal' *Wuppertal Papers* (August 2000) [Online] (http://epub.wupperinst.org/files/1078/WP108.pdf) [Accessed 15 July 2014]: 24
[280] Harris, *World Ethics and Climate Change*, 179.

Chapter 4

Allocating Responsibility for Emissions

The previous chapters have developed the theoretical basis for my account of climate justice, advocating a multi-actor approach to climate duties, and that it should be sensitive to the right to development. This chapter will consider how to operate the distribution of responsibilities within this theoretical framework, in responding to the question: 'How should we allocate responsibility for emissions?' This is a key question that any adequate account of climate justice must respond to, since controlling carbon emissions is necessary to mitigate climate change. As I discussed in Chapter One, much of the literature on climate justice refers to different principles that might be used to allocate responsibilities. But China's position raises a question that has not been adequately addressed, which is how to account for responsibility of emissions of different actors in a globalized system of trade and movement between different regions of the world. The current system of 'territorial accounting' considers emissions that take place within a state's borders to be the responsibility of that state, and the UNFCCC requires states to 'develop, periodically update, publish and make available [… their] national inventories of anthropogenic emissions'.[281] Legal instruments such as the Kyoto Protocol then consider these 'national inventories' to gauge fulfilment of commitments on greenhouse gas reductions. However, existing studies estimate that as the 'factory of the world', around one third of China's territorial carbon emissions come from the production of goods that are exported.[282] China has argued that this system of territorial accounting is unfair, as it does not take into account the effects of global trade on emissions:

'As one of the developing countries, we are at the low end of the production line for the global economy. We produce products and these products are consumed by other

[281] UNFCCC, 'Convention on Climate Change'

[282] Jiahua Pan et al, 'China's balance of emissions embodied in trade: approaches to measurement and allocating international responsibility', *Oxford Review of Economic Policy,* 24:2 (2008): 355; For example, see: Weber et al, 'The contribution of Chinese exports to climate change', *Energy Policy,* 36:9 (2008): 3572–3577 who estimate that 33% of China's emissions come from exports; Pan et al 'China's balance of emissions embodied in trade', estimate this to be 24%.

countries [...] This share of emissions should be taken by the consumers, not the producers.'[283]

This chapter will engage with the issues of fairness raised by China's position, and consider how a fair account of climate justice should approach the issue of allocating responsibility for emissions.

I will first consider an existing method of accounting, based upon the idea that emissions should be allocated at the point of consumption rather than production. I will present two arguments in favour of consumption accounting: one primarily practical argument and one principled argument. First, I will argue that consumption accounting would provide a more 'carbon efficient' scheme of global accounting for emissions as it would prevent carbon 'leakage' and it would allocate responsibility for international transport emissions, which are currently not accounted for in the territorial accounting system. I will further defend the carbon efficiency argument, by responding to an initial objection that claims consumption accounting is only more effective in a situation in which not all countries have emissions caps. I argue that consumption based accounting would be more likely to result in emissions reductions since 'internalising' the carbon cost of producing an item into its monetary cost would place responsibility for the emissions with the rich, consuming actors. These powerful actors are more likely to influence a reduction in emissions if they are bearing responsibility for the carbon emissions embedded in the goods they consume. Second, I will present a principled argument for consumption accounting, which claims that it would be fairer than territorial accounting, since it would require those that gain the benefit of the emissions to bear responsibility. However, in considering this, I will argue that if benefiting from emissions processes is the morally relevant link which ties emissions to the appropriate duty bearers, then the principle of consumption based responsibility is not adequate. I will then argue that neither territorial nor consumption accounting can provide a fair and efficient method for accounting for emissions. I will propose that we should instead account for emissions using the Revised Beneficiary Pays Principle (RBPP). Section 4.2 will define the RBPP, which will consider the threshold of receiving non-subsistence benefit as a necessary condition for generating responsibilities. The level of responsibility an individual actor bears is then modified according to the level of fulfilment of three modulating factors: (1) Level of development; (2) Degree of

[283] Jonathan Watts, 'Consuming nations should pay for carbon dioxide emissions, not manufacturing countries, says China', *The Guardian* (17 March 2009) [Online] (http://www.theguardian.com/environment/2009/mar/17/climate-change-china). [Accessed 3 September 2012].

voluntariness with which benefits are accepted; (3) Ability of the actor to exert influence on the emissions process. I will defend this as the best way of accounting for responsibility for emissions by responding to two objections. First, I will respond to the objection that it is counter-intuitive to replace the polluter pays principle. I will argue that the RBPP applies to many actors benefitting from emissions that would not be considered responsible according to a traditional PPP, yet, which fairness indicates should bear responsibility. I will then respond to a second objection, which claims that the RBPP is simply a reworking of the PPP. I will defend the RBPP against this claim by arguing that the RBPP acknowledges the relevance of causal contribution, yet considers the receipt of non-subsistence benefits to be the morally relevant connection between duty bearer and emissions. Finally, I will consider the implications for China of a theory of climate justice which accounts for responsibility for emissions using the RBPP.

4.1 Consumption Accounting

In this section I will discuss consumption accounting, as an alternative to the current system of territorial accounting, and which responds to the issue of emissions that are embedded in goods and traded globally. I will first show that this method has received support from several studies and organisations, including the OECD. I will then defend consumption accounting by making reference to a practical argument based upon the claim that it would provide a more efficient system of accounting for carbon emissions, with reference to carbon leakage and the emissions from international transport. I will then present a moral argument in favour of consumption accounting, as a system that would be fairer than territorial accounting. However, I will conclude that neither system can adequately capture the relevant moral relationship between emissions and duty bearer, before moving on to the following section to defend a new approach to accounting that considers benefit to be the morally relevant factor.

'Consumption accounting' is capable of responding to the claim that the consumers of goods should bear responsibility for emissions produced in the manufacture of those goods. Instead of using geographic location of production, this method considers the location of consumption of the good to be the morally relevant factor. This method recognizes the effect of global trade on carbon emissions and assigns responsibility for emissions embodied within a good or service at the consumption end of the commodity chain rather than the production end, meaning that emissions produced during the manufacture of goods are the responsibility of the consumer. The idea of consumption

accounting has been supported by several theorists.[284] Pan et al have argued that 'a reliable consumption-based accounting methodology is feasible and could improve our understanding of which actors and states are responsible for emissions.'[285] Wiebe et al state that consumption-based accounting is 'fairer', since, 'it is not the producing, but the consuming country's demand that drives GHG emissions.'[286] Davis and Caldeira highlight several benefits that make a consumption-based accounting scheme more attractive than territorial accounting, including the argument that 'consumption-based accounting of emissions provides grounding for ethical arguments that the most developed countries—as the primary beneficiaries of emissions and with greater ability to pay—should lead the global mitigation effort'.[287] Several studies also demonstrate the feasibility of putting such a system into place. For example, a 2003 paper from the OECD, entitled 'Carbon dioxide emissions embodied in international trade of goods' demonstrates a method of using 'input-output models' to calculate the carbon embedded in trade flows in order to calculate the production and consumption emissions of countries.[288] Input-output models measure the balance of emissions imported and exported by a country, and can be applied over multiple regions.[289] So, consumption accounting has received wide support within the literature as an approach capable of being applied globally to account for emissions. I will now consider a first argument in support of this.

The first argument in favour of consumption accounting is a practical one, which claims that consumption-based accounting would be more carbon efficient than territorial accounting. Consumption accounting would have two key practical implications that would in turn lead to a more efficient way of accounting for carbon, thereby incentivising the use and development of technologies to reduce carbon intensity. The first practical implication would be to reduce 'leakage' of emissions into areas of the

[284] Glen P. Peters and Edgar G. Hertwich, 'CO2 Embodied in International Trade with Implications for Global Climate Policy', *Environmental Science & Technology*, 42:5 (2008): 1401-1407; Hogne N. Larsen and Edgar G. Hertwich, 'The case for consumption-based accounting of greenhouse gas emissions to promote local climate action', *Environmental Science & Policy*, 12 (2009): 791-798.
[285] Pan et al, 'China's balance of emissions embodied in trade', 355.
[286] Kirsten Svenja Wiebe et al, 'Calculating Energy-Related CO2 Emissions Embodied in International Trade Using a Global Input–Output Model', *Economic Systems Research*, 24:2 (2012): 114.
[287] Steven J. Davis and Ken Caldeira, 'Consumption-based accounting of CO2 emissions', *Proceedings of the National Academy of Sciences*, 107:12 (2010): 5691.
[288] Nadim Ahmad and Andrew Wyckoff ,'Carbon Dioxide Emissions Embodied in International Trade of Goods', *OECD Working Paper,* (Paris, 3 November 2003).
[289] Hertwich and Peters, 'CO2 Embodied in International Trade with Implications for Global Climate Policy'; Davis and Caldeira, 'Consumption-based accounting of CO2 emissions'; and Thomas Wiedmann, 'A review of recent multi-region input–output models used for consumption-based emission and resource accounting', *Ecological Economics,* 69 (2009): 211–222.

world that are not covered by carbon reduction commitments. Second, consumption accounting would capture international transport emissions, which are currently unaccounted for since they do not take place within territorial borders. I will now consider these two implications of the carbon efficiency argument in favour of consumption accounting.

4.1.1 Preventing Leakage

The first claim of the carbon efficiency argument is that consumption accounting would have the desirable practical outcome of eliminating 'leakage'. The IPCC defines carbon leakage as 'the increase in CO2 emissions outside the countries taking domestic mitigation action divided by the reduction in the emissions of these countries.'[290] Simply, leakage is an increase in emissions in one area of the world as a result of a decrease in another area, and it can be 'measured in terms of $C0_2$ emissions that are not consumed in the same country where they are produced.'[291] Leakage can be described as 'strong' or 'weak'. Strong leakage is leakage that occurs as a direct result of climate mitigation policies in the state out of which emissions are leaking. Weak leakage, on the other hand, is simply the migration of emission producing actions whether or not this is linked to climate policies. For example, corporations might move to China because labour is significantly cheaper than in developed countries. Using territorial accounting, the emissions involved in producing the output of such corporations are then considered to be China's responsibility. In terms of carbon efficiency, the reason behind the leakage does not make a great difference to our purposes. As Bruckner et al argue, 'for the global climate, it is less relevant if a policy change in an Annex I country caused production to increase in a non-Annex I country. What matters for global climate policy goals is the total amount of carbon consumption in industrialised countries that is produced in countries without binding GHG emission targets and policies in place.'[292] As we saw in Chapter One, the principle of Common But Differentiated Responsibilities enshrined in the UNFCCC, means that developing states currently are not required to commit to emissions reductions. So, whether strong or weak, leakage is particularly troublesome in terms of reducing global emissions since it causes the migration of emissions from the Annex B countries of the Kyoto Protocol, which

[290] IPCC 'Climate Change 2007: Working Group III: Mitigation of Climate Change', (n.d.) [Online] (www.ipcc.ch/publications_and_data/ar4/wg3/en/ch11s11-7-2.html) [Accessed13 April 2014].
[291] Martin Bruckner et al, 'Counting CO2 Emissions in a Globalised World - Producer versus consumer-oriented methods for CO2 accounting', *German Development Institute - Discussion Paper* (Bonn, 2010): 3.
[292] Bruckner et al, 'Counting CO2 Emissions in a Globalised World', 7.

committed to emissions reductions, to countries that have not signed up to mitigation commitments.

Leakage occurs because it is often financially rewarding for businesses to relocate their production to developing countries. For example, in a recent publication 'Making the move to low-cost countries', global management consulting firm Bain and Company state:

'Our research finds that such moves are netting manufacturers in Europe and North America cost savings of 20% to 60%. When your competitors are realizing that kind of gain, whether to act is less a choice and more a matter of economic survival.'[293]

Whether emissions migrate in order to avoid being capped or not does not change the fact that they *do* avoid being capped by moving, and the system of global trade combined with territorial accounting facilitates this migration of emissions. As Ferng argues:

'The current adopted accounting scheme induce[s] developed countries to reduce their domestic CO2 emissions through international trade. This kind of artificial reduction, referred to as 'carbon leakage', [is] likely [to] result in an overall increase rather than decrease in CO2 emissions at a global scale.'[294]

Within a global system of territorial accounting, the potential for leakage means that national emissions reduction strategies may have little impact on overall levels of global emissions. This causes a problem for a truly global response to climate change, since states are only required to consider the emissions that take place within their borders in order to fulfill their emissions-reduction commitments. Brinkley et al show that whilst emissions in most countries in the European Union have been either flat or decreasing since 1990 on a territorial basis, consumption emissions have increased by 47%.[295] A report into the emissions of the United Kingdom by the UK Energy and Climate Change Committee also shows evidence of decreasing territorial emissions whilst consumption emissions have increased.[296] For example, one study from the UK Energy Research Centre shows that between 1990 and 2008 territorial emissions have decreased by 19%

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[293] Till Vestring et al, 'Making the move to low-cost countries', *Bain and Company* (2005) [Online] (http://bain.com/Images/BB_Making_move_low-cost_countries.pdf). [Accessed 11 March 2014]: 1.
[294] Jiun-Jiun Ferng, 'Allocating the responsibility of CO2 over-emissions from the perspectives of benefit principle and ecological deficit', *Ecological Economics*, 46:1 (2003): 122.
[295] Andrew Brinkley and Simon Less, 'Carbon Omissions: Consumption-based accounting for international carbon emissions', *Policy Exchange,* Research Note (October 2010) [Online] (http://www.policyexchange.org.uk/images/publications/carbon%20omissions%20-%20oct%2010.pdf). [Accessed 29 June 2012]: 1.
[296] United Kingdom House of Commons, *Consumption-Based Emissions Reporting* (London: The Stationary Office Ltd., 2012): 8

yet consumption emissions have increased by 20%. These studies show that territorial emissions accounting alone cannot give us an accurate picture of the emissions for which a country should be held responsible or the effectiveness of mitigation policies, within the developed countries, in reducing global emissions. As Bruckner et al state, the current method of accounting 'allow[s] the reduction of national carbon budgets by substituting domestic production for imports.'[297]

Furthermore, for one unit of production, more carbon emissions are required in developing countries than in developed countries because less advanced technologies are often used in developing countries. As Yunfeng and Laike state, 'The high use of coal means that every unit of energy produced in China results in more CO2 emissions than in developed countries.'[298] So the problem of leakage is not simply the displacement of emissions, but their amplification that occurs when manufacturing moves from developed to developing country. A developed country may therefore apply emissions mitigation policies that can control the emissions produced within their borders but may exert no influence on the emissions produced externally, even if these are being produced to provide goods that are consumed by their citizens. A key problem is that carbon is a 'negative externality' in the current production system, meaning that effects caused by carbon emissions are not factored into the cost the consumer pays for the good:

'In the case of pollution—the traditional example of a negative externality—a polluter makes decisions based only on the direct cost of and profit opportunity from production and does not consider the indirect costs to those harmed by the pollution.'[299]

As long as carbon emissions are an externality in the supply-production chain, consumers and producers have no financial incentive to favour greener goods or methods of production, since they bear no responsibility for the wider costs which result from these emissions. In comparison to territorial accounting, consumption accounting would internalize carbon costs into the price of a final product, thereby incentivizing reduced carbon usage. The fact that more carbon-intensive products would be likely to be more expensive would provide a reciprocal incentive for companies and consumers to make green choices. Companies would be more likely to invest in green technologies

[297] Bruckner et al, 'Counting CO2 Emissions in a Globalised World', 1.
[298] Yan Yunfeng and Yang Laike, 'China's foreign trade and climate change: A case study of CO2 emissions', *Energy Policy,* 38:1 (2010): 355.
[299] Thomas Helbling, 'Externalities: Prices Do Not Capture All Costs', *International Monetary Fund* (28 March 2012) [Online] (http://www.imf.org/external/pubs/ft/fandd/basics/external.htm). [Accessed 4 June 2014].

since that would give them a competitive advantage over competitors making the same product using more carbon intensive methods. Consumers would be more likely to buy greener products since the same product made in a carbon-intensive way would be more expensive. The greener choices of consumer and corporation would be mutually reinforcing. As long as carbon is an 'externality', corporations will continue to move to areas of the world where they can gain an advantage due to cheaper manufacturing costs, and consumers will continue to make their choices independently of consideration of the carbon intensity of different products. As Bruckner et al state, 'A consumption-based approach to carbon accounting combined with appropriate policy instruments such as quotas or taxes may help shift comparative advantage away from pure economic measures to a logic that also considers environmental aspects … [thereby] encourage[ing] technology transfers and mitigation activities.'[300]

The issues raised in this section show that consumption accounting can provide greater incentives to prevent leakage and reduce emissions by internalizing the cost of carbon into the production chain. This would stimulate investment in greener methods of production and greater consumer involvement in paying for the costs caused by the emissions embedded in the products they use. In this way, it can target several different actors and can provide a practical means of implementing the ethical claims of the multi-actor approach, as opposed to territorial accounting which places responsibility entirely on states. This section has provided a first claim in support of the carbon efficiency argument for consumption accounting. I shall now consider the second key implication.

4.1.2 Controlling International Transport Emissions

A second practical implication of consumption accounting is that it would include emissions from sectors that are currently unaccounted for in territorial accounting, since they do not happen within defined 'territories'. It would therefore give fuller coverage of global emissions. Emissions from international transport take place outside of state borders as they involve transport between states. Territorial accounting therefore considers these emissions to be separate to state totals, and while states are encouraged to work together to report them, they fall outside the current climate mitigation system, which only attempts to control territorial emissions. The official reporting guidelines from the IPCC state that 'emissions from International Bunkers should not be included

[300] Bruckner et al, 'Counting CO2 Emissions in a Globalised World', 1.

in national totals', but reported separately 'under memo items'.[301] The term 'international bunkers' refers to international aviation and shipping. The Kyoto Protocol therefore does not include emissions from these sources. Instead, responsibility was handed to the International Civil Aviation Organisation and the International Maritime Organisation to develop a system of international burden sharing to control these emissions. As the predominant system of accounting is territorial, defining a rule for designating responsibility for these emissions, which do not happen within state borders has proved difficult, and to date no such global system has been put into place for aviation or maritime activities. Commitments to reducing such emissions therefore remain voluntary, since emissions from international transport sectors 'are essentially unregulated at an international level'[302]. As I will now demonstrate, this is a key problem with territorial accounting, since the emissions from these sectors are rapidly growing.

Latest figures from the International Energy Agency show that international transport accounts for almost 4% of global emissions.[303] These emissions have experienced huge growth in the past 20 years, with international marine emissions growing by 78.1% and international aviation emissions growing by 82.7% between 1990 and 2011.[304] The figures include emissions from the transport of freight and passengers. Passengers onboard planes or ships can be considered to be consuming the service of being transported from one country to another. The transport of freight further highlights the importance of international transport emissions for our purposes due to the fact that not only are they a sector of emissions that is excluded from territorial accounting, but they are also closely linked to international trade. As this shows, the emissions embedded within a good include not only the emissions from manufacturing, but also those produced during the transportation from point of manufacture to point of sale. Whilst these are not accounted for using a territorial methodology, consumption based accounting would include the total emissions caused in the product's life cycle from point of manufacture to point of sale, as well as emissions produced in the disposal of the goods or its packaging at the end of the product's life-cycle. Consumption

[301] IPCC 'IPCC Guidelines for National Greenhouse Gas Inventories: Reporting Instructions', (1996) [Online] (http://www.ipcc-nggip.iges.or.jp/public/gl/guidelin/ch1ri.pdf) [Accessed 23 January 2011].
[302] Joanne Scott, 'Territorial Sovreignty and Territorial Extension in an Inter-connected World', in Richard Rawlings et al, eds., *Sovereignty and the Law: Domestic, European and International Perspectives,* (Oxford: Oxford University Press, 2013): 272.
[303] International Energy Agency (IEA), *CO_2 Emissions from Fuel Combustion - Highlights 2013,* (Paris: IEA, 2013): 50.
[304] IEA, *CO_2 Emissions from Fuel Combustion - Highlights 2013,* 50.

accounting can therefore provide a more efficient way of accounting for global emissions because it includes the 4% of global emissions produced by international bunkers. With an extra 3 billion more airline passengers expected by 2050, this percentage is only going to increase in coming years.[305]

The carbon efficiency argument has claimed that consumption accounting would be preferable to territorial accounting, as it can eliminate the problem of leakage and provide more complete coverage of global emissions by including international transport emissions. I will now engage with an objection to this argument, which claims that consumption accounting is only preferable in the current system where some areas of the world are exempt from climate duties.

4.1.3 An Objection to the Carbon Efficiency Argument

A critic might argue that whilst a consumption-based method of accounting might provide a more efficient way of accounting for carbon in comparison to the current system, a system of territorial accounting could be used as efficiently if it had global coverage. Since emissions everywhere would be included, the method of accounting for emissions is only relevant while we have a situation in which emissions are not accounted for in all areas of the world. In other words, it is not territorial accounting in itself which is the problem but the way in which the system is currently implemented that is at fault. With regards to leakage, a treaty which covered all states would mean that there would no longer be any areas of the world in which emissions were 'free'. As a result, emissions in all areas of the world would be subject to limits, unlike the current system where developing states have no caps on their emissions. In this situation the question of whether we should prefer territorial or consumption accounting would seem to matter less since leakage of emissions from areas with emissions reduction targets to areas without such targets would no longer be possible. Similarly, a critic might argue that if territorial accounting had a truly global scope then emissions from international transport could simply be allocated to the territorial totals of countries based on departure or arrival location, and therefore would no longer be excluded from national inventories. In both contexts, the objection claims that the problems raised by the carbon efficiency argument are not problems that are intrinsic to a territorial system of accounting, but simply the way in which the system is currently put to use. I will respond to this objection, first considering the implications for leakage, and second, for

[305] OECD, 'Green Growth and the Future of Aviation', (23-24 January 2012) [Online] (http://www.oecd.org/sd-roundtable/papersandpublications/49482790.pdf) [Accessed 23 June 2014]: 4

international bunker emissions. I will defend the logic of the carbon efficiency argument and argue that the objection is unfounded.

4.1.4 Responding to the Objection

A first response refers to the implications of this objection for leakage. Whilst the objection claims that expanding the scope of coverage would remove the advantage of consumption accounting, it is unlikely that such a global treaty would assign the *same* caps to all areas of the world. This would mean that there would still be an incentive for emissions to 'leak' to areas with higher emissions permits. Emissions quotas for developing countries are likely to be high enough to allow producers to pay less for the right to emit, allowing them to be able to use cheaper and dirtier technology, in developing countries than they would in developed countries with greater emission reduction requirements. China is the world's biggest exporter, yet as a developing country, it is unlikely that China would be expected to have emissions caps at the same level as those in the developed countries. The carbon cost of producing goods in China would therefore still be lower than in the developed states, providing less of an incentive to reduce emissions involved in manufacture. Furthermore, this would provide an incentive for moving production from developing to least developed countries with the largest carbon allowances, where the cost of carbon would be lowest. This looks rather similar to the current system of leakage, yet with movement between different areas. As long as the accountability for emissions is territorial, it is possible for producers to displace factories in order to reduce the carbon cost of their manufacturing output. However, when accountability takes place at the point of consumption, this option is removed.

The increased efficiency that a system of consumption accounting would enable becomes even clearer if we refer back to some earlier points about the direction of movement of global trade. As the report from Bain and Company showed us earlier, companies are making savings by offshoring their production to developing countries. Emissions are therefore leaking from developed to developing countries. The direction of the flow of emissions is important when taken in the context of global politics. If emissions are accounted for on a territorial basis, then, even with global coverage, this places the responsibility for reducing the emissions with the states in which they are produced. Whilst producers may pass costs on to consumers if the producers themselves incur costs as a result of such a global scheme of territorial accounting, the responsibility is still considered to be territorially-based. This means that the

responsibility for reducing the emissions from global trade is placed on the poorer producing countries rather than the richer consuming actors. Developing countries are likely to have less ability to enforce emissions quotas due to a lack of institutional infrastructure for monitoring and regulating companies that generate emissions. Placing the responsibility for emissions embedded in goods consumed by affluent actors with the less powerful and less financially capable countries is unlikely to result in reducing global emissions. Consumption-based accounting would place the responsibility with the consuming actors, which are likely to include developed countries and companies, who have more power to influence international policies and more money to spend on investing in cleaner technology. So, the objection fails to refute the claim that consumption accounting would be more efficient due to reducing leakage.

In considering the implications for international bunker emissions, the objection claims that territorial accounting could deal with the problem of unaccounted for international emissions by simply adding these on to the inventory of either the departure or arrival state. However, it is not clear that a territorial accounting scheme, which considers that countries should bear responsibility for the emissions they cause can deal satisfactorily with emissions generated by international transport. A consumption-based approach would allow the emissions to be allocated to each journey and then to the consumers of the service, either by adding the share of emissions embedded in each good at its final point of consumption or by calculating the price of carbon and adding this to the ticket price in order to target the consuming individuals. This could take the form of a tax, or could be modelled on an emissions trading scheme. For example, since 2012 emissions from within Europe have been included in the EU Emissions Trading Scheme (ETS). This requires emissions to be capped at 95% of 2005 levels, with the requirement to purchase allowances if airlines exceed this level.[306] As PriceWaterhouseCoopers explain in their industry paper, modern airlines use newer technology and therefore emit less carbon per mile travelled in comparison with older models, meaning that 'aircraft operators flying more modern fleets may have a substantial advantage'. [307] In this way, companies that have invested in newer and more carbon efficient planes are rewarded, and those with older fleets are incentivised to do the same in order to remain competitive. One key advantage of consumption accounting is that it can allocate responsibility for emissions to the individual actor that benefits from the polluting

[306] PriceWaterhouseCoopers, 'Ready for take-off?', (2007) [Online] (http://pwc.blogs.com/files/aviation-eu-ets-survey-final.pdf) [Accessed 29 March 2013].
[307] PriceWaterhouseCoopers, 'Ready for take-off?'.

action. In this way, it is a good example of how the multi-actor approach could be put to use, by incentivising greener choices for all the relevant actors. Territorial accounting, which simply added on the emissions from international transport to national accounts, would be likely to have much less impact on emissions reductions because the states to which the responsibility would be assigned might be powerless to influence the emissions for which they are being held responsible. Practically, then, consumption accounting would create a financial incentive for reducing carbon emissions, by requiring end users to bear responsibility for the emissions embodied in the goods they consume.

4.1.5 A Moral Defence of Consumption Accounting

I have so far argued that in terms of reducing global carbon emissions, consumption accounting would be more effective at responding to the problems caused by leakage and international transport emissions. I considered the objection that territorial accounting could account for these problems if the system was applied in a global way, and showed that this would still not be as carbon efficient as a system of consumption accounting. Consumption accounting would include the cost of carbon within the cost of producing and buying goods which would therefore place the responsibility for emissions on the rich, consuming actors rather than the often poorer producing actors. This would lead to a greater stimulus for reducing carbon emissions for those actors who are more likely to be able to act on this incentive and influence the level of emissions. Having argued that consumption-based accounting would be preferable from a practical point of view, I shall now discuss the moral basis of the argument for consumption accounting.

The original claim by China was that consumers should bear responsibility for the emissions produced in China during the manufacture of goods to be exported. The moral claim is that it is unfair for China to pay for emissions that are being produced for goods or services to be used by those outside of China. A review of the existing literature shows that while arguments for consumption-based accounting often highlight the increased carbon efficiency gained by using this accounting method, the claim is also made that consumption accounting would be fairer than territorial accounting.[308]

[308] Wiebe et al, 'Calculating Energy-Related CO2 Emissions'; Simone Bastianoni et al, 'The problem of assigning responsibility for greenhouse gas emissions', *Ecological Economics*, 49 (2004): 255; Kondo et al, 'CO2 Emissions in Japan: Influences of Imports and Exports 1998', *Applied Energy*, 59 (1998): 163-174; Ferng, 'Allocating the responsibility of CO2 over-emissions from the perspectives of benefit principle and ecological deficit'; Bruckner et al, 'Counting CO2 Emissions in a Globalised World'.

For example, Bastianoni et al state that '[consumption-based] accounting would be fairer because it would make final users pay the GHG "bill".'[309] Yunfeng and Laike state:

'The proportion of China's CO2 emissions that are due to net exports is large and significant, which demonstrates China's position in international trade as a ''world factory''. Those who consume the goods made in China should also share the responsibility. Spreading ''China threat theory'' or blindly blaming China is unfair. In the global environmental negotiations, China should claim the consumption-based CO2 accounting system. It is developed from the benefit principle and is a fairer method of allocating responsibility for GHGs.'[310]

The underlying moral principle appears to relate to which actor is benefiting from the emissions. The consumer, in receiving a good or service he or she desires, is benefiting from the emissions produced in the manufacture of that good. The consumer should pay for the costs of the choices they make. Consumption accounting claims that this link is morally more significant than the causal action that produces the emissions. This moral intuition appears to be rooted in the claim that it is benefiting from emissions that is relevant, rather than being causally responsible for the action that causes the emissions.

Assessing which principle should be used to assign moral responsibility for carbon emissions is not straightforward. It does not fit with our intuition about simple situations, in which causal responsibility is most often the seemingly relevant principle. For example, if someone breaks an object we generally think that they should pay for it. However, while it may be that we assume the responsibility lies in the fact that this actor has physically caused the event to occur, there may be many other factors at play here, which are also factored into our assumption that this person is morally responsible. For example, the person may have been acting recklessly, and therefore it was foreseeable that his or her actions might cause damage. He may have been acting purposefully and broken the object willfully. More often than not, in such simple examples, even if the damage was not intended the causal actor may be the only possible actor who has any links to the damaging action, and therefore may be held liable for his actions, even if he did not act wrongfully. If he is the only possible agent involved in the action, he is the only one who can be held morally responsible. The key point is that there are many relevant factors which may come into play in considering whether an actor is morally responsible, and these different factors may often be overlooked in such simple scenarios where the answer to the question of who should

[309] Bastianoni et al, 'The problem of assigning responsibility for greenhouse gas emissions', 255.
[310] Yunfeng and Laike, 'China's foreign trade and climate change', 356.

bear responsibility is intuitively obvious. This may lead to a simplified understanding that causal responsibility always implies moral responsibility, when in fact there may be other factors at play. The polluter pays principle is based upon this simple link between causal responsibility and moral responsibility. However, climate change is not in any way a simple case of one causal actor and one result, but the result of very complex causal chains of actions and impacts. The complexity of the combined systems of global climate change, carbon emissions and global trade mean that there are many different actors who may be linked to polluting actions whether or not they are the causal polluter. This requires a more specific focus on the different relationships at play between actions which cause emissions and different actors.

The current method of territorial accounting is supported by a commitment to the polluter pays principle, which underlies current international approaches to climate change, and reflects ideas of national sovereignty. In contrast, the argument that consumers should bear responsibility for emissions embedded in the goods they produce can be based upon the principle that the beneficiary of the emissions should bear responsibility. The idea that benefiting from an action entails bearing costs for that action has been supported by different theorists. For example, Page states 'any agent should support, as a matter of fairness, practices that manage the negative effects of activities from which they benefit'.[311] Shue states, 'If whoever makes a mess receives the benefits and does not pay the costs, not only does he have no incentive to avoid making as many messes as he likes, but he is also unfair to whoever does pay the costs.'[312] This appears to be the underlying moral principle behind consumption accounting, in which the causal actor is assumed to be simply a means of producing the good or service to be consumed by the beneficiary. In the case of emissions embedded in goods exported from China and other developing countries, the specific causal actor in question may only be involved at all because he will work for low wages, thus amplifying the benefit to the end user by ensuring that the goods are less expensive. The moral underpinning of consumption-based accounts challenges the polluter pays principle, by claiming that the polluter is not always the morally relevant party in cases where the production of emissions is for the benefit of other actors. The actual 'polluter' bears less moral responsibility than the beneficiary of the good or service being provided. Consumers benefit from the emissions produced when they use the final good

[311] Edward A. Page, 'Distributing the Burdens of Climate Change', *Environmental Politics*, 17:4 (2008): 562.
[312] Shue, 'Global environment and international inequality', 533.

or service resulting from these emissions, and it is this moral claim of benefits as responsibility-determiners that underpins consumption-based accounting approaches.

However, if it is benefitting that is the morally relevant link between emissions and responsible actor, it is not clear that consumption accounting captures this fully. Benefiting from emissions processes is not limited to consuming the goods produced by these processes. It is not only consumers that benefit. China, as a state has also benefited from the emissions that have been embedded in exports by way of the economic growth these exports have stimulated. Income from exports makes up approximately 35% of China's GDP and thus contributes greatly to China's economy.[313] It is not coincidental that the rapid growth of China's territorial emissions has taken place at the same time as dramatic economic growth, and much of China's rapid growth has been attributed to growth in export-led sectors. Between 2002 and 2007, China's greenhouse gas emissions almost doubled, increasing by a staggering 92% from 3406 million metric tonnes (MMT) in 2002 to 6566 MMT in 2007.[314] A study of the causes of the emissions increase between 2002 and 2005 found that only 7% of the increase was due to domestic household consumption, whilst just over 50% of the increase was due to the production of goods and services to be consumed in foreign countries.[315] Zhu and Kotz argue that China's economic growth has been highly dependent on exports since 2001, and that this can be seen when comparing the previously small export surpluses that China experienced with the 'enormous export surplus' that began in the mid-2000s.[316] At the same time, China's GDP also increased by an average of 10.7% annually between 2001 and 2007.[317] The figures show that China has benefited economically from the emissions increases that have taken place within its borders as a result of increased export manufacturing. This is also the conclusion drawn by Bruckner et al, who state:

'The relocation of production processes […] brings economic benefits for the recipient countries in terms of export revenues, employment and faster economic growth […]

[313] US EIA, 'International Energy Outlook 2009', (May 2009) [Online] (http://arsiv.setav.org/ups/dosya/25025.pdf) [Accessed 27 February 2013]:16.
[314] Dabo Guan et al, 'Journey to world top emitter: An analysis of the driving forces of China's recent CO2 emissions surge', *Geophysical Research Letters*, 36:4 (2009): 2.
[315] Guan et al, 'Journey to world top emitter', 3.
[316] Andong Zhu and David M. Kotz, 'The Dependence of China's Economic Growth on Exports and Investment', *University of Massachusetts Amherst* (July 2010) [Online] (http://people.umass.edu/dmkotz/China_Growth_Model_%2010_09.pdf). [Accessed 2 November 2011].
[317] Zhu and Kotz, 'The Dependence of China's Economic Growth on Exports and Investment'.

China's rapid growth rates could not have been sustained on such a high level if the economy solely depended on domestic demand.'[318]

If we think that consumers bear moral responsibility for these emissions due to the fact that they have benefited from them, then it is likely that we need to expand the scope of who we consider to be duty bearers as there are other actors who also benefit from these manufacturing processes. As we have seen, China as a state has benefited from the economic growth that has been generated through China's large export sectors.

In line with the multi-actor approach, there are other state and non-state actors that may also benefit from emissions. For example, corporations benefit through the profits made from selling the goods in which emissions are embedded. Individual factory workers benefit since their jobs and wages are dependent upon the production of such goods. Other individuals who are even further removed from the pollution might benefit. Transport emissions, for example, not only benefit the passengers or final consumers of the goods contained in the on-board cargo but also others linked to the journeys being made. Such benefits are examples of downstream benefits of the processes that cause emissions.

There are also upstream benefits. For example, petroleum-rich Gulf States located upstream to the production of emissions benefit from the sale of their oil, which enables the emissions to occur. Approximately 90% of Saudi Arabia's exports can be accounted for by petroleum sales, and these make up 45% of the country's GDP.[319] Another upstream example of benefiting from emissions comes from Australia's coal industry. For example, consider the following statement from the state owned 'Australians for Coal':

'Australia was the only one of the world's 33 advanced economies to grow in 2009 during the worst global recession since the Great Depression. The principal reason for this was our continued coal exports. The importance of coal in the economy is also evident in its growing share of Gross Domestic Product. This share has more than doubled, from 1.7 % in 2006-07 to 3.5 % in 2008-09, making it the largest contributor to the mining sector.'[320]

These examples show us several cases in which multiple actors benefit from the burning of fossil fuels. In some cases these are the causal actors, or polluters, in other cases they

[318] Bruckner et al, 'Counting CO2 Emissions in a Globalised World', 31.
[319] Forbes, 'Best Countries for Business – Saudi Arabia', (n.d.) [Online] (http://www.forbes.com/lists/2011/6/best-countries-11_Saudi-Arabia_CHI068.html). [Accessed 22 October 2013].
[320] Australian Coal Association, 'Coal Exports', (n.d.) [Online] (http://www.newgencoal.com.au/coal-a-energy-security/coal-exports.html). [Accessed 22 July 2013].

are the consumers of the final good. However, in many cases, they do not fulfil either of these criteria, and therefore would not be considered to bear any part of responsibility for the resulting carbon emissions in a territorial or consumption accounting scheme. Territorial accounting uses a state level version of the polluter pays principle as its moral basis for assigning responsibility, and so considers causal responsibility to be the only morally relevant consideration. The examples show that there are several situations in which we might intuitively think that there are other actors that should pay for some of the costs of the emissions they benefit from. Consumption based accounting is based upon the idea that the beneficiaries should pay, but it is oversimplified in assuming that it is only the consumers who benefit. In the following section, I will propose a version of the beneficiary pays principle as the relevant principle for accounting for emissions.

4.2. The Revised Beneficiary Pays Principle

So far, I have argued that China's concerns about territorial accounting may be morally justified. I have suggested that consumption accounting may be a plausible practical alternative to territorial accounting. Moreover, consumption accounting seems consistent with the moral intuition that the beneficiary pays principle might offer a more plausible account of who should pay the costs of climate change than the polluter pays principle. However, further investigation, has led us to the conclusion that there is a mismatch between consumption accounting and the beneficiary pays principle: consumers are not the sole beneficiaries of emissions. This section will defend a revised version of the beneficiary pays principle. I will refer to this principle as the Revised Beneficiary Pays Principle (RBPP).

4.2.1 The 'Modulating Factors'

The RBPP is based upon the idea that benefiting from an emissions-generating action is the criteria we should use to determine which actors should bear moral responsibility for the emissions generated by that action. This principle can capture both the causal actors (the polluters) and the end users (consumers), with the underlying moral criterion of benefit being key. As such, it is consistent with the requirements of the multi-actor approach developed in Chapter Two, as it can be applied to different actors. The RBPP will provide a principle for accounting for emissions that is sensitive to the situation of each actor, in defining the receipt of non-subsistence benefit as the necessary condition for generating responsibility for emissions. The necessary condition identifies the actor as a morally relevant beneficiary. The level of responsibility that actor is considered to

bear is then modified according to the level of fulfilment of three modulating factors: (1) the development level of the actor (2) the degree of voluntariness with which an actor accepts benefits, (3) the ability to exert influence over the process of emissions. The RBPP is therefore sensitive to the requirements of the multi-actor approach and the right to development, as well as providing a response to the issue of how to account for emissions in a system of global trade. The following section will further develop the definition of the RBPP, in discussing the three modulating factors that modify the level of responsibility borne by beneficiaries, before defending the RBPP against two objections relating to the principle's comparisons with the PPP.

The first modulating factor of the RBPP is the development factor. This responds to the requirements of Chapter Three, which argued that a fair approach to climate justice must be sensitive to the importance of the right to development. This is first reflected in the necessary condition of receiving non-subsistence benefits. At its lowest level, development will in many cases involve a need for subsistence emissions. I argued in Chapter Three that subsistence emissions were justifiable. So, benefiting from subsistence emissions should not generate responsibilities to bear the climate-related costs. Chapter Three also developed the idea of development emissions, with the responsibility an actor bears gradually increasing as the process of development is undertaken. The development factor of the RBPP reflects this, and level of responsibility is modified according to the needs being fulfilled as a result of the benefit gained from the emissions. Where these benefits are fulfilling luxury ends, the level of responsibility is considered to be much greater. The first modulating factor of the RBPP is therefore sensitive to the right to development.

The second modulating factor responds to the notion that the degree of voluntariness with which an actor accepts benefits is of moral relevance. The idea that benefits must be voluntarily accepted can be found in Rawls' principle of 'fair play', in which the voluntary acceptance of benefits is necessary in order for benefiting to confer responsibility.[321] Nozick has also argued for this in 'Anarchy, State and Utopia', stating that benefits must be voluntarily accepted in order for us to hold the beneficiary responsible for their costs. Nozick states, 'One cannot, whatever one's purposes, just act so as to give people benefits and then demand (or seize) payments.'[322] Not requiring

[321] John Rawls, 'Legal Obligation and the Duty of Fair Play' in S. Hook, ed., *Law and Philosphy* (New York: New York University Press, 1964): 9-10
[322] Robert Nozick, *Anarchy, State, and Utopia* (Oxford: Blackwell Publishers Ltd, 1974): 95.

benefits to be voluntarily accepted would allow for unjust payment demands such as this to take place. However, whilst this claim for voluntary acceptance of benefits might seem clear cut, there are different degrees to which we might consider an acceptance of benefits to be voluntary or not. Imagining these along a scale, the RBPP claims that agents become more responsible for the harms caused, the more voluntarily the benefits have been accepted.

For example, I suggested earlier that factory workers in China may be said to benefit from the emissions they physically cause when fulfilling the tasks involved in the job of working on a production line making goods to be exported to other parts of the world. In one sense, the actor working in the factory could be said to be voluntarily benefiting since he is not being physically forced, we assume, to fulfil his duties within the factory. He is engaging in the emission producing aspects of his job through free will. This fulfils one initial characteristic required for action to be voluntary and not coerced, which is 'willing the action without being under the controlling influence of another person or condition.'[323] However, the level of voluntariness he is displaying may not be very high at all. Although he might not be physically forced to fulfil the actions his job entails, it is likely that there is little voluntariness in the decision to carry out the specific job. As Olsaretti argues, 'a choice is voluntary if and only if *it is not made because there is no acceptable alternative to it*.'[324] Factory workers in China earn very low wages, with the average income per hour $1.74 (in US dollars), in poor conditions, with long hours.[325] It is unlikely that such workers would voluntarily choose to work in these conditions if there were 'acceptable alternatives' that would enable them to provide for themselves and their families. So whilst the factory worker's earnings cannot be said in absolute terms to be a form of involuntary benefit, the worker may be severely constrained in terms of acting voluntarily due to the lack of reasonable alternative choices. In this sense the degree of his voluntariness is low.

In determining responsibility for carbon emissions where there are multiple beneficiaries of emissions-generating actions, the degree of voluntariness of each actor's actions should be an important factor in determining their share of the

[323] Robert M. Nelson et al, 'The Concept of Voluntary Consent', *The American Journal of Bioethics*, 11:8 (2011): 6-16.
[324] Serena Olsaretti, 'Freedom, force and choice: Against the rights-based definition of voluntariness', *Journal of Political Philosophy*, 6 (1998): 71.
[325] Judith Banister, 'China's manufacturing employment and hourly labor compensation', *US Bureau of Labor Statistics* (7 June 2013) [Online] (http://www.bls.gov/fls/china_method.pdf) [Accessed 15 September 2014]; Human Rights Watch, 'One Year of my Blood', (March 2008) [Online] (http://www.hrw.org/reports/2008/china0308/china0308webwcover.pdf) [Accessed 15 September 2014].

responsibility relative to each other. For example, consider the situation of an affluent consumer. Imagine the consumer has the choice between two goods of identical merit in terms of the service they can provide to him. Product A was produced by Chinese factory workers using coal-powered energy, and then shipped across the world to the affluent consumer's location. It is therefore highly carbon intensive. Product B is very similar, though much more expensive as it has been produced locally using sustainable means, and so has a dramatically smaller carbon footprint. The difference in price will not make any difference to the standard of living of the consumer, although perhaps he will not be able to consume as many 'luxury' products if he picks the sustainable option each time. Comparatively, this consumer is acting with a much greater degree of voluntariness when he accepts the benefits from the emissions embedded in product A. He had a choice between saving some money but disregarding the environmental impact of the good, or consuming a good with a much smaller carbon footprint at a higher financial cost. He is benefiting from the emissions that have produced and brought the good to him and has voluntarily decided to do this based upon the freedom his financial status allows him without fear of any risk to his livelihood as a consequence of his choice. The factory worker, on the other hand, may not be able to support himself or his family if he makes the choice not to do his job. It seems quite clear to say that although both actors have benefited from the emissions caused by the manufacture of the good, the rich consumer should bear significantly more responsibility for these emissions than the factory worker whose choices are severely limited. The degree of 'voluntariness' of the factory worker cannot be said to be of the same degree as the voluntary behaviour of the consumer who has based his choice purely on the personal economic savings he can make by purchasing the more carbon-intensive yet cheaper product. Although his choice cannot be said to be strictly involuntary, the lack of alternatives he has reduces the amount of responsibility we should expect him to bear as a result of his status as a beneficiary of the pollution.

Having accepted Rawls and Nozick's claim that voluntary acceptance of benefits is a necessary condition for responsibility for costs, I have developed this claim and shown that it is not limited to only voluntary versus involuntary action. While involuntary acceptance of benefits does not result in responsibility for costs, the responsibility held by different actors who have voluntarily accepted benefits is not equal, and depends on the degree of voluntariness with which benefits are accepted. The more voluntarily an

actor accepts benefits, the more responsibility he should bear for the costs resulting from the action from which the benefit is derived.

I shall now consider the third modulating factor, which refers to the beneficiary's ability to exert influence on the emissions from which he is benefitting. This factor modifies the level of responsibility according to the influence the actor can have on the emissions. It is therefore sensitive to the relevance of causal contribution of different actors, as well as the interconnected nature of the responsibilities of actors we saw in Chapter Two. The implications of this will be clearer in considering an example. Let us come back to the factory worker and the rich consumer. We have seen that the factory worker is acting with a low degree of voluntariness. But he is also unable to exert influence in any morally relevant way on the emissions he is benefiting from and causally responsible for. Whilst he is in control of his own physical movements determining whether or not to pull a lever or press a button and thereby contributing to a production process, which is powered by fossil fuels, and so causes the release of carbon emissions, his individual actions will be unlikely to exert any influence over whether those emissions occur or not. Within the factory, he is but a 'cog in the machine' and can easily be replaced if he chooses not to do the job any more. Therefore, his individual choice of whether to work or not is very unlikely to affect the emissions the factory produces. His responsibility is therefore modified as a result of the low level of influence he exerts over the emissions.

In the presence of other actors who are both benefiting more voluntarily (the moral condition) and are able to exert more influence over the polluting acts (the practical condition), it serves no moral or practical purpose to attribute moral responsibility to this actor whose benefit is the result of a very low degree of voluntariness and who is unable to influence the act which causes the pollution.

In the case in question, there are many other actors who do fulfil both roles. For example, the rich consumer has a choice in the products he buys. This choice allows him to exert influence on the manufacturers of goods, and therefore emissions. In choosing one product over another, a consumer might be said to be 'voting' for that type of good.[326] By providing positive or negative feedback to manufacturers in buying more or less of certain products, consumers can influence the types of goods

[326] See, for example, Roger Dickinson and Stanley C. Hollander, 'Consumer Votes', *Journal of Business Research,* 23:1 (1991): 9-20; Michele Micheletti et al (Andreas Follesdal, Dietlind Stolle), *Politics, Products and Markets: Exploring Political Consumerism Past and Present*, (London: Transaction Publishers, 2004); Johannes Brinkmann, 'Looking at Consumer Behavior in a Moral Perspective', *Journal of Business Ethics*, 51:2 (2004): 129-141.

manufacturers make. As we saw in Chapter Two, in the example of the Starbucks boycott, the power of consumers can be great in terms of the influence they can exert over manufacturers. Where the same product can be produced in more or less environmentally friendly ways, consumers can 'vote' for the greener methods of production and boycott companies or products that are carbon intensive, thereby stimulating manufacturers to invest in cleaner technologies. They can therefore exert influence over the actors who are controlling the physical emissions. As Shaw et al argue:

'Increasing numbers of consumers are seeking to engage and influence the suppliers of products and services through their actions in the marketplace. Often responding to reports of questionable practices such as child labour, environmental pollution and/or animal welfare abuse, consumer backlash is manifested in attempts to redistribute the power between consumer and supplier. The ability to punish those suppliers deemed unethical through boycotting and protest and to reward those displaying genuine ethical credentials through buycotting has resulted in various manifestations of consumer empowerment directly targeted at changing traditional marketing and business behaviour.'[327]

Although the amount of influence an individual consumer can have on a company may be insignificant in isolation, consumers acting together are capable of great influence.

A further example to demonstrate the third modulating factor can be seen in the position of corporations. Consider a corporation such as Apple that design and market their products in the developed world as luxury items, while subcontracting the manufacture of these products to factories in China.[328] Or consider international retailers such as Tesco that manufacture their own brand goods in China.[329] Corporations such as these benefit greatly from the reduced costs of producing goods in China. Such corporations are able to exert a great deal of influence over the emissions that are produced as a result of their manufacturing. These examples suggest that different actors can exert different levels of influence over the emissions-generating actions from which they are benefiting.[330] The more influence an actor can be said to have over an action he is

[327] Deirdre Shaw et al,'Consumption as voting: an exploration of consumer empowerment', *European Journal of Marketing,* 40:9/10 (2006): 1050.
[328] Charles Arthur, 'Apple faces its 'Nike moment' over working conditions in Chinese factories', *The Guardian*, (20 February 2012) [Online] (http://www.theguardian.com/technology/2012/feb/20/foxconn-raise-wages-apple-contractor). [Accessed 29 August 2014].
[329] James Hall, 'Tesco's International Sourcing - the machine behind the machine', *The Telegraph* (23 February 2009) [Online] (http://www.telegraph.co.uk/finance/newsbysector/retailandconsumer/4788156/Tescos-International-Sourcing-the-machine-behind-the-machine.html). [Accessed 29 August 2014].
[330] It is not within the scope of this thesis to discuss how to calculate the exact responsibility for each case of emissions.

voluntarily benefiting from, the more responsibility he should bear for the costs of that action, because whether he accepts the benefits or not influences whether the emissions take place or not. This actor is therefore linked to the action not just as a beneficiary, but also as an actor who is able to influence whether the emissions are produced.

The RBPP assigns responsibility to beneficiaries of emissions, which may include many different actors both upstream and downstream of the actions which produce the emissions. It then qualifies the principle with three refinements, which modify the degree of responsibility a beneficiary can be said to bear, based on the level of development, the degree of voluntariness of acceptance of benefits and the ability to exert influence over the emissions. In this way, the RBPP removes the need for the polluter pays principle because it will assign responsibility to the polluters unless they are not voluntarily benefiting from the action. As we have seen in the examples, where the polluter is acting in a way to produce a good or service for the benefit of another actor, his responsibility for the emissions will be limited by whether he benefits or not from the pollution, and then the extent of responsibility he bears will depend on the degree of voluntariness with which he is acting and the influence he is able to exert over the emissions. I will now defend the approach to accounting for emissions embodied in the RBPP against two objections, both of which relate to the polluter pays principle (PPP).

4.2.2 Objection 1 to the RBPP: It is Counterintuitive to Replace the PPP

A first objection to the RBPP is that acceptance of a beneficiary pays principle in place of a polluter pays principle is counter-intuitive:

'In light of the problem of combining the Causal Account and the Beneficiary Account, someone might suggest abandoning the Causal Account and simply affirming the Beneficiary Account. However, this is an extremely drastic option. It is a deeply entrenched view that those who cause a harm have some moral obligation to address that pollution. If I release some toxic waste in a river then surely, ceteris paribus, I should pay. To deny the Causal Account any role would be highly counterintuitive.'[331]

This objection may be correct when applied to several standard versions of the beneficiary pays principle, which generally do not consider the question of whether the polluters are also the beneficiaries. However, the RBPP claims that the moral responsibility of an actor, whether they cause the pollution or not, is dependent upon the benefit they receive as a result of the action which causes the emissions.

[331] Caney, 'Environmental Degradation, Reparations, and the Moral Significance of History', 472.

Let us consider the example of a person releasing toxic waste into a river. Imagine two different scenarios. In the first scenario, the person releasing toxic waste into the river is doing so because disposing of the waste in a responsible manner is costly and he wishes to avoid paying those costs. In the second scenario, the person releasing the waste is doing so under duress from a third party who has threatened him with some terrible deed if he does not do so. The third party is also wishing to avoid the costs of disposing of the waste in a responsible manner. Under a polluter pays principle, the causal actor would, in most interpretations of the principle found in discussions of climate justice, be responsible for his actions in both scenarios. With the RBPP, the beneficiary would be responsible in both cases, meaning the polluter in the first case, but not the "polluter" in the second case, since there is another actor who is benefiting with a high degree of voluntariness and who is exerting control over the polluting action. In this way, the RBPP is able to differentiate between the moral relevance of different actors' actions in a way that the polluter pays principle is not. While the example is highly simplified and cannot be said to be analogous to many of the emissions examples I have considered, my argument suggests that rejecting the polluter pays principle is not always counterintuitive. The case of climate change and global trade presents us with a much more complicated system of intertwined responsibilities for emissions. The RBPP offers a better account of these responsibilities because it recognises the complex moral links between actors and emissions rather than focusing simply on the causal connection between the polluter and their emissions.

Let us consider this further. We have seen that the polluter pays principle is intuitively plausible, following the universally understood idea that if I break something I should pay for it or fix it.[332] The RBPP does not contest the moral justification of this widely accepted intuition. However, the emission of carbon is not generally something that people do accidentally or for the thrill of emitting carbon. It is a means to an end. Carbon is emitted in order to create some kind of benefit: heating a home, driving a car, producing a consumable good. The RBPP does not challenge the notion that in a case of accidental harm, *where nobody has benefited*, the 'polluter' might be held strictly liable for the costs. It claims, however, that there are likely to be very few real world situations related to climate change that are analogous to this simplified situation. As we saw earlier, there may be many cases in which beneficiaries bear a more morally relevant link to the emissions than the actual polluters who have not benefited from

[332] Shue, 'Global Environment and International Inequality', 535.

their action. If the polluter has benefited from his action and fulfils the conditions of our RBPP, then he is considered to bear responsibility using both the polluter pays principle and the revised beneficiary pays principle. In this way it is both practically preferable, since it is likely to encourage actors that are benefiting from emissions to exert their influence to reduce emissions, and also provides a more morally robust standard from which to attribute responsibility since it covers all actors who are linked to the emissions. In response to the first objection, then, I argue that the RBPP is likely to provide a more effective response to climate change within a fairer system of shared responsibilities.

4.2.3 Objection 2 to the RBPP: A Reworking of the Principle

A second objection claims that the RBPP is not a new principle, but simply a reworking of the PPP, due to the modulating factor which considers ability to exert influence on emissions to be morally relevant. If causal action is considered to be important within the RBPP, a critic might argue that in the end, the principle does not look that different to an expanded polluter pays principle. This objection suggests that our RBPP assigns responsibility to the same actors as the polluter pays principle. For example, in the case of emissions embodied in goods, it might be argued that consumers could be considered to be polluters, since they are stimulating the demand for the good that they are consuming.

As a first response to this objection, I will consider the polluter pays principle as it is used within international texts, thereby showing how it is implemented and understood in real world situations, followed by its interpretation within philosophical literature. I will then provide a second response that will highlight the key difference between the RBPP and PPP, which is the moral relevance of benefit.

The polluter pays principle is probably the most well known moral principle which relates to environmental responsibilities. Principle 16 of the Rio Declaration on Environment and Development states:

'National authorities should endeavour to promote the internalization of environmental costs and the use of economic instruments, taking into account the approach that the polluter should, in principle, bear the cost of pollution, with due regard to the public interest and without distorting international trade and investment.'[333]

[333] UNCED, 'Rio Declaration on Environment and Development'.

Within the UNFCCC, the principle forms part of the ethical basis of the principle of Common But Differentiated Responsibilities. The interpretation of this can be seen in Article 3 of the UNFCCC, which states:

'Parties should protect the climate system for the benefit of future and present generations of human kind on the basis of equity and in accordance with their common but differentiated responsibility and respective capabilities. Accordingly, developed countries should take the lead in combating climate change and the adverse effects thereof.'[334]

The ethical thrust of the polluter pays principle is embodied in this idea that developed states should bear more responsibility since they have greater total emissions. They contribute more to the problem, so as the polluters, they should bear responsibility. Within international texts and negotiations, the idea of the polluter is quite simply understood as the one who is causally responsible for the emissions. The discussion of the territorial accounting system is evidence of this, showing that those who commit the polluting actions are considered to be the polluters who bear responsibility. This is evidenced in the way the principle accounts for emissions based upon the territory in which they occur.

It would seem to be stretching the dominant understanding of the PPP to extend the idea of who the polluter is to include actors who are not causally responsible for the pollution. It would seem better to advocate a different principle, which can quite straightforwardly cover all of the relevant actors, rather than trying to stretch and reshape the existing principle to include all of the actors we think should bear climate duties. In this sense, it would seem far fetched to claim that the polluter pays principle, as it is used in international texts, would target the same actors as the RBPP, and therefore the RBPP cannot be said to be a simple extension of the polluter pays principle.

Within philosophical discussions, the definition of the polluter pays principle is not as straightforward. The idea of the polluter pays principle may be interpreted in some situations in such a way as to include some agents that have not physically caused the pollution themselves. For example, referring back to the case of the person dumping the toxic waste into the river, the PPP might assign responsibility for the emissions to the third party who is compelling the causal agent to commit the polluting act. In this way, the third party is causing the pollution, and so he can be considered to be the polluter.

[334] UNFCCC, 'Convention on Climate Change'.

However, it is not clear that this example can be plausibly applied to the cases that we have considered in the previous sections. For example, whilst a consumer can exert influence over the products companies produce, a consumer cannot be said to be controlling the actions of the producers in the same way as in our simplified example. The consumer provides an incentive for the polluters to continue their production of goods by buying those goods, but cannot straightforwardly be said to be the polluter under a PPP, since the producer of the good producing the emissions is still free to act in the way he wishes. In that way, he is still the polluter, though his choices of how much to pollute might be influenced by the choices of consumers. The RBPP can assign responsibility to both parties, while the PPP cannot easily be stretched to consider the consumer to be causing the emissions. The further we get away from simple examples of cause and action, the harder it becomes to define the different actors covered by the RBPP as polluters under the PPP, and therefore the less similar the two principles look in terms of the actors they cover.

Second, the key response to the objection that the RBPP is simply a reworking of the PPP is that the moral basis of the two principles is very different. The RBPP tracks benefit, whereas the PPP tracks causal effect. For example, a simplified PPP might assign responsibility to the factory worker in China, who, as we have seen gains very little from his causal actions and is not acting with a high degree of voluntariness. The RBPP allows us to attribute responsibility to other actors who bear a more morally relevant link to the emissions than simple causal responsibility. Therefore, even if an extended PPP might in some cases assign responsibility to the same actors as the RBPP, the moral basis upon which this responsibility is based is very different. The RBPP does not claim that causal effect is irrelevant, as it assigns greater responsibility to those who are able to exert influence over the action that produces the emissions, but the idea of causal responsibility is a condition within the RBPP rather than the basis of the principle. So, the RBPP can both cover the relevant agents in a much more straightforward way than a PPP could, and is also able to differentiate between the different moral relevance of different agents rather than just focusing on their causal link to the emissions. In these two ways it is different to a PPP, and cannot be considered to be an extension of it.

4.3 Implications of the RBPP for China

I have defended the Revised Beneficiary Pays Principle as the relevant principle that we should use to allocate responsibility for emissions. I will now consider the further

implications of the RBPP for the responsibility China should bear for the emissions embodied in the goods it produces for export, in response to China's claim that these should be borne by consumers. I will then make the claim that the RBPP supports China's claim that consumers should bear some responsibility for the emissions embodied in the goods they consume, but that this responsibility is not limited to consumers in the developed world.

As we saw in the first section of this chapter, it is China's claim that instigated the discussions in this chapter. This was based on the argument that consumers should bear responsibility for the emissions embodied in the goods they consume that are produced in China. The discussion has led to the development of the RBPP. As such, the implication for China is that while consumers are likely to be considered morally relevant beneficiaries by the RBPP, the state of China might also be considered to share in the responsibility for the emissions embodied in export goods. The state of China actively encouraged the export-led growth it has experienced by welcoming foreign investors. China sought to benefit both economically and also in terms of research and development intelligence, through imported technologies, which arrived with the investors. In terms of the RBPP, the first condition of receiving non-subsistence benefits is likely to be fulfilled for a part of the emissions, though some of the benefit gained is likely to be fulfilling subsistence needs. For the share of the benefit that is conferring non-subsistence benefit, the development factor is likely to be moderately fulfilled for the state of China. Different actors within China will have different levels of development. The share of the benefits the Chinese state receives that are not fulfilling development needs are therefore fulfilling the development factor to a higher degree.

I shall now consider the implications of the second and third modulating factor on China's responsibility for emissions embodied in export trade. First, the benefits China receives from these emissions are accepted with a relatively high degree of voluntariness, since China has developed policies specifically to encourage export-led growth. Several studies support this claim. Zhang argues 'China has not only adopted the common pro-trade policies, such as the depressed exchange rate and export tax rebates, but has long used access to its unique giant customer base as bargaining chips to persuade foreign companies to open factories within its borders.'[335] Lo and Chan show that China's growth is not simply a result of its comparative advantage and instead that China has purposefully developed a competitive advantage in industries

[335] Zhang et al, 'The energy intensity target in China's 11th Five-Year Plan period', 7.

such as electronics that are usually located in developed countries in order to boost its world exports and thus its growth.[336] China's export industry for electronics became the largest in the world in 2010.[337] Lo and Chan also argue that China's exceptional growth in this industry is due to policy choices and not a result of market forces. They argue:

'The transformation owes much to state promotion, through its industrial policy. One measure of the policy is the state-enforced unified negotiation with transnational corporations for technology transfer. A second measure, aimed at curbing duplication and miniaturization, is the centralized bargaining among local authorities on the number, scale and spatial distribution of projects. Both of these have fostered the development of linked upstream industries that are capable of substituting for imported industrial inputs and machinery.'[338]

China has voluntarily benefited from its exports, with growth in GDP and job creation, as well as increased know-how learned from foreign companies, and these benefits have been gained intentionally by encouraging the relocation to China of foreign companies that have been expected to share their technological know-how with Chinese companies and also bring economic benefit to China.

Further evidence of the high degree of voluntariness of China's actions comes from the 'Law of the People's Republic of China on Foreign-capital Enterprises', which states that foreign companies are welcomed to China, 'with a view to expanding economic cooperation and technological exchange with foreign countries and promoting the development of China's national economy', and that 'the state encourages the establishment of foreign-funded enterprises that export their products or have advanced technologies.'[339] Articles 3 and 9 state that 'enterprises with foreign capital shall be established in such a manner as to help the development of China's national economy', and 'enterprise[s] with foreign capital shall make investments in China within the period approved by the authorities in charge of examination and approval'.[340] So China would be considered to be one of the relevant actors responsible for the costs of the emissions it has produced, to the extent that this benefit has been used to fulfil non-subsistence needs.

[336] Dic Lo and Thomas M. H. Chan, 'Machinery and China's nexus of foreign trade and economic growth', *Journal of International Development*, 10:6 (1998): 736.
[337] Li Jia, 'China leads world in machinery, electronics exports in 2010', *China People's Daily* (25 february 2011) [Online] (http://english.people.com.cn/90001/90778/7300617.html) [Accessed 6 March 2012].
[338] Lo and Chan, 'Machinery and China's nexus of foreign trade and economic growth', 746.
[339] Chinese Government, 'Law of the People's Republic of China on Foreign-funded Enterprises', (12 april 1986) (http://www.pkykwong.com/eng/pdf/law_prc.pdf) [Accessed 2 June 2012].
[340] Chinese Government, 'Law of the People's Republic of China on Foreign-funded Enterprises'.

I have considered the implications of the RBPP for the responsibilities of the Chinese state for emissions embodied in trade, showing that the RBPP would allocate some degree of responsibility to the state of China for these emissions, though this would be limited according to the level of development benefit gained. Returning to China's original claim, the RBPP would support the claim that consumers should share in the responsibility for the emissions produced by the goods they consume. However, the claim does not only apply to consumers in developed countries. It is interesting to note that the EU's inclusion of aviation emissions in the ETS originally included all flights coming to or from European destinations, even if the ultimate starting or ending point of the flight was outside of Europe. Amongst other countries, China argued that this was unfair and ordered its carriers to ignore the regulations put in place related to the ETS. Chinese carriers were liable for fines of 2.4 million euros due to their failure to comply with the regulations.[341] However, in response to international pressure, the European Union decided to make the regulations apply only to flights which begin and end within the European Economic Area.[342] Figures show that whilst ten per cent of world tourists are now Chinese, only 5% of China's population hold passports.[343] Airline flights between Europe and China clearly fall into the category of 'luxury emissions', and given that at most five per cent of China's population can take such flights, China must accept that its affluent citizens are also among the actors who should bear responsibility for the benefits they gain from carbon emissions.

4.4. Conclusion

In this chapter I have defended the Revised Beneficiary Pays Principle as the relevant principle with which to account for responsibility for emissions. I have built upon the arguments from the first two chapters in defending a principle that is consistent with the requirements of a fair account of climate justice, in targeting multiple actors and respecting the right to development. The principle I have developed is also capable of responding to China's claim that consumers should bear responsibility for the emissions embodied in goods produced in China.

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[341] Green Air, 'EU ETS compliance level reaches over 98 per cent of 2012 aviation carbon emissions, reports Commission' (29 May 2013) [Online] (http://www.greenaironline.com/news.php?viewStory=1696). [Accessed 15 June 2013].
[342] European Commission, 'Allocation of aviation allowances in an EEA-wide Emissions Trading System', (n.d.) [Online] (http://ec.europa.eu/clima/policies/transport/aviation/allowances/index_en.htm) [Accessed 8 April 2014].
[343] The Economist, 'Chinese Tourists', (19 April 2014) [Online] (http://www.economist.com/news/international/21601028-how-growing-chinese-middle-class-changing-global-tourism-industry-coming). [Accessed 25 May 2014].

In response to China's claim, I first considered consumption accounting as an alternative to the current system of territorial emissions accounting. I argued that this system would be more effective in accounting for global emissions and would provide a fairer accounting system. Emissions that are produced in one area of the world can bring benefit to those in other areas of the world. I argued that the place of emission constituted less of a morally relevant link to the emissions than gaining benefit from the emissions. In developing the moral argument for consumption accounting, I claimed that it was the benefit that consumers gained from emissions processes that generates responsibilities for the costs. This led me to the objection that if benefit is the morally relevant link between emissions and responsible actor, then consumption accounting can not fully respond to this claim. From this point, I defended the Revised Beneficiary Pays Principle, arguing that beneficiaries should bear responsibility for the emissions when they receive non-subsistence benefits as a result of the emissions processes. I defended the RBPP, defining three qualifications of the principle that modify the level of responsibility a beneficiary should bear. As a result, responsibility is shared between beneficiaries according to their level of fulfilment of the three modulating factors, which are: (1) level of development, (2) degree of voluntariness with which benefits are accepted, (3) ability to exert influence over emissions.

The principle defended in this chapter has provided the next step in the development of my account of global climate justice, continuing from the development of the multi-actor, development sensitive approach I defended in Chapter Two and Chapter Three. This chapter has provided a response to the question of how to account for emissions. The next chapter will further develop the implications of the principle of accounting for responsibility for emissions developed in this chapter, in determining how we should consider responsibility for historic emissions.

Chapter 5

Responsibility for Historic Emissions

The previous chapter discussed responsibility for current and future emissions. I concluded that benefiting from the emitting process was the morally relevant criterion for generating duties for the harms caused by the emissions, and from this position suggested that a revised beneficiary pays principle (RBPP) would be the ideal way of accounting for emissions. However, climate change will not only be caused by current and future emissions since greenhouse gases can remain in the atmosphere for several hundred years. The problem we face today is thus in part caused by emissions that were produced in the past. This chapter will consider their importance and whether a principle of historic responsibility should be used to allocate responsibility for these past emissions. The discussion will primarily focus on the implications of historic responsibility at the state-level, since states are the key moral actors that have existed over the relevant time period.

5.1 The Context and Implications of Historic Responsibility

China has on several occasions made the claim that developed states should bear responsibility for their historic emissions, since they have contributed more to climate change through their large cumulative emissions, than the developing countries have. The 2007 Chinese government document 'China's National Climate Change Programme' states:

'The largest share of historical and current global emissions of greenhouse gases has originated from developed countries, while per capita emissions in developing countries are still relatively low […] in accordance with their common but differentiated responsibilities and respective capabilities, and accordingly, the developed country Parties shall take the lead in combating climate change and the adverse effects thereof.'[344]

Elsewhere, a Chinese government release from 2009 states:

[344] Chinese Government, 'China's National Climate Change Programme' (June 2007) [Online] (http://www.ccchina.gov.cn/WebSite/CCChina/UpFile/File188.pdf). [Accessed 3 October 2010]: 2.

'Developed countries shall take responsibility for their historical cumulative emissions and current high per capita emissions to change their unsustainable way of life and to substantially reduce their emissions and, at the same time, to provide financial support and transfer technology to developing countries.'[345]

The inclusion of historical responsibility in a burden sharing agreement between states is seen as being of great importance not only by China, but also other developing states. This is evidenced by the support the principle has received in statements from several developing countries individually, but also from assembled groups of countries such as the 'G77 and China'. For example, in a 2010 speech at the United Nations, Bolivian President Evo Morales stated:

'In the G77 and China … we all agree that the Annex 1 countries that are historically responsible for causing greenhouse gas emissions should honour their commitments and obligations under international treaties on climate change.'[346]

The 'BASIC' group of countries, comprising Brazil, South Africa, India and China, have made similar joint statements, with their latest Ministerial output document stating that 'the developed countries should take the lead in addressing climate change in accordance with their historical responsibilities'.[347] Individually, the Brazilian delegation to the UNFCCC has been a vocal supporter of historic responsibility, producing the well-known 'Brazilian Proposal' in the negotiations that led to the development of the Kyoto Protocol in 1997. The Brazilian proposal suggested basing state level responsibilities entirely upon historical responsibility, by estimating the temperature increase each state is responsible for as a result of its historic emissions. Whilst the proposal did not receive enough support to be accepted into the protocol, it continues to be debated and analysed by a special committee today.

The principle of historic responsibility is present in international texts, albeit in a less explicit manner than that called for by the Brazilian Proposal. Instead, it can be found as a part of the responsibility called for by the principle of 'common but differentiated responsibilities'. This was first referenced in the Rio Declaration on Environment and Development, which states:

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[345] Chinese Government, 'China's Position on the Copenhagen Climate Change Conference', *National Development and Reform Commission*, (20 May 2009) [Online] (http://en.ndrc.gov.cn/newsrelease/200905/t20090521_280382.html). [Accessed 5 January 2014].
[346] Morales, 'Speech by President Evo Morales to the G77 at the United Nations'.
[347] Indian Government, '18th Basic Ministerial Meeting on Climate Change', *Ministry of Environment and Forests* (8 August 2014) [Online] (http://envfor.nic.in/sites/default/files/press-releases/Joint-statement-18th-BASIC-New-Delhi.pdf). [Accessed 15 August 2014].

'States shall cooperate in a spirit of global partnership to conserve, protect and restore the health and integrity of the Earth's ecosystem. In view of the different contributions to global environmental degradation, States have common but differentiated responsibilities. The developed countries acknowledge the responsibility that they bear in the international pursuit to sustainable development in view of the pressures their societies place on the global environment and of the technologies and financial resources they command.'[348]

Whilst mentions of the principle of common but differentiated responsibilities in international texts do not explicitly make note of the backwards-looking aspect of the principle, it is widely assumed that historic emissions form part of the basis of the 'different contributions' of different actors to climate change.

The principle of historic responsibility has also been discussed within the philosophical literature on climate change. For example, Baer et al argue that 'the notion of national "responsibility for greenhouse gas pollution" is intuitively – and correctly – understood in terms of the greenhouse gases that nations have emitted. As such, the baseline definition of responsibility must be in terms of cumulative emissions, though there are obviously complications in defining and measuring it unambiguously.'[349] Caney highlights the importance of adequately addressing the issues at stake, stating that 'some countries, including the USA and those in Western Europe, have contributed disproportionately to the cumulative level of greenhouse gases because they have been emitting ever-increasing amounts since the Industrial Revolution … it thus seems quite implausible to ignore th[e] historical record'.[350]

Practically, the issue of whether we assign a principle of historic responsibility for past emissions or not has significant implications for both the United States and China's resulting state level responsibilities, as well as for other developed and developing countries. For example, if we include historic emissions in our calculations, and consider emissions from 1890-2005, China's share of cumulative global emissions is 6.4%.[351] Alternatively, if we exclude historic emissions prior to 1990, China's share almost doubles to 12.3%.[352] The opposite is true for developed states, whose share of total cumulative emissions is greater if historic emissions prior to 1990 are included, due to the processes of industrialisation that have taken place in the developed countries

[348] UNCED, 'Rio Declaration on Environment and Development'.
[349] Baer et al, 'The Greenhouse Development Rights Framework', 46.
[350] Simon Caney, 'Justice and the distribution of greenhouse gas emissions', *Journal of Global Ethics*, 5: 2 (2009):132. (125-146).
[351] Christian Ellermann et al, 'Differentiating historical responsibilities for climate change', in Paul G. Harris, ed*., China's Responsibility for Climate Change* (Bristol: Policy Press, 2011): 84.
[352] Christian Ellermann et al, 'Differentiating historical responsibilities for climate change', 84

over the past 200 years. As Bell states, 'If pre-1990 emissions should not be counted, historic responsibility only extends twenty years into the past. Therefore, the states that developed earliest, such as the UK, will be required to pay significantly less toward the costs of climate change than they would under an unrestricted principle of historic responsibility.'[353] The practical importance of the issue of historic responsibility for a future burden sharing agreement merits a thorough philosophical investigation.

This chapter will first consider an argument for historic responsibility based upon a 'fair shares' approach to historic emissions. First, I will assess the dominant version of this argument, which is based upon a principle of equal per capita rights to emissions. This approach considers that developed states have used more than their fair share of the emissions that they were entitled to based upon the size of their populations. I will contest the theoretical basis of equal rights to emissions before showing that we do not need to rely on the egalitarian approach in order to make the claim that historic emissions of developed states represent an unfair share. Instead, I will appeal to the notion that a fair share is defined as the share of the benefits from carbon emissions needed to meet subsistence and development rights. I will then consider how the objection of excusable ignorance affects responsibility for emissions that took place before 1990. I will consider two responses that might be given, neither of which can ultimately undermine the excusable ignorance objection. I will then consider a third response based upon Bell's time-relative/time-neutral distinction. I will defend this approach and will then use the RBPP to show the implications of this approach for the historic responsibility of states, as well as corporations and individuals. I will then defend my argument against the non-identity objection. First, I will show that states are not subject to the criticism raised. Second, I will contest the importance of the notion of diachronic benefit, which is not the only, nor the most morally relevant type of benefit. The definition of benefit embodied in the RBPP relies on a threshold notion, which is not undermined by the non-identity objection. Finally, I will consider the implications of my findings for China.

5.2 A Fair Shares Approach to Historic Responsibility

A commonly given argument for historic responsibility claims that we should base our division of responsibility between states on the cumulative emissions of each state based on the principle of causal responsibility. In line with the polluter pays principle,

[353] Derek Bell, 'Global Climate Justice, Historic Emissions, and Excusable Ignorance', *The Monist,* 94:3 (2011): 393.

this argument claims that we must track historic emissions in order to give a true picture of the causal responsibility of each state for climate change. A state that has contributed more to climate change in terms of having higher historic emissions should bear more responsibility than a state that has lower cumulative emissions. Space prevents a full discussion of this argument here, but as we saw in Chapter Four, there are good reasons to claim that causality alone is not enough to determine moral responsibility. If the PPP is not suitable for current and future moral responsibility for emissions, then it seems doubtful that an argument based upon causality alone can be used to justify greater responsibility for states with greater historic emissions. Instead, my analysis in this chapter of the detailed level of accountability of an actor will be informed by the RBPP developed in Chapter Four.

Aside from arguments based upon pure causal responsibility, the key argument for historic responsibility is based upon the idea that some have used more than their fair share of a finite good.[354] I will discuss the argument in its most commonly given form which relies on the notion of an equal per capita right to emit, before defending a version based upon the idea that some have taken more than their fair share of the benefits of the atmosphere's capacity to absorb greenhouse gases. I will then use the RBPP to assess the degree of responsibility different actors should bear.

The fair shares argument claims that the capacity of the atmosphere to absorb emissions is a finite 'good' to which each human being has an equal right. Nobody should use more than their fair share in order to stay within the safety boundary and avoid tipping the climate over into a state of dangerous change. The argument claims that historic emissions count as part of the 'share' that developed states have used, and are therefore important in determining their responsibility for climate costs. This may take its philosophical basis from the widely known 'Lockean Proviso' whereby one is entitled to make use of natural resources as long as one leaves 'enough, and as good, for others.'[355] The situation we face today with the threat of dangerous climate change shows us that this is not the case. Some actors, in particular developed states, have used too much. The key question the fair shares argument must answer, however, is how to define what a 'fair' share would be. Several theorists who support the fair shares argument have endorsed the idea of equal per capita rights to emit, thereby assessing

[354] For example, see Vanderheiden, *Atmospheric Justice : A Political Theory of Climate Change*; Neumayer,'In Defence of Historical Accountability for Greenhouse Gas Emissions'.
[355] John Locke, 'Second Treatise of Government, Chapter V: Of Property', *Constitution Society* (n.d.) [Online] (http://www.constitution.org/jl/2ndtr05.htm). [Accessed 23 November 2013]: Pararagraph 27.

historic responsibility of states by their per capita emissions. I will discuss the equal per capita emissions approach before arguing that it fails to give a satisfactory defence of historic responsibility on two counts: (1) There is no reason to think that there should be a right to emit; and (2) If we are committed to an equal fulfilment of human rights, then we must concede that an egalitarian definition of a 'fair share' is likely to be less successful than a non-egalitarian approach to emissions. Following this discussion, I will defend an approach to historic responsibility based upon a fair shares argument in which a fair share is defined in terms of benefits received that are fulfilling development needs.

5.2.1 Egalitarian Fair Shares

The equal per capita emissions approach to determining historic responsibility using a fair shares argument is based upon an intuitive notion that a fair share must be calculated using an egalitarian principle. For proponents of this approach, the equal moral worth of individuals entails that they each have a claim to an equal share of greenhouse gas emissions. As Vanderheiden states, 'egalitarian principles […] maintain that no person is entitled to emit a larger share of a finite good than any other, for this would be to ascribe greater value to the lives of those allowed to emit more GHGs [greenhouse gases] than those required to emit fewer.'[356] Neumayer also defends historic responsibility in this way, arguing that 'countries which have in the past emitted in excess of an equal per capita allocation should have less than their equal per capita allocation of emission rights in the future, and vice versa for countries which have in the past emitted less than their equal per capita allocation.'[357] Jamieson has also supported the egalitarian principle, arguing that 'the most plausible distributive principle is the one that simply asserts that every person has a right to the same level of GHG emissions as every other person', since, 'it is hard to see why being American or Australian gives someone more right to more emissions, or why being Brazilian or Chinese gives someone less of a right.'[358]

According to the equal per capita fair shares argument, we can calculate the historic responsibility of states in terms of the share of total emissions used, which should be correlated to population size if each have had their fair (i.e., equal) share of emissions

[356] Vanderheiden, *Atmospheric Justice: A Political Theory of Climate Change,* 225.
[357] Neumayer, 'In Defence of Historical Accountability for Greenhouse Gas Emissions', 186.
[358] Jamieson, 'Adaptation, Mitigation, and Justice', 231.

that were owed to them. Those that have historically used more than this fair share should bear greater responsibility for climate costs.

Let us consider some actual figures in order to situate the claim that some have used more than they were entitled to use. In 2002, the historic emissions of developed states accounted for 76% of total global cumulative emissions.[359] The United States alone accounted for 29.3%. China's total emissions were 7.6% of the total global emissions.[360] Between 1900 and 2002, China's population grew from approximately 400 million to 1.3 billion.[361] The population of the United States increased from 76 million to 282 million during the same period.[362] As this shows, the cumulative emissions of the United States are almost four times China's cumulative emissions, yet China's average population over the period is almost five times as large as the United States' population.[363] The approximation we can make from the average population sizes and percentage of emissions shares tells us that the United States has used almost 20 times as many emissions per inhabitant as China. In addition, other studies have attempted to estimate the exact levels of per capita emissions over historic periods for different states. For example, Ding et al find China's per capita emissions between the years 1900 and 2005 to be 24.14 tC, compared to the United States' 467.88 tC over the same period.[364] This is consistent with the percentage estimates, as it shows the United States per capita emissions to be just over 19 times the per capita emissions of China over the same period. Using a slightly differently methodology and analysing date over a longer time period, Guoquan et al estimate China's per capita emissions between 1850 and 2004 to be 22.89 tC, which is less than half the amount of their calculation of global average cumulative emissions per capita of 50 tC.

The studies show that developed states such as the United States have used a much larger relative 'share' of the atmospheric capacity to absorb greenhouse gases than developing countries such as China. According to an equal per capita approach to historic emissions, the United States have therefore used a lot more emissions than they

[359] Kevin A. Baumert et al (Timothy Herzog and Jonathan Pershing), 'Navigating the Numbers: Greenhouse Gas Data and International Climate Policy', *World Resources Institute* (2005) [Online] (http://www.wri.org/sites/default/files/pdf/navigating_numbers.pdf). [Accessed 3rd April 2013]: 32.
[360] Baumert et al, 'Navigating the Numbers: Greenhouse Gas Data and International Climate Policy', 32.
[361] Jan Lahmeyer, 'China - historical demographical data of the whole country', *Populstat* (14 July 2003) [Online] (http://www.populstat.info/Asia/chinac.htm). [Accessed 10th July 2014].
[362] United States Census Bureau, 'Statistical Abstract of the United States: 20th Century Statistics' (1999) [Online] (http://www.census.gov/prod/99pubs/99statab/sec31.pdf). [Accessed 4th May 2012].
[363] Calculated using beginning population + end population/2
[364] Zhongli Ding et al, 'Control of atmospheric CO2 concentrations by 2050: A calculation on the emission rights of different countries', *Science in China Series D: Earth Sciences*, 52 (2009): 1459.

were entitled to, since there is not enough atmospheric space for all inhabitants to be able to use the same amount without tipping the climate over into dangerous changes. But it is not clear how much more than their 'fair share' they have used, since this requires an estimation of the total carbon budget. Using the equal per capita approach, this total budget should be divided by global population over time in order to calculate a fair share in which each country has the same per capita right to emit. Khor has attempted to quantify the fair shares argument by estimating the amount of emissions that would constitute a fair share. He states:

'Science tells us that the world has a limited budget of around 600GtC (or less) of carbon emissions to budget between 1800 and 2050 (equivalent to around 2200GtC of CO2). Given population ratio between Annex I and non-Annex I countries, the equitable share for Annex I countries is 125GtC of the total 600. Non-Annex I should be allocated around 475GtC in an equitable system. Annex I countries, however, have already consumed 240GtC between 1800 and 2008, which is 115GtC above its fair share of 125GtC. And, given the scenario of a 50% global cut and an 85% Annex I cut by 2050, they will consume another 85GtC between 2009 and 2050. Thus, the total Annex I consumption is 325GtC in all from 1800 to 2050. Since its fair share is 125Gt, there is a carbon debt of 200GtC.'[365]

Khor has estimated the developed states' historic responsibility in terms of their 'carbon debt', which is the amount of emissions they have used above their 'fair share'. By this calculation, developed states have used far more than their fair share and therefore must repay their historic carbon debt in terms of greater climate duties today.

This egalitarian view of the right to emit greenhouse gases provides a response to the question of how to define a fair share, and in turn supports the argument for holding developed countries responsible for their historic emissions. The have used more than the amount they were entitled to, given the assertion that each individual has the right to emit the same amount of greenhouse gases. Given the finite nature of the planet's capacity to absorb these greenhouse gases, those who have used more than others have acted unjustly since they have taken more than they were entitled to, meaning others cannot now take as much. Neumayer summarises this argument, stating:

'The developed countries have exploited this capacity in excess of what an equal per capita allocation would have granted them. Now they must be held accountable for it.'[366]

[365] Martin Khor, 'Historical responsibility as a guide to future action in climate change', Presentation made in Bonn on 4 June 2009, at the Technical Briefing on Historical Responsibility, during the 6th meeting of the Ad Hoc Working Group on Long Term Cooperative Action, under the UN Framework Convention on Climate Change.
[366] Neumayer, 'In Defence of Historical Accountability for Greenhouse Gas Emissions', 188.

The normative argument is based upon empirical data estimations that show that developed states have used more than developing states. They should therefore bear greater climate duties to compensate for this injustice. However, there are several reasons why we should be sceptical about such an approach, which I will now discuss.

5.2.2 Problems with 'Equal Per Capita'

Whilst the figures show that indeed developed states have used a much greater share of total emissions, it is not clear why this is an *unfair* share. The equal per capita approach claims that emissions rights should simply be divided up by an egalitarian principle. As such, this version of the historic responsibility argument only holds if we affirm the idea that justice requires each individual to be entitled to use the same amount of carbon emissions. I will now discuss several reasons to doubt that this approach can provide a defensible account of the requirements of justice.

Following an interest-based approach to rights, a right is something that a human being has an essential interest in. As defined by Raz, 'X has a right' if and only if X can have rights, and, other things being equal, an aspect of X's well-being (his interest) is a sufficient reason for holding some other person(s) to be under a duty.'[367] The benefits from engaging with greenhouse gases may enable people to fulfil their vital human interests such as keeping warm or cooking food. However, strictly speaking, it does not follow that the actual act of emitting greenhouse gases is something that human beings have an unqualified, universal interest in, in the form of a right. As we saw in Chapter Three, the right to development may permit some to engage in subsistence or development emissions, as a matter of rights-fulfilment. However, this is in the context of needing to engage in emission-causing actions in order to fulfil the human right to development. The interest in emitting greenhouse gases is a contingent interest, dependent on the right to development and not linked to a universal right to emit greenhouse gases. Following a 'capabilities' or goal-based approach to human rights, emitting greenhouse gases can help to bring about the achievement of certain goals. As Caney argues, the ability to emit greenhouse gases is not the most important factor here. He states, 'what matters is people's ability to pursue various goals and to enjoy certain capabilities. Emissions have value only insofar as they serve these goals'.[368] The key point is that whilst some have real human interests in being permitted to engage in

[367] Joseph Raz, *The Morality of Freedom*, (New York: Oxford University Press, 1986): 166
[368] Caney, 'Justice and the distribution of greenhouse gas emissions', 130; See also Derek Bell, 'Carbon Justice? The Case Against a Universal Right to Equal Carbon Emissions', in Sarah Wilkes, ed., *Seeking Environmental Justice*, (Amsterdam: Rodopi, 2008): 239-257.

subsistence or development emissions, the interest is contingent upon a specific set of circumstances and is not an interest shared by all human beings. It does not, therefore, make sense to view emissions in themselves as a good to which all humans have a right to an equal share. The claim that all individuals have the same equal right to emit greenhouse gases is unsubstantiated. Let us consider briefly two further points that strengthen this conclusion.

First, there are great differences in availability of efficient energy systems between different regions of the world, so even individuals in the same level of poverty or stage of development may have differing needs for emissions depending on where they live. As Bell argues, 'different persons may need different resources to achieve the same levels of welfare or realise the same capabilities.'[369] This may be due to varying energy mixes between different countries due to differing availability of resources or technical capabilities. For example, technologies are likely to be more advanced and efficient in developed countries than in developing countries. Technological advancement, or lack of it, may mean that producing the same amount of energy in a developing country requires more of a resource than within a developed country with access to more efficient technology or less-polluting resources. For example, China's energy mix is dominated by coal to a level of 70%, whilst a country such as France produces 75% of its energy generation from nuclear power.[370]A person living in a country with such a developed system generating nuclear power will produce far fewer greenhouse gas emissions to heat his or her house than a person living in a country with access only to fossil fuel dependent sources of energy. So it is not only the development level of an individual that dictates his or her need to emit greenhouse gases, but also the local access to and availability of clean resources.

Second, there is another relevant dimension of inequality related to geography and climate rather than availability of clean energy production methods. A person living in a cold climate will need to heat themselves more in order to fulfil their human need to maintain an adequate body temperature than a person living in a temperate climate, simply because their environment is naturally less hospitable. The amount of resources, be these greenhouse gas-based or not, needed to keep the person living in the temperate

[369] Bell, 'Climate Duties, Human Rights and Historic Emissions', 137.
[370] US EIA, 'France', (n.d.) [Online] (http://www.eia.gov/countries/cab.cfm?fips=CH, http://www.world-nuclear.org/info/Country-Profiles/Countries-A-F/France/#.UViMk5OmgoM) [Accessed 29 June 2012].

climate will therefore be lower than those needed by the person living in the cold climate to fulfil the same needs.

The emission of greenhouse gases is a means to an important end, but different amounts of resources are needed by different people to fulfil their needs. Indeed, enabling the fulfilment of important interests is more likely to be achieved on a wider scale with *unequal* per capita shares, since individuals have different needs for emissions to fulfil the same ends. Equal per capita divisions of greenhouse gas emissions rights would not result in an equitable distribution of the correct 'good', which is having essential needs fulfilled. Since there is no reason to think that there should be equal per capita rights to emit greenhouse gases, the fair shares argument in its current form fails to show us that the greater emissions by developed states are wrongful. The equal per capita argument cannot tell us what a 'fair share' would be. It cannot, therefore, be used to defend historic responsibility on the basis that the developed states have used more than their fair share.

5.2.3 A Non-Egalitarian Approach to Fair Shares

In what follows I will defend a version of the fair shares argument in which those who have received benefits from emissions that have far surpassed their subsistence and development rights are considered to have taken more than their fair share of these benefits. The unfairness in the different levels of emissions does not come from the fact that some have emitted more than others based upon an egalitarian principle in which each individual simply has a right to emit. Instead, it is based upon the normative claim that those that have received benefits from luxury emissions have received more than their fair share of the benefits of the atmospheric capacity to absorb greenhouse gases. From this position, which assesses whether historic emissions were in themselves wrongful or not, I will refer to the RBPP to determine the extent of responsibility potential duty bearers should bear.

As I argued in Chapter Three, we might usefully refer to three different classes of emissions. Subsistence and development emissions are fulfilling human rights, whereas luxury emissions are fulfilling desires rather than needs, and as such, are less morally important. Historic emissions can therefore be assessed in terms of the benefits that have been gained from them. Developed states have high levels of human development and have benefited from their historic emissions to an extent that goes far beyond what was needed to satisfy the right to development. In comparison to developing countries,

developed states can be said to have taken more than their 'fair share' of the benefits of engaging in emitting actions since they have gained high levels of luxury benefits far beyond that needed for the fulfilment of the development of their citizens. Instead, as in Chapter Three, we might argue actors become more and more responsible for emissions as they move along the development path. In defining a fair share of historic emissions, we might say this is the share that is required to fulfil the right to development, since past that point, the benefit gained is no longer fulfilling true needs. Whilst this cannot be quantified in an exact manner, some theorists have attempted to ascertain the level of emissions needed to fulfil such development needs. Smil, who has estimated the minimum amount of emissions required for subsistence, states:

'Annual per capita energy consumption of between 50–70 GJ [gigajoules] thus appears to be the minimum for any society where a general satisfaction of essential physical needs is combined with fairly widespread opportunities for intellectual advancement and with the respect for basic individual rights.'[371]

At the time of the study, per capita energy use in the United States was 340GJ, which is between 6.8 and 4.9 times the 50-70GJ needed for the fulfilment of essential interests as estimated by Smil's findings.[372] As we have seen, development is a process which goes beyond the fulfilment of essential subsistence needs, so the per capita energy use required to fulfil development needs is likely to be above 50-70 GJ. Smil estimates that above 110GJ per capita, there are 'no additional gains' to issues of moral relevance such as infant mortality rates, HDI score or life expectancy, which all reach levels expected of highly developed societies at this amount of emissions per capita.[373] According to Smil's estimates, therefore, a figure somewhere between 70 and 110GJ is the amount of emissions needed to bring the recipient benefits that fulfil development needs. Baer et al have suggested that those over a certain level of income, which they define as the 'development threshold', should bear responsibility for their emissions.[374] As we saw in Chapter Three, the fulfilment of the right to development is not easy to calculate and cannot be readily translated into a statistic or numerical threshold. These indicators can be useful in suggesting potential ways that development might be measured, but the exact methodology is not within the scope of this research. The moral principle I am defending considers development to be a scale, along which responsibility for emissions is gradually accrued as human development takes place, until benefit from emissions is

[371] Vaclav Smil, *Energy at the Crossroads: Global Perspectives and Uncertainties* (Massachusetts: MIT Press, 2005): 105 ; Soltau, *Fairness in International Climate Change Law and Policy*, 162.
[372] Smil, *Energy at the Crossroads: Global Perspectives and Uncertainties,*105.
[373] Smil, *Energy at the Crossroads: Global Perspectives and Uncertainties,*104.
[374] Baer et al, 'The Greenhouse Development Rights Framework', 10.

considered to be fulfilling luxury desires for which actors bear full responsibility. Historic responsibility is therefore limited for emissions that were fulfilling development needs, as development emissions are considered to form part of an actor's fair share of the benefits of burning greenhouse gases. An unfair share is the share that goes beyond fulfilling this need, and the degree of unfairness increases with increasing shares of luxury benefits.

5.2.4 Defending Historic Responsibility as an Unfair Share of Benefits

I have defended the principle of historic responsibility based upon the claim that developed states have taken more than their fair share of the benefits from the global commons that is the atmospheric capacity to absorb greenhouse gases. I have rejected approaches based on an equal per capita right to emit, which would define a fair share as an equal per capita division of the global carbon budget. Instead, I have defined a fair share in terms of the benefits accrued from emissions-processes, in which it is permissible to benefit from emissions whilst these are serving human development. As the developed states have continued their development far beyond that which was needed for the fulfilment of the right to development, they have used more than their fair share of the atmospheric commons. In defending a non-egalitarian principle I appealed to the notion of subsistence and development emissions to show that certain states have overused what was necessary for the right to development of their citizens. I will now defend this argument against the objection of excusable ignorance, using the RBPP to determine the implications of this objection for the historic responsibilities of different actors.

5.3. The Excusable Ignorance Objection

The excusable ignorance objection claims that at the time many of the historic emissions took place the potential harms were unforeseeable, meaning that past actors were ignorant of the impact of the actions from which they were benefiting. Their ignorance is considered to be 'excusable', since they could not possibly have known about these harms. [375] Since actors could not have been expected to know about the atmosphere's finite capacity to absorb greenhouse gases within a safe limit, they should not be held historically responsible for these emissions. As Beckerman and Pasek explain, the 'notion of moral responsibility is closely linked to the notion of being a free

[375] Several theorists have discussed the excusable ignorance objection. For example, see Caney, 'Climate Change and the Duties of the Advantaged'; Bell, 'Global Climate Justice, Historic Emissions, and Excusable Ignorance'.

agent, voluntarily carrying out any act, in knowledge of its consequences'.[376] The 'excusable ignorance' of historic actors means that they did not know that they were taking far more than their fair share of the benefits of the atmosphere's finite capacity to absorb greenhouse gases and so were not acting in a morally wrongful way.

5.3.1 A Cut-off Date for Excusable Ignorance

A first response to the excusable ignorance objection is that it is only relevant for a certain part of the past. If historic emissions are considered to be cumulative emissions up to the current day, then this definition includes a reasonable period of time during which the objection is not valid. After a certain moment in time, ignorance about climate change became inexcusable, as the impacts of greenhouse gas emissions on the climate came to be known. Beyond this time, actors were no longer 'excusably' ignorant of the potential for harm caused by actions that released greenhouse gases from which they were benefiting. While it might be arbitrary to choose a single cut-off date when ignorance suddenly became inexcusable, it is possible to highlight the timeframe in which realisation of the effects of greenhouse gas emissions into the atmosphere became known in the international arena. Many theorists set this date in the mid to late 1980s or early 1990s. For Neumayer this occurred in the 1980s. He states:

'While the first warning of global warming dates back to the last century … it is presumably fair to say that it was not before the mid-1980s that the public and decision-makers became aware of the greenhouse effect.'[377]

Bell and Singer have separately suggested that we might use 1990 as our cut-off point, both citing the first publication of the Intergovernmental Panel on Climate Change as the reason for this choice of date.[378]The year 1990 seems like a reasonable choice, since it is around this date that no further excuse can be made, with the creation of two intergovernmental bodies specifically related to climate change. The Intergovernmental Panel on Climate Change was set up in 1988 at the request of members of the United Nations. Following this, the 'Earth Summit' took place in Rio de Janeiro in 1992, launching the creation of the United Nations Framework Convention on Climate Change. Principle 7 of the Rio Declaration states:

'States shall cooperate in a spirit of global partnership to conserve, protect and restore the health and integrity of the Earth's ecosystem. In view of the different contributions

[376] Bell, 'Global Climate Justice, Historic Emissions, and Excusable Ignorance', 393.
[377] Neumayer, 'In Defence of Historical Accountability for Greenhouse Gas Emissions', 188.
[378] Bell, 'Global Climate Justice, Historic Emissions, and Excusable Ignorance',393; Peter Singer, *One World: The Ethics of Globalization* (New Haven: Yale University Press, 2002): 34.

to global environmental degradation, States have common but differentiated responsibilities. The developed countries acknowledge the responsibility that they bear in the international pursuit of sustainable development in view of the pressures their societies place on the global environment and of the technologies and financial resources they command.'[379]

From around 1990, therefore, there is evidence that the effects of greenhouse gases on the climate were known, since it is around this point that states agreed to work together to mitigate climate change. So the objection of excusable ignorance cannot apply to responsibility for emissions after around 1990. The first response to the objection therefore disputes the objection's relevance to historic emissions as a whole, claiming that it does not apply to historic responsibility for emissions from the recent past.

However, in relation to historic responsibility, as we saw earlier, the inclusion of responsibility for emissions before around 1990 has significant implications for China's share of the climate burden. For the world's two biggest state-level emitters, a more recent cut-off point for historic responsibility means China is responsible for a larger share of the cumulative global emissions, whilst the United States' global share decreases. China's share of global emissions between 1990 and 2005 is 13%, which is more than double the 6.4% that China is responsible for if emissions are considered between 1890 and 2005.[380]

So, even if we accepted that excusable ignorance was only relevant pre-1990, it would still have important implications for who should bear responsibility for the costs of climate change. Therefore, it matters whether the excusable ignorance objection undermines historic responsibility for pre-1990 emissions. I will now consider some possible responses to this objection before defending a version of limited historic responsibility based upon Bell's 'dual-standpoint' distinction.[381] I will then discuss the implications of this for historic actors by applying the RBPP.

5.3.2 Outcome Responsibility

The appeal to 'outcome responsibility' provides a first counter-argument to respond to the excusable ignorance argument for pre-1990 emissions. It accepts the claim that actors were excusably ignorant, but would still assign a form of limited responsibility for these historic emissions. For example, Shue claims:

[379] UN General Assembly, 'Principle 7, Rio Declaration on Environment and Development', (12 August 1992) [Online] (http://www.un.org/documents/ga/conf151/aconf15126-1annex1.htm). [Accessed 15 January 2013].
[380] Christian Ellermann et al, 'Differentiating historical responsibilities for climate change', 88.
[381] Bell, 'Global Climate Justice, Historic Emissions, and Excusable Ignorance'.

'Th[e] objection rests upon a confusion between punishment and responsibility. It is not fair to punish someone for producing effects that could not have been avoided, but it is common to hold people responsible for effects that were unforeseen and unavoidable.'[382]

Shue claims there is a difference between holding someone morally responsible – in which they are guilty and should be punished – and simply holding someone liable for costs. He states:

'If there were an inequality between two groups of people such that members of the first group could create problems and then expect members of the second group to deal with the problems, that inequality would be incompatible with equal respect and equal dignity […] Once such an inequality has been created unilaterally by someone's imposing costs upon other people, we are justified in reversing the inequality by imposing extra burdens upon the producer of the inequality.'[383]

By using more than their fair share of atmospheric space, the historic emitters are jeopardising the rights of current and future people due to the atmosphere's finite capacity to absorb greenhouse gases without causing dangerous climate change. Those that have created the inequality should be required to correct this imbalance by reducing their emissions back to the level of their fair share in order to allow space for development emissions of those whose development will otherwise be restricted.

Miller makes a similar claim in suggesting that we can hold persons responsible for their actions in the absence of moral responsibility. He states:

'[Nations] cannot be held morally responsible, or blamable, for these emissions—moral responsibility and blame require that the agent in question either knew or was in a position where he or she should have known that the action in question was harmful. But these nations might nonetheless be held responsible in a wider sense that carries with it responsibilities to counteract the damage caused.'[384]

Miller calls this 'outcome responsibility' in which it is the responsibility of the actor to provide remedial assistance where the outcomes of his or her actions result in costs. For Miller, such 'outcome responsibility' 'may be enough to trigger remedial responsibility in certain cases, [since] the causal relationship suffices to pick [the causally responsible agent] out from the universe of others who might also [provide] aid.'[385] Miller argues that several different types of responsibility may translate to a duty to pay for costs,

[382] Shue, 'Global environment and international inequality', 535.
[383] Shue, 'Global environment and international inequality', 533-534.
[384] Miller, 'Global justice and climate change: How should responsibilities be distributed?', 130.
[385] David Miller, *National Responsibility and Global Justice*. (Oxford: Oxford University Press, 2007): 101–102

including, but not limited to, moral responsibility. What is key for Miller is that *someone does* pay for the costs. He states:

'The point to bear in mind is that the weight of justification is borne by the pressing need to relieve [the victims of the harm], and the necessity of identifying a particular agent as having the obligation to provide the relief.'[386]

Miller's justification, therefore, seems to apply in situations where the imperative is that the rights of the victims are fulfilled, and where we should find the most appropriate person to bear this duty. It is justifiable in this case to require the actor to bear the costs, even if their actions were not morally blameworthy. The non-violation of rights is seen as being the most important consideration, overriding concerns we might have about being unfair to excusably ignorant actors. In legal terms, allocating duties to those who are outcome responsible but not morally responsible is known as 'strict liability'. Gardiner defines strict liability as the situation 'where a party causing harm is liable for damages even when not guilty of negligence', and states that this 'has been successfully upheld in several environmental cases and employed in environmental legislation.'[387]

However, a critic might respond that rights are being prioritised to an extent that places unfair costs upon the duty bearers.[388] As Caney argues:

'To make (excusably) ignorant harmers pay is to prioritize the interests of the beneficiaries over those of the ascribed duty-bearers. It is not sensitive to the fact that the alleged duty-bearers could not have been expected to know. Its emphasis is wholly on the interests of the rights-bearers and, as such, does not adequately accommodate the duty-bearer perspective.'[389]

Let us consider an example. Imagine two persons, Mr. Green and Mr. Blue. Both are poor, and each has only one piece of bread to eat, which is the minimum needed in order to avoid starvation. In going about his business in a normal way, Mr. Green is responsible for bringing about a situation in which Mr. Blue's piece of bread disappears. He did not act in a morally blameworthy way, and could not have possibly known the impacts of his actions on Mr. Blue's livelihood. However, the situation is very serious as Mr. Blue now has no bread. Approaching the situation purely from the point of view of the rights-holder without considering the weight of the costs being placed on the duty bearer might lead us to conclude that Mr. Green should give his piece of bread to Mr. Blue. However, this would be imposing an unreasonable cost upon Mr. Green as he

[386] Miller, *National responsibility and global Justice,* 100.
[387] Gardiner, 'Ethics and Global Climate Change', 581.
[388] Caney, 'Cosmopolitan Justice, Responsibility, and Global Climate Change' 762.
[389] Caney, 'Cosmopolitan Justice, Responsibility, and Global Climate Change', 762.

only has one piece of bread, and we might therefore claim that this is unfair since his actions were not wrongful and he could not have known the consequence of his action.

Following Caney's claim, this highly simplified example gives us cause to reconsider the claim that actors can be held liable for the costs despite being excusably ignorant, since this may be unreasonably demanding on actors who have not acted in a morally wrongful way. In the fictional example, we might well feel that it is unfair to demand so much of Mr. Green. Our intuition is consistent with the moral conclusion we have drawn separately, that it would be unfair to expect excusably ignorant Mr. Green to impoverish himself by bearing liability for the unforeseeable costs he has imposed on Mr. Blue. However, the same is not true of historic responsibility for emissions, in which the argument that developed states should bear responsibility for their historic emissions is intuitively plausible and does not seem to ask too much of the duty bearers. This intuition is helpful in furthering and testing any theory of justice. As Kymlicka states, 'we have an intuitive sense of right and wrong, and it is natural, indeed unavoidable, that we try to work out its implications.'[390] However, as Miller states, 'we should be looking for principles of fairness that are independently valid, not just ones that give us the answers we were hoping to get in the first place.'[391]

We might consider that in the case of historic responsibility for climate change, what is doing the work here is that being held liable for the resulting costs would not be likely to impoverish those responsible for historic emissions. One might simply suggest adding a clause specifying that the costs must not be overly demanding on the duty bearers. Indeed, Gardiner appeals to the ease with which developed countries could pay the costs in his argument defending historic responsibility.[392] In this case, historic responsibility might only hold when duty bearers can afford to pay the costs. However, as Bell argues:

'If it is unfair to hold excusably ignorant emitters strictly liable because their ignorance prevented them from making an informed choice not to engage in emissions-generating activities, it is not clear that the unfairness 'disappears' just because excusably ignorant emitters can easily afford to pay the costs. In general, we do not assume that if I can easily afford to pay costs that have been unfairly imposed on me, it was not unfair to impose those costs on me.'[393]

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[390] Kymlicka, *Contemporary Political Philosophy: An Introduction*, 6.
[391] Miller, 'Global justice and climate change: How should responsibilities be distributed?', 124.
[392] Gardiner, 'Ethics and Global Climate Change', 581; Bell, 'Global Climate Justice, Historic Emissions, and Excusable Ignorance', 399.
[393] Bell, 'Global Climate Justice, Historic Emissions, and Excusable Ignorance', 399.

On the basis of historic responsibility, it does not seem fair to assign costs to one excusably ignorant emitter because he can afford to pay if we excuse another actor who has acted in the same way but is less wealthy. What seems to be important in this account is ability to pay rather than historic responsibility. So, the first response to the objection of excusable ignorance for pre-1990 emissions fails as it must rely on a principle of ability to pay in order to not be overly demanding on duty bearers. As such, it does not provide a counter-argument to the excusable ignorance objection in support of historic responsibility, but instead must abandon historic responsibility since its ultimate moral assessment of who should bear costs is instead based upon an ability to pay principle.

5.3.3 Liability Limited to Amount of Benefits Received

However, an alternative way of limiting costs placed upon duty bearers has been suggested by Caney, which does not require an appeal to an ability to pay principle. Caney suggests that we might limit the liability of excusably ignorant actors to the amount of benefit they have received from the emissions for which they are being held responsible. This principle is sensitive to the weight of demands being placed on duty bearers, but it is also consistent with the principle of historic responsibility since the limiting factor is in direct correlation to the actor's relationship with the historic emissions by way of benefits received. This received benefit is the relevant factor in Caney's approach. He states:

'We should adopt a modified strict liability principle where this holds that if people engage in activities which jeopardize other people's fundamental interests by emitting excessive amounts of greenhouse gases then (i) they should bear the costs of their actions even if they were excusably ignorant of the effects of their actions if they have benefited from those harmful activities *and (ii)* their costs should correspond to the benefits they have derived*.'*[394]

In recognising the moral relevance of the benefit received, Caney's modified strict liability approach moves closer towards the RBPP, in which the benefit received from emissions is morally relevant. Caney states:

'In particular, the complaint that it is unfair to make them pay for effects they could not have anticipated loses its force here because, and to the extent that, they have also benefited from this harmful behaviour.'[395]

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[394] Caney, 'Climate Change and the Duties of the Advantaged'.
[395] Caney, 'Climate Change and the Duties of the Advantaged', 209–10, cited in Bell, 'Global Climate Justice, Historic Emissions, and Excusable Ignorance', 400.

This argument would therefore assign 'limited' liability to the excusably ignorant actor, limited in terms of costs not exceeding the value of benefit received from the action. The actor is not being punished, as he is only returning the value of the benefit gained by the action that caused the harms, and therefore incurring no net costs to himself. The limited liability response to excusable ignorance would require those who had used more than their fair share to reduce their own emissions to make room for those who would experience harms as a result of not being able to use their fair share of the atmospheric space.

However, though Caney's principle is 'intuitively plausible', as Bell argues, it is not 'adequately justified' in making excusably ignorant actors liable for costs, even if these are strictly limited.[396] He states:

'Neither Caney nor Gardiner provides a convincing theoretical justification of this account of liability. More specifically, they do not explain why causal responsibility is morally significant when the causally responsible agent is excusably ignorant and, therefore, not morally responsible (i.e., liable for blame) for their actions.'[397]

Accordingly, Bell provides an alternative approach, which is capable of providing an adequate justification of limited liability for excusably ignorant actors. Bell makes the distinction between a 'time-relative' position, from which we can make judgements about moral responsibility, and a 'time-neutral' position, from which we can judge right and wrong.[398] As Bell explains:

'Judgements about the moral responsibility (i.e., blameworthiness) of an agent for her acts should be based on the information that the agent could have been expected to have at the time of her acts. If she was excusably ignorant of the consequences of her acts, she should not be liable for blame or punishment. We might say that the informational base for judgements about moral responsibility is 'time-relative' or 'time-bound' because it is limited to the information that the agent should have acquired at the time of her act. In contrast, the informational base for judgements about right and wrong is 'time-neutral' or 'timeless' because there are no limits on when we acquire the information on which we make such judgements. So, we might judge now – on the basis of our best current information – that the acts of previous generations were wrong while also judging – on the basis of the information that they could have been expected to have at the time – that they should not be blamed for their acts. Moreover, if new information comes to light in the future, we may revise our current judgements about whether the acts of previous generations were right or wrong. In other words, our judgements about right and wrong will always remain provisional because they can only be confirmed when we have perfect information.'[399]

[396] Bell, 'Global Climate Justice, Historic Emissions, and Excusable Ignorance', 400.
[397] Bell, 'Global Climate Justice, Historic Emissions, and Excusable Ignorance', 400
[398] Bell, 'Global Climate Justice, Historic Emissions, and Excusable Ignorance', 402
[399] Bell, 'Global Climate Justice, Historic Emissions, and Excusable Ignorance', 402

Bell's distinction allows us to simultaneously hold that in the 'time-relative' sense an actor did not act in a morally blameworthy way due to being excusably ignorant, yet in a 'time-neutral' sense, the actor should bear limited liability for these acts that we now know were wrong. It can therefore justify the position of limited liability for the costs of an act that occurred at a time when the actor was excusably ignorant. However, Bell adds a further clarificatory point, which aims to counter critics of strict-liability. Such critics might claim that it is only the time-relative information that is relevant, since it is only by the knowledge that existed at the time of the action that the actor should be assessed, and not by what has been learned afterwards. As such, we might limit our approach to actors that are capable of taking on a 'dual standpoint' position, in which they are still in existence once the time-neutral truth about the wrongfulness of the historic emissions from which they benefited has been discovered. In line with the multi-actor approach, states, and to a lesser extent, corporations, may fulfil this role, having existences that continue over time. Some older individuals might also be included. But the exact implications for the extent to which each actor is historically responsible will depend on the wider approach to climate justice we take. As Bell states, 'we can only judge which historic emissions-generating acts were wrongful once we have an account of justice (based on our best current account of the circumstances of justice), which tells us which emissions-generating acts were just and which were unjust.'[400] As a starting point in responding to this need, I will now consider the implications of the principles of the RBPP for historic responsibility based upon the unfair share of benefit developed states have gained, building upon Bell's time-relative/time-neutral distinction as justification against the excusable ignorance objection.

5.3.4 Historic Responsibility According to the RBPP

As the main negotiating actors in a future climate burden sharing agreement, historic responsibility is of most relevance to the duties of states. States are moral agents that exist over long periods of time. Many developed states existed at the time of the industrial revolution and are still in existence today. States are therefore capable of the 'dual standpoint' position, which, as we will see, allows us to hold them responsible for pre-1990 emissions despite their excusable ignorance of the effects of their actions. They can review their past actions with a time-neutral view and bear limited liability, the extent of the limitation coming from the implications of the RBPP.

[400] Bell, 'Global Climate Justice, Historic Emissions, and Excusable Ignorance', 407

According to the RBPP, accountability for emissions is conditional upon having received non-subsistence benefits from greenhouse gas emissions. Developed states clearly meet this necessary condition. However, in contrast to current accountability, a smaller amount of emissions should be considered since benefits from the very first emissions at the beginning of the path to development are likely to have involved more subsistence emissions. Furthermore, unlike current emissions, a proportion of the historic emissions of developed states have contributed to development benefits. As I argued in earlier chapters, as actors move along the development scale, they become more responsible for the benefits they receive from emissions that are no longer serving subsistence needs. At some point along their histories, developed states began to acquire responsibility for the benefits they were gaining from their emissions at the top end of development, moving into the category of luxury emissions. So, unlike current emissions, the historic emissions of developed states might have mainly produced benefits that met subsistence or development needs. As development level is a modulating factor for responsibility, this means that responsibility for total historic emissions should be reduced, compared to responsibility for current emissions from which they benefit. These current benefits meet the necessary condition of being non-subsistence benefits, as well as generating greater responsibilities due to the high level of fulfilment of the development factor in the nature of luxury benefits. However, the benefit from past emissions is an integral part of developed states ability to receive high levels of luxury benefits today, since the high levels of industrial and economic growth that are responsible for the historic emissions are also largely responsible for the standard of living and affluence of developed states today. As Baer et al assert, developed states have 'benefited permanently (as by increased wealth and infrastructure)' from these historic emissions.[401]

So, whilst the development modulating factor limits responsibility for early emissions, the extent of luxury emissions since that point and up to today means that there is a large quantity of historic emissions that satisfy the development factor to a high degree. The level of responsibility for historic emissions by states that industrialised early on therefore should not be severely limited by the development factor of the RBPP. States that are still developing should bear less responsibility for their historic emissions. This raises an interesting point for developing states such as China as it suggests that they should bear less responsibility for their historic emissions, since a large proportion of

[401] Baer et al, 'Greenhouse Development Rights Framework', 402.

these were for development benefits. As the level of development is still not very high in developing states, the benefits gained from these emissions in the past are likely to have been quite low down the development scale, and as such entail more limited responsibility. So, historic emissions of developed states before 1990 count as having fulfilled the development factor to a much higher degree than historic emissions of developing states. This is as well as historic emissions from developing states being much lower in an absolute sense. The development factor of the RBPP tells us that much greater historic responsibility should be borne by developed states, since they have received high levels of luxury benefits.

The second modulating factor in the RBPP is an actor's ability to exert influence over the generation of the emissions from which they benefit. Since the emissions for which we are allocated responsibility took place in the past, the actors bearing responsibility now cannot possibly exert influence on these emissions. However, as an actor that can take on the dual standpoint position, states were able to exert influence on the emissions, at the time they occurred. But the time-relative judgement of excusable ignorance limits the resulting responsibility since an actor cannot meaningfully exert influence over emissions if he is not aware of any reason to act in such a way as to bring about a reduction in emissions. As such, the second modulating factor would support a more limited degree of responsibility for excusably ignorant past emissions. The ability to exert influence factor is only weakly fulfilled, since states were theoretically capable of exerting influence over their historic emissions, but were unaware of the need to do so at the time they occurred. So, the extent of the states' ability to exert influence on emissions limits the degree of responsibility from the RBPP since (1) beneficiaries with the dual-standpoint perspective can no longer exert influence over the actions that caused the emissions, and (2) even though states had the ability to exert influence over the emissions, they were excusably ignorant of the need to do so at the time when it was possible for them to exert this influence.

The degree of voluntariness is the final modulating factor that can influence the extent of the duties the beneficiary should bear. At the time of the emissions, developed states were not receiving benefits with a high degree of voluntariness since they were not aware of the harm being caused by the emissions. They were not wilfully choosing to keep benefits because the (time-relative) information available to them did not suggest that acceptance of benefits from emissions was morally wrongful. However, the degree of voluntariness clause is particularly interesting in the case of historic responsibility for

emissions when we consider the time-relative/time-neutral distinction, since acceptance of benefits from past emissions continues today. In the current day, states are capable of seeing their historic emissions from the time-neutral perspective. As Bell argues:

'If [the actor] does learn that she has unknowingly acted wrongly in the past, she should, as a moral agent, who cares about right and wrong, regret her (excusably ignorant) wrongful act. She cannot change the past. However, if she sincerely regrets that she has acted wrongly, she should not want to have benefited from her wrongful act. Therefore, she should be willing to accept that she should not retain the benefits derived from her wrongful acts. Instead, these benefits may be transferred to the victims of her wrongful acts to rectify (or partially rectify) the wrong that she has done.'[402]

If an actor is unwilling to transfer the gained benefits once the time-neutral perspective allows the wrongfulness of the actions that caused the benefits to become apparent, then the benefits have been accepted with some degree of voluntariness. Developed states can adopt both standpoints, and yet continue to benefit from high levels of luxury emissions, both domestically as well as those embedded in imported goods. The high standard of living in developed countries is a direct result of the benefits gained by industrialisation. It seems quite unlikely that the benefits brought about from industrialisation would have been rejected, had the time-neutral truth been revealed to states at the time of historic emissions. If there was a serious belief that benefits should not have been accepted, then, as Shue argues, 'it would have been conceivable that as soon as evidence began to accumulate that industrial activity was having a dangerous environmental effect, the industrial states would have adopted a conservative or even cautious policy of cutting back greenhouse-gas emissions or at least slowing their rate of increase.'[403] Baatz makes a similar point, suggesting that acceptance of the time-neutral claim of the wrongness of past emissions is inconsistent with keeping the benefits gained from these emissions. He states, 'if we consider undeserved suffering as something bad that should be mitigated, would it not be odd to simultaneously insist on retaining the (enormous) benefits resulting from the harmful action?'[404]

Current benefits from historic emissions have been accepted with a high degree of voluntariness by developed states. Knowing that these benefits have been accepted so readily today by states in spite of their the dual-standpoint perspective, it seems

[402] Bell, 'Global Climate Justice, Historic Emissions, and Excusable Ignorance', 403.
[403] Shue, 'Global environment and international inequality', 536.
[404] Christian Baatz, 'Responsibility for the past?', (September 2012) [Online] (http://www.botanik.uni-greifswald.de/fileadmin/umweltethik/Greifswald_Environmental_Ethics_Paper_No_1.pdf) [Accessed 2 March 2013]: 7

reasonable to assume that these benefits would also have been accepted voluntarily by the same actor at the time they were excusably ignorant.

As we have seen, a large proportion of the historic emissions of developed states are associated with luxury benefits and so display a high level of fulfilment of the development factor of the RBPP. The degree of voluntariness is high for benefits received by states today, and their acceptance of these benefits implies tacit acceptance of past benefits. So, the first two factors are fulfilled to a high degree. However, the excusable ignorance of emissions prior to 1990 limits the degree of fulfilment of the ability to exert influence. This should limit responsibility for past emissions. As such, the findings of the RBPP support a limited principle of liability for historic emissions from which developed states have benefited. So, in line with the approaches suggested by Caney or Bell, the RBPP would also support limited liability for historic emissions, in which costs would be limited to the extent of the benefit received.

To the extent that corporations are also capable of existing over a long period of time and therefore having the dual-standpoint perspective, they might also be expected to bear limited liability for the benefit they have gained from historic emissions prior to 1990. However, it is likely that this responsibility will be limited since the identity of corporations that have existed over longer timeframes is likely to be complicated. For example, larger companies can buy smaller companies, they can be nationalised, privatised, or multinational mergers can result in corporations having different identities in different parts of the world. Importantly, in a different way to states, the benefits corporations gain from emissions are likely to primarily take the form of immediate financial gains that are passed directly to shareholders. Many of these individuals, in this case fulfilling the role of corporate shareholders, are no longer alive. Since corporate structures are different to states in the way of passing on profits directly to a few individuals, the existence over time of the whole body that encompasses ‘the corporation’ is not as clear as in the case of the state. Whilst the citizens of states have also changed over time, the state itself gained a large proportion of the benefits accrued from the past emissions in terms of technological advancement, infrastructure and wealth. State benefits, unlike corporate benefits, are not simply passed on as profit to past shareholders.

A corporation is therefore not capable of taking on the dual-standpoint perspective in the same way, unless the full corporate body is still in place. As such, the excusable

ignorance argument is more troublesome for corporate duties, since in many cases the same actor does not exist over the relevant time period. This also affects the implications of the RBPP for corporate historic responsibilities, since the corporation, as it exists currently, may never have had the ability to exert influence over the past emissions. So, while we should expect corporations to bear climate duties for current and future emissions, corporate responsibility for historic emissions prior to 1990 is likely to be limited to a small handful of corporations with strong identities that have existed over time.

Older individuals that have been benefiting from non-subsistence emissions since before 1990 will also be liable for limited historic responsibility in a similar way to states, since they are capable of the dual-standpoint perspective. Other individuals will bear costs associated with historic responsibility primarily due to their role as citizens. The benefits that individuals receive today from past emissions are largely through benefits they receive from the highly developed infrastructure of the states in which they live. The state is the actor that has been present over time, but current citizens at each moment in time benefit from these historic emissions that have created the state, as they know it. Current citizens therefore inherit the benefits the state has gained from historic emissions, and their level of responsibility is modulated to the extent that they individually fulfil the criteria of the RBPP. The fact that current individuals cannot exert influence on emissions that took place before they were born does limit the extent of their responsibility. Individual levels of responsibility for historic responsibility will therefore be modulated by the degree to which they voluntarily engage with the luxury benefits the state has gained from historic emissions.

I will now consider a further objection to my account, which questions the idea that benefit can be transferred between generations. This is the non-identity objection. I will defend my account of limited historic responsibility against the non-identity objection by referring to a specific notion of benefit.

5.4 The Non-Identity Objection

As we have seen, climate change is a problem that spans generations. We have so far argued that developed countries should bear responsibility for their historic emissions due to the benefits that they have gained from these actions. The benefit received is the morally relevant relationship between states and their historic emissions. However, one argument claims that this is not possible due to the problem of ‘non-identity’. The

concepts of harm and benefit are philosophically complicated. How exactly do we define whether somebody has either been harmed by or has benefited from an action? In defining benefit, Caney suggests that 'A benefits from X if A is better off with X than she would otherwise have been'.[405] He calls this the 'standard definition', which he finds 'a pretty plausible conception of "benefit."'[406] Pogge affirms this idea of a standard definition of harm or benefit as making somebody worse or better off than they were. He refers to this as a 'diachronic' notion of harm or benefit, and states, 'someone is harmed when she is rendered worse off than she was at some earlier time.'[407] So we can benefit someone if we make them better off than they would have been, compared with an earlier moment in time.

The non-identity objection claims that future generations cannot be harmed or benefited by current generations, and likewise, we cannot say that current generations have been benefited by previous generations. This objection rests upon the fact that our conception as human beings is highly dependent on a number of different factors, each of which shares responsibility for our individual existence. If an event had happened in my mother's past that had caused her to leave England and move to Australia, then 'I' in the very specific, individual nature of the word, would have not been born, as my individual existence is contingent on many different factors, some of which would not have been the same had this event happened. Parfit states, 'if any particular person had not been conceived when he was in fact conceived, it is in fact true that he would never have existed.'[408] The standard definition of benefit requires a person to have been made better off than he or she would otherwise have been. The non-identity objection states that each individual person is a result of decisions made by previous generations, and therefore cannot be said to have been harmed or benefited by them, for if different decisions had been made, a genetically different person would have come to be.

In the case of historic emissions, the act of industrialisation had a major effect on the lives of past generations. Parfit states, 'how many of us could truly claim, 'Even if railways and motor cars had never been invented, I would still have been born'?'[409] As Caney states, individuals 'have not been made better off than they would have been by

[405] Caney, 'Environmental Degradation, Reparations, and the Moral Significance of History', 474.
[406] Caney, 'Environmental Degradation, Reparations, and the Moral Significance of History', 474.
[407] Thomas Pogge, 'Symposium – World Poverty and Human Rights', *Ethics and International Affairs* 19: 1 (2005): 4 (1-7)
[408] Derek Parfit, *Reasons and Persons* (New York: Oxford University Press, 1984): 351.
[409] Parfit, *Reasons and Persons*, 361

industrialization because without industrialization they would not have been at all.'[410] If we imagine ourselves in the place of the past emitters, had we stopped industrialising, we would have changed the individuals who would be born today. By this account, the current generation of people cannot be said to have been benefited or harmed by industrialization. Historic emissions cannot have brought any benefit to current generations by way of the permanent benefits of industrialisation, since without industrialisation they would not have been. I will first show that the non-identity objection does not apply to states, since they exist over time. Second, I will show that the non-identity objection only applies to one conception of the notion of benefit. I will argue that the threshold definition of benefit above the subsistence level that underpins the fair shares approach and the RBPP is not subject to the non-identity argument.

5.4.1 Collective Identities Over Time

The first response to the non-identity objection is that it does not apply to states, since states exist over time and are therefore not brought into existence as a result of the historic emissions. As Page states:

'Nation states are often recognised as being singular, ethical, as well as legal, entities – possessing a separate identity and the right of self-determination. It is this identity that gives rise to the demands of many nations to be seen as ethical subjects in their own right'.[411]

The continuous nature of the identity of the state means that it is capable of benefiting from emissions that took place in the past. Its identity is not contingent upon these emissions since its identity was in existence before the emissions took place right up to the current day. As Caney explains:

'Whereas we cannot say that industrialization has bestowed (net) advantages on currently existing individuals that they would otherwise be without, we can say that industrialization has bestowed (net) advantages on currently existing countries (such as Britain) that they would otherwise be without.'[412]

It follows, therefore that the non-identity objection is of little concern to the claim that states should bear responsibility for past emissions.

[410] Caney, 'Environmental Degradation, Reparations, and the Moral Significance of History', 475.
[411] Edward Page, *Climate Change, Justice and Future Generations* (Cheltenham: Edward Elgar Publishing, 2006): 151.
[412] Caney, 'Cosmopolitan Justice, Responsibility, and Global Climate Change', 759.

5.4.2 Defining Benefit

Whilst the first response to the non-identity argument has claimed that it does not apply to states, which are the main duty bearers, of historic responsibilities, this response leaves open the question of whether the non-identity objection rules out responsibilities for actors that do not have the same existence over time, such as individuals and most corporations. I will now suggest a second response, which is applicable to the benefits of historic emissions gained by all actors.

The non-identity objection applies to a specific definition of benefiting, which requires a previous reference point in which persons were less well off, or in which they would have been less well off. However, benefitting can be understood in other ways. As Pogge shows, the standard 'diachronic' definition of harm is 'often not the morally relevant one'.[413] He continues, 'A man is not benefitting the members of his family if he beats them up less often than he used to. He is still harming them, albeit less severely than before.'[414] This 'standard definition' of benefit leads to the perverse conclusion that an actor can be benefitting even if they are still being harmed, simply because the violent outbursts happen less frequently than before. Compared to being beaten up 3 times a day, the family is benefited if this then only happens once a day. This definition of benefit is clearly misguiding, and even without the non-identity problem, there seem to be good reasons for not defining benefit in such a way.

Instead, benefit and harm can be approached from the point of view of a threshold. Below the threshold, people are considered to be harmed, and above the threshold they are benefited as they receive goods that increase their level of welfare. Let us demonstrate this concept with the notion of harm in the previous example of the abusive relationship. The threshold notion of harm shows us that the wife is still being harmed by the less frequent beatings, as she has a right as a human being not to be violently attacked. By attacking her, albeit less often, the husband is harming her according to our threshold definition. This 'subjunctive' view of harm is sensitive to what human beings need rather than simply what they have or haven't got when compared to a previous or hypothetical moment.

The threshold definition of benefit is consistent with the necessary condition of the RBPP, which is to receive non-subsistence benefit. Above the threshold, the benefit

[413] Pogge, *World Poverty and Human Rights,* 23
[414] Pogge, *World Poverty and Human Rights*, 23

received is considered to be morally relevant. Benefitting is not relative to the same actor's situation at an earlier point in time, but relative to the threshold above which benefits are non-subsistence. The degree of benefit considered to be gained increases with the level of development of the actor. Luxury benefits constitute another threshold, above which beneficiaries should bear full responsibility, subject to the modulating factors of the RBPP. The notion of benefit put forward by the RBPP, therefore, is what Pogge calls a 'subjunctive' notion, based upon a threshold. The threshold definition of benefit is consistent with the claim that current generations have benefited from historic emissions. For example, in the mid-1800s, life expectancy was 40 years in the United Kingdom.[415] Today it is over 80 years.[416] Much of the benefit received before full industrialisation is likely to have been subsistence. Medical advances, infrastructure and hospitals, energy to power homes for warmth, fridges for food storage are just some of the 'permanent benefits' that developed countries have received that have ensured benefits fulfil subsistence needs. Those that have received these benefits and have passed the level of subsistence are candidates for bearing responsibility for historic emissions, the degree of which is then modulated by the RBPP.

5.5 Conclusion

In this chapter I have defended an approach to historic responsibility based upon the wider principle that justice entitles actors to the share of the benefits of atmospheric capacity to absorb greenhouse gases needed to fulfil subsistence and important human development needs. My distinctive fair shares approach claims that historic responsibility for past emissions should be determined on the basis that those that have taken more than the benefits of historic emissions needed for their subsistence and development have taken an unfair share. Developed states are therefore considered to be the primary actors in bearing responsibility for historic emissions since they have taken far more than their fair share of the benefits of emissions from the past two hundred years. The objection of excusable ignorance led me to conclude that actors could not bear full moral responsibility for past emissions. However, this does not mean that they cannot be held liable for their past emissions. Developed states are now aware of the atmosphere's limited capacity to absorb greenhouse gases, and as such, in realising that this means they have taken more than their fair share of the benefits, should be willing

[415] Jonathan Duffy, 'The 100+ club', *BBC News* (2nd September 2005) [Online] (http://news.bbc.co.uk/2/hi/uk_news/magazine/4207850.stm). [Accessed 3 September 2012].
[416] World Bank, 'Life Expectancy in The United Kingdom' (19 September 2014) [Online] (http://www.google.com/publicdata/explore?ds=d5bncppjof8f9_&met_y=sp_dyn_le00_in&idim=country:GBR&dl=en&hl=en&q=life%20expectancy%20uk). [Accessed 23rd September 2014].

to reduce their emissions to the level of a fair share. This conclusion is supported by the assessment of the level of responsibility allocated to historic emissions based upon the RBPP. Whilst the ability to exert influence is a limiting factor for historic responsibility, luxury benefits over time have been accepted with a high degree of voluntariness. Following this claim, I then considered the implications of the 'non-identity' objection. I responded to this objection by showing that it does not undermine the benefit received by states, since their identity is continuous over the time period. Furthermore, I argued that the notion of benefit defined by the RBPP is subject to the necessary condition of being above a threshold of subsistence, and as such is not undermined by the non-identity objection.

We started this chapter with China's claim that developed states should bear greater responsibility due to their historic emissions. The argument in this chapter would go some way to supporting this claim. The argument has shown that since the ability to exert influence factor of the RBPP is not satisfied, responsibility for historic emissions should be limited. Several theorists have suggested some degree of limited liability, with Caney and Bell agreeing that this should be limited by not requiring costs to exceed benefits received. Developed states do have a duty to act to make up for using an unfair share of the atmosphere's finite capacity to absorb greenhouse gases, though these duties are limited compared to responsibility for current emissions. However, it is not clear that limiting liability so that it does not exceed the value of benefits received is likely to result in greatly reduced duties in the case of historic emissions and the benefits developed states have gained from these. As Bell states:

'It may be reasonable to assume that the benefits derived from wrongful emissions-generating acts by states that developed early were sufficiently large that the principle of limited liability may closely approximate to the unrestricted principle of historic responsibility.'[417]

The argument in this chapter has shown that emissions that occurred before around 1990 should not be ignored as a result of excusable ignorance. China is therefore justified in claiming that developed states should bear greater responsibility than developing states for their greater historic responsibility. Developing states have only recently begun to benefit from emissions further along the development scale, and so they should begin to bear more responsibility for current benefits, but a fair burden sharing agreement should take historic responsibility of developed states into account.

[417] Bell, 'Global Climate Justice, Historic Emissions, and Excusable Ignorance', 408.

The defence provided in this chapter has further developed my theory of climate justice developed in Chapters Two, Three and Four, by considering the relevance of how we account for responsibility for historic emissions. The next chapter will consider the implications of the account I have developed in assessing whether China's climate policy commitment to reduce emissions intensity is consistent with this theory of climate justice.

Chapter 6

China's Emissions Intensity Reduction Pledge

At the 15th Conference of the Parties to the United Nations Framework Convention on Climate Change, which took place in Copenhagen in 2009, China made a pledge to reduce its emissions intensity. As we have seen in the preceding chapters, China has stated on several occasions that its priority is poverty eradication and development, and that developed states should take the lead on climate change. As such, as opposed to a cap on absolute emissions, China's target proposes that for each unit of GDP in 2020, there will be 40-45% fewer carbon emissions than in 2005. This reduction in intensity is not a cap on emissions, but instead aims to increase the efficiency of China's energy system, whilst allowing for emissions growth linked to development. China's pledge is consistent with the UNFCCC's requirements for developing countries, whose 'peak' of emissions will take place later than developed countries. India has also committed to a target of reducing emissions intensity, pledging a lower figure of 20-25% reduction in emissions intensity by 2020 relative to 2005 levels. The Copenhagen Accord in 2009 marked the first time that developing countries have committed to quantified climate change mitigation targets. Emissions intensity targets are said to be particularly appropriate for developing countries as they allow economic growth to continue whilst simultaneously 'greening' energy production systems, compared to absolute emissions caps or reduction targets which are often seen to be 'synonymous with limits to development.'[418] However, an increase in efficiency of emissions does not mean that absolute levels of emissions will decrease. In fact, China's emissions are likely to increase due to high levels of economic growth. China is already the world's biggest national emitter of carbon, and therefore the target of reducing emission intensity and not putting a cap on absolute emissions has proven to be controversial, with some commentators arguing that China must also have a binding emission reduction target.[419]

In Chapers Two to Five, I have defended a multi-actor approach to climate justice that is sensitive to the right to development. Within my account, I have defended the

[418] William Pizer, 'The Case for Intensity Targets', *Resources for the Future*, Discussion Paper 05-02 (January 2005): 6.
[419] Edward Wong and Keith Bradsher, 'China Joins U.S. in Pledge of Hard Targets on Emissions', *New York Times* (26 November 2009) [Online] (http://www.nytimes.com/2009/11/27/science/earth/27climate.html?_r=0). [Accessed 4 December 2010].

Revised Beneficiary Pays Principle as the relevant principle for accounting for emissions. This chapter will consider whether China's pledge to reduce its emissions intensity is consistent with the theory of climate justice defended in the previous chapters. I will first present a defence of China's position, informed by the account of climate justice developed within this thesis. I will then defend this position against five objections, before concluding that China's pledge is consistent with the requirements of climate justice. This chapter will take a primarily statist approach to the issues, since the key issue is whether the state of China is justified in the pledge it has made within the international negotiations of the UNFCCC.

6.1 A Prima Facie Defence of China's Position

China's pledge to reduce its emissions intensity is its first quantitative climate change mitigation target. Zhang et al argue that this in itself is worthy of note, stating 'this is the first time that a quantitative and binding target has been set for energy efficiency, and signals a shift in China's strategic thinking about its long-term economic and energy development.'[420] This chapter will argue that China's pledge to reduce emissions intensity is consistent with a fair global agreement on climate change, and in this section I will provide a prima facie defence of China's position. The first part of the defence is supported by a political argument showing coherence between China's position internationally agreed principles, and the second part second by a moral argument, informed by my findings from the preceding chapters.

The international political context of China's mitigation pledge was the 15th UNFCCC meeting of the Conference of the Parties (COP), in Copenhagen, in 2009. The Copenhagen Accord states:

'We underline that climate change is one of the greatest challenges of our time. We emphasise our strong political will to urgently combat climate change in accordance with the principle of common but differentiated responsibilities and respective capabilities […] We should cooperate in achieving the peaking of global and national emissions as soon as possible, recognizing that the time frame for peaking will be longer in developing countries and bearing in mind that social and economic development and poverty eradication are the first and overriding priorities of developing countries and that a low-emission development strategy is indispensable to sustainable development.[421]

[420] Zhang et al, 'The energy intensity target in China's 11th Five-Year Plan period', 4116.
[421] UNFCCC, 'Report of the Conference of the Parties on its fifteenth session, held in Copenhagen from 7 to 19 December 2009', 4.

The aim of the principle of common but differentiated responsibilities (CBDR) is to enable the burden of climate change to be fairly shared between states based on their relative capacities and responsibility for climate change. The political context of this is within a multilateral agreement between states, meaning that the principle of CBDR relates to state-level capacities. As such, it is appropriate to consider state level comparisons of capacity between states in order to provide a political defence of China's position relative to the other parties.

In terms of state-level measures of development, China has an HDI score of 0.719.[422] This is the 91st highest in global terms, with Norway, Australia at first and second, respectively, and the United States in fifth place.[423] The average amongst the developed OECD states is 0.888.[424] China's average level of development is therefore much lower than the developed states, with the level of development higher, the nearer the index is to 1. We can see a similar situation in terms of China's economic status. China just falls within the World Bank's 'upper middle income' classification of countries, which includes those with per capita Gross National Income (GNI) of $4,125 - $12,746.[425] China's GNI per capita rose above $4,000 for the first time in 2010, and therefore can only recently be considered 'upper middle income'. Currently, China's GNI per capita is $6,560.[426] To place this in context, Australia's GNI per capita is $66,520, and the United States' is $53,670, with the average GNI per capita within the countries of the OECD coming in at $43,864.[427] China's GNI per capita ranks in 109th place globally.[428] China has a much lower level of income per capita as well as a lower human development level than the developed states. China's relative capacity to pay for mitigation measures is influenced by both of these factors since the costs of implementing development policies are funded by a GNI per capita that is seven times less than the average of the OECD countries. So, not only does China have less income

[422] UNDP, 'Human Development Reports – China' (n.d.) [Online] (http://hdr.undp.org/en/countries/profiles/CHN) [Accessed 4 August 2014].
[423] UNDP, 'Human Development Index - Countries' (n.d.) [Online] (http://hdr.undp.org/en/countries) [Accessed 19 June 2014].
[424] UNDP, 'Human Development Report 2013 – Norway' (n.d.) [Online] (http://hdr.undp.org/sites/default/files/Country-Profiles/NOR.pdf). [Accessed 23 June 2014].
[425] World Bank, 'Country and Lending Groups' (n.d.) [Online] (http://data.worldbank.org/about/country-and-lending-groups). [Accessed 17 March 2011].
[426] World Bank, 'GNI per capita, Atlas method (current US$)' (n.d.) [Online] (http://data.worldbank.org/indicator/NY.GNP.PCAP.CD?order=wbapi_data_value_2011+wbapi_data_value+wbapi_data_value-last&sort=desc). [Accessed 11 July 2014].
[427] World Bank, 'GNI per capita, Atlas method (current US$)'; World Bank, 'High income: OECD' (n.d.) [Online] (http://data.worldbank.org/income-level/OEC). [Accessed 12 January 2014].
[428] World Bank, 'GNI per capita ranking, Atlas method and PPP based' (n.d.) [Online] (http://data.worldbank.org/data-catalog/GNI-per-capita-Atlas-and-PPP-table). [Accessed 12 January 2014].

in the first place, but also there are other, morally important costs that must be met as a priority from within these limited finances.

Accordingly, China is taking on a level of responsibility that appears to be consistent with its relative capacity, as required by the principle of CBDR. As a developing country, with an 'upper medium income' China should take on more responsibility than those with lower capacity, but is not required to commit to the same level as the developed states. As such, China has committed to develop in a more sustainable manner by reducing the amount of emissions needed to produce the same amount of GDP. This will result in a slowing down of emissions growth without restricting economic growth. China's economy is growing quickly, meaning that emissions are likely to rise, but this will be by a relatively smaller amount if China achieves the 40-45% emissions intensity reduction target. According to McKibbin et al, China's pledge represents a 26% reduction in emissions per capita between 2005 and 2020, compared to the 'business as usual' emissions that would be expected in a normal trajectory of emissions progression and economic growth.[429] This is compared to their estimation of a 33% reduction compared to the 'business as usual' calculation for the United States, if they achieve their 17% reduction of emissions by 2020 relative to the year 2005. China's target represents a comparatively demanding reduction in energy intensity, whilst allowing for the peak of emissions to take place at a later date. China's emissions intensity target is therefore in line with the UNFCCC requirements of a developing country, for which 'social and economic development and poverty eradication are the first and overriding priorities'.[430]

Having presented a political justification of China's position, let us move on to a moral defence of China's position. This will be supported by two key claims: (1) The right to development justifies an increase in Chinese emissions, and (2) China bears less moral responsibility for climate change. First, as I argued in Chapter Three, there are a large number of individuals within China that rely on subsistence and development emissions. The Chinese state does not have the capacity to provide these individuals with the technology to be able to develop cleanly, meaning that an absolute cap on emissions would be likely to jeopardise the fulfilment of the right to development for hundreds of

[429] Warwick McKibbinet al, 'Comparing Climate Commitments: A Model-Based Analysis of the Copenhagen Accord', *The Harvard Project on International Climate Agreements*, Discussion Paper 10-35 (June 2010): 21.
[430] UNFCCC, 'Report of the Conference of the Parties on its fifteenth session, held in Copenhagen from 7 to 19 December 2009'.

millions of individuals. China is justified in prioritising these rights in its domestic budget and energy policies. As opposed to an absolute cap, an emissions intensity target represents a commitment to a longer-term goal of making China's economy more efficient in a way that is consistent with the current needs of Chinese citizens and their right to development. As we saw in Chapter Three, there are 427 million people in China living on less than $2.50 per day, as well as those above the poverty line who have morally important needs for development emissions. China's target is just in terms of a global effort sharing agreement since there are other actors in the world that are benefiting from luxury emissions (which, as I will argue in the following section, also include some of the emissions that occur within China) that are of no comparable moral relevance. The actors that make up this group have the responsibility to make choices to act in ways that will cause a reduction in the emissions they are currently benefiting from, in order to leave enough space for the development emissions of those in need.

The second claim is based upon China's comparatively low current and historic responsibility for climate change. China emits half as much CO2 per inhabitant as the average amount emitted by citizens in OECD countries, and only a quarter as much as the average American.[431] As we saw in Chapter Five, based upon these per capita figures and the right of individuals to development, the benefit China has gained from its historic emissions cannot be considered to be an unfair benefit when shares are compared. The levels of per capita emissions of developed and developing states diverge further when we consider the movement of global trade in which developed countries import high levels of products that are manufactured in developing countries such as China. As I argued in Chapter Four, the responsibility for the resulting emissions from this global trade should be shared between the different beneficiaries. These beneficiaries include consumers of the goods everywhere, corporations that make increased profit due to cheaper costs of producing in China, upstream sellers that benefit from the sale of the natural resources used to produce the energy, as well as the Chinese state in terms of economic benefit it gains. However, as we saw in previous chapters, not all benefit can be considered morally equal, and the Chinese state should bear lower comparative responsibility, as it is the key duty bearer for the right to development of its citizens. This increases China's emissions benefit 'allowance', since this includes benefit from development and subsistence emissions, for which the degree of voluntariness is very low. The right to development of Chinese individuals, who are

[431] International Energy Agency (IEA), CO2 Emissions From Fuel Combustion – Highlights 2012, (Paris: IEA, 2012): 102.

dependent upon the finances of the Chinese state, also decreases the level of moral responsibility China should bear for the benefits it gains from manufacturing emissions. This is because the benefits gained from this income must be used in part to fulfil morally important development needs. Viewed in this way, when we consider the per capita emissions calculated on a territorial basis, we can safely assume that the actual benefit that high-exporting developing countries such as China gain is: (1) less than the territorial per capita emissions imply since many of these emissions are benefiting other, non-Chinese actors, and (2) China is entitled to the development gains that are enabled by the benefit from emissions, so there is a smaller portion of the emissions it benefits from for which it should bear the moral responsibility. Developed states have received much greater benefits historically, which can be seen both in their high luxury emissions today as well as their advanced level of development, which is a result of the benefit they have gained from historic emissions. Overall, then, China bears less moral responsibility for climate change costs than developed states.

Having presented two arguments in support of China's position, the prima facie defence can be summarised in the following way. First, China's target is politically justified, based upon the minimal requirements of developing countries as defined by the UNFCCC. Second, China is morally justified in committing to a target of reducing its emissions intensity rather than an absolute cap on emissions. This is supported firstly by China's lower comparative capacity to take on emissions caps due to the need to allow subsistence and development emissions to enable the right to development of its citizens. Second, it is supported by China's lower relative moral responsibility for climate change.

The remainder of this chapter will defend China's position against five key objections.

The first part will discuss the 'metrics objection'. This objection makes three key claims: (1) that energy intensity can be reduced by structural changes to an economy which are less desirable as they simply involve a move of emissions elsewhere rather than a technical improvement in energy generation methods; (2) that the measure of energy relative to GDP is an unreliable measure as GDP in itself is not a stable measure and can be influenced by factors such as inflation, meaning that a reduction in energy relative to GDP does not necessarily entail a real reduction in the efficiency of China's energy systems; (3) that the use of GDP is unreliable since it involves relying upon a value of currency which makes international comparability difficult. I will respond to

the three claims made by the metrics objection, and show that none of them pose a serious problem to China's position.

Section 5.2.2 will discuss a second objection, namely, that China's target is not consistent with the principle of 'common but differentiated responsibilities' as it requires no real action from China. Critics have claimed that China's target represents nothing more than 'business as usual'. In response, I will show that the definition of business as usual as used in the objections includes policies that are already in place, and so this should not be considered as equivalent to 'no effort' scenarios. I will support this claim further with reference to studies that have undertaken such 'no-action' scenario projections, and also consider the inherent uncertainty involved in committing to a target that is linked to GDP.

I will then consider the objection that allowing an overall increase in emissions is likely to give China an unfair economic advantage and will also make global mitigation efforts difficult to achieve. I will respond to this claim using (1) a moral argument based upon the findings of Chapter Three and the right to development, and (2) a political claim referring to equivalent commitments pledged by other states with similar levels of per capita GDP, development and emissions. In doing so, I will show that China's commitment is consistent with the expectations of the political landscape.

Fourth, I will consider the objection that although the emissions intensity target may be justified for the state of China, the richest and most developed cities should have directly allocated emissions caps since they have similar per capita situations as some developed states. Drawing on my discussion of duty-bearing actors in Chapter Two, I will argue that cities have derivative duties and should not be given direct duties, as they are not independent in the way that states are, relying on a sovereign for both political power and finances.

The final section will consider the 'sustainability objection', which claims that China's emissions intensity target cannot be justified since an increase in emissions is likely to cause dangerous climate change, which will jeopardise the rights of future people. I will respond to this by making reference to the arguments considered in Chapter Three, which argued that the responsibility for reducing global emissions and providing the capacity for sustainable development should be borne by affluent actors, and not by developing states who currently do not have the capacity to provide the means for sustainable development. However, my response will also claim that the more affluent

actors do to fulfil their responsibility to provide the means for sustainable development, the more China's mitigation duties should be demanding.

Having summarised the structure of the chapter, I will now move on to the first objection.

6.2. The Metrics Objection

The first objection to China's pledge to reduce emissions intensity relates to the metrics involved in the calculation of how the target is fulfilled. China's aim is to reduce the amount of energy used for each unit of GDP produced by 40-45% by 2020. The only relevant figures needed to calculate this emissions intensity are GDP and territorial emissions, with the intensity figure being the direct ratio of emissions to unit of GDP. When there are fewer emissions released per unit of GDP, production is said to be more efficient, since fewer resources are required to produce the same amount of output. In China's case, the target of emissions intensity is designed as part of China's pledge to develop sustainably. However, as Patterson states, 'energy: GDP ratio is the most commonly used aggregate measure of a nation's 'energy efficiency', although there has been widespread criticism of the use of this indicator for this purpose.'[432] Whilst the terms energy intensity and energy efficiency are not identical in their meaning, they are often used interchangeably. Energy intensity is an indicator that can be used to show energy efficiency.[433] In the following section I will review three key claims of the metrics objection. The first claim is that the emissions/GDP ratio is not an accurate measure of energy efficiency improvements. The second and third claims both relate to the measure of GDP itself, and the unreliability of it as a measure both due to fluctuations in its value and international comparability difficulties.

6.2.1 Structural vs. Technical Changes

The first claim made by the metrics objection is that China's choice of metric will allow China to reduce intensity of emissions per GDP by way of 'structural' changes, which are seen as being less desirable than 'technical' changes. A 'structural change in energy use' is defined as a 'shift in the share of total output between sectors which may be

[432] Murray G Patterson, 'What is energy efficiency? Concepts, indicators and methodological issues', *Energy Policy*, 24 (1996): 381.
[433] B.W. Ang, 'Monitoring changes in economy-wide energy efficiency: From energy–GDP ratio to composite efficiency index', *Energy Policy*, 34 (2006): 575.

more or less energy intensive.'[434] Structural changes in the economy can stimulate a move away from activities that are in themselves energy intensive, such as heavy manufacturing industries, towards industries that are much less energy intensive simply because of the nature of the activities of that sector. As Ang explains:

'Changes in energy efficiency are often approximated by changes in energy intensity (energy per unit of monetary or physical activity), with or without adjustment for changes in factors unrelated to efficiency, such as end-use structure, fuel mix and weather. As such, structural changes can reduce the emissions used per unit of GDP, 'but [this] is not indicative of improvements in energy efficiency.'[435]

A structural change can cause the state's intensity of emissions relative to GDP to decrease in the absence of any improvements to the energy efficiency of the technologies being used.

In contrast, a 'technical change' in energy intensity is 'the change in the energy required to produce a particular product or the physical output of a particular sector.'[436] As opposed to structural changes, technical changes represent real increases in the efficiency per unit of energy produced, rather than per unit of monetary output. The lack of differentiation between structural and technical changes means that 'the simple [emissions to GDP] ratio measure of energy intensity overstates the extent to which energy efficiency improvements have occurred in the economy, because factors that affect intensity that are unrelated to the efficiency of energy use are included in the ratio.'[437] This claim has also been made by Wilson, who argues:

'A well understood weakness of this method [of measuring intensity per GDP] is that it includes in 'energy efficiency' the influence of changes in the sectoral makeup of the economy. A change in the structure of the economy will influence the level of energy consumption, even in the absence of technical progress, as the more energy intensive sectors expand or decrease their relative shares of total output.'[438]

Using figures from the United States, a study has shown the ambiguity of actual efficiency improvements that can be hidden behind a simple energy-GDP ratio of emissions intensity. Between 1985 and 2004, the energy intensity of the United States fell by 26%, though 16% of this decrease was due to factors 'unrelated to efficiency

[434] Richard F. Garbaccio et al, 'Why has the Energy-Output Ratio Fallen in China?', *The Energy Journal*, 20:3 (1999): 64.
[435] US Department of Energy, 'Energy Analysis : Energy Intensity Indicators: Economy-Wide Total Energy Consumption' (17/09/2012) [Online] (http://www1.eere.energy.gov/analysis/eii_total_energy.html). [Accessed 21 January 2013].
[436] Garbaccio et al, 'Why has the Energy-Output Ratio Fallen in China?', 64.
[437] US Department of Energy, 'Energy Analysis : Energy Intensity Indicators: Economy-Wide Total Energy Consumption'.
[438] Bruce Wilson et al, 'Energy efficiency trends in Australia', *Energy Policy*, 22:4 (1994): 287.

improvements'.[439] These figures demonstrate the influence the unit of measure can have on the conclusions we draw about a country's progress towards a more energy efficient system.

In summary, the first claim of the metrics objection is that the measure of energy intensity that China's target is based upon will not give an accurate portrayal of the improvements (or lack of improvements) in the efficiency of the sources that are emitting carbon. This is because the emissions to GDP measure of energy intensity is influenced by factors that are not linked to improved efficiency, and thus cannot reliably show a country's progression towards a more efficient and thus 'greener' economy. According to the objection, the first claim matters for two reasons. First, because a structural change in which heavy industries are closed down may imply that the emissions from this sector are simply being displaced to other parts of the world. Second, because the energy to GDP measure of intensity does not imply any technological progress, and efficiency of energy production must improve if a developing state is to achieve long-term emissions reductions by developing sustainably. The implication of the criticism is that China's emissions intensity target does not give an accurate picture of whether the actual efficiency of energy use is improving, and may promote the displacement of heavy industries to other countries.

Before responding to the first claim of the metrics objection, I shall consider two further claims. These two claims both relate to Gross Domestic Product (GDP), the economic term for the value of the market of all goods and services within a country. The value of GDP is subject to a level of interpretation when we consider it: (1) over a period of time; and (2) comparatively between countries. The implications of these two facts represent the basis of the second and third claims of the metrics objection.

6.2.2 GDP and Fluctuation in Value

The second claim of the metrics objection is that GDP is not a reliable measure as it can become inflated or deflated over time. For example, regardless of whether there is an increase or decrease in the actual output of production, the monetary value of China's GDP might rise or fall between 2005 and 2020 due to inflation or deflation. If we are considering only the ratio of emissions to unit of GDP, then a larger GDP due to inflation would show a reduction in emissions intensity, simply because the GDP has

[439] US Department of Energy, 'Energy Analysis : Energy Intensity Indicators: Economy-Wide Total Energy Consumption'.

increased. For example, consider an example in which a car has a value of $10,000 in 2005, and a value of $20,000 in 2020. If no improvements in the energy efficiency of car production take place in the time period being considered, then the same amount of emissions is needed to produce the same car. However, the car now has a higher price, so our calculations tell us that we are using the same amount of emissions to produce twice as much economic value, and we are therefore twice as efficient. In a simple example such as this, we can clearly see that the defining factor in the equation is the inflated value of GDP, which means that the same material output item (the car) is now worth twice the economic value.

Economists use the term 'nominal' to describe GDP figures that use the current price of goods and services (as in the car example), and 'real' to describe GDP that expresses the selling price of the goods and services in a particular base year. So, for example, the nominal price of our car in 2020 would be $20,000, and its real price, using 2005 as the base year, would be $10,000. As Muller argues, 'using nominal GDP conflates price changes with legitimate improvements in intensity'.[440] There is no environmental value in having a reduced energy intensity that is simply due to inflation, and therefore it is important that a mitigation policy takes this into account if it is intended to have genuine environmental implications. As McKibbin et al argue, 'even without any other change in the economy or emissions, inflation reduces the emissions intensity measured in nominal terms.'[441] An emissions intensity reduction in nominal terms is likely to be produced without any action since China is a developing country with a high level of inflation. I will respond to this, as well as the first claim, after considering the third claim of the metrics objection.

6.2.3 Using Different Methods to Manipulate Currency Conversions

The final claim of the metrics objection is that using GDP as the denominator for our emissions intensity ratio makes international comparability more difficult. In the international arena, it is common practice to convert national GDP figures into US dollars in order to provide a common currency so that they can be compared. In terms of internationally verifying China's target, Chinese Yuan Renminbi (RMB) might therefore be converted into dollars. However, converting currencies is not a straightforward business. As such, the method of conversion chosen to convert the value

[440] Benito Müller and Georg Müller-Fürstenberger, 'Price-related Sensitivities of Greenhouse Gas Intensity Targets', *Climate Policy*, 3:2 (2003): 60.
[441] McKibbin et al, 'Comparing Climate Commitments: A Model-Based Analysis of the Copenhagen Accord', 15.

of GDP to the international standard can result in a manipulation of the equivalent value, intentionally or not, giving the impression of greater emissions intensity reductions than are actually occurring.

In economic comparisons, currencies are generally converted into the international standard of US dollars using either the market exchange rate (MER) or purchasing power parity (PPP) conversion. There has been some controversy surrounding which of these methods is the most appropriate, as has been discussed by several authors.[442] As Suehiro argues, 'estimates [of energy intensity] largely differ between those based on MERs and PPP.'[443] MER conversions give a direct measure of how much of the currency to be converted can be bought with one unit of the target currency, and this rate is decided by international market forces. Currencies conversions using PPP are intended to give a better indication of the real worth of a unit of currency within its domestic borders. PPP conversions are calculated using a specific exchange rate, which represents 'the number of units of a country's currency required to buy the same amount of goods and services in the domestic market as a U.S. dollar would buy in the United States.'[444] Let us look at examples of the difference between these two systems, using Gross National Income (GNI) as the relevant economic indicator. Using market exchange rate data, China's 2011 GNI was $6.643 trillion.[445] Using PPP figures, China's 2011 GNI was $11.270 trillion.[446] The PPP conversion gives a higher figure due to the fact that the cost of goods in China is less than the cost of goods in the conversion currency, meaning that the same amount of US dollars would buy more in China, using the current PPP exchange rate. For the purposes of this research, the impact of this is that a country's energy intensity when converted to an international currency can appear higher or lower, depending on whether we use MER or PPP to convert the currency.

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[442] See: Bjart J. Holtsmark and Knut H. Alfsen, 'The use of PPP or MER in the construction of emission scenarios is more than a question of 'metrics'', *Climate Policy*, 4:2 (2004); Alan S. Manne and Richard G. Richels, 'Market Exchange Rates Or Purchasing Power Parity: Does The Choice Make A Difference To The Climate Debate?', *Climatic Change*, 71:1-2 (2005): 1-8; Richard S. J. Tol, 'Exchange Rates and Climate Change: An Application of Fund', *Climatic Change,* 75:1-2 (2006): 59-80.

[443] Shigeru Suehiro, 'Energy intensity of GDP as an index of energy conservation', *Institute of Energy Economics Japan Report*, (August 2007) [Online] (http://eneken.ieej.or.jp/en/data/pdf/400.pdf) [Accessed 5 July 2012]

[444] World Bank, 'Price level ratio of PPP conversion factor (GDP) to market exchange rate' (n.d.) [Online] (http://data.worldbank.org/indicator/PA.NUS.PPPC.RF) [Accessed 26 April 2014].

[445] World Bank, 'GNI, Atlas method (current US$)' (n.d.) [Online] (http://data.worldbank.org/indicator/NY.GNP.ATLS.CD/countries) [Accessed 26 April 2014].

[446] World Bank, 'GNI, PPP (current international $)'.

Several authors have acknowledged this issue.[447] For example, Holtsmark and Alfsen have shown this in their research about the IPCC predictions for different emissions scenarios. According to them, using MER values to calculate the GDP of non-OECD countries gives us a value of 4.5 trillion US dollars.[448] If we use the PPP method, the GDP of non-OECD countries is 11.4 trillion US dollars, which is more than double the value given by MER. Holtsmark and Alfsen's argument is that the IPCC's use of MER methodology to calculate comparable GDP values in US dollars means that emissions intensity changes can be greatly overstated. As Holtsmark and Alfsen's work shows, emissions intensity seems much higher if we use MER methodology to convert GDP as opposed to PPP. For example, based on CO2 emissions of 3.2tC in the year 2000, and the GDP of 4.5 trillion US dollars for the non-OECD countries, the emissions intensity using MER is 706.2, and only 276.7 using PPP.[449] According to the World Bank figures, in 2005, the difference between China's emissions intensity calculated by MER compared with PPP was 1.7 kg per US dollar. GDP calculation using MER gave an intensity of 2.6 kg/US dollar, and the PPP calculation gave 0.9 kg/US dollar.[450] China's emissions intensity was therefore lower when assessed on a PPP basis compared to a MER basis. As such, this can have an effect on the extent of the emissions intensity calculated when converting Chinese RMB to US dollars.

In summary, the metrics objection has made three key claims, all related to the unreliability of the emissions-GDP ratio. First, the emissions-GDP ratio can be affected by factors that do not relate to the actual energy production systems, and therefore may give us an inaccurate picture of whether the efficiency of China's energy mix is actually improving as well as encouraging the diplacement of heavy industries to other parts of the world. Second, the GDP denominator in the emission intensity ratio can be affected by inflation, which can create the appearance of phantom improvements in emissions intensity. Third, the way in which GDP is converted into an internationally comparable currency can give greatly different pictures of the emissions intensity depending on the conversion factor used.

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[447] See also: William Nordhaus, 'Alternative measures of output in global economic-environmental models: Purchasing power parity or market exchange rates?', *Energy Economics*, 29 (2007): 349–372.
[448] Holtsmark and Alfsen, 'The use of PPP or MER in the construction of emission scenarios is more than a question of 'metrics'', 209.
[449] Holtsmark and Alfsen, 'The use of PPP or MER in the construction of emission scenarios is more than a question of 'metrics'', 209.
[450] World Bank, 'CO2 emissions (kg per 2005 US$ of GDP)' (n.d.) [Online] (http://data.worldbank.org/indicator/EN.ATM.CO2E.KD.GD?page=1). [Accessed 17 June 2014]; World Bank, 'CO2 emissions (kg per PPP $ of GDP)' (n.d.) [Online] (http://data.worldbank.org/indicator/EN.ATM.CO2E.PP.GD?order=wbapi_data_value_2005+wbapi_data_value&sort=asc&page=1). [Accessed 18 June 2014].

6.2.4 Technical Changes Form Part of China's Policies

Let us first consider part one of this objection which claims that China's intensity target will give an inaccurate picture of improvements within China's energy production, as it will be affected by 'structural changes' in energy use as well as 'technical changes', and is therefore inappropriate as it may overestimate the progress being made in energy efficiency.

In the context of a pledge being made by one state in a multi-lateral agreement, it is not clear that this objection bears much weight. In the current political context, China only has direct control over the emissions that take place within its borders. As such, the aim of China's target is to produce fewer emissions of carbon per unit of production measured in GDP, within Chinese borders. Since the measure being used will not distinguish between technical improvements and structural changes, some of China's reduction may indeed take place due to structural changes in China's economy, such as reducing the size of heavy industries such as steel. But, as Turner argues, 'this in itself is not necessarily a bad thing. If an economy reduces its emissions by growing its less energy-intensive sectors, for example knowledge based industries, in place of high energy using industries, then it should be rewarded for doing so.'[451] China is aiming to reduce its energy intensity in order to produce fewer carbon emissions per unit of economic output as a first step climate change mitigation pledge, and so whether part of this reduction happens due to structural changes or not does not change the fact that progress will have been made on the path to reducing China's emissions. On a side note, much of the greater, global relevance of this point will depend on whether the territorial accounting system continues to be prevalent. If, on the other hand, we use the revised beneficiary pays principle, as discussed in Chapter Four, to allocate responsibility for emissions, then heavy industries will not be rewarded for moving to other areas of the world, since it is the beneficiaries that will pay the costs of the embedded emissions. But currently, China can only target reductions in its own territorial emissions.

However, even in the context of territorial accounting, a review of China's policy documents detailing the nature of China's pledge shows that China is committed to technical changes as well as structural changes that will limit the kind of technology that can be used on new build energy plants. For example, in the policy document

[451] Guy Turner, 'The Case for Intensity-Based Targets to Curb Climate Change', *Bloomberg New Energy Finance* (27 March 2013) [Online] (http://about.newenergyfinance.com/about/blog/turner-the-case-for-intensity-based-targets-to-curb-climate-change/) [Accessed 29 May 2014]: 3.

entitled 'China's Policies and Actions for Addressing Climate Change', several of China's policies relate to 'upgrading' heavy industries. China states that it has put 13.5 billion RMB (2.2 billion US dollars) into 'technological upgrading funds' in order to improve the efficiency of these industries, whilst at the same time 'rais[ing] the entry threshold for certain industries and strictly limited new projects in industries with high energy consumption, high pollutant emissions or excess capacity.'[452] By improving the technology in existing plants, and reducing the number of new heavy industry plants that are developed, the share of emissions from the heavy industry sector will be decreased as the economy grows due to both technical and structural changes. In the context of China's domestic commitment to reducing emissions, even structural changes should be encouraged. Combined with the commitment to also making technical changes, the first claim of the metrics objection does not give us reason to doubt the effectiveness of China's pledge as a just contribution to a global burden sharing agreement.

6.2.5 The Importance of Specifying Methodology

The second and third 'metrics' objections relate to the calculation and conversion of GDP. The way in which GDP is measured is indeed very important. The objection is correct in highlighting the potential issues with the use of nominal GDP figures. However, as long as China is using 'real' figures, this objection raises an issue of transparency and the need for clear communication, rather than a problem with the actual commitment. So far, it does not appear that China has explicitly stated its position on this issue, leading to some confusion over whether the target will refer to real or nominal GDP. Ding Zhongli, an expert from the Chinese Academy of Sciences explains that this is currently ambiguous:

'Our government made to 2020 CO2 emissions per unit of GDP in 2005 to reduce by 40% to 45% of the commitment. According to our understanding, this commitment first need to clear two things: First, this refers specifically to emissions from fossil emissions from energy use and cement production, excluding emissions from land use, nor does it include ecological construction (carbon sequestration) negative emissions; two Measurement of GDP must be 2005 constant prices, not nominal GDP (that is, to

[452] Chinese Government, 'China's Policies and Actions for Addressing Climate Change 2012' (2012) [Online] (http://www.ccchina.gov.cn/WebSite/CCChina/UpFile/File1324.pdf). [Accessed 5 August 2013]: 3.

exclude inflation), and can only be denominated in Renminbi, not in dollars (ie to exclude exchange rate movements factor).'[453]

As such, the objection stands that the intensity must be measured against the real level of GDP, but as long as this is the case, the intensity target is satisfactory. Several sources have highlighted the difficulty in ascertaining the method used, and improving the communication about the methodology would make assessment of China's target more straightforward.[454]

The third part of the objection raised the issue of currency conversion. China's target will be calculated domestically using the Chinese currency of Yuan Renminbi (RMB). For China's own calculations, then, the objection about currency conversion is not relevant. However, this may very well be converted into dollars by international commentators or even by China itself in order to document its progress to the rest of the world using a comparable currency. The key response to this is that as long as the 2005 and 2020 emissions intensity is calculated using the same type of conversion, whether this is PPP or MER, it does not matter which is chosen. The calculation of emissions intensity is designed to show progress from one moment in time to another. Therefore, as long as the same methods of calculation are used for the 2005 and 2020 emissions intensity calculations, both MER and PPP are capable of showing a percentage change in emissions per unit GDP.

In this section, I have considered three objections relating to the metrics used to calculate energy intensity. I have acknowledged that they raise important issues that require clarification of China's commitment but they need not undermine the credibility of China's position.

6.3 An 'Easily Achievable' Target?

I will now move on to a second objection to China's emissions intensity target, which argues that China's pledge can be easily fulfilled without any real effort from China. In a country with a low level of growth, a large reduction in energy intensity can have a similar effect to an absolute cap on emissions, if reduction in emissions intensity

[453] Ding Zhongli 'Rough analysis on China's 2020 carbon dioxide emission reduction', *Chinese Academy of Science* (27 April 2010) [Online] (http://www.cas.cn/xw/zjsd/201004/t20100427_2832149.shtml) [Accessed 16 May 2011] (Translated from Chinese using google translate).

[454] For example, see: Julian Wong, 'Deconstructing China's Energy Intensity--A Lesson in Fuzzy Math', (11 August 2009) [Online] (http://greenleapforward.com/2009/08/11/deconstructing-chinas-energy-intensity-a-lesson-in-fuzzy-math/) [Accessed 9 May 2014]; Michael Levi, 'Making Sense of China's Energy Intensity Statistics', (7 April 2010) [Online] (http://blogs.cfr.org/levi/2010/04/07/making-sense-of-chinas-energy-intensity-statistics/) [Accessed 5 June 2014].

outpaces economic growth. However, the opposite is also true for a country with high levels of growth. Theoretically, this means that emissions intensity reductions are easier to achieve in times of economic growth and more difficult in times of slow or negative growth.

This has led some critics to claim that China's target will be easy to achieve and will not require any real effort, based upon calculations of projected 'business as usual' or 'reference' emissions pathways. For example, in May 2009, prior to China's pledge to reduce emissions intensity by 40-45%, the United States Energy Information Administration released its 'International Energy Outlook', in which it predicted a 44.2% reduction in emissions intensity in China between 2006 and 2020, with a drop of 443 metric tonnes from 1,001 mt/2005 US dollar (PPP) in 2006 to 558 mt/2005 US dollar (PPP) in 2020.[455] The International Energy Agency predicted a similar trend in its World Energy Outlook 2009, with China's emissions intensity projected to reduce by 3% per year, meaning 45% in the 15 years between 2005 and 2020.[456] As these figures were given before China's target was released, it is argued that they represent China's emissions intensity path during 'business as usual'. The key point of this argument is that if the emissions intensity reduction pledged by China represents nothing more than what is likely to happen anyway, then it cannot be said to be a climate change mitigation target as no effort is required to achieve it. Mitigation requires a deviation from the business as usual pathway.

For example, Michael A. Levi, director of the climate change program at the Council on Foreign Relations has labelled China's target as 'disappointing', since 'the Department of Energy estimates that existing Chinese policies will already cut carbon intensity by 45 to 46 percent.'[457] He continues, 'the United States has put an ambitious path for emissions cuts through 2050 on the table. China needs to raise its level of ambition if it is going to match that.'[458] Kenneth Liberhal, from the Brookings Institute has made a similar claim, stating, 'basically, it's a continuation of the same trend line … [which] does not reflect raising the bar [which] does need to be raised.'[459] Malcolm Moore, in

[455] US EIA, 'International Energy Outlook 2009', 114.
[456] International Energy Agency, 'World Energy Outlook 2009' (2009) [Online] (http://www.worldenergyoutlook.org/media/weowebsite/2009/WEO2009.pdf) [Accessed 2 March 2012]: 178.
[457] Wong and Bradsher, 'China Joins U.S. in Pledge of Hard Targets on Emissions'.
[458] Wong and Bradsher, 'China Joins U.S. in Pledge of Hard Targets on Emissions'.
[459] Lisa Friedman, 'China, U.S. Give Copenhagen Negotiators Some Targets', *New York Times* (30 November 2009) [Online] (http://www.nytimes.com/cwire/2009/11/30/30climatewire-china-us-give-copenhagen-negotiators-some-ta-73618.html?pagewanted=all). [Accessed 12 December 2010].

the China Economic Review states that China 'will reach the new target without breaking a sweat'.[460]

The second objection therefore claims that China's target is both environmentally neutral and is representative of a lack of effort from China, which is inconsistent with the principle of common but differentiated responsibilities which requires some effort from all parties. As such, it is not representative of a just contribution to a global agreement.

6.3.1 Reviewing the Definition of Business as Usual

To respond to this objection, we need to address what the business as usual scenario actually entails, and on what basis it is calculated. The International Energy Agency (IEA) refers to a 'reference' scenario, which 'provides a baseline vision of how global energy markets are likely to evolve if new government policies are not introduced during the projection period.'[461] The reference scenario is simply the scenario that is likely to happen based on policies that exist already at the time of writing the report. Currently existing policies are included in the forecast, meaning that the business as usual pathway is based upon these and not upon doing nothing. The key point is that the reference scenario is not a 'no-climate policy' pathway, and it is important that we do not confuse the two. In this sense, the 'business as usual', or 'reference' scenarios cannot tell us anything about the demandingness of a target, since they include existing policies in their baseline assessment.

This does not mean that China's target is *not* undemanding, but simply that we cannot know this by looking only at the business as usual proposals. As Cohen-Tanugi argues, '*reference Case* scenarios should not be regarded as a "do nothing" situation, although they have been misinterpreted as so in numerous reports.'[462] At the time of the creation of the IEA reference scenarios, China had already undertaken policies involving 'significant investments in low-carbon technologies'.[463] Further evidence of this can be seen in China's 'Long-Term Development Plan for Renewable Energy' which set a

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[460] Malcolm Moore, 'How does China's climate change offer add up?', *China Economic Review* (27 November 2009) (http://www.chinaeconomicreview.com/node/26216). [Accessed 7 April 2011].
[461] International Energy Agency, 'World Energy Outlook 2009', 110.
[462] David Cohen-Tanugi, 'Putting it into Perspective: China's Carbon Intensity Target' *Natural Defense Research Council White Paper,* (October 2010) (https://seors.unfccc.int/seors/attachments/get_attachment?code=9VH8IUPHKI1IUHISGILD456OE35QK1IN) [Accessed 30 September 2012].
[463] Carlo Carraro and Massimo Tavoni, 'Looking ahead from Copenhagen: How challenging is the Chinese carbon intensity target?' (05 January 2010) [Online] (http://www.voxeu.org/article/china-s-copenhagen-commitment-business-usual-or-climate-leadership). [Accessed 17 March 2013].

target for 15% of China's energy mix to be provided by renewable fuels by 2020 (including 100 gigawatts more energy from wind and nuclear power) amongst many other policies, including those which led to the 19% emissions intensity reduction that China achieved between 2006 and 2010.[464] This in itself posed a challenge, as Cohen-Tanugi explains:

'Many Chinese provinces have encountered substantial difficulties in reaching their energy intensity targets under the 11th Five-Year Plan, and it is difficult to imagine how they might be able to achieve these reduction targets again—not once but twice over—by 2020.'[465]

As we have seen previously, the Chinese government's priority must be to enable the fulfilment of the right to development of its citizens. As such, the significant investment and policies relating to improving China's energy efficiency cannot be said to be akin to 'doing nothing' as some commentators have implied as a result of the 'business as usual' emission path scenarios.

6.3.2 A More Demanding Target than Critics Claim

The first response to the second objection has highlighted the need to avoid confusion between that which will take place as a result of current policies, and that which would require no effort at all. Existing effort should not be considered to be irrelevant simply because it forms part of policies that already exist. As such, business as usual scenarios which include existing policies cannot show that a target is easily achievable simply because there are policies already in place. The second response will make reference to several studies which argue that China's target will require a much greater effort than that which would be expected to occur under a normal projection for a country of China's level of development. As such, the target will only be achievable with targeted policies that are specifically aimed at reducing emissions intensity, requiring extra effort far above that which would occur otherwise. Finally, I will discuss the uncertainty involved in China's target due to its link to economic growth.

Several studies have estimated that achieving 40-45% reduction in emissions intensity by 2020 would not occur in 'business as usual' scenarios based upon standard growth patterns for a developing country. For example, McKibbin et al predict an emissions intensity reduction of 26% in their baseline scenario, which is described as a 'best estimate of the likely evolution of [the] economy without concerted climate policy

[464] Cohen-Tanugi, 'Putting it into Perspective: China's Carbon Intensity Target', 11.
[465] Cohen-Tanugi, 'Putting it into Perspective: China's Carbon Intensity Target', 10.

measures.'[466] The estimations for the 'likely evolution' are based upon historic data reflecting trends in the relationship between economic growth and emissions. Business as usual in this scenario is based on analysing historic data of trends in emissions and economic growth, and shows a predicted path for these two factors based on this information, and disregarding climate-specific policies that China has in place. Several other studies using similar ideas of 'business as usual' have given comparable results. Stern et Jotzo have predicted a 24% reduction in emissions intensity following a business as usual path for China, under a 'normal rate of technological improvement and development'.[467] They argue, 'in no way is a 40–45% reduction in emissions intensity ''business as usual'', as has been claimed by some observers.' Shi et al simulate a baseline scenario, which predicts an emissions intensity reduction of 22% between 2007 and 2020, stating that 'simulation results indicate that it will be difficult for China to realize its mitigation target under the baseline scenario.'[468] As such, studies that do not include current climate policies to be part of the business as usual scenario show that the reduction of 40-45% in emissions intensity will not happen without targeted policies.

The discussion has shown that the definition of 'business as usual' is not standardised, and the meaning of the phrase can be very different depending on how it is interpreted. This should make us wary of the utility of business as usual scenarios as a sole means of assessing the demandingness of emissions pledges. If we consider typical rates of technological change and emissions growth based on historic data from other countries at China's level of development, the target does not seem to be easily achievable, and will require specific, targeted policies. Several commentators support this claim. For example, Hohne has called China's target 'a major effort'.[469] Stern and Jotzo have referred to it as 'feasible but ambitious'.[470] Cohen-Tanugi has it 'challenging'.[471]

Furthermore, some have noted the importance that changes in the 'elasticity' of emissions to GDP will have on the feasibility of achieving China's target, highlighting

[466] McKibbin et al, 'Comparing Climate Commitments: A Model-Based Analysis of the Copenhagen Accord', 11.
[467] David I. Stern and Frank Jotzo, 'How ambitious are China and India's emissions intensity targets?', *Energy Policy*, 38 (2010): 6780.
[468] Minjun Shi et al, 'Can China Realize CO2 Mitigation Target toward 2020?', *Journal of Resources and Ecology*, 1:2 (2010): 152-153.
[469] Niklas Höhne et al, 'China emission paradox: Cancun emissions intensity pledge to be surpassed but emissions higher' *Climate Action Tracker Update* (4 October 2011) [Online] (http://www.climateactiontracker.org/press_briefing_panama.pdf). [Accessed 11 December 2011].
[470] Stern and Jotzo, 'How ambitious are China and India's emissions intensity targets?', 6782.
[471] Cohen-Tanugi, Putting it into Perspective: China's Carbon Intensity Target'; Zhang 2010)

the fact that many studies take this to be a stable figure. Carraro and Tavoni show that China's elasticity has been around -0.5 for the past 20 years, which means that for every 1% increase in per capita income, emissions intensity has reduced by 0.5%.[472] The resulting emissions intensity reduction that would accompany this is in line with the references scenarios portrayed by the IEA and the US EIA. However, Carraro and Tavoni argue that China's per capita income growth to emissions intensity is unlikely to stay at this ratio, as China's per capita income rises. This is consistent with the IPCC's findings in the Fourth Assessment Report, which states:

'All studies also find evidence that th[e] coefficient [of] elasticity of per capita CO_2 emissions relative to per capita GDP is not constant but decreases as per capita income rises.'[473]

Carraro and Tavoni show that China's elasticity has already decreased to -0.3. Taking this into account, they project an emissions intensity reduction of 27% between 2005 and 2020, if elasticity remains at -0.3, and a reduction of only 23% if elasticity reduces further to -0.25, which is the elasticity South Korea's economy had at a similar stage of development.[474]

Many factors will affect the rate of growth of Chinese emissions and the rate at which China is able to reduce its emissions intensity, but this is true for all emissions targets. In times of economic downturn such as the recent economic crisis, absolute levels of emissions have decreased in many parts of the world. Economic recession makes achieving absolute emissions targets easier, whilst times of economic growth make emissions intensity reduction targets easier to achieve. Whilst China's growth is predicted to continue increasing at a high rate, whether this growth occurs at 8% per year or 6% per year, for example, will have an impact on the demandingness of China's policy. There is a risk of the target being much more difficult to achieve if growth is slightly slower than predicted. On top of this, as part of its emissions intensity reduction strategy China has given itself the target of increasing the share of renewable energy in its energy mix to 15%, which is more than double the share in 2005. This will require a large investment. Combined with the level of risk involved in China's target due to its close link to economic growth, it cannot be reasonably argued that the target is

[472] Carraro and Tavoni, 'Looking ahead from Copenhagen: How challenging is the Chinese carbon intensity target?'.
[473] IPCC 'Climate Change 2007: Working Group III: Mitigation of Climate Change'.
[474] Carraro and Tavoni, 'Looking ahead from Copenhagen: How challenging is the Chinese carbon intensity target?'.

undemanding, and as such, the objection that it is easily achievable does not hold up to closer scrutiny.

6.4 An Absolute Increase in Emissions

I will now consider a third objection that contests the fairness of a climate target which is consistent with an absolute increase in emissions, despite emissions intensity reduction, due to China's high rate of economic growth. As the world's biggest single emitter of carbon dioxide, critics argue that China's emissions must now peak and then go down, both for environmental reasons, but also for the sake of agreeing on a global burden sharing agreement. In the context of global mitigation policies, some have argued that increasing absolute emissions will give China an unfair economic advantage compared to developed states, many of which view China as a competitor despite its developing status, due to the size of its economy. This has led to several states making their mitigation pledges conditional upon the involvement of China in a legally binding burden sharing agreement, stating both environmental and competition based reasons.

For example, Julie Bishop, Australia's Minister for Foreign Affairs has stated:

'Even if the Chinese government met its stated targets of cutting carbon emissions "per unit of GDP", there will in fact be a massive increase in emissions from China for the foreseeable future.'[475]

This represents the position of several developed states, which have been unwilling to sign up to significant post-Kyoto emissions reduction pledges which they view as risking their own economic competitiveness, unless China also undertakes such measures. Bishop continues:

'Indeed, analysis shows the increase in China's emissions will be in the order of 74 to 90 per cent in absolute terms by 2020, based on projected GDP growth. Yet Prime Minister Gillard, Treasurer Swan and Climate Change Minister Combet have all made recent statements to the effect that if Australia doesn't introduce a carbon tax now, China will leave us behind, labelling as a "myth" any suggestion that Australia's economy will be harmed if we act ahead of the major global emitters including China.'[476]

In the Copenhagen Accord, Australia committed to three targets, two of which are conditional upon 'major developing economies commit[ting] to substantially restrain

[475] Julie Bishop, 'What the government does not tell you about China and climate change' (16 March 2011) [Online] (http://juliebishop.com.au/what-the-government-does-not-tell-you-about-china-and-climate-change/). [Accessed 10 July 2014].
[476] Julie Bishop, 'What the government does not tell you about China and climate change'.

emissions', along side a minor, unconditional target of a 5% reduction in emissions by 2020 compared to 2000 levels.[477]

The position of the United States has been similar, and to date they have refused to agree to any global agreement that did not 'cover all the major Parties in a full way, so it would bind with equal legal force … [so that] everybody who made commitments would be bound fully, unconditionally, no kind of escape hatches in the text'.[478] This is therefore a political argument made by some developed states, based upon a claim that it is unfair for large developed states, like China, which are seen to be key economic competitors, to be allowed to increase their emissions.

This leads to a second argument which claims that it will be difficult to achieve global climate change mitigation if China's emissions are not capped for two reasons, first because of China's high emissions and large population, and second because a global agreement is unlikely if the developed states' demands are not taken into account. Posner and Weisbach are key protagonists of this approach, claiming that 'If [developing states] demand too much from the rich world, the rich world will drag its feet'.[479]

6.4.1 Not an Unfair Advantage

The third objection claims that China will have an unfair economic advantage if it is not required to reduce emissions and so politically, a climate agreement will be difficult to achieve if China is allowed to increase its emissions. I will argue that China as a state may be advantaged by not being required to cap its emissions, but that contrary to the claims made by some, this is not an unfair advantage. I will first defend this by making reference to the current, internationally-accepted principles of territorial accounting that form part of previous climate agreements, and secondly with reference to the moral arguments I have defended in the preceding chapters, relating to the right to development and the revised beneficiary pays principle.

First, let us consider this argument in a political light, based on the principle of common but differentiated responsibilities. This an internationally accepted principle of fairness

[477] UNFCCC, 'Australia Appendix I - Quantified economy-wide emissions targets for 2020 from the Copenhagen Accord' (n.d.) [Online] (http://unfccc.int/meetings/copenhagen_dec_2009/items/5264.php. [Accessed 30 July 2014].
[478] US Diplomatic Mission to South Africa, 'Briefing with U.S. Special Envoy for Climate Change Todd Stern'.
[479] Posner and Weisbach, *Climate Change Justice*, 5.

that is used in the UNFCCC negotiations, which considers capacity to pay for climate costs as well as territorial emissions to be the key factors in determining levels of responsibility. By this measure of accountability, a state is responsible for the emissions that take place within its borders, and GDP is taken into account for capacity to pay climate costs. States have different population sizes, so per-capita levels are the most useful measure for comparing emissions. As such, a state such as China, which has 1.4 billion inhabitants, is surely justified in using more carbon emissions, territorially, than a state such as Australia which has 22 million inhabitants. Recent data shows that Australia's per capita emissions have been growing and now represent the highest per capita emissions of the developed countries. By the standard territorial accounting method that is currently favoured in political negotiations, it is therefore not unjust to expect Australia to bear greater responsibility for climate change costs due to greater contribution to the problem. China's per capita emissions are low compared to the levels of most developed nations. In 2010, which is the most recent year for which global statistics are available, the Annex I average of CO_2 emissions was 10,412 kg per capita, with the United States and Australia both emitting over 17 metric tonnes of CO_2 per inhabitant. China's per capita emissions were 5.4 metric tonnes.[480] China also has lower relative capacity, with a GDP per capita, calculated using PPP of $10,924 in 2012, compared to the OECD average of $36,427.[481]

Based upon the current political agreements, therefore, it seems clear that China should not be required to bear the same level of duties as the developed states that have much higher emissions and incomes when considered on a per capita level. China's enormous size compared to other states means that by comparing state-level statistics, we are not comparing "like for like". The per capita figures, on the other hand, highlight the differences between each state's emissions and income relative to its population. The argument that China would have an unfair economic advantage should be considered in the context of different countries' different responsibilities in recent climate agreements, relative to their GDP per capita. I will now show some examples of states with similar or higher GDP levels per capita that are not required to cap their emissions. As such, politically, based on the current agreements, it is not unfair that China should be allowed to increase emissions whilst there are other states in similar positions that are not required to do so.

[480] International Energy Agency, 'CO2 Emissions From Fuel Combustion Highlights 2012'.
[481] OECD, 'GDP per head, US $, current prices, current PPPs'.

Let us consider comparisons with several countries within the European Union that are permitted to increase their emissions over the period 2005-2020. Within the EU, an overall emissions reduction target has been agreed, covering the whole EU zone. However, as a matter of fairness based upon not limiting the economic growth of countries with low per capita GDP, responsibilities are differentiated within the EU. The official policy document states:

'The national emission targets for 2020 have been agreed unanimously. They have been set on the basis of Member States' relative wealth (measured by Gross Domestic Product per capita). They range from a 20% emissions reduction by 2020 (from 2005 levels) for the richest Member States to a 20% increase for the least wealthy one, Bulgaria … Less wealthy countries are allowed emission increases in these sectors because their relatively higher economic growth is likely to be accompanied by higher emissions. Nevertheless their targets represent a limit on their emissions compared with projected business as usual growth rates. A reduction effort is thus required by all Member States.'[482]

Bulgaria, the least wealthy country in the European Union, has an estimated GDP per capita of $14,400.[483] Between 2005 and 2020, Bulgaria is allowed to increase its emissions by 20% according to the EU's 'effort sharing' national targets.[484]

Twelve other EU countries, each with per capita GDP levels higher than $14,500, are also allowed to increase their absolute emissions in the Copenhagen Agreement time period of 2005 to 2020. China's GDP per capita of $10,924 is only two thirds the size of Bulgaria's, which is the smallest of the thirteen EU states that are allowed to increase their emissions over the period. As stated in the EU text, 'less wealthy countries are allowed emission increases … because their relatively higher economic growth is likely to be accompanied by higher emissions'.[485] Therefore, if we think that it is justified for these countries to increase their absolute emissions, the least wealthy of which has a GDP per capita that is 150% the size of China's, and if this is based on their level of development and need for economic growth, then this same logic must surely apply to China. The fact that China's absolute levels are high is due to the fact that the geographical area that we consider to be the state of China is very large, housing almost

[482] European Commission, 'Effort Sharing Decision' (22 September 2014) [Online] (http://ec.europa.eu/clima/policies/effort/index_en.htm). [Accessed 24 September 2014].
[483] Central Intelligence Agency, 'The World Factbook-Bulgaria' (23 june 2014) [Online] (https://www.cia.gov/library/publications/the-world-factbook/geos/bu.html). [Accessed 1 September 2014].
[484] European Commission, 'Effort Sharing targets for 2020 compared to 2005 emission levels' (n.d.) [Online] (http://ec.europa.eu/clima/policies/effort/images/targets.gif). [Accessed 1 September 2014].
[485] European Commission, 'Effort Sharing Decision'.

20% of the world's population.[486] The focus and importance assigned to the notion of *state* emissions, due to the statist system of international politics, can lead to conclusions that are unfounded when we look more closely at comparable statistics at the per capita level. If the state of China was divided up into several separate countries, it is unlikely that we would think that these countries in the "continent of China" were gaining an unfair economic advantage. An absolute increase in emissions for China is therefore not inconsistent with the existing political principles of fairness that have been agreed to at the international level, and as such, emissions increases do not give China an *unfair* economic advantage.

The conclusion of the political argument is supported by the moral arguments we have seen in the preceding chapters. As we saw in Chapter Three, the right to development of Chinese individuals entitles the state to defend subsistence and development emissions where these are needed to fulfil the rights of individuals within its borders. As such, the Chinese state is justified in increasing emissions, where these are fulfilling subsistence and development needs, and where clean energy alternatives are not available. This is not a consideration that developed states need to take into account, as they have the resources to provide their poorest citizens with more efficient means of sourcing their energy, and the average development level of their populations means that a large percentage of emissions in developed states are luxury emissions. As we saw in Chapters Three and Four, benefiting from luxury emissions confers responsibility for the climate costs, and as such it is these emissions that should be reduced. To refer back to the previous example of Australia, this is an industrialised state that has benefited not only from historical processes of industrialisation, but, as we saw in Chapter Four, continues to benefit greatly from the sale of fossil fuels due to vast natural resources. The Australian coal industry alone is worth approximately 60 billion Australia dollars, or 4.5% of Australia's GDP, including 38.6 billion dollars from exports of coal.[487] Australia's economy is doing very well and it has a very high level of development, with the second highest HDI out of the 187 countries assessed by the UNDP in the most

[486] Population Reference Bureau, 'China population 1,350,378,000, World population 7,500,000,000' (n.d.) [Online] (http://www.prb.org/DataFinder/Geography/Data.aspx?ind=1,2,3,4,7,5,6,8,9,10,11,14,18,250,19,15,16,17,12,13,55,56,241&loc=404,241&hl=True). [Accessed 12 June 2014].
[487] Australians For Coal, 'Coal For The Economy' (n.d.) [Online] (http://www.australiansforcoal.com.au/coal-4-the-economy.html). [Accessed 5 September 2014]; Minerals Council for Australia, 'Australia's Coal Industry Figures' (n.d.) [Online] (http://www.minerals.org.au/resources/coal/figures). [Accessed 5 September 2014].

recent human development report.[488] As a state, Australia is clearly benefiting from its fossil fuels, whether the emissions are released within Australia or exported to be released elsewhere. States that are linked to the emissions that take place within China, either through upstream natural resource sales or downstream consumption of goods, share in the responsibility for these emissions. As such, not all of the emissions that take place within Chinese borders are the moral responsibility of China. This point further supports the claim that being permitted to increase emissions does not give China an *unfair* advantage compared to the developed states.

6.5 Differentiated Duties for Chinese Cities

I shall now move on to the fourth objection to China's position, which claims that whilst the state of China, when taken as a whole, may be justified in following a plan of emissions intensity reduction, there are some cities within China that should cap their emissions. This argument is based upon the claim that there are several cities and provinces within China that have populations that are the same size or larger than some developed countries, similar per capita income and carbon emissions, and reasonably high HDI levels. If these areas of China are causing just as much damage to the environment as some countries in the developed world, and they have similar sized economies and levels of development, the argument claims that they should have targets to cap their emissions. Let us look at some figures. Beijing has a population of 20 million, and emits 10.8 tonnes of CO_2 per inhabitant, which is slightly above the OECD average of 10.1 tonnes.[489] Shanghai has a population of 23 million people with per capita emissions of 12.9 tonnes of CO_2.[490] Tianjin emits 12.2 tonnes of CO_2 per capita and has a population of 13 million.[491] Some of these places also rank highly in terms of their HDI. For example, a report from the UNDP states that if urban Shanghai was included in the rank of countries' HDI figures it would come in 24th place, just higher

[488] UNDP, 'Human Development Report 2013 – Australia' (n.d.) [Online] (http://hdr.undp.org/sites/default/files/Country-Profiles/AUS.pdf). [Accessed 5 July 2014].
[489] United Nations Environment Programme, 'Representative GHG Baselines for Cities and their Respective Countries' (March 2011) [Online] (http://www.unep.org/urban_environment/PDFs/Representative-GHGBaselines.pdf). [Accessed 14 March 2013]; International Energy Agency, 'CO2 Emissions From Fuel Combustion Highlights', 99.
[490] United Nations Environment Programme, 'Representative GHG Baselines for Cities and their Respective Countries'.
[491] United Nations Environment Programme, 'Representative GHG Baselines for Cities and their Respective Countries'.

than Greece.[492] As such, the objection claims that they should have carbon emission caps.

6.5.1 Important Differences between Cities and States

In response to this objection, which would assign emissions caps to Chinese cities, I will appeal to an argument about the difference between cities and states. The important point is the difference in relative power these two actors hold over their actions as well as the interconnected nature of the actions of different cities. Cities are not sovereign actors that can be directly compared with states, and viewing them as such endows them with a false level of independence and power. Cities play a key role in the economy of a larger entity of the state, unlike a state which is the highest sovereign body. As I mentioned in Chapter One, the duties of sub-state entities, such as cities or regions, are derivative duties that are delegated to them by the state. Cities are not independent, relying on sovereign bodies both financially and politically. In a state such as China, in which much of the population is living in poverty, there is a responsibility to divide up the national burden fairly, in line with the holistic approach to human rights and the right to development, as seen in Chapter Three. In order to prioritise subsistence and development emissions, and the rights these emissions are fulfilling, the government should ensure that areas of China that are benefiting from emissions that far exceed development needs should be required to take on a greater share of the national responsibility. But this responsibility should not be allocated directly to cities, since they do not have the relevant characteristics of independence required for direct duties.

Let us consider in greater detail the actual policies that are in place in China in relation to these large cities, to see whether Chinese policy does differentiate between different types of cities. The most affluent regional areas in China, which are Beijing, Tianjin, Shanghai, Guangzhou and Chongqing, each have a special status and are known as 'National Central Cities'.[493] These are leading cities, whose positive influence is intended to 'radiate' outwards into their surrounding areas.[494] They are governed directly by China's central government, and the main functions of these cities within their wider regions include organising and coordinating regional economic activity, to oversee tax and financial systems and to provide training in order to promote

[492] UNDP, 'Human Development Indicators' (n.d.) [Online] (http://hdr.undp.org/en/media/Human_development_indicators.pdf). [Accessed 25 April 2013]: 271.
[493] Triangle of Central China, 'Greater Wuhan, from "Core" of Central Region to "Core" of China', (04 June 2012) [Online] (http://english.rikes.gov.cn/4/174/4089.html). [Accessed 4 July 2013].
[494] Triangle of Central China, 'Greater Wuhan, from "Core" of Central Region to "Core" of China'.

development in each of their local regions.[495] For example, Chongqing is the capital city and leader of the 'Great Western China Development Strategy'. The cities play a key role in China's development strategy, both in terms of income generation and job creation, but also as key role models and centres of economic, political and cultural leadership. China's 'tax-sharing system' entails taxes being collected locally and centrally, and shared within different regions.[496]

With regards to climate policies, Chinese policy appears to recognise the fact that the higher level of benefit being gained from luxury emissions within these cities confers greater moral responsibility for climate costs, compared to other areas of China. As such, the 40-45% emissions intensity reduction targets are differentiated, with 'specific carbon intensity reduction targets [for] all provinces'. For example, Guangdong Province, one of the richest provinces, has the target of reducing emissions intensity by more than 45%.[497] Furthermore, in 2013, China began a pilot emissions trading scheme in seven of the most developed areas, including the five National Central Cities, and is undertaking research based on these pilot schemes with a view to develop a national emissions trading scheme in the 2016-2020 five year plan.[498] As we saw in Chapter Two, it is important that the relevant actors of states, corporations and individuals work together in order to encourage the other actors to fulfil their climate duties. By developing an emissions trading scheme, companies that do not comply with lower emissions requirements will face financial punishments, creating a system in which all will be encouraged to comply, free from the worry of losing a competitive advantage against free-riders in the market who are not working to reduce their emissions.

The discussion has shown that China's richer cities and provinces are contributing both economically and politically to development of other areas of China. Capping emissions of the richest cities could have a negative impact on the development of the poorest areas within China, which would risk jeopardising the fulfilment of the right to

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[495] Baidu, 'National Center City', (n.d.) [Online] (http://baike.baidu.com/view/2846647.htm) [Accessed 19 July 2014].
[496] Zhong Xiang Zhang, 'Energy Prices, Subsidies and Resource Tax Reform in China', *CCEP Working Papers, Centre for Climate Economics & Policy, Crawford School of Public Policy, The Australian National University*, (2014): 14.
[497] Chinese Government, 'China's Policies and Actions for Addressing Climate Change 2012'; Haibing Ma, 'Guangdong Leads the Way in China's Low-Carbon Development', *Worldwatch Institute* (26 March 2012) [Online] (http://blogs.worldwatch.org/revolt/guangdong-leads-the-way-in-chinas-low-carbon-development/). [Accessed 6 July 2013].
[498] China.org.cn, 'China eyes nationwide emission trading programs in 2016-2020' (06 December 2012) [Online] (http://www.china.org.cn/environment/doha_climate_talks/2012-12/06/content_27336535.htm). [Accessed 18 January 2013].

development. The interlinked nature of cities and their lack of true independence is a key reason why it does not make sense to apply duties directly at the city level. Regional policies should be guided by the sovereign state and not imposed from outside, since cities are not independent actors. A review of Chinese policy has shown that China does appear to be distributing the costs of its emissions intensity reduction target in a differentiated manner, with much more responsibility and weightier duties being borne by the richer areas that have greater capacity to make such changes. As such, China is dividing its domestic burden up in a way that is consistent with respect for the right to development of the poorest citizens as well as creating an infrastructure in which corporations will be rewarded for improving their emissions efficiency in the pilot emissions trading areas.

6.6 The Sustainability Objection

I shall now consider a final objection. Up to this point, the chapter has considered whether China's pledge to reduce emissions intensity is justified in the context of a global burden sharing agreement. The justification is largely dependent on the moral claim that there are many other actors that should bear weightier duties than China, and therefore can bear most of the burden. The right to development allows Chinese emissions to peak at a later date, and this is justified internationally due to China's lower relative capacity to pay and lesser historic responsibility. The idea of relative responsibility is important as it reflects the fact that a global response is needed, meaning that different states will be expected to take on different levels of responsibility. However, if we take a long-term view of the proposal being made by China, and consider what justice requires of today's world in order to protect future generations, we might think that continuing emissions growth is not justified. Even if China's target is justified in terms of current international distributive justice vis-a-vis the relative responsibilities of states, it may not be consistent with intergenerational justice, as increasing global emissions will cause dangerous climate change that will jeopardise the rights of future people. So, the objection claims that China's target is not consistent with sustainable development, as it will allow an absolute increase in emissions.

6.6.1 Responsibilities of Affluent Actors

In response to this target, let us refer back to a similar argument made in Chapter Three. I concluded that individuals have a right to subsistence and development emissions, as these are fulfilling human rights. The large proportion of individuals with an unfulfilled

right to development in China justifies these emissions, which, by their definition, are the only energy option individuals have to fulfil their development needs. Where other, cleaner options are available, there is a responsibility to use these instead. But most energy within China is coal-based, and although the government is investing in clean technologies, it does not have the capacity to currently provide these for the hundreds of millions of Chinese citizens that have subsistence and development energy needs. As I concluded in Chapter Three, the weight of the responsibility falls on affluent actors such as developed states and corporations to allow the transfer of technology and know-how to enable clean development to take place. As Shue has argued:

'All human beings potentially share some responsibility generally for dealing with climate change and, specifically, for preventing unjustifiable delays in the date of technological transition, that is, for avoiding the creation of unnecessary dangers for people in the future. Plainly, these specific responsibilities need to be assigned in accord with some allocative principles, like the ability to contribute to the solution or past contribution to the problem.'[499]

China's target is justified from the point of view of what it is reasonable for China to contribute to a global burden sharing agreement. This is largely because there are many other potential duty bearers who have both contributed more to the problem and have much greater capacity to contribute to the solution. However, in the context of what justice requires us to do in relation to the rights of future generations, it is not justifiable for global carbon emissions to keep on increasing at such a rate as will be the case if a country the size of China becomes locked into coal-based energy production due to the fact that it cannot currently afford to invest in clean technologies to the extent that would be required. But the intergenerational aspect of justice can also be responded to by a current account of distributive justice, which would require more from the responsible actors not only relative to other states, but also relative to future people. So justice requires stronger action, but the responsibility to go further than China's current target, which we have established is already reasonably demanding given China's situation, should fall on the shoulders of the affluent actors with the power to act on climate change.

6.6.2 Conditional Duties

Before concluding this section, it is worth considering a further point. If the affluent duty bearers do provide China with the means to develop cleanly, China's

[499] Henry Shue, 'Responsibility to Future Generations and the Technological Transition', in Walter Sinnott-Armstrong and Richard B. Howarth, eds., *Perspectives on Climate Change: Science, Economics, Politics, Ethics* (San Diego: Elsevier, 2005): 279.

responsibilities would be increased. If subsistence and development emissions are no longer needed in order to enable human rights fulfilment, the state would no longer be justified in increasing emissions to fulfil these needs. As such, some countries have pledged emissions targets that are dependent on action from affluent actors to enable sustainable development, representing a willingness to develop sustainably if help to do this is forthcoming. South Africa has proposed a target along these lines, stating that 'the extent to which this action will be implemented depends on the provision of financial resources, the transfer of technology and capacity building support by developed countries.'[500] South Africa, a country with a GDP per capita of $12,144, has pledged an emissions reduction of 34% compared to 'business as usual' between 2005 and 2020.[501] If the technology and know-how required to develop cleanly was forthcoming, then it might be justifiable to require China to make a similar pledge. As such, China's emissions intensity commitment is consistent with a global burden sharing agreement in the current circumstances. However, to the extent that the capacity to develop cleanly is provided by technology transfer from developed states, China's justification for increasing its emissions to meet the subsistence and development needs of its citizens is weakened and China's climate responsibilities should increase.

6.7 Conclusion

This chapter has considered the political and moral issues surrounding China's commitment to reduce emissions intensity by 40-45% by 2020. I have defended China's position as a justifiable practical response to the account of climate justice I have defended in this thesis. I have argued that an account of climate justice requires some action from China, but that the policy pledged to reduce emissions intensity, alongside domestic emissions policies and investment in sustainable technology is consistent with the justice-based requirements of the Chinese state. There are other actors that should bear the duty of reducing emissions in an absolute sense. China's position is consistent with an approach of sustainable development, aimed at reducing the emissions intensity of a state without restricting the growth it requires to fulfil the rights of its citizens to development. China's target is politically justified, and in line with the UNFCCC requirements of developing countries and the principle of common but differentiated responsibilities.

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[500] Alf Wills, 'Republic of South Africa communiqué on Copenhagen', *UNFCCC*, (29 January 2010) [Online] (http://unfccc.int/files/meetings/cop_15/copenhagen_accord/application/pdf/southafricacphaccord_app2.pdf). [Accessed 26 May 2012].
[501] Alf Wills, 'Republic of South Africa communiqué on Copenhagen'.

I have defended China's position against five objections. First, I reviewed the claim that the metrics used to calculate emissions intensity were unreliable and capable of giving a false image of the actual progress China is making due to the manipulability of the figure of GDP and the inclusion of structural changes in the calculation of emissions intensity. I responded by arguing that a reduction in emissions intensity brought about by structural changes represents a move towards a less carbon intensive economy, which should be encouraged in a country such as China with a large, emissions intensive, manufacturing industry. The requirement to reduce global emissions should be brought about by international rules requiring those that benefit from emissions to bear responsibility for the costs. In the current situation, China is only in direct control of the emissions that take place within its borders, and cannot be responsible for industries that move elsewhere as a result of its policies. As such, emissions intensity reductions brought about by technical *and* structural changes are both worthwhile, and China's target is justified.

The second objection claimed that China's target was not in line with the requirements of the principle of common but differentiated responsibilities. The objection claims that it represents the emissions intensity change that would take place as part of 'business as usual', and therefore does not require any effort from China. I first questioned the use of the term 'business as usual' due to the fact that it included existing policies in its estimation. China has already put in place demanding climate policy actions, and as such the claim of 'business as usual' is not equivalent to a 'no action' policy, as implied by the objection. Comparisons of China's emissions based upon real 'no-action' projections showed that China's 40-45% emissions intensity reduction target would require a deviation of more than 20%, which represents a 'major effort'.[502]

The third objection claimed that China would have an unfair economic advantage compared to the developed states if it was allowed to increase its emissions. I appealed to a political argument to show that the claim of 'unfairness' was not consistent with the requirements of other states with similar levels of capacity on a per capita basis. I reviewed examples of several states within the EU that have greater per capita capacity than China, and which are permitted to continue increasing their emissions as a matter of fairness due to their lower economic capacities. The claim that China would gain an unfair advantage is therefore not consistent with the requirements of other states that

[502] Niklas Höhne et al, 'China emission paradox: Cancun emissions intensity pledge to be surpassed but emissions higher', 1.

have similar capacities. This argument was also supported by the moral claim that China was justified in increasing emissions due to the right to development.

Fourth, I considered the objection that Chinese cities or provinces should bear responsibilities due to their great size and similar capacity to some states. I argued that cities should not be the target of direct climate duties as they are not independent actors.

Finally, the fifth objection claimed that China's emissions should be capped as a matter of intergenerational justice. Referring back to the discussion in Chapter Three, which related to the responsibility to provide the means to develop sustainably, I argued that the government of China's first priority was the right to development of its citizens and that where this could not be achieved sustainably it was the international community's responsibility to provide the means to do so. China is investing in clean technologies, but it does not currently have the capacity to enable the right to development to be fulfilled without the use of fossil fuels. As such, the responsibility falls to the affluent actors that benefit from high levels of luxury emissions to reduce global emissions to allow for the fulfilment of the right to development where this can only happen using carbon emissions. I concluded that China's responsibilities were dependent on the help it is given to develop sustainably, and where it is provided with the means to do this, its climate responsibilities increase.

The discussion has shown that China's emissions intensity reduction target is consistent with a fair global agreement, and I have responded to five key objections. Of course, as the multi-actor approach has shown, it is not only the Chinese state that has duties, and affluent Chinese individuals and corporations are required to take action independently of the requirements of the Chinese state. However, due to the focus of China's international commitment to the UNFCCC, it has been appropriate to focus on the duties of the Chinese state in this chapter.

Chapter 7

Conclusion

This final chapter will provide an overview of the distinctive account of climate justice I have developed. I will first present a short account of my theory before recapping the five research questions I set out to examine initially. I will then review the substantive chapters and provide a summary of the responses I have provided to the research questions. In the process of doing this I will outline my theory of climate justice and the implications of this theory for China. Finally, I will identify areas for further research that would build on my thesis.

Within this thesis I have defended an original account of global climate justice, and discussed the implications of this theory for China's climate responsibilities. I have defended a multi-actor approach, which I have argued is essential for a just and effective global response to the dangers posed by climate change. In doing so, I have contributed to the existing literature by challenging standard approaches that have not adequately addressed the issue of which actors should bear duties. I have defended the importance of the right to development, differentiating not only between the moral importance of the widely referenced categories of 'luxury' and 'subsistence' emissions, but also a third category I have termed 'development' emissions. The importance of the arguments of Chapter Two and Chapter Three informed the boundaries of my account. I then developed a novel approach to allocating responsibility for emissions. This is the 'Revised Beneficiary Pays Principle' (RBPP), which takes into account causal contribution, is capable of targeting all the relevant actors and is also sensitive to subsistence and the right to development. I have defended the claim that the RBPP should be the preferable method of accounting for emissions as it covers all of the morally relevant actors, whilst being sensitive to several key factors that influence the level of moral responsibility an actor should be expected to bear. I have defended a variant of this principle to assign responsibility for historic emissions, though this is limited in comparison with current day responsibility. Finally, the implications of the approach I have developed have been played out in a moral defence of the political pledge China has made to reduce its emissions intensity, which I have argued is a just representation of the duties of the Chinese state.

The distinctive account of climate justice I have developed and defended in this thesis provides an original contribution to the debates around climate justice. It does this in four key ways: (1) It is a multi-actor approach defending an account in which individuals, corporations, and states are all relevant climate duty bearers; (2) It recognises the importance of the individual right to development and allows for 'development emissions'; (3) Causal contribution is considered to be an important but not determining factor for responsibility allocation – it is benefiting from emissions-causing actions that is the key moral indicator of responsibility; (4) It considers the implications of this distinctive interpretation of climate justice for China, a key global actor.

Over the course of the thesis I have responded to five key research questions, through which I have developed a distinctive account of climate justice. Initially, I developed the framework upon which to base the account. First, asking a question of scope: 'Who are the relevant actors to bear climate duties?' Secondly, asking a question of the wider distributive justice assumptions of the account: 'Does the right to development justify increasing emissions?' The responses to these questions formed the basis of a human rights based, multi-actor framework for the account. I then considered how we might allocate responsibility for current and historic emissions between actors within this framework, asking: 'How should we allocate responsibility for emissions?', and 'How should we consider historic emissions?' Finally, having developed a distinctive account of climate justice through engagement with the first four questions, I applied this to China's existing policy commitment, asking: 'Is China's emissions intensity target consistent with principles of global climate justice?' Together, engagement with these questions forms a distinctive account of *who* should bear climate duties and *on what basis* these duties should be allocated. I will now summarise the discussions of the substantive chapters.

Chapter Two was the first substantive chapter, which began to set the framework for the account, in identifying the actors that should be candidates for climate duties. Whilst most existing climate change literature assumes that states are the relevant moral actors for climate duties, I have defended a multi-actor approach, in which individuals and corporations are also considered to be relevant actors to bear climate duties. I have argued that climate change is a global problem that cannot be regulated by state-level duties alone. An approach that deals uniquely with state-level duties must rely solely upon national laws as the tools with which to regulate the behaviour of the other actors

that can causally contribute to climate change. However, simply requiring these actors to obey the laws of the state in which they are located is not likely to result in an effective response to climate change for several reasons.

First, the current international climate regime differentiates very simply between duties of developed states and duties of developing states. The latter are not required to commit to capping their emissions due to the principle of common but differentiated responsibilities which considers the developed states to bear greater responsibility as a result of greater historic contributions and economic capacity. However, this exemption of developing states fails to recognise the practical imperative that requires action from all actors that are contributing causally to climate change, and that have the capacity to bear duties. As Harris argues, 'if the behaviours of [affluent consumers in developing states] are not constrained in some way, GHG pollution from developing countries will increase markedly, and there will be no hope of averting climate catastrophe—even if developed states were to live up to their legal and moral obligations to reduce their emissions.'[503]It is a practical necessity that the growing numbers of affluent individuals all over the world are required to bear responsibilities for the emissions from which they benefit, and at the same time a matter of fairness, since they are at least as well off and contributing as much to climate change as those in developed countries that are expected to contribute.

Corporations are also contributing in a significant way to global emissions. Due to the multinational nature of many of the biggest contributors, they are not bound by national laws. As such, factories that are located in developing countries such as China are not expected to limit their emissions, since responsibility is defined solely at the state level. Corporations are able to move factories in order to avoid national regulations. But this is not the extent of their power against national laws. They are also capable of influencing the creation of such regulations and laws. As such, they can abuse their power by lobbying against any regulation that would reduce their profit margins, despite the environmental costs. Whilst corporations do not hold the same level of moral personhood as individuals, there are certain moral and political requirements that should limit what corporations can do in the pursuit of profit. The potential for climate change to cause serious human rights violations places a responsibility on corporations to respect these rights. They must respect the need to reduce global emissions by not using their lobbying powers to influence regulatory bodies that may wish to control energy

[503] Harris, 'Inviting People to Climate Parties', 310.

standards. They also have a duty to control their emissions by updating old technologies and investing in the development of more environmentally friendly methods of manufacturing and product delivery.

An important reason for the need for a multi-actor approach is the inter-linked nature of the relationships between the different actors. For example, individuals can influence the actions of corporations by favouring products that are produced in energy-efficient ways. Individuals can influence the behaviour of states. Indeed, in democratic states, we would hope that individuals can strongly influence the behaviour of their governments. Corporations can influence the behaviour of individuals through use of marketing. States can influence the behaviour of both individuals and corporations by incentivising the production and buying of climate-neutral products. As such, if all are required to bear responsibility for their actions, they might be expected to exert whatever influence they have on the other actors to make the fulfilment of their duties as easy as possible. There are three key stages of this claim: (1) actors are interconnected; (2) this interconnectivity means that each actor can influence the behaviour of other actors; (3) actors are likely to encourage each other to make climate-friendly choices if they all share in the responsibility. For example, if corporations are taxed for the level of emissions they use to produce a product, they will want to encourage consumers to opt for goods with low carbon footprints. Individuals in turn will want to encourage corporations to produce goods in efficient ways, in order to minimise their climate duties arising from responsibility for the emissions embedded in products they consume. Individual voters will be more likely to vote for parties that will enable individuals to fulfil their climate duties more easily – for example by reducing taxes on green choices. On the other hand, if it is only states that bear responsibility for climate duties, then neither corporations nor individuals have an incentive to encourage states to fulfil their climate duties. This is because corporations and individuals only receive passed on costs of climate duties if the state acts on its climate duties. If the state does not fulfil its responsibility to cap emissions, for example, carbon will not become more expensive. So, by influencing the state to reduce regulation or voting for parties that are not likely to act on their climate responsibilities, individuals and corporations might benefit in a situation where only states are required to bear climate duties. Where all actors are considered to bear climate duties, they are all incentivised to make greener choices, and influence the other actors to do the same.

The conclusion of Chapter Two is that the moral responsibility to protect the rights of those that will suffer the consequences of dangerous climate change is shared by all actors that are responsible for contributing to climate change and that have the capacity to implement changes to reduce their emissions. The multi-actor approach provides the initial framework defining the scope of my account of climate justice.

The key implications for China that have come from Chapter Two are that both individuals and corporations within China are relevant actors to bear climate duties, even if on a state-level China is not required to do so. Affluent Chinese individuals are relevant actors to bear climate duties, since they are contributing causally to climate change and they have a level of affluence that will allow them to deal with the costs involved. Individuals may therefore have the duty to limit their own engagement with actions that are emission-intensive, as well as supporting policies that would differentiate duties to actors depending on affluence and capacity to influence change. Corporations with factories located in China should reduce their own emissions and support legislation that would institutionalise corporate climate responsibilities, in order to ensure that all are made to comply. Corporations that are based in China should not be exempt from climate duties simply because of the state in which they are located.

Chapter Three further developed the framework of the account, in asking: 'Does the right to development justify the exemption of developing states from taking on emissions caps?' The basis of this research question was China's claim that development was the 'overriding priority' of developing countries. As such, it forms an important part of setting the boundaries of my account of climate justice, in considering how an important issue of wider global justice fits with climate responsibilities. The discussion in the chapter highlighted the importance of the right to development, and as such, integrated this right into the framework of my account of climate justice.

Within Chapter Three, I first defended the right to development as a right of individuals and not a right of states. This means that states are not justified in pursuing economic development that causes emissions increases where this is not meeting the right to development of the citizens within the states. However, where states are acting on behalf of their citizens as key duty bearers of the right to development, emissions increases that are needed to fulfil this right are justifiable. I defended this claim based upon the moral importance of the rights embodied in the right to development.

When the global situation of emissions involves high-levels of emissions that are being used for luxury preferences, emissions that are needed to fulfil human rights must surely take precedence. The existing literature makes reference to 'subsistence' and 'luxury' emissions to describe the emissions produced in the fulfilment of these two ends.[504] However, this two-category distinction may lead to the odd conclusion that all emissions that are not being used for subsistence needs must thereby be luxury emissions. Clearly, emissions that are required to fulfil needs that are embodied in the right to development should not be considered to bear the same moral weight as luxury emissions, such as the emissions that are produced by a car, for example, when out for a leisurely Sunday drive.[505] I therefore defended the use of a third category of emissions to fill this gap between subsistence and luxury emissions, termed 'development emissions'. It follows, that states are justified in increasing their absolute emissions where this is due to a need for increased subsistence and development emissions. In line with the multi-actor approach, it is the responsibility of other actors to reduce their luxury emissions enough to make room for subsistence and development emissions.

However, I have argued that a further qualification for the justification of a state-level increase may be required, based upon a holistic approach to rights. The holistic approach argues that a coherent approach to one right requires a commitment to certain other rights, where 'the rationale grounding one right also grounds another distinct right'.[506] If the connected rights are not respected, then the approach is not consistent with the right being defended. The relevance of this to China's claim of being permitted to increase emissions is as follows. In order to keep global levels of greenhouse gases within a safe level, an emissions increase by the state of China creates the requirement for a greater reduction in emissions than would otherwise be required from other actors. The increase by China must therefore be consistent with the requirements of the principle from which its justification comes, which in this case is the moral importance of the right to development. The right to development entails a commitment to civil and political rights as well as socio-economic rights, meaning that the holistic approach requires China to display a commitment to these rights. If this commitment is not given, the state is acting unjustly with regards to both the right to development as well as towards the other climate actors who are required to bear more responsibility as a result. My response to the second research question therefore confirms the right to

[504] Shue, 'Subsistence Emissions and Luxury Emissions'.
[505] Avram Hiller, 'Climate Change and Individual Responsibility', *The Monist*: 94 (2011): 349-368.
[506] Caney, *Justice Beyond Borders,* 83.

development as a justification for increasing emissions, but requires the state acting on behalf of this right to display a commitment to the fulfilment of the rights that are connected to the right to development.

The discussion in Chapter Two and Chapter Three led to the identification of two key requirements of my account of climate justice: (1) It should embody a multi-actor approach to climate duties; and (2) it should be sensitive to the right to development. Having ascertained the scope of the account, in terms of who should bear climate duties, and a general assumption of how the account should respond to the wider justice claim of the right to development, I was then able to move on to developing the applied aspects of the account, in determining how to allocate responsibility for carbon emissions.

Chapters Four and Five built on the theoretical basis by responding to the third and fourth research questions, which asked: 'How should we account for responsibility for emissions?', and 'How should we consider responsibility for historic emissions?' These are key questions of how a theory of climate justice should account for emissions. Many existing principles have been proposed in the literature, but I argued that these existing principles are not capable of responding adequately to issues that are raised by China's position. Chapter Four discussed accountability for current and future emissions, whilst Chapter Five considered how accountability should be applied in designating responsibility for historic emissions.

The basis of the research in Chapter Four came in response to the claim from key figures in China that foreign consumers should bear responsibility for a share of Chinese emissions when they consume goods that have been produced in China. The claim that consumers should bear responsibility for emissions embedded in the products they consume has intuitive plausibility. Currently, emissions are accounted for on a territorial basis, in which geographic location of production is the only factor considered in determining who has the responsibility for emissions, based upon the idea of the 'polluter pays principle' (PPP).[507] Each state is considered to bear responsibility for the emissions that take place within its borders.

In order to consider the implications of the intuitive claim, I investigated an existing, alternative accounting system, in which emissions are accounted for on a consumption

[507] H. C. Wiling, and Kees Vringer, Environmental accounting from a producer and a consumer principle: an empirical examination covering the world', *Ecological Economics* 3 (2007): 235-255.

rather than territorial basis. This is consistent with the multi-actor approach, in considering responsibility for emissions at different points along the consumption chain, at the level of individual consumers as well as corporations and states. I argued that consumption accounting would indeed be preferable to territorial accounting both morally and practically. Practically, consumption accounting would reduce leakage, in which emissions-producing activities move from an area covered by territorial accounting caps, to an area that is not.[508] In practice, this tends to be the movement of industries from developed countries to developing countries, like China, that are not expected to cap their emissions.[509] As such, leakage can mean that a developed country is seen to be reducing emissions, yet the global impact of this reduction is not a decrease in emissions, since the industries simply move to another part of the world.[510]Consumption accounting can provide a more carbon efficient system by which to account for emissions, since the emissions that leak to other countries would still be accounted for at the point at which the product in which they are embedded is consumed.

However, in developing an initial moral defence of consumption accounting, I came to the conclusion that the key moral consideration is that consumers are benefiting from the emissions. In investigating this point, I examined claims that consumers are not the only beneficiaries. Indeed, the state of China has also benefited from its export-led growth.[511] Other actors may also benefit from the emissions produced in manufacturing goods. If the benefit consumers get from the emissions is the morally relevant link, then this implies that responsibility should not be borne solely by consumers but shared by the different actors that also benefit from the action that produces the emissions. From this key finding, I developed a novel principle that is capable of dealing with the wide range of actors that may be linked to the emissions in a morally relevant way. This is the 'revised beneficiary pays principle' (RBPP). The RBPP links the morally relevant actors to the emissions based upon the benefit they receive as a result of the emission-causing action. As a result, the principle is capable of responding to the first requirement of my account of climate justice, in being capable of allocating responsibilities within a multi-actor approach. The RBPP includes individuals, corporations and states in its assessment of benefit. The relevant beneficiaries might

[508] IPCC 'Climate Change 2007: Working Group III: Mitigation of Climate Change'.
[509] Brinkley & Less 'Carbon Omissions'.
[510] Ferng 'Allocating the responsibility of CO2 over-emissions from the perspectives of benefit principle and ecological deficit'.
[511] Zhang, 'The energy intensity target in China's 11th Five-Year Plan period'; Lo and Chan, 'Machinery and China's nexus of foreign trade and economic growth'.

include an individual that buys a good produced in China, for example, or a corporation that is making profits due to its Chinese factories that have low operational costs. The RBPP is also sensitive to upstream beneficiaries including the sellers of raw materials that enable the processes that cause the resulting emissions.

The RBPP is also sensitive to the right to development, and therefore fulfils the second requirement of my account of climate justice. Receiving non-subsistence benefit is a necessary condition for generating responsibilities. Beyond this, there are three qualifications that aggravate the degree of responsibility an actor bears. The first modulating factor considers development level, and allocates greatest responsibility to those receiving high levels of luxury benefits. The level of responsibility gradually increases as benefits received by the actor move along the development scale.

The second modulating factor of the RBPP recognises the relevance of the moral intuition that forms the basis of the polluter pays principle (PPP). However, the RBPP differs fundamentally, since the relevant moral link between duty bearer and emissions is benefiting, rather than causal action. Once the necessary condition of receiving non-subsistence benefit is achieved, responsibility is modulated by the second qualification, which is the ability of an actor to exert influence over emissions.

Beneficiaries that have no ability to influence the emissions for which they are being held responsible are considered to bear a smaller degree of responsibility for the emissions from which they receive non-subsistence benefit. The more an actor can influence the emissions, the greater the level of responsibility is considered to be.

The third modulating factor differentiates levels of responsibility between different actors based upon the degree of voluntariness with which that actor has accepted benefit. For example, actors with the possibility of making greener choices that have chosen to accept the benefit from the emissions process are considered to have acted with a greater degree of voluntariness and therefore bear greater responsibility.

A key contribution of this thesis is to present a new way of accounting for emissions, that can respond to different claims of fairness. In most cases, polluters engage in polluting actions in order to benefit from them, meaning that in most cases they are likely to bear a degree of responsibility under the RBPP. So, the RBPP holds many of the same actors responsible as the polluter pays principle, yet would exempt those that are causally responsible but do not benefit in a way that is considered to be morally

relevant. This is an important difference that has implications for the types of actors we believe bear climate duties. The impact of global trade on climate change has caused a situation where emissions that take place in China are in many cases benefiting actors that are removed from the emissions. Examples of such beneficiaries include consumers, corporations in charge of factories, and actors that benefit financially from the sale of the energy resources, such as coal or oil. The RBPP suggests that while the Chinese state bears some responsibility, this is shared with the other actors.

The RBPP provides the moral basis for an ideal accounting system that is capable of responding to different claims of justice-based arguments within one single principle. It is consistent with the multi-actor approach, targeting all of the relevant actors under the same assessment scheme, and is sensitive to the right to development. As the outcome of Chapter Four, the RBPP provides one of the major contributions of the thesis. Having developed an account of climate justice that can ascertain which actors should bear responsibility for current and future emissions, I then developed the theory further by considering the implications for historic responsibility.

Chapter Five considered the question: 'How should we consider responsibility for historic emissions?' I first considered some existing arguments in favour of historic responsibility. In particular, I considered the 'fair shares' argument in which developed states are considered to have taken more than their fair share of the atmosphere's capacity to absorb greenhouse gases within the safe limit. This argument relies on the claim that there is an equal per capita right to emit greenhouse gases. In using more than the amount that would be allocated to them on an egalitarian, per capita approach, developed states have used more than their fair share, and therefore should repay this 'debt' by bearing historic responsibility.[512] Instead, I defended a version of the fair shares argument based upon the share of the benefit actors have received from the atmosphere's finite capacity to absorb greenhouse gases. In this account, actors are considered to have taken more than their fair share when they have received more benefit than was needed for their subsistence and development needs. This principle provided an expansion to the account of climate justice that was consistent with the arguments of the preceding chapters, in being applicable to different actors, sensitive to the right to development, and considering beneficiaries to be morally relevant.

[512] Khor, 'Historical responsibility as a guide to future action in climate change'.

Having ascertained that the excess luxury benefits received from historic emissions were what made them wrongful, I then considered the implications of the objection of excusable ignorance for historic responsibility. If actors were unaware of the wrongfulness of the benefit they were receiving, they could not be held morally accountable. As a result of this, I defended a principle of limited responsibility for emissions that took place before around 1990, based upon Bell's time-relative/time-neutral distinction.[513] Actors that were excusably ignorant due to the time-relative information available to them at the time emissions occurred should be willing to pay back the benefit they received when the time-neutral information about the wrongfulness of the past emissions becomes known. This 'dual-standpoint' perspective enables them to discover the wrongful nature of the benefits gained from historic emissions.[514] The excusable ignorance objection therefore does not excuse actors entirely from bearing responsibility if new information comes about that makes the wrongfulness of past actions clear.

I considered the implications of this position for different actors, using the RBPP to determine their different historic responsibilities. States and corporations are both capable of existing over long periods of time, though this may not be as clear cut for corporations as for states, due to the nature of financial benefits passed on to shareholders. I concluded that states were the main actors to bear limited historic responsibility due to the non-subsistence benefit gained which conferred many luxury benefits that were accepted with some degree of voluntariness. The limited fulfilment of the ability to exert influence factor, in which actors were excusably ignorant at the time they could have exerted influence is the key limiting factor for historic responsibilities. I therefore supported a principle of limited liability for historic emissions This liability is greater for developed states than developing states, since a much larger share of developed states' emissions have conferred luxury benefits.

The previous discussion has shown that over the course of the first five chapters I developed and defended an account of climate justice capable of responding to key issues highlighted by China's position. I defined the scope of my account to consider states, individuals and corporations as the relevant duty bearers. I defended the need for the account to be sensitive to the right to development. I then defended the principles on the basis of which responsibilities should be allocated. This led to the development of

[513] Bell, 'Global Climate Justice, Historic Emissions, and Excusable Ignorance'.
[514] Bell, 'Global Climate Justice, Historic Emissions, and Excusable Ignorance'.

the RBPP, a principle that can respond to the issues of fairness raised by global trade. This principle is consistent with the multi-actor approach and sensitive to the right to development. It can be used to determine responsibility for current, future and past emissions. The work of the first five chapters thus builds a distinctive account of climate justice. Chapter Six applied this account of climate justice by assessing the policy commitment made by the Chinese state.

Chapter Six therefore responded to the fifth research question, which asked: 'Is China's emissions intensity target consistent with a fair global climate agreement?' The focus of the question is primarily statist, in considering what it is fair to ask of the Chinese state in a burden-sharing agreement between states. The implications of the account of climate justice I have proposed lead to the conclusion that the Chinese state does have a responsibility to act on climate change, but not to the same extent as the developed states.

I first presented a defence of China's position, arguing that an emissions intensity reduction target was consistent with the implications of my account of global climate justice. I then responded to five objections to China's emissions intensity reduction target. I first defended China's position against an objection that critiqued the choice of emissions per unit of GDP as a measure for intensity, showing that this would be representative of China's progress as long as this was measured in terms of real GDP, as opposed to nominal GDP. Second, I responded to claims that fulfilling China's target would require nothing more than 'business as usual', and therefore would not require any effort from China. I responded to this by showing that 'business as usual' estimations often include existing policies, and therefore are not 'no action' estimations. I supported this by referencing several existing studies that show that fulfilling China's target will require effort, and cannot be considered to be an easy target to fulfil. I then considered the claim that China would have an economic advantage over developed countries as a result of not being required to cap emissions. I responded to this by claiming that while China's target might be consistent with economic development, this would not amount to an *unfair* advantage over the developed countries according to the theory of climate justice developed in the thesis. Fourth, I considered an objection that claimed that whilst the Chinese state might not be required to cap emissions, certain cities or regions within China should be, due to their large size and contribution to global emissions. In response to this I argued that cities are not comparable to states as they lack the political and financial autonomy to be able to implement direct climate

responsibilities. Finally, I responded to the objection that China's target might be consistent with global distributive justice of climate burdens between current actors, but it was not consistent with intergenerational justice and the requirements of sustainability. I responded to this objection by making reference to the argument from Chapter Three in which the responsibility for global sustainability lies primarily with the affluent actors. I developed the implications of this argument by arguing that if the capabilities for sustainable development were forthcoming from the affluent actors, China would be expected to take on more challenging climate duties since subsistence and development needs could then be fulfilled without fossil fuels.

Chapter Six therefore provided a defence of China's position as a justifiable practical response to the requirements of the account of global climate justice defended within the thesis. This claim was strengthened through the consideration and rejection of five potential objections. I showed that these objections could not justify challenging the consistency of China's energy intensity target with the requirements of global climate justice.

7.1 Further research

The proposed theory of climate justice I have developed provides a starting point for many further avenues of research. Further research of this kind could strengthen the defence of the arguments presented in the thesis. In what follows, I will note three potential avenues for future research.

First, the theory developed in this thesis could be used to evaluate the climate policies of other states. For example, it could be used to assess other key climate actors such as the United States. This would be particularly useful in assessing the moral relevance of competing claims of "fairness" that have been put forward by different states. It would provide the basis of a framework from which to assess the moral justification of the often misaligned negotiating positions that different states have so far taken within the international climate negotiations.

A second important avenue of investigation is to further develop the implications for the duties of non-state actors. A key question is whether any direct duties of corporations and individuals should be institutionalised. Perhaps some duties could be worked into existing institutions. Corporate duties, for example might conceivably be operated under an institution such as the World Trade Organisation. Individual duties might be

developed from a United Nations body. However, these bodies are currently controlled by states, and it is necessary to develop further research on the multi-actor approach in developing the nature of duties for non-state actors as well as whether their enforcement will require the creation of a new global institution.

A third avenue of research could further consider the implications of the RBPP for carbon accounting and the design of climate institutions. The RBPP has provided a theoretical response to the question of how we should account for emissions. But it is not within the scope of this thesis to consider practical methods for putting it into practice. The work undertaken in developing the RBPP in this thesis provides a starting point from which further work could be done to determine the practical implications. This may take the form of economic analyses in the case where benefit is considered to be primarily financial. It might therefore involve the implementation of something similar to a financial transaction tax, including all actions that are linked to emissions. There are likely to be a number of practical difficulties in measuring benefits and in working out how the three qualifying clauses might be operationalised. For example, it is not likely to be straightforward to assess an actor's ability to exert influence on the quantity of emissions generated. However, the RBPP might set a framework for assessing the legitimacy of arguments for more or less demanding climate responsibilities, rather than simply providing an accounting system. Further development of this avenue of research would encourage the development of alternative accounting systems that are neither simply territorial nor simply consumption-based.

In this thesis, I have engaged with key issues of climate justice and developed a distinctive theory which has been used to interpret the moral responsibilities of China. In the current political context, a fair agreement only considers the responsibilities of states. This thesis has argued that a truly fair global agreement on climate change would require action from individuals and corporations, both within China and the rest of the world. The relevant actors are those that receive non-subsistence benefit from emissions. The RBPP can provide a framework from which to assess the legitimacy of competing arguments from different actors, as well as the moral basis for an accounting system for carbon emissions. There are individuals and corporations in the world that are benefiting from emissions in a morally relevant way, and exerting an influence on the level of global carbon emissions. Many of these actors are currently not required to take any action, in some cases due to their geographical location. In as far as these actors are causing emissions increases within the borders of China, I have argued that the response

is not to conclude that China, as a state, should be required to take on the same level of responsibility as developed states. The right to development of the hundreds of millions of Chinese is morally important, and the state of China has an obligation to enable the fulfilment of this right. Furthermore, many of the emissions coming from China are produced for the benefit of actors outside of China. The account of global climate justice I have proposed would require the actors that benefit to bear responsibility for these emissions. Within this multi-actor approach, differentiation within states is possible, as well as between states. Subsistence and development emissions are justified in a world where many more emissions are fulfilling luxury 'needs', and it is those that benefit from these luxury emissions that should bear the greatest climate duties. This targets the actors for which the emissions are not fulfilling needs of comparable moral importance, and also those that are most likely to be able to make a difference to global emissions due to their ability to exert influence on the emissions processes. The account I have developed in this research provides the basis for a new moral framework, in which actors can equitably share the burden of climate change, responding to different claims of justice and providing a meaningful basis for a fair global system of implementing climate duties. The account has responded to issues of climate justice raised by China, and provided a set of principles from which these issues can be fairly assessed in a way that is applicable to determining the implications for different actors.

Bibliography

AFP (Agence France-Presse), 'China makes new electric cars tax-free', *The Guardian*, (10 July 2014) [Online] (Available at: http://www.theguardian.com/environment/2014/jul/10/china-exempts-electric-cars-from-tax) [Accessed 10 July 2014].

AFP, 'Hollande evoque les droits de l'homme devant son homologue chinois' *Liberation,* (26 March 2014) [Online] (http://www.liberation.fr/politiques/2014/03/26/hollande-evoque-les-droits-de-l-homme-devant-son-homologue-chinois_990610). [Accessed 5 May 2014].

Ahmad, Nadim, and Andrew Wyckoff ,'Carbon Dioxide Emissions Embodied in International Trade of Goods', *OECD Working Paper,* (Paris, 3 November 2003).

Amnesty International, 'Arbitrary detention/Fear of torture and other ill-treatment' (02 February 2009) [Online] (http://www.amnesty.org/en/library/asset/ASA17/004/2009/en/f810d704-f14a-11dd-b725-0b1f440fe647/asa170042009en.html). [Accessed 29 November 2012];

Amnesty International, 'UN Millennium Development Goals: Human rights must not be marginalized in post-2015 agenda', (23 September 2013) [Online] (Available at: http://www.amnesty.org/en/news/un-millennium-development-goals-human-rights-must-not-be-marginalized-post-2015-agenda-2013-09-) [Accessed 20 June 2014].

Ang, B.W., 'Monitoring changes in economy-wide energy efficiency: From energy–GDP ratio to composite efficiency index', *Energy Policy*, 34 (2006): 574-582.

Archibugi, Daniele, *The Global Commonwealth of Citizens: Toward Cosmopolitan Democracy* (Oxford: Princeton University Press, 2008).

Arthur, Charles, 'Apple faces its 'Nike moment' over working conditions in Chinese factories', *The Guardian*, (20 February 2012) [Online] (http://www.theguardian.com/technology/2012/feb/20/foxconn-raise-wages-apple-contractor). [Accessed 29 August 2014].

Arthur, W. Brian, 'Competing Technologies, Increasing Returns, and Lock-In by Historical Events', *The Economic Journal* 99 (1989): 116-131.

Australian Coal Association, 'Coal Exports', (n.d.) [Online] (http://www.newgencoal.com.au/coal-a-energy-security/coal-exports.html). [Accessed 22 July 2013].

Australians For Coal, 'Coal For The Economy' (n.d.) [Online] (http://www.australiansforcoal.com.au/coal-4-the-economy.html). [Accessed 5 September 2014];

Ayanwale, Adeolu B., Taiwo Alimi, 'Microfinancing as a Poverty Alleviation Measure', *Journal of Social Science*, 9:2 (2004): 111-117.

Baatz, Christian, 'Responsibility for the past?', (September 2012) [Online] (http://www.botanik.uni-greifswald.de/fileadmin/umweltethik/Greifswald_Environmental_Ethics_Paper_No_1.pdf) [Accessed 2 March 2013].

Baer, Paul, Tom Athanasiou, Sivan Kartha, and Eric Kemp-Benedict, 'The Greenhouse Development Rights Framework: The right to development in a climate constrained world', *EcoEquity* (November 2008) [Online] (http://www.ecoequity.org/docs/TheGDRsFramework.pdf). [Accessed 20 October 2010].

Baidu, 'National Center City', (n.d.) [Online] (http://baike.baidu.com/view/2846647.htm) [Accessed 19 July 2014].

Banister, Judith, 'China's manufacturing employment and hourly labor compensation', *US Bureau of Labor Statistics* (7 June 2013) [Online] (http://www.bls.gov/fls/china_method.pdf) [Accessed 15 September 2014].

Bastianoni, Simone, Federico Maria Pulselli, and Enzo Tiezzi, 'The problem of assigning responsibility for greenhouse gas emissions', *Ecological Economics*, 49 (2004): 253 – 257.

Baumert, Kevin A., Timothy Herzog and Jonathan Pershing, 'Navigating the Numbers: Greenhouse Gas Data and International Climate Policy', *World Resources Institute*

(2005) [Online] (http://www.wri.org/sites/default/files/pdf/navigating_numbers.pdf). [Accessed 3rd April 2013].

BBC News, 'UN criticizes China's rights record at Geneva meeting' (22 October 2013) [Online] (http://www.bbc.com/news/world-asia-china-24611657). [Accessed 9 November 2013].

Becker, Gary, 'Do Corporations Have a Social Responsibility Beyond Stockholder Value?', *The Becker-Posner Blog* (24 July 2005) [Online] (http://www.becker-posner-blog.com/2005/07/do-corporations-have-a-social-responsibility-beyond-stockholder-value-becker.html). [Accessed 25 September 2011].

Beitz, Charles R., 'Cosmopolitanism and Global Justice', *The Journal of Ethics*, 9:1-2 (2005): 11-27.

Beitz, Charles R., 'Rawls's Law of Peoples', *Ethics*, 110:4 (2000): 669-696.

Bell, Derek, 'Carbon Justice? The Case Against a Universal Right to Equal Carbon Emissions', in Sarah Wilkes, ed., *Seeking Environmental Justice*, (Amsterdam: Rodopi, 2008): 239-257.

Bell, Derek, 'Climate Duties, Human Rights and Historic Emissions', in Paul G. Harris ed., *China and Global Climate Change* (Hong Kong: Lingnan University, 2009): 128-142.

Bell, Derek, 'Does anthropogenic climate change violate human rights?', *Critical Review of International Social and Political Philosophy,* 14.2 (2011): 99-124.

Bell, Derek, 'Global Climate Justice, Historic Emissions, and Excusable Ignorance' *The Monist*, 94 (2011): 391–411.

Bell, Derek, 'How should we think about climate justice?', *Environmental Ethics*, 35:2 (2013): 189-208.

Berners-Lee, Mike and Duncan Clark,' What's the carbon footprint of … the Iraq war?', (08 July 2010) [Online] (http://www.theguardian.com/environment/green-living-blog/2010/jul/08/carbon-footprint-iraq-war). [Accessed 3 June 2014].

Bhatt, Keane, 'Thomas Pogge on the Past, Present and Future of Global Poverty', Truthout (29 May 2011) [Online] (Available at: http://truth-

out.org/news/item/792:thomas-pogge-on-the-past-present-and-future-of-global-poverty) [Accessed 10 January 2014].

Bishop, Julie, 'What the government does not tell you about China and climate change' (16 March 2011) [Online] (http://juliebishop.com.au/what-the-government-does-not-tell-you-about-china-and-climate-change/). [Accessed 10 July 2014].

Blocked in China (http://www.blockedinchina.net/). (n.d.) [Online] [Accessed 7th February 2014].

Bortscheller, Mary, 'Equitable But Ineffective: How The Principle Of Common But Differentiated Responsibilities Hobbles The Global Fight Against Climate Change', *Sustainable Development Law & Policy*, 10:2 (2010): 49-69.

Brems, Eva, *Human Rights: Universality and Diversity* (The Hague: Kluwer Law International, 2001).

Brinkley, Andrew, and Simon Less, 'Carbon Omissions: Consumption-based accounting for international carbon emissions', *Policy Exchange, Research Note* (October 2010) [Online] (http://www.policyexchange.org.uk/images/publications/carbon%20omissions%20-%20oct%2010.pdf). [Accessed 29 June 2012].

Brinkmann, Johannes, 'Looking at Consumer Behavior in a Moral Perspective', *Journal of Business Ethics*, 51:2 (2004): 129-141.

Buckley, Chris, 'China says "development right" key in climate talks', Reuters (21 December 2009) [Online] (http://www.reuters.com/article/2009/12/21/us-china-climate-idUSTRE5BK0MQ20091221). [Accessed 17 March 2011].

Bumpus, Adam G., and John C. Cole, 'How can the current CDM deliver sustainable development?', Wiley Interdisciplinary Reviews: Climate Change, 1 (2010): 541-547.

Burke, Jason, 'Scandal of the cancer villages lurks behind China's 'green' makeover', *The Guardian* (22 June 2008) [Online] (http://www.theguardian.com/world/2008/jun/22/china.olympicgames2008). [Accessed 10 January 2014].

Burns, J. H., 'Happiness and Utility: Jeremy Bentham's Equation', *Utilitas*, 17:1 (2005): 46-61.

Bruckner, Martin, Christine Polzin and Stefan Giljum, 'Counting CO2 Emissions in a Globalised World - Producer versus consumer-oriented methods for CO2 accounting', *German Development Institute - Discussion Paper* (Bonn, 2010).

Caney, Simon, 'Climate Change and the Duties of the Advantaged', *Critical Review of International Social and Political Philosophy*, 13 (2010): 203-228.

Caney, Simon, 'Climate Change, Human Rights and Moral Thresholds' in: Stephen Humphreys et al, *Human Rights and Climate Change* (Cambridge: Cambridge University Press, 2009): 69-90.

Caney, Simon, 'Cosmopolitan Justice, Responsibility, and Global Climate Change', *Leiden Journal of International Law*, 18 (2005): 747–775.

Caney, Simon, 'Environmental Degradation, Reparations, and the Moral Significance of History', *Journal of Social Philosophy,* 37:3 (2006): 464-482.

Caney, Simon, 'International Distributive Justice', *Political Studies,* 49 (2001): 974-997.

Caney, Simon, 'Justice and the distribution of greenhouse gas emissions', *Journal of Global Ethics*, 5: 2 (2009):125-146.

Caney, Simon, *Justice Beyond Borders* (Oxford: Oxford University Press, 2005).

Carraro, Carlo, and Massimo Tavoni, 'Looking ahead from Copenhagen: How challenging is the Chinese carbon intensity target?' (05 January 2010) [Online] (http://www.voxeu.org/article/china-s-copenhagen-commitment-business-usual-or-climate-leadership). [Accessed 17 March 2013].

Central Intelligence Agency, 'The World Factbook-Bulgaria' (23 June 2014) [Online] (https://www.cia.gov/library/publications/the-world-factbook/geos/bu.html). [Accessed 1 September 2014].

Chatterjee, Shoutir Kishore, 'Measurement of Human Development: An Alternative Approach', *Journal of Human Development*, 6:1 (2005): 31-44.

Chan, Anita, ‘Racing to the bottom: international trade without a social clause’, *Third World Quarterly*, 24:6 (2003): 1011-1028.

Chan, Kam Wing, ‘The Chinese Hukou System at 50’, Eurasian Geography and Economics, 50:2 (2009): 197–221.

China.org.cn, ‘China eyes nationwide emission trading programs in 2016-2020’ (06 December 2012) [Online] (http://www.china.org.cn/environment/doha_climate_talks/2012-12/06/content_27336535.htm). [Accessed 18 January 2013].

Chinese Government, ‘Active Participation in International Human Rights Activities’, (n.d.) [Online] (Available at: http://www.china.org.cn/e-white/7/7-L.htm). [Accessed 4 April 2011].

Chinese Government, ‘China’s Foreign Aid’, (April 2011) [Online] (http://english.gov.cn/official/2011-04/21/content_1849913.htm). [Accessed 30 July 2014].

Chinese Government, ‘China’s National Climate Change Programme’ (June 2007) [Online] (http://www.ccchina.gov.cn/WebSite/CCChina/UpFile/File188.pdf). [Accessed 3 October 2010].

Chinese Government, ‘China's Policies and Actions for Addressing Climate Change 2012’ (2012) [Online] (http://www.ccchina.gov.cn/WebSite/CCChina/UpFile/File1324.pdf). [Accessed 5 August 2013].

Chinese Government, ‘China’s Position on the Copenhagen Climate Change Conference’, *National Development and Reform Commission*, (20 May 2009) [Online] (http://en.ndrc.gov.cn/newsrelease/200905/t20090521_280382.html). [Accessed 29 August 2014].

Chinese Government, ‘Law of the People’s Republic of China on Foreign-funded Enterprises’, (12 april 1986) (http://www.pkykwong.com/eng/pdf/law_prc.pdf) [Accessed 2 June 2012].

Chinese Government, 'The Right to Subsistence -The Foremost Human Right The Chinese People Long Fight for', (n.d.) [Online] (http://www.china.org.cn/e-white/7/7-I.htm). [Accessed 6 May 2013].

Cho, Juhyung, 'Ideological competition between the United States and China in the field of human rights: Consequences for Chinese diplomacy', *Eras*, 12:2 (2011): 1-26.

Cohen-Tanugi, David, 'Putting it into Perspective: China's Carbon Intensity Target' *Natural Defense Research Council*, (October 2010) [Online] (https://seors.unfccc.int/seors/attachments/get_attachment?code=9VH8IUPHKI1IUHISGILD456OE35QK1IN) [Accessed 30 September 2012].

COMEST (The World Commission on the Ethics of Scientific Knowledge and Technology), 'Background for a Framework of Ethical Principles and Responsibilities for Climate Change Policies', UNESCO, (May 2013) [Online] (http://unesdoc.unesco.org/images/0022/002204/220486e.pdf,). [Accessed 11 November 2012].

Corporate Europe Observatory, 'A transatlantic corporate bill of rights', (3 June 2013) [Online] (http://corporateeurope.org/trade/2013/06/transatlantic-corporate-bill-rights). [Accessed 10 June 2014].

Costanza, Robert, Ida Kubiszewski, Enrico Giovannini, Hunter Lovins, Jacqueline McGlade, Kate E. Pickett, Kristín Vala Ragnarsdóttir, Debra Roberts, Roberto De Vogli and Richard Wilkinson, 'Development: Time to leave GDP behind', *Nature* (15 January 2014) [Online] (Available at: http://www.nature.com/news/development-time-to-leave-gdp-behind-1.14499) [Accessed 23 June 2014]

Cripps, Elizabeth, 'Climate change, collective harm and legitimate coercion', *Critical Review of International Social and Political Philosophy*, 14:2 (2011): 171-193.

Dar, Humayon A., 'On making human development more humane', *International Journal of Social Economics*, 31 (2004): 1071-1088.

Davis, Steven J., and Ken Caldeira, 'Consumption-based accounting of CO2 emissions', *Proceedings of the National Academy of Sciences*, 107:12 (2010): 5687-5692.

Dickinson, Roger, and Stanley C. Hollander, 'Consumer Votes', *Journal of Business Research*, 23:1 (1991): 9-20.

Donnelly, Jack, ‘Human Rights as Natural Rights’, *Human Rights Quarterly*, 4:3 (1982): 391-405.

Donnelly, Jack, *Realism and International Relations*, (Cambridge: Cambridge University Press, 2000)

Donnelly, Jack, ‘Recent Trends in UN Human Rights Activity: Description and Polemic’, *International Organization*, 35:04 (1981): 633-655.

Duffy, Jonathan, ‘The 100+ club’, *BBC News* (2nd September 2005) [Online] (http://news.bbc.co.uk/2/hi/uk_news/magazine/4207850.stm). [Accessed 3 September 2012].

Economist, The, ‘Chinese Tourists’, (19 April 2014) [Online] (http://www.economist.com/news/international/21601028-how-growing-chinese-middle-class-changing-global-tourism-industry-coming). [Accessed 25 May 2014].

Ellermann, Christian, Niklas Höhne and Benito Müller, ‘Differentiating historical responsibilities for climate change’, in Paul G. Harris, ed*., China's Responsibility for Climate Change* (Bristol: Policy Press, 2011): 71-98.

Elliot, Larry, and Heather Stewart, ‘David Cameron makes swipe at Starbucks as he promises focus on tax’, *The Guardian* (24 January 2013) [Online] (http://www.theguardian.com/politics/2013/jan/24/david-cameron-starbucks-focus-tax). [Accessed 25 January 2014].

Embassy of India, ‘Joint Statement Issued at the Conclusion of the Ninth BASIC Ministerial Meeting on Climate Change, Beijing, China, 1 November 2011’, (1 January 2011) [Online] (http://ifg.org/pdf/durban_update12.pdf) [Accessed 17 March 2011]

European Commission, ‘Allocation of aviation allowances in an EEA-wide Emissions Trading System’, (n.d.) [Online] (http://ec.europa.eu/clima/policies/transport/aviation/allowances/index_en.htm) [Accessed 8 April 2014].

European Commission, ’Effort Sharing Decision’ (22 September 2014) [Online] (http://ec.europa.eu/clima/policies/effort/index_en.htm). [Accessed 24 September 2014].

European Commission, ’Effort Sharing targets for 2020 compared to 2005 emission levels’ (n.d.) [Online] (http://ec.europa.eu/clima/policies/effort/images/targets.gif). [Accessed 1 September 2014].

Fabre, Cecile, *Social Rights under the Constitution: Government and the Decent Life* (Oxford: Oxford University Press, 2000).

Ferng, Jiun-Jiun , ‘Allocating the responsibility of CO2 over-emissions from the perspectives of benefit principle and ecological deficit’, *Ecological Economics*, 46:1 (2003): 121-141.

Fierro, Elena, *European Union's Approach to Human Rights Conditionality in Practice* (The Hague: Kluwer Law International, 2003).

Forbes, ‘Best Countries for Business – Saudi Arabia’, (n.d.) [Online] (http://www.forbes.com/lists/2011/6/best-countries-11_Saudi-Arabia_CHI068.html). [Accessed 22 October 2013].

French, Peter A., ‘The Corporation as a Moral Person’, *American Philosophical Quarterly,* 16:3 (1979): 207-215.

Friedman, Lisa, ‘China, U.S. Give Copenhagen Negotiators Some Targets’, *New York Times* (30 November 2009) [Online] (http://www.nytimes.com/cwire/2009/11/30/30climatewire-china-us-give-copenhagen-negotiators-some-ta-73618.html?pagewanted=all). [Accessed 12 December 2010].

Garbaccio, Richard F., Mun Sing Ho and Dale W. Jorgenson, ‘Why has the Energy-Output Ratio Fallen in China?’, *The Energy Journal*, 20(3) (1999): 63-91.

Gardiner, Stephen M., *A Perfect Moral Storm*, (Oxford: Oxford University Press, 2011).

Gardiner, Stephen M., ‘Ethics and Global Climate Change’, *Ethics*, 114:3 (2004): 555-600.

Garman, Joss, ‘Climate scientists are losing ground against deniers' disinformation.’, *The Guardian* (15th February 2010) [Online] (http://www.theguardian.com/environment/cif-green/2010/feb/15/climate-science-ipcc-sceptics). [Accessed 4th June 2014].

Garnaut, Ross, Frank Jotzo and Stephen Howes, ‘China’s rapid emissions growth and global climate change policy’, in Ligang Song and Wing Thye Woo eds., *China’s dilemma: Economic growth, the environment and climate change* (United States of America: Brookings Institution Press, 2008): 170-189.

Gellner, Ernest, *Nations and Nationalism,* (New York: Cornell University Press, 1983).

Gilpin, Robert G., ‘The richness of the tradition of political realism’, *International Organization*, 38:02 (1984): 287-304.

Goldenberg, Suzanne, ‘Just 90 companies caused two-thirds of man-made global warming emissions’, *The Guardian* (20 November 2013) [Online] (http://www.theguardian.com/environment/2013/nov/20/90-companies-man-made-global-warming-emissions-climate-change). [Accessed 22 January 2014].

Green Air, ‘EU ETS compliance level reaches over 98 per cent of 2012 aviation carbon emissions, reports Commission’ (29 May 2013) [Online] (http://www.greenaironline.com/news.php?viewStory=1696). [Accessed 15 June 2013].

Guan, Dabo, Glen P. Peters, Christopher L. Weber and Klaus Hubacek, ’Journey to world top emitter: An analysis of the driving forces of China's recent CO2 emissions surge’, *Geophysical Research Letters*, 36:4 (2009): 1-5.

Hall, James, ‘Tesco's International Sourcing - the machine behind the machine’, *The Telegraph* (23 February 2009) [Online] (http://www.telegraph.co.uk/finance/newsbysector/retailandconsumer/4788156/Tescos-International-Sourcing-the-machine-behind-the-machine.html). [Accessed 29 August 2014].

Hansen, James, Pushker Kharecha, Makiko Sato, Valerie Masson-Delmotte, Frank Ackerman, David J. Beerling, Paul J. Hearty, Ove Hoegh-Guldberg, Shi-Ling Hsu, Camille Parmesan, Johan Rockstrom, Eelco J. Rohling, Jeffrey Sachs, Pete Smith, Konrad Steffen, Lise Van Susteren, Karina von Schuckmann, and James C. Zachos, ‘Assessing ‘Dangerous Climate Change’: Required Reduction of Carbon Emissions to Protect Young People, Future Generations and Nature’, *PLOS One*, 8:12 (2013): 1-26.

Harris, Paul G. 'Inviting People to Climate Parties: Differentiating National and Individual Responsibilities for Mitigation', Ethics, Policy & Environment, 15:3 (2012): 309-313.

Harris, Paul G., *World Ethics and Climate Change: From International to Global Justice* (Edinburgh: Edinburgh University Press, 2010).

Hart, H. L. A., 'Positivism and the Separation of Law and Morals', *Harvard Law Review,* 71:4 (1958): 593-629.

Heinzerling, Amy, 'Global Carbon Dioxide Emissions Fall in 2009', *Earth Policy Institute* (20 July 2010) [Online] (http://www.earth-policy.org/indicators/C52/carbon_emissions_2010) [Accessed 8 May 2014].

Helbling, Thomas, 'Externalities: Prices Do Not Capture All Costs', *International Monetary Fund* (28 March 2012) [Online] (http://www.imf.org/external/pubs/ft/fandd/basics/external.htm). [Accessed 4 June 2014].

Held, David, *Democracy and the Global Order: From the Modern State to Cosmopolitan Governance* (Stanford: Stanford University Press, 1995).

Hiller, Avram, 'Climate Change and Individual Responsibility', *The Monist*: 94 (2011): 349-368.

Holtsmark, Bjart J., Knut H. Alfsen, 'The use of PPP or MER in the construction of emission scenarios is more than a question of 'metrics'', *Climate Policy*, 4:2 (2004): 205-216.

Höhne, Nicholas, Bill Hare, Michiel Schaeffer, Claudine Chen, Marcia Rocha, Marion Vieweg, and Sara Moltmann, 'China emission paradox: Cancun emissions intensity pledge to be surpassed but emissions higher', *Climate Action Tracker Update* (4 October 2011) [Online] (http://www.climateactiontracker.org/press_briefing_panama.pdf). [Accessed 11 December 2011].

Hong Kong Liaison Office (IHLO), 'Industrial Strikes should be allowed to help build Harmonious Labour Relations' (October 2008) [Online] (http://www.ihlo.org/LRC/W/001008.html). [Accessed 17 June 2014].

Hong'e., Mo, 'China announces 16 pct cut in energy consumption per unit of GDP by 2015', *Chinese Government's Official Web Portal* (5 March 2011) [Online] (http://english.gov.cn/2011-03/05/content_1816947.htm). [Accessed 29 August 2013].

Human Rights Watch, 'One Year of my Blood', (March 2008) [Online] (http://www.hrw.org/reports/2008/china0308/china0308webwcover.pdf) [Accessed 15 September 2014].

Human Rights Watch, 'Walking on Thin Ice: Control, Intimidation and Harassment of Lawyers in China', (2008) [Online] (http://www.hrw.org/sites/default/files/reports/china0408_1.pdf) [Accessed 9 August 2012]

Indian Government, '18th Basic Ministerial Meeting on Climate Change', *Ministry of Environment and Forests* (8 August 2014) [Online] (http://envfor.nic.in/sites/default/files/press-releases/Joint-statement-18th-BASIC-New-Delhi.pdf). [Accessed 15 August 2014].

Indian Government, 'India's Position on Climate Change issues' (4 July 2009) [Online] (Available at: http://pib.nic.in/newsite/erelease.aspx?relid=49738) [Accessed 24 May 2014]

International Energy Agency (IEA), *CO2 Emissions From Fuel Combustion - Highlights 2012,* (Paris: IEA, 2012).

International Energy Agency (IEA), *CO2 Emissions from Fuel Combustion - Highlights 2013,* (Paris: IEA, 2013).

International Energy Agency (IEA), 'World Energy Outlook 2009' (2009) [Online] (http://www.worldenergyoutlook.org/media/weowebsite/2009/WEO2009.pdf) [Accessed 2 March 2012].

IPCC, 'AR 5 Summary for policymakers', in: Field, C.B., V.R. Barros, D.J. Dokken, K.J. Mach, M.D. Mastrandrea, T.E. Bilir, M. Chatterjee, K.L. Ebi, Y.O. Estrada, R.C. Genova, B. Girma, E.S. Kissel, A.N. Levy, S. MacCracken, P.R. Mastrandrea, and L.L.White eds., *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment*

Report of the Intergovernmental Panel on Climate Change, (Cambridge: Cambridge University Press, 2014): 1-32.

IPCC, 'Climate Change 2007: Synthesis Report - Summary for Policymakers', (12-17 November 2007) [Online] (https://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_spm.pdf) [Accessed 7 February 2012].

IPCC 'Climate Change 2007: Working Group III: Mitigation of Climate Change', (n.d.) [Online] (www.ipcc.ch/publications_and_data/ar4/wg3/en/ch11s11-7-2.html) [Accessed13 April 2014].

IPCC 'IPCC Guidelines for National Greenhouse Gas Inventories: Reporting Instructions', (1996) [Online] (http://www.ipcc-nggip.iges.or.jp/public/gl/guidelin/ch1ri.pdf) [Accessed 23 January 2011].

IPCC, 'Guidance Note for Lead Authors of the IPCC Fifth Assessment Report on Consistent Treatment of Uncertainties' (6-7 July 2010) [Online] (http://www.ipcc.ch/pdf/supporting-material/uncertainty-guidance-note.pdf). [Accessed 4 June 2014].

IPCC, 'Organization' (n.d.) [Online] (http://www.ipcc.ch/organization/organization.shtml). [Accessed 3 June 2014].

IPCC, 'The 1992 IPCC Supplement: Scientific Assessment', (1992) [Online] (www.ipcc.ch/ipccreports/1992%20IPCC%20Supplement/IPCC_Suppl_Report_1992_wg_I/ipcc_wg_I_1992_suppl_report_scientific_assessment.pdf) [Accessed 23 June 2014].

IPCC, 'Working Group III contribution to the IPCC 5th Assessment Report', (17 December 2013) [Online] (http://report.mitigation2014.org/drafts/final-draft-postplenary/ipcc_wg3_ar5_final-draft_postplenary_chapter4.pdf). [Accessed 9 September 2014].

Jamieson, Dale, 'Adaptation, Mitigation and Justice', in Sinnott-Armstrong, W. and Howarth, R.B., eds., *Perspectives on Climate Change: Science, Economics, Politics, Ethics*. *Advances in Economics of Environmental Resources*: *Vol. 5*. (Bingley: Elsevier, 2005): 217:248.

Johnson, Paul M., 'A Glossary of Political Economy Terms: Incentive', *Auburn University* (6 July 2014) [Online] (http://www.auburn.edu/~johnspm/gloss/incentive). [Accessed 29 July 2014].

Kant, Immanuel, 'On the common saying: This may be true in theory, but it does not apply in practice', in H. S. Reiss, ed., *Kant Political Writings* (Cambridge: Cambridge University Press, 1970): 61-93.

Kemp, Simon, 'Perceiving luxury and necessity', *Journal of Economic Psychology* 19:5 (1998): 591-606.

Khor, Martin, 'Historical responsibility as a guide to future action in climate change', Presentation made in Bonn on 4 June 2009, at the Technical Briefing on Historical Responsibility, during the 6th meeting of the Ad Hoc Working Group on Long Term Cooperative Action, under the UN Framework Convention on Climate Change.

Klugman, Jeni, Francisco Rodríguez, and Hyung-Jin Choi, 'The HDI 2010: New Controversies, Old Critiques', UNDP (April 2011) [Online] (Available at: http://hdr.undp.org/sites/default/files/hdrp_2011_01.pdf) [Accessed 21 March 2012].

Knight, John, 'Inequality in China: An Overview', *The World Bank Research Observer*, 29:1 (2013): 1-19.

Kolbert, Elizabeth, 'Two degrees of disaster', *The New Yorker*, (10 November 2011) [Online] (http://www.newyorker.com/news/daily-comment/two-degrees-of-disaster) [Accessed 10 July 2014].

Kondo, Y., Y. Moriguchi, and H. Shimizu, 'CO2 Emissions in Japan: Influences of Imports and Exports 1998', *Applied Energy*, 59 (1998): 163-174.

Korab-Karpowicz, WJ., 'Political Realism in International Relations', *Stanford Encyclopaedia of Philosophy*, (2 April 2013), [Online] (http://stanford.library.usyd.edu.au/entries/realism-intl-relations/) [Accessed 30 July 2014].

Kovacevic, Milorad, 'Review of HDI Critiques and Potential Improvements', UNDP (February 2011) [Online] (http://hdr.undp.org/sites/default/files/hdrp_2010_33.pdf). [Accessed 13 June 2014].

Kymlicka, Will, *Contemporary Political Philosophy: An Introduction (Second edition),* (Oxford: Oxford University Press, 2002).

Lahmeyer, Jan, 'China - historical demographical data of the whole country', *Populstat* (14 July 2003) [Online] (http://www.populstat.info/Asia/chinac.htm). [Accessed 10th July 2014].

Larsen, Hogne N., and Edgar G. Hertwich, 'The case for consumption-based accounting of greenhouse gas emissions to promote local climate action', *Environmental Science & Policy,* 12 (2009): 791-798.

Legros, Gwénaëlle, Ines Havet, Nigel Bruce, and Sophie Bonjour, 'The Energy Access Situation in Developing Countries', *UNDP* (November 2009) [Online] (http://www.undpcc.org/undpcc/files/docs/publications/Energy_Access_Situation_in_DCs-Final%20Report.pdf). [Accessed 1 July 2014].

Levi, Michael, 'Making Sense of China's Energy Intensity Statistics', (7 April 2010) [Online] (http://blogs.cfr.org/levi/2010/04/07/making-sense-of-chinas-energy-intensity-statistics/) [Accessed 5 June 2014].

Li, Jia, 'China leads world in machinery, electronics exports in 2010', *China People's Daily* (25 February 2011) [Online] (http://english.people.com.cn/90001/90778/7300617.html) [Accessed 6 March 2012].

Li, Xiaorong, 'A question of Priorities: Human Rights, Development, and "Asian Values"', *Philosophy and Public Policy Quarterly*, 18:1 (1998): 7-12.

Lo, Dic, and Thomas M. H. Chan, 'Machinery and China's nexus of foreign trade and economic growth', *Journal of International Development*, 10:6 (1998): 733-749.

Locke, John, 'Second Treatise of Government, Chapter V: Of Property', *Constitution Society* (n.d.) [Online] (http://www.constitution.org/jl/2ndtr05.htm). [Accessed 23 November 2013].

Long, Graham, *Relativism and the Foundations of Liberalism*, (Exeter: Imprint Academic, 2004).

Ma, Haibing, 'Guangdong Leads the Way in China's Low-Carbon Development', Worldwatch Institute (26 March 2012) [Online]

(http://blogs.worldwatch.org/revolt/guangdong-leads-the-way-in-chinas-low-carbon-development/). [Accessed 6 July 2013].

Maguire, Cathy, and Robin Curry, 'Measuring Ireland's Sustainability. Measuring sustainable development: the integration of environmental data into macroeconomic models', *Sustainability and Resource/Comhar Sustainable Development Council Institute Working Paper* (November 2007).

Maltais, Aaron, 'Radically Non-Ideal Climate Politics and the Obligation to at Least Vote Green', *Environmental Values,* 22:5 (2013): 589-608.

Manne, Alan S., and Richard G. Richels, 'Market Exchange Rates Or Purchasing Power Parity: Does The Choice Make A Difference To The Climate Debate?', *Climatic Change*, 71:1-2 (2005): 1-8

Marsh, Peter, 'China noses ahead as top goods producer', Financial Times (13 March 2011) [Online] (http://www.ft.com/cms/s/002fd8f0-4d96-11e0-85e4-00144feab49a,Authorised=false.html?_i_location=http%3A%2F%2Fwww.ft.com%2Fcms%2Fs%2F0%2F002fd8f0-4d96-11e0-85e4-00144feab49a.html%3Fftcamp%3Drss&_i_referer=&ftcamp=rss#axzz1H93gONBN). [Accessed 5 March 2013].

McKibbin, Warwick, Adele Morris and Peter J. Wilcoxen, 'Comparing Climate Commitments: A Model-Based Analysis of the Copenhagen Accord', *The Harvard Project on International Climate Agreements, Discussion Paper 10-35* (Harvard, June 2010).

McKinsey and Company, 'China's Green Revolution', (February 2009) [Online] (Available at: http://www.mckinsey.com/~/media/mckinsey/dotcom/client_service/sustainability/cost%20curve%20pdfs/china_green_revolution.ashx) [Accessed 24 June 2014].

McMichael, Anthony J., Rosalie E. Woodruff and Simon Hales, 'Climate change and human health: present and future risks', *The Lancet*, 367:9513 (2006): 859-869.

Micheletti, Michele, Andreas Follesdal, and Dietlind Stolle, *Politics, Products and Markets: Exploring Political Consumerism Past and Present*, (London: Transaction Publishers, 2004).

Miller, David, 'Global justice and climate change: How should responsibilities be distributed?' *The Tanner Lectures on Human Values, delivered at Tsinghua University, Beijing* (2008): 119-156.

Miller, David, 'In What Sense must Socialism be Communitarian?' *Social Philosophy and Policy,* 6:2 (1989): 51-73.

Miller, David, *National Responsibility and Global Justice*. (Oxford: Oxford University Press, 2007).

Miller, David, 'National Responsibility and International Justice', in Deen K. Chatterjee (ed), *The Ethics of Assistance: Morality and the Distant Needy* (Cambridge: Cambridge University Press, 2004): 123-146.

Miller, David, *On Nationality*, (Oxford: Oxford University Press, 1995).

Miller, David, 'The Ethical Significance of Nationality', *Ethics*, 98:4 (1988): 647-662.

Miller, David, 'The Idea of Global Citizenship', in Sigal R. Ben-Porath, Rogers M. Smith (eds), *Varieties of Sovereignty and Citizenship* (Philadelphia: University of Pennsylvania Press, 2013): 227-243

Miller, David, 'The Responsibility to Protect Human Rights' in Lukas H. Meyer (ed), *Legitimacy, Justice and Public International Law* (Cambridge: Cambridge University Press, 2009): 232-251.

Minerals Council for Australia, 'Australia's Coal Industry Figures' (n.d.) [Online] (http://www.minerals.org.au/resources/coal/figures). [Accessed 5 September 2014].

Montgomery, Jessica L., 'The Inheritance of Inequality: Hukou and related barriers to compulsory education for China's migrant children', *Pacific Rim Law and Policy Journal*, 21:3 (2012): 591-622.

Moore, Malcolm, 'How does China's climate change offer add up?', *China Economic Review* (27 November 2009) (http://www.chinaeconomicreview.com/node/26216). [Accessed 7 April 2011].

Morales, Evo, 'Speech by President Evo Morales to the G77 at the United Nations', World People's Conference on Climate Change and the Rights of Mother Earth (17 June

2011) [Online] (Available at: http://pwccc.wordpress.com/2010/05/07/speech-by-president-evo-morales-to-the-g77-at-the-united-nations/) [Accessed 14 January 2014]

Moseley, Alexander, 'Political Realism', *Internet Encyclopaedia of Philosophy* (n.d.) [Online] (http://www.iep.utm.edu/polreal/) [Accessed 20 July 2014].

Müller, Benito, Georg Müller-Fürstenberger, 'Price-related Sensitivities of Greenhouse Gas Intensity Targets', Climate Policy, 3:2 (2003): 59-74.

Nature, 'Wanted: an IPCC for biodiversity' (3 June 2010): 525.

Nelson, Robert M., Tom Beauchamp, Victoria A. Miller, William Reynolds, Richard F. Ittenbach & Mary Frances Luce), 'The Concept of Voluntary Consent', *The American Journal of Bioethics*, 11:8 (2011): 6-16.

Neumayer, Eric, 'A missed opportunity: the Stern review on climate change fails to tackle the issue of non-substitutable loss of natural capital', *Global Environmental Change* 17 (2007): 297-301.

Neumayer, Eric, 'In Defence of Historical Accountability for Greenhouse Gas Emissions', *Ecological Economics*, 33 (2000): 185–192.

Nordhaus, William, 'Alternative measures of output in global economic-environmental models: Purchasing power parity or market exchange rates?', *Energy Economics*, 29 (2007): 349–372.

Nozick, Robert, *Anarchy, State, and Utopia* (Oxford: Blackwell Publishers Ltd, 1974).

OECD, 'GDP per head, US $, current prices, current PPPs', (n.d.) [Online] (http://stats.oecd.org/index.aspx?queryid=558) [Accessed 15 September 2014].

OECD, 'Green Growth and the Future of Aviation', (23-24 January 2012) [Online] (http://www.oecd.org/sd-roundtable/papersandpublications/49482790.pdf) [Accessed 23 June 2014].

Office of the High Commissioner for Human Rights (OHCHR), 'Guiding Principles on Business and Human Rights', *United Nations* (2011) [Online] (http://www.ohchr.org/Documents/Publications/GuidingPrinciplesBusinessHR_EN.pdf). [Accessed 15 June 2014].

O'Leary, Brendan, 'On the Nature of Nationalism: An Appraisal of Ernest Gellner's Writings on Nationalism', *British Journal of Political Science*, 27:2 (1997): 191-222.

Olsaretti, Serena, 'Freedom, force and choice: Against the rights-based definition of voluntariness', *Journal of Political Philosophy*, 6 (1998): 53–78.

Olsen, Karen Holm, 'The clean development mechanism's contribution to sustainable development: a review of the literature', *Climatic Change*, 84 (2007): 59-73.

Pachauri, Rajendra, and Andy Reisinger (Eds.), 'Climate Change 2007 – Summary For Policy Makers', *Intergovernmental Panel on Climate Change*, (12-17 November 2007) [Online] (http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_spm.pdf). [Accessed 1 May 2009].

Page, Edward, *Climate Change, Justice and Future Generations* (Cheltenham: Edward Elgar Publishing, 2006).

Page, Edward A.,'Distributing the Burdens of Climate Change', *Environmental Politics,* 17:4 (2008): 556-575.

Pan, Jiahua, Jonathan Phillips and Ying Chen, 'China's balance of emissions embodied in trade: approaches to measurement and allocating international responsibility', *Oxford Review of Economic Policy*, 24:2 (2008): 354-376.

Parfit, Derek, *Reasons and Persons* (New York: Oxford University Press, 1984).

Patterson, Murray G, 'What is energy efficiency? Concepts, indicators and methodological issues', Energy Policy, 24 (1996): 377-390.

Peters, Glen P., and Edgar G. Hertwich, 'CO2 Embodied in International Trade with Implications for Global Climate Policy', *Environmental Science & Technology*, 42:5 (2008): 1401-1407.

Pizer, William, 'The Case for Intensity Targets', *Resources for the Future*, Discussion Paper 05-02 (January 2005).

Pogge, Thomas , 'Severe Poverty as a Human Rights Violation', in Thomas Pogge, ed., *Freedom from Poverty as a Human Right* (Oxford: Oxford University Press, 2007): 11-53.

Pogge, Thomas, 'Symposium – World Poverty and Human Rights', *Ethics and International Affairs*, 19: 1 (2005): 1-7.

Pogge, Thomas, *World Poverty and Human Rights (Second Edition)* (Cambridge: Polity Press, 2008).

Population Reference Bureau, 'China population 1,350,378,000, World population 7,500,000,000' (n.d.) [Online] (http://www.prb.org/DataFinder/Geography/Data.aspx?ind=1,2,3,4,7,5,6,8,9,10,11,14,18,250,19,15,16,17,12,13,55,56,241&loc=404,241&hl=True). [Accessed 12 June 2014].

Posner, Eric A., and David Weisbach, *Climate Change Justice* (Woodstock: Princeton University Press 2010).

PriceWaterhouseCoopers, 'Ready for take-off?', (2007) [Online] (http://pwc.blogs.com/files/aviation-eu-ets-survey-final.pdf) [Accessed 29 March 2013].

Pye, Lucian W., 'The State and the Individual: An Overview Interpretation', *The China Quarterly*, 127 (1991): 443-466.

Qinghu, Feng, 'Climate change and the right to develop', *China Daily* (31 October 2007) [Online] (http://www.chinadaily.com.cn/opinion/2007-10/31/content_6218475.htm). [Accessed 17 March 2011].

Rajamani, Lavanya, 'The Increasing Currency and Relevance of Rights-Based Perspectives in the International Negotiations on Climate Change', *Journal of Environmental Law*, 22:3 (2010): 391-429.

Ranis, Gustav, Frances Stewart and Emma Samman, 'Human Development: Beyond the Human Development Index', *Journal of Human Development*, 7:3 (2006): 323-358.

Rawls, John, *A Theory of Justice*, (Cambridge: Harvard University Press, 1971).

Rawls, John, 'Legal Obligation and the Duty of Fair Play' in S. Hook, ed., *Law and Philosphy* (New York: New York University Press, 1964): 3-18.

Rawls, John, *The Law of Peoples*, (London: Harvard University Press, 1999).

Raworth, Kate, 'A safe and just space for humanity: Can We Live Within The Doughnut?', *Oxfam*, (February 2012) [Online]

(http://www.oxfam.org/sites/www.oxfam.org/files/dp-a-safe-and-just-space-for-humanity-130212-en.pdf). [Accessed 19 June 2014].

Raz, Joseph, *The Morality of Freedom*, (New York: Oxford University Press, 1986).

REN21 (Renewable Energy Policy Network for the 21st Century), 'Renewables 2014: Global Status Report', (2014) [Online] (Available at: http://www.ren21.net/Portals/0/documents/Resources/GSR/2014/GSR2014_KeyFindings_low%20res.pdf) [Accessed 1 July 2014].

Rengger, Nicholas, 'Cosmopolitanism', in Roland Axtmann, ed., *Understanding Democratic Politics* (London: Sage Publications Ltd, 2003): 321-331.

Robeyns, Ingrid, 'The Capability Approach', Stanford Encyclopedia of Philosophy (14 April 2011) [Online] (Available at: http://plato.stanford.edu/entries/capability-approach/) [Accessed 20 April 2011].

Rondinelli, Dennis A., 'Transnational corporations: international citizens or new sovereigns?', *Business strategy Review,* 14:4 (2003): 13-21.

Rousseau, Jean-Jacques, *Du contrat social* (Paris: Flammarion, 2011).

Sachs, Jeffrey D., 'How to decarbonise the global economy', (8 July 2014) [Online] (http://jeffsachs.org/2014/07/how-to-decarbonise-the-global-economy/) [Accessed 10 July 2014].

Sachs, Wolfgang, 'Development: The Rise and Decline of an Ideal' *Wuppertal Papers* (August 2000) [Online] (http://epub.wupperinst.org/files/1078/WP108.pdf) [Accessed 15 July 2014].

Sanford, Todd, Peter C. Frumhoff, Amy Luers, and Jay Gulledge, 'The climate policy narrative for a dangerously warming world'*, Nature Climate Change*, 4 (2014):164-166.

Schane, Sandford A., 'The corporation is a person: the language of a legal fiction', *Tulane Law Review*, 61 (1987): 563-609.

Scott, Joanne, 'Territorial Sovreignty and Territorial Extension in an Inter-connected World', in Richard Rawlings, Peter Leyland, and Alison Young, eds., *Sovereignty and the Law: Domestic, European and International Perspectives,* (Oxford: Oxford University Press, 2013): 269-285.

Sen, Amartya, Development as Freedom (Oxford: Oxford University Press, 1999).

Sengupta, Arjun, 'On the Theory and Practice of the Right to Development', Human Rights Quarterly, 24 (2002): 837–889.

Seth, Suman, 'Inequality, Interactions, and Human Development', *Journal of Human Development and Capabilities,* 10:3 (2009): 375-396.

Shaw, Deirdre, Terry Newholm, and Roger Dickinson, 'Consumption as voting: an exploration of consumer empowerment', *European Journal of Marketing*, 40:9-10 (2006): 1049-1067.

Shi, Minjun, Na Li, Shenglv Zhou, Yongna Yuan and Guoxia Ma, 'Can China Realize CO2 Mitigation Target toward 2020?', *Journal of Resources and Ecology*, 1:2 (2010): 145-154.

Shue, Henry, *Basic Rights: Subsistence, Affluence, and U.S. Foreign Policy* (Princeton: Princeton University Press, 1996).

Shue, Henry, 'Global Environment and International Inequality', *International Affairs*, 75:3 (1999): 531-545.

Shue, Henry, 'Responsibility to Future Generations and the Technological Transition', in Walter Sinnott-Armstrong and Richard B. Howarth, eds., *Perspectives on Climate Change: Science, Economics, Politics, Ethics* (San Diego: Elsevier, 2005): 265-283.

Shue, Henry, 'Subsistence Emissions and Luxury Emissions', *Law and Policy*, 15:1 (1993): 39-59.

Shue, Henry, 'The Unavoidability of Justice', in Andrew Hurrell and Benedict Kingsbury, eds., *The International Politics of the Environment* (Oxford: Oxford University Press, 1992): 373–97.

Singer, Peter, 'Famine, Affluence and Morality', *Philosophy and Public Affairs*, 1:1 (1972): 229-243.

Singer, Peter, *One World: The Ethics of Globalization* (New Haven: Yale University Press, 2002).

Smil, Vaclav, *Energy at the Crossroads*: Global Perspectives and Uncertainties (Massachusetts: MIT Press, 2005).

Soltau, Friedrich, *Fairness in International Climate Change Law and Policy*, (Cambridge: Cambridge University Press, 2009).

Stern, David I., Frank Jotzo, 'How ambitious are China and India's emissions intensity targets?', *Energy Policy*, 38 (2010): 6776-6783.

Stern, Nicholas, *The Economics of Climate Change: The Stern Review*, (Cambridge: Cambridge University Press, 2006).

Suehiro, Shigeru, 'Energy intensity of GDP as an index of energy conservation', *Institute of Energy Economics Japan Report*, (August 2007) [Online] (http://eneken.ieej.or.jp/en/data/pdf/400.pdf) [Accessed 5 July 2012] .

Sutter, Christoph, and Juan Carlos Parreño, 'Does the current Clean Development Mechanism (CDM) deliver its sustainable development claim? An analysis of officially registered CDM projects', *Climatic Change* 84 (2007): 75-90.

Tamir, Yael, *Liberal Nationalism*, (Chichester: Princeton University Press, 1993).

Tan, Kok-Chor, 'National responsibility, reparations and distributive justice', in Helder De Schutter and Ronald Tinnevelt (Eds.) *Nationalism and Global Justice: David Miller and His Critics,* (London: Routledge, 2010).

TED Case Studies, 'Abolition of the Atlantic Slave Trade in the United States', (7 April 1999) [Online] (http://www1.american.edu/ted/slave.htm). [Accessed 12 January 2014].

Tol, Richard S. J., 'Exchange Rates and Climate Change: An Application of Fund', *Climatic Change,* 75:1-2 (2006): 59-80.

Traxler, Martino, 'Fair Chore Division for Climate Change', *Social Theory and Practice,* 28 (2002): 101–34.

Triangle of Central China, 'Greater Wuhan, from "Core" of Central Region to "Core" of China', (04 June 2012) [Online] (http://english.rikes.gov.cn/4/174/4089.html). [Accessed 4 July 2013].

Turner, Guy, ‘The Case for Intensity-Based Targets to Curb Climate Change’, *Bloomberg New Energy Finance* (27 March 2013) [Online] (http://about.newenergyfinance.com/about/blog/turner-the-case-for-intensity-based-targets-to-curb-climate-change/) [Accessed 29 May 2014].

United Kingdom Environment Agency ‘New and future legislation’, (n.d.) [Online] (http://www.environment-agency.gov.uk/business/144676.aspx). [Accessed 15 January 2014].

United Kingdom House of Commons, *Consumption-Based Emissions Reporting* (London: The Stationary Office Ltd., 2012).

United Nations, ‘Our Common Future: Report of the World Commission on Environment and Development’ (1987) [Online] (Available at: http://www.un-documents.net/ocf-02.htm) [Accessed 4 March 2014].

United Nations, ‘Universal Declaration of Human Rights’, (n.d.) [Online] (http://www.un.org/en/documents/udhr/) [Accessed 4 March 2014].

UNCED (United Nations Conference on Environment and Development), ‘Rio Declaration on Environment and Development’, (3-14 June 1992) [Online] (http://www.unep.org/Documents.Multilingual/Default.asp?DocumentID=78&ArticleID=1163). [Accessed 21 December 2010].

UNCSD (United Nations Conference on Sustainable Development), ‘The Future We Want’ (20 June 2012) [Online] (available at http://www.uncsd2012.org/content/documents/727The%20Future%20We%20Want%2019%20June%201230pm.pdf) [Accessed 25 October 2012].

UNDP (United Nations Development Programme), ‘Human Development Index (HDI)’, (n.d.) [Online] (Available at: http://hdr.undp.org/en/statistics/hdi) [Accessed 2 March 2010]

UNDP, ‘Human Development Index and its components’, (2012) [Online] (Available at: https://data.undp.org/dataset/Table-1-Human-Development-Index-and-its-components/wxub-qc5k) [Accessed 29 March 2012]

UNDP, ‘Human Development Index Countries’ (n.d.) [Online] (http://hdr.undp.org/en/countries) [Accessed 19 June 2014].

UNDP, ‘Human Development Indicators’ (n.d.) [Online] (http://hdr.undp.org/en/media/Human_development_indicators.pdf). [Accessed 25 April 2013]

UNDP, *Human Development Report 1999* (Oxford: Oxford University Press, 1999).

UNDP, ‘Human Development Report 2013 – Australia’ (n.d.) [Online] (http://hdr.undp.org/sites/default/files/Country-Profiles/AUS.pdf). [Accessed 5 July 2014].

UNDP, ‘Human Development Report 2013 – Norway’ (n.d.) [Online] (http://hdr.undp.org/sites/default/files/Country-Profiles/NOR.pdf). [Accessed 23 June 2014].

UNDP, ‘Human Development Reports – China’ (n.d.) [Online] (http://hdr.undp.org/en/countries/profiles/CHN) [Accessed 4 August 2014].

UNEP (United Nations Environment Programme), ‘Representative GHG Baselines for Cities and their Respective Countries’ (March 2011) [Online] (http://www.unep.org/urban_environment/PDFs/Representative-GHGBaselines.pdf). [Accessed 14 March 2013].

UNESCO, *Ethical Implications of Global Climate Change*, (Paris: UNESCO, 2010).

UNFCCC (United Nations Framework Convention on Climate Change), ‘Australia Appendix I - Quantified economy-wide emissions targets for 2020 from the Copenhagen Accord’ (n.d.) [Online] (http://unfccc.int/meetings/copenhagen_dec_2009/items/5264.php. [Accessed 30 July 2014].

UNFCCC, ‘Background on the UNFCCC: The international response to climate change’, (n.d.) [Online] (http://unfccc.int/essential_background/items/6031.php). [Accessed 12 August 2014].

UNFCCC, ‘Clean Development Mechanism (CDM)’, (n.d.) [Online] (Available at: https://unfccc.int/kyoto_protocol/mechanisms/clean_development_mechanism/items/2718.php) [Accessed 17 June 2014].

UNFCCC, ‘Convention on Climate Change’, (n.d.) [Online] (https://unfccc.int/essential_background/convention/background/items/1355.php). [Accessed 17 December 2010].

UNFCCC, ‘Kyoto Protocol to The United Nations Framework Convention on Climate Change’ (1998) [Online] (http://unfccc.int/resource/docs/convkp/kpeng.pdf). [Accessed 25 April 2011].

UNFCCC, ‘List of Non-Annex I Parties to the Convention’, (n.d.) [Online] (http://unfccc.int/parties_and_observers/parties/non_annex_i/items/2833.php). [Accessed 16 July 2014].

UNFCCC, ‘Report of the Conference of the Parties on its fifteenth session, held in Copenhagen from 7 to 19 December 2009’, (7-19 December 2009) [Online] (http://unfccc.int/resource/docs/2009/cop15/eng/11a01.pdf) [Accessed 12 November 2010].

UNFCCC, ‘Report of the Conference of the Parties on its sixteenth session, held in Cancun from 29 November to 10 December 2010’ (15 March 2011) [Online] (Available at: http://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf) [Accessed 6 June 2014].

UN General Assembly, ‘Declaration on the Right to Development’, (4 December 1986) [Online] (Available at: http://www.un.org/documents/ga/res/41/a41r128.htm) [Accessed 3 March 2011].

UN General Assembly, ‘International Covenant on Civil and Political Rights’ (23 March 1976) [Online] (http://www.ohchr.org/en/professionalinterest/pages/ccpr.aspx). [Accessed 22 October 2012].

UN General Assembly, ‘International Covenant on Economic, Social and Cultural Rights’, (3 January 1976) [Online] (https://treaties.un.org/pages/viewdetails.aspx?chapter=4&lang=en&mtdsg_no=iv-3&src=treaty) [Accessed 21 November 2011].

UN General Assembly, ‘Principle 7, Rio Declaration on Environment and Development’, (12 August 1992) [Online] (http://www.un.org/documents/ga/conf151/aconf15126-1annex1.htm). [Accessed 15 January 2013].

UN General Assembly, 'Vienna Declaration and Programme of Action', (25 June 1993) [Online] (http://www.ohchr.org/EN/ProfessionalInterest/Pages/Vienna.aspx) [Accessed 4 April 2011]

United States Census Bureau, 'Statistical Abstract of the United States: 20th Century Statistics' (1999) [Online] (http://www.census.gov/prod/99pubs/99statab/sec31.pdf). [Accessed 4th May 2012].

United States Census Bureau, 'U.S. and World Population Clock' (continually updated) [Online] (http://www.census.gov/popclock/). [Accessed 30 June 2014].

United States Department of Energy, 'Energy Analysis : Energy Intensity Indicators: Economy-Wide Total Energy Consumption' (17/09/2012) [Online] (http://www1.eere.energy.gov/analysis/eii_total_energy.html). [Accessed 21 January 2013].

United States Department of State, 'Country Reports on Human Rights Practices for 2013: China' (n.d.) [Online] (http://www.state.gov/j/drl/rls/hrrpt/humanrightsreport/index.htm?year=2013&dlid=220186#wrapper). [Accessed 18 February 2014].

United States Diplomatic Mission to South Africa, 'Briefing with U.S. Special Envoy for Climate Change Todd Stern' (6 December 2011) [Online] (http://southafrica.usembassy.gov/mediahub_cop17_stern_11-12-06.html). [Accessed 9 January 2012].

United States Energy Information Administration (US EIA), 'France', (n.d.) [Online] (http://www.eia.gov/countries/cab.cfm?fips=CH, http://www.world-nuclear.org/info/Country-Profiles/Countries-A-F/France/#.UViMk5OmgoM) [Accessed 29 June 2012].

United States Energy Information Administration (US EIA), 'International Energy Outlook 2009', (May 2009) [Online] (http://arsiv.setav.org/ups/dosya/25025.pdf) [Accessed 27 February 2013].

United States Environmental Protection Agency, 'Climate Change Indicators in the United States' (May 2014) [Online]

(http://www.epa.gov/climatechange/science/indicators/ghg/global-ghg-emissions.html). [Accessed 30 June 2014].

United States Senate, 'Senate Resolution 98', *US Government Printing Office*, (12th June 1997) [Online] (http://www.gpo.gov/fdsys/pkg/BILLS-105sres98is/pdf/BILLS-105sres98is.pdf). [Accessed 4 June 2012].

Vanderheiden, Steve, *Atmospheric Justice: A Political Theory of Climate Change* (Oxford: Oxford University Press, 2008).

Vanderheiden, Steve, 'Climate Change, Environmental Rights, and Emissions Shares', Paper presented at Western Political Science Association Meeting (Duluth: Minnesota, 2006).

Vestring, Till, Ted Rouse, Uwe Reinert and Suvir Varma, 'Making the move to low-cost countries', *Bain and Company* (2005) [Online] (http://bain.com/Images/BB_Making_move_low-cost_countries.pdf). [Accessed 11 March 2014].

Waltz, Kenneth, *Man, the State, and War: A Theoretical Analysis*, (Chichester: Columbia University Press, 1954).

Watts, Jonathan, 'Consuming nations should pay for carbon dioxide emissions, not manufacturing countries, says China', *The Guardian* (17 March 2009) [Online] (http://www.theguardian.com/environment/2009/mar/17/climate-change-china). [Accessed 3 September 2012].

Weber, Christopher L., Glen P. Peters, Dabo Guan, and Klaus Hubacek,'The contribution of Chinese exports to climate change', *Energy Policy*, 36:9 (2008): 3572–3577.

Wiebe, Kirsten Svenja, Martin Bruckner, Stefan Giljum, and Christian Lutz, 'Calculating Energy-Related CO2 Emissions Embodied in International Trade Using a Global Input–Output Model', *Economic Systems Research*, 24:2 (2012): 113-139.

Wiedmann, Thomas, 'A review of recent multi-region input–output models used for consumption-based emission and resource accounting', *Ecological Economics*, 69 (2009): 211–222.

Wiling, H. C., and Kees Vringer, Environmental accounting from a producer and a consumer principle: an empirical examination covering the world', Ecological Economics 3 (2007): 235-255.

Williams, Michael C., *The Realist Tradition and the Limits of International Relations*, (Cambridge: Cambridge University Press, 2005).

Wills, Alf, 'Republic of South Africa communiqué on Copenhagen', UNFCCC, (29 January 2010) [Online] (http://unfccc.int/files/meetings/cop_15/copenhagen_accord/application/pdf/southafricacphaccord_app2.pdf). [Accessed 26 May 2012].

Wilson, Bruce, Luan Ho Trieu and Bruce Bowen, 'Energy efficiency trends in Australia', Energy Policy, 22(4), (1994): 287-295.

Wong, Edward and Keith Bradsher, 'China Joins U.S. in Pledge of Hard Targets on Emissions', *New York Times* (26 November 2009) [Online] (http://www.nytimes.com/2009/11/27/science/earth/27climate.html?_r=0). [Accessed 4 December 2010].

Wong, Julian, 'Deconstructing China's Energy Intensity - A Lesson in Fuzzy Math', (11 August 2009) [Online] (http://greenleapforward.com/2009/08/11/deconstructing-chinas-energy-intensity-a-lesson-in-fuzzy-math/) [Accessed 9 May 2014].

World Bank, 'CO2 emissions (kg per 2005 US$ of GDP)' (n.d.) [Online] (http://data.worldbank.org/indicator/EN.ATM.CO2E.KD.GD?page=1). [Accessed 17 June 2014].

World Bank, 'CO2 emissions (kg per PPP $ of GDP)' (n.d.) [Online] (http://data.worldbank.org/indicator/EN.ATM.CO2E.PP.GD?order=wbapi_data_value_2005+wbapi_data_value&sort=asc&page=1). [Accessed 18 June 2014].

World Bank, 'CO2 emissions (metric tons per capita)', (n.d.) [Online] (http://data.worldbank.org/indicator/EN.ATM.CO2E.PC?order=wbapi_data_value_2010+wbapi_data_value+wbapi_data_value-last&sort=desc) [Accessed 15 September 2014].

World Bank, ‘Country and Lending Groups’, (n.d.) [Online] (Available at: http://data.worldbank.org/about/country-classifications/country-and-lending-groups#Lower_middle_income) [Accessed 17 March 2011].

World Bank, ‘FAQ: Inclusive Green Growth’, (n.d.) [Online] (Available at: http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTSDNET/0,,contentMDK:23185024~pagePK:64885161~piPK:64884432~theSitePK:5929282,00.html) [Accessed 10 June 2014].

World Bank, ‘GINI index’, (n.d.) [Online] (http://data.worldbank.org/indicator/SI.POV.GINI). [Accessed 29 August 2014].

World Bank, ‘Glossary’ (n.d.) [Online] (Available at: http://www.worldbank.org/depweb/english/beyond/global/glossary.html) [Accessed 17 March 2011].

World Bank, ‘GNI, Atlas method (current US$)’ (n.d.) [Online] (http://data.worldbank.org/indicator/NY.GNP.ATLS.CD/countries) [Accessed 26 April 2014].

World Bank, ‘GNI per capita, Atlas method (current US$)’ (n.d.) [Online] (http://data.worldbank.org/indicator/NY.GNP.PCAP.CD?order=wbapi_data_value_2011+wbapi_data_value+wbapi_data_value-last&sort=desc). [Accessed 11 July 2014].

World Bank, ‘GNI per capita, PPP (current international $)’, (n.d.) [Online] (Available at: http://data.worldbank.org/indicator/NY.GNP.PCAP.PP.CD?page=1) [Accessed 19 June 2014].

World Bank, ‘GNI per capita ranking, Atlas method and PPP based’ (n.d.) [Online] (http://data.worldbank.org/data-catalog/GNI-per-capita-Atlas-and-PPP-table). [Accessed 12 January 2014].

World Bank, ‘High income: OECD’ (n.d.) [Online] (http://data.worldbank.org/income-level/OEC). [Accessed 12 January 2014].

World Bank, ‘Life Expectancy in The United Kingdom’ (19 September 2014) [Online] (http://www.google.com/publicdata/explore?ds=d5bncppjof8f9_&met_y=sp_dyn_le00_in&idim=country:GBR&dl=en&hl=en&q=life%20expectancy%20uk). [Accessed 23rd September 2014].

World Bank, ‘Poverty and Equity: China’, (n.d.) [Online] (Available at: http://povertydata.worldbank.org/poverty/country/CHN) [Accessed 25 June 2014].

World Bank, ‘Price level ratio of PPP conversion factor (GDP) to market exchange rate’ (n.d.) [Online] (http://data.worldbank.org/indicator/PA.NUS.PPPC.RF) [Accessed 26 April 2014].

World Organisation Against Torture, ‘China: Arbitrary detention and disappearance since March 2014 of Mr. Choeying Kalden’, (16 May 2014) [Online] (http://www.omct.org/urgent-campaigns/urgent-interventions/china/2014/05/d22675/) [Accessed 3 August 2014].

Wu, Xiaogang, ‘The Household Registration System and Rural-Urban Educational Inequality in Contemporary China’, *Chinese Sociological Review*, 44:2 (2011): 31-51.

Yu, Xiaomin, ‘Impacts of Corporate Code of Conducton Labor Standards: A Case Studyof Reebok’s Athletic Footwear SupplierFactory in China’, *Journal of Business Ethics*, 81 (2008):513–529.

Yunfeng, Yan, and Yang Laike, ‘China’s foreign trade and climate change: A case study of CO2 emissions’, *Energy Policy*, 38:1 (2010): 350-356.

Zhang, Daisheng, Kristin Aunan, Hans Martin Seip and Haakon Vennemo, ‘The energy intensity target in China’s 11th Five-Year Plan period – Local implementation and achievements in Shanxi Province’, *Energy Policy*, 39 (2011): 4115-4124.

Zhang, Zhong Xiang, ‘Energy Prices, Subsidies and Resource Tax Reform in China’, *CCEP Working Papers, Centre for Climate Economics & Policy, Crawford School of Public Policy, The Australian National University*, (2014): 1-24.

Zhongli Ding, XiaoNan Duan, QuanSheng Ge and ZhiQiang Zhang, ‘Control of atmospheric CO2 concentrations by 2050: A calculation on the emission rights of different countries’, *Science in China Series D: Earth Sciences*, 52:10 (2009): 1447-69.

Zhongli, Ding, ‘Rough analysis on China's 2020 carbon dioxide emission reduction’, *Chinese Academy of Science* (27 April 2010) [Online] (http://www.cas.cn/xw/zjsd/201004/t20100427_2832149.shtml) [Accessed 16 May 2011] (Translated from Chinese using google translate).

Zhu, Andong, and David M. Kotz, ‘The Dependence of China's Economic Growth on Exports and Investment’, University of Massachusetts Amherst (July 2010) [Online] (http://people.umass.edu/dmkotz/China_Growth_Model_%2010_09.pdf). [Accessed 2 November 2011].