Ethics and Climate Change: Towards a National Responsibility Shares Framework

A report on behalf of the NZ Centre for Global Studies

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97% of active climate scientists in the world today agree that climate change is real and anthropogenic.[1] The shift in climate regime is likely to (and indeed, already does) increase drought and flood risk in different parts of the world and increase the severity of storms, in addition to the well-known problems of sea level rise and ocean acidification. Managing these risks is a "wicked" problem due to the large number of interested parties and the difficulty in first reaching agreement about what ought to be done. While scientific and technical knowledge is a necessary part of dealing with this problem, there is also a need to integrate other disciplines, such as law and ethics in order to reach contextually appropriate solutions.[2] Science is by definition concerned with what is, rather than what should be, which is why the integration of disciplines from outside the natural sciences into discussions around climate change is key.[3]

This report aims to consider the legal and ethical dimensions of climate change, particularly with regard to the concept of national responsibility shares. This will be done by considering first, the legal frameworks surrounding climate change, second, the ethical issues at hand in climate change discussions, and third, applying the previous two sections to various conceptions of how national responsibility shares might be devised. A national responsibility shares framework would ideally give a clear direction for international climate change negotiations, and go some way towards reaching global consensus on what ought to be done next.

Section 1: The Legal Framework

The Rio Declaration on Environment and Development states that, while countries have the right to use their own country's resources as they see fit (which may include the use of fossil fuels or gas), they also have the responsibility to avoid negative impacts beyond their country's boundaries. This goes to show that it is reasonable to expect countries to avoid the adverse effects that climate change will have beyond their borders. Carlane writes that as climate change is an especially

[1] Cook, J., D. Nuccitelli, S. Green, M. Richardson, B. Winkler, R. Painting, R. Way, P. Jacobs & A. Skuce (2013) Quantifying the Consensus on Anthropogenic Global Warming in the Scientific Literature. *Environmental Research Letters 8*(2)

[2] Jones, R.N., A. Patwardhan, S.J. Cohen, S. Dessai, A. Lammel, R.J. Lempert, M.M.Q. Mirza, and H. von Storch, 2014: Foundations for decision making. In: *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* [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.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.: 198

[3] Lackey, R. (2007) Science, Scientists and Policy Advocacy. *Conservation Biology 21*(1): 13

transboundary issue, the policy solutions developed must be similarly international in scope.[4] Negotiating policy surrounding carbon emissions is done through several international organisations, but most notably through the United Nations. The agreements reached at these negotiations will be explored in this section, along with a brief discussion of the role of the Security Council.

UNFCCC

The first major international climate change agreement was the United Nations Framework Convention on Climate Change, which was developed in 1992, coming into effect in 1994. It is regarded as having broad legitimacy as a result of being agreed to by 196 members, each of which is recognised as having "common but differentiated responsibilities". That is, all countries have responsibilities under UNFCCC, but these vary depending on the country's ability to contribute. While the UNFCCC is legally binding, there is little clarity as to what individual countries are expected or required to do – it may be considered to be more aspirational anything else. Regardless, it has served as the basis for all further climate change negotiations internationally.

Kyoto

The Kyoto Protocol, which came into force in 2005, was an attempt to set legally binding targets on carbon emissions by setting up a global emissions trading network, along with a Clean Development Mechanism and Joint Implementation (which allow countries to work together on emissions reductions projects).[5] Despite being signed by 192 parties, the Protocol has not been as effective in reducing carbon emissions as many would have hoped, because while some countries have met their obligations, many others have not, and several Annexe 2 countries have increased their emissions since Kyoto was implemented. Furthermore, several countries did not sign on to a second round of Kyoto targets (the Doha Amendment), . Some have criticised the Kyoto Protocol, saying that by its very design it could not have stabilised carbon emissions, but would at best slow the rate at which emissions increase.[6]

Article 17 of the Kyoto Protocol, which concerns emissions trading, considers carbon a good to be traded in the same way as any other. The problem with that is that carbon is different from many other goods in some crucial ways. Emissions of carbon into the atmosphere have global repercussions, yet the benefits are mostly to private individuals. Furthermore, while the atmosphere has often been described as a public good and therefore access to the atmosphere is non-

[4] Carlane, C. (2011) Exploring Methodological Challenges within the Context of Climate Change and Policy. *Proceedings of the Annual Meeting (American Society of International Law) 105:* 256

[5] UNFCCC (2014) *The Mechanisms under the Kyoto Protocol: Emissions Trading, the Clean Development Mechanism and Joint Implementation*. Retrieved 10/9/2015 from http://unfccc.int/kyoto_protocol/mechanisms/items/1673.php

[6] Singer, S. F. (2004) The Kyoto Protocol: A Post-Mortem. *The New Atlantis 4*: 66

excludable, when an emissions cap is set, carbon emissions *must* be excludable. That is, the more emissions Country A produces, the less emissions Country B can produce.

Copenhagen Accords

The limit of 2°C for total warming was set in Copenhagen in 2009.[7] This was based on the scientific understanding that any warming in excess of this limit is likely to lead to rapid, non-linear climate change. It was also decided that a binding agreement as to greenhouse gas emission should be reached in 2015.

Cancun Agreements

The Cancun Agreements, among other things, set up the Green Climate Fund, which is intended to financially support climate change mitigation and adaptation in developing countries.[8] Under the Cancun Adaptation Framework, adaptation is given equal priority with mitigation.[9] Given that some effects of climate change are already being seen, this

Doha Amendment to the Kyoto Protocol

In 2012, with the first commitment period of the Kyoto Protocol coming to an end, 37 countries agreed to further binding targets for the period 2012-2020, but in order to enter into force, the Amendment would require 144 countries (three-quarters of the 192 parties) to agree. This amendment has therefore been ineffective.[10]

COP-21 in Paris

The goal is to reach a legally binding agreement in order to keep warming below 2°C. In advance of Paris, countries have been submitting INDCs – Intended Nationally Determined Contributions – and in this way it is hoped that the relative autonomy of voluntary contributions would promote compliance, while having discussed the commitments at an international level will mean that it may be possible for these INDCs to combine to keep warming to a relatively safe level.[11] Brown and

[7] Ramanathan, V., Y. Xu., C. Clark. (2010) The Copenhagen Accord for Limiting Global Warming: Criteria, Constraints, and Available Avenues. *Proceedings of the National Academy of Sciences of the United States of America 107*(18): 8055

[8] UNFCCC (2014) *Cancun Agreements.* Retrieved 3/9/2015 from http://unfccc.int/meetings/cancun_nov_2010/items/6005.php

[9] UNFCCC (2014) *Cancun Adaptation Framework.* Retrieved 4/10/2015 from http://unfccc.int/adaptation/items/5852.php

[10] UNFCCC (2014) *Status of the Doha Amendment.*Retrieved 9/10/2015 from http://unfccc.int/kyoto_protocol/doha_amendment/items/7362.php

[11] UNFCCC (2015) *COP21 Main Issues*. Retrieved 31/7/2015 from http://www.cop21.gouv.fr/en/cop21-cmp11/cop21-main-issues

Taylor write that in the vast majority of cases, INDCs have been justified on economic grounds alone, rather than acknowledging that any INDC is implicitly an ethical position.[12]

The Role of the Security Council

While the UN Security Council does not have any explicitly environmental responsibilities, and is concerned primarily with issues of peace and security, they do have the right to intervene in situations where there is a threat to global peace and security, described as a "breach of the peace".[13] This has not been done on environmental grounds before, although it has been done in the cases of HIV/AIDS and Ebola, so there is a precedent for intervention outside of the context of war. Indeed, there has been discussion at the Security Council about climate change and whether or not framing it as a security issue is appropriate.[14]

Some have argued that given the possibility for impacts of climate change, such as droughts, floods and food shortages to intersect with areas of the world already in conflict, and changing migration patterns means that climate change must be considered a threat to security.[15] If the Security Council were to accept this, the UN Charter would require the Security Council to decide what measures ought to be taken to restore or maintain peace.[16] These measures may range from non-military provisional measures to de-escalate a situation, to full military intervention.[17]

Legal Requirements of national responsibility shares

It appears that in terms of the UN, action on climate change can happen in one of two ways. The first would be a new international agreement based in the UNFCCC, or a Security Council intervention. The lack of success in previous negotiations may mean that a Security Council intervention is necessary to avoid massive global harms. Under UNFCCC, the national responsibility shares would require that no country's greenhouse gas emissions have deleterious effects beyond its own jurisdiction, which would require that emissions levels be extremely small.

[12] Brown, D. and P. Taylor (2015) *Ethics and Climate Change: A Study of National Commitments.* IUCN, Gland, Switzerland: xvii

[13] United Nations (1945) *Charter of the United Nations*, *1 UNTS XVI*. Retrieved 15/9/2015 from http://www.un.org/en/sections/un-charter/chapter-vii/index.html

[14] United Nations (2007). *Security Council Holds First-Ever Debate on Impact of Climate Change On Peace, Security, Hearing Over 50 Speakers*. Retrieved 19/9/2015 from: http://www.un.org/press/en/2007/sc9000.doc.htm

[15] Ibid.

[16] United Nations (1945)

[17] Ibid.

Section 2: The Ethical Framework

Climate change is at its core an ethical issue, as well as an environmental one. Gardiner writes that what makes climate change different from other ethical problems is that the causes and effects are widely dispersed across both space and time; that is, those who cause the damage are often not those who feel the effects.[18] Brown elaborates on this, and shows that it is primarily those in developing countries who are affected by historical emissions in wealthier countries.[19] According to Stallworthy, a global context of neoliberal economic systems and discussing the environment in economic terms has tended to marginalise discussion of ethical concepts.[20] Much of the literature on climate change ethics has revolved around ethics of uncertainty and how it may be rational to act when outcomes are unknowable. However, given the broad consensus of climate scientists about with regard to the adverse effects of unmitigated climate change, such literature may be regarded as no longer relevant to discussions around climate change. This section will discuss two broadly related conceptions of climate change ethics: ethics across space (or intragenerational ethics), and ethics across time (or intergenerational ethics).

Ethics across Space

Some regions, such as South-East Asia, sub-Saharan Africa and small island nations, will feel the effects of climate change much more acutely than others. This is both a combination of geography (sea level rise, increased severity of storms, salinisation of soil and so on do not occur uniformly across space) and differing levels of wealth and development, meaning that some countries are better equipped to cope with a changing environment than others.[21] IPCC research shows that the world's poor are disproportionately affected by climate-related hazards.[22] Furthermore, as a general

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[18] Gardiner, S. (2006) A Perfect Moral Storm: Climate Change, Intergenerational Ethics and the Problem of Moral Corruption. *Environmental Values 15*(3): 397

[19] Brown, D. (2013) *Climate Change Ethics: Navigating the Perfect Moral Storm.* Routledge, New York: 164

[20] Stallworthy, M. (2009) Environmental Justice Imperatives for an Era of Climate Change. *Journal of Law and Society 36*(1): 56

[21] UNFCCC (2014) *Climate Change Information Sheet 5*. Retrieved 7/10/2015 from http://unfccc.int/essential_background/background_publications_htmlpdf/climate_change_information_kit/items/281.php

[22] Olsson, L., M. Opondo, P. Tschakert, A. Agrawal, S.H. Eriksen, S. Ma, L.N. Perch, and S.A. Zakieldeen, 2014: Livelihoods and poverty. In: *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* [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.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA: 796

rule, regions which stand to suffer the most damage in the immediate future have not historically been large contributors to carbon emissions.[23]

Gardiner writes climate change may be best understood as a Prisoner's Dilemma – it is collectively rational to reduce emissions, yet at the same time it is individually rational to continue to prefer to emit carbon while expecting others to reduce their emissions.[24] However, it is not necessarily the case that emissions are always conceived of in this way. Those who can see the immediate effects of climate change, such as those on low-lying small islands, may well rationally prefer not to emit carbon. Therefore, Gardiner's argument may be reframed as a Prisoner's Dilemma *only* for those who are not immediately affected by climate change, or those for whom the costs of climate change adaptation are outweighed by the benefits of continuing to emit carbon. Furthermore, because not everybody would be affected by climate change in the same way, it is not a true Prisoner's Dilemma; New Zealand, for instance, could continue to emit carbon, and reap the benefits of producing those emissions while putting the people of Tuvalu at risk, while if Tuvalu were to emit a similar amount of carbon, New Zealand would not stand to lose nearly so much. Furthermore, smaller countries have less powerful voices than larger countries in international negotiations.[25] It is therefore not only irresponsible of highly industrialised countries to emit at high levels, but it is also directly harmful to countries and regions which may not be able to do anything to protect themselves. As Brown and Taylor write, there is little that the people who are most affected by climate can do except for hope that other countries will see what needs to be done, and act accordingly.[26]

Bognar explains the concept of *prioritarianism*, under which, if two individuals were to receive the same net benefit from an action, the priority should be given to the worst off – in this way, the gap between the best off and the worst off narrows rather than widens.[27] It can be helpful to think of climate change in this way as well, such that the right action would be the one that would minimise the harms to the worst off.[28]

<u>Ethics across Time</u>

[23] Brown, D. and P. Taylor (2015) *Ethics and Climate Change: A Study of National Commitments.* IUCN, Gland, Switzerland.xvii
[24] Gardiner: 398
[25] Gupta, J.(2001) Legitimacy in the Real World: A Case Study of the Developing Countries, Non-Governmental Organizations, and Climate Change. In Coicaud, J-M. & Heiskanen, V. (eds) *The Legitimacy of International Organisations*. United Nations University Press, Tokyo, Japan: 493
[26] Brown and Taylor, xviii
[27] Bognar, G. (2011) Can the Maximin Principle Serve as a Basis for Climate Change Policy? *The Monist 94*(3): 342
[28] Ibid.

There is a significant lag time between carbon emissions being produced and those effects being felt. In practical terms, this means that the climate effects observed today are the result of carbon emissions over one hundred years ago, and that the longer carbon emissions continue, the further into the future warming will continue. This is compounded by the way in which warming is a positive feedback loop. That is, as the earth warms, various physical changes tend to promote further change, such as melting permafrost releasing methane into the atmosphere, or melting sea ice reducing planetary albedo, such that less solar radiation is reflected from the earth back into space. In sum, the longer humanity waits to seriously reduce emissions, the more difficult it will be to reach a solution when reducing emissions becomes an inevitability. The question then remains as to how to account for the competing interests of the present (to continue to emit carbon) against those of future generations (to live in a world with a "safe" level of warming).

The difference in power between those causing the problem (that is, those alive today, and those who emitted carbon historically) and those who will suffer the consequences is absolute – people who are not yet born cannot advocate on their own behalf. Related to this is the concern that people alive now perhaps ought not to be held responsible for emissions that were produced in the past, particularly given that knowledge of climate change is only fairly recent.[29] The other side of this argument is that historical responsibility per se it not the issue at hand, because even though people alive today did not necessarily cause historical emissions, those living in industrialised nations still *benefit* from what those historical emissions have enabled; namely, economic, social and industrial development. These benefits come at the direct expense of people whose livelihoods (and, indeed, lives) may be at risk due to climate change induced environmental changes.

Even the concept of emissions trading could be considered problematic with regard to future generations. As previously outlined in Section 1, the atmosphere cannot be considered a public good in the strictest sense, and as emission produced today increase, the capacity for future generations to safely emit must proportionately decrease. Similarly, the mitigation actions that are taken today will affect which mitigation options are available to future generations. For example, while it is possible to mitigate emissions through carbon sequestration, primarily through planting of fast growing trees (such as *Pinus radiata*) the carbon sequestered will not be in the tree's wood forever, and the more land is planted as forestry, the less scope future generations have to engage in forestry to mitigate their own emissions. What this means is that forestry can be a short term solution, but it is pushing the task of actually reducing emissions on to people in the future.

[29] Vanderheiden, S. (2008) *Atmospheric Justice: A Political Theory of Climate Change.* Oxford University Press, New York: 230

Ethical requirements of national responsibility shares

Based on the arguments outlined above, a framework of national responsibility shares must, in order to be ethically defensible, hold highly emitting countries responsible for historical emissions, and allow for living standards to be raised for those in poverty, while minimising harms to future generations.

Applying the legal and ethical framework

If a global carbon emissions cap has been set and agreed upon by all nation states, it would follow that the costs of reaching this cap must be divided amongst the world's people somehow. There exist a number of theories as to how these burdens ought to be distributed, and it is clear that without agreement, it will be near impossible to reach the necessary targets to avoid warming beyond the $2^{o}C$ limit set by the UNFCCC. While there are many possible ways to distribute the costs of cutting emissions, none is a perfect solution and each has its own strengths and weaknesses.

Equal Per Capita Shares

Perhaps the most intuitively simple way to allot shares would be to allow each country a proportionate share based on that country's population. A country with a population of 10 million, for example, would have a share twice as large as a country of 5 million, and it would be possible for shares to be tradeable. Singer argues that this approach would be beneficial for all, giving both industrialised and developing countries an economic incentive to keep their emissions low.[30]

However, this approach could also be regarded as wealthy countries "pulling the ladder up behind them". What that means is that highly developed countries have been emitting significant amounts of carbon for quite some time; in order for less developed countries to also reach a higher standard of living for their people, it could be argued that it is justifiable for countries undergoing significant development to raise their levels of emissions for into the future, to allow such development to take place, and subsequently reduce emissions. A response to this objection might be that a greater availability of green technologies in future would minimise the need for developing countries to emit much carbon, but this would still be dependent on industrialised countries investing in research into such technologies, and providing them to countries that would benefit.

In terms of the legal framework, equal per capita shares would not quite fit in with the "common but differentiated responsibilities" that are such an important part of the UNFCCC, considering that the circumstances surrounding each country's emissions requirements or history are put aside.

[30] Singer, P. (2007) A Fair Deal on Climate Change. *Project Syndicate*. Retrieved 10/10/2015 from http://www.project-syndicate.org/commentary/a-fair-deal-on-climate-change

Contraction and Convergence

Aubrey Meyer's Contraction and Convergence model stipulates that a global carbon limit should be divided up into equal per capita shares, which is set as a goal for some time in the future.[31] Currently high-emitting countries would therefore have to gradually reduce emissions until this goal is reached, while countries with low emissions would be allowed to increase their emissions until they reached their per-capita allotment. A major benefit of this approach is that it clearly delineates who must take what level of responsibility for emissions, and these would be in the form of emissions "shares" that could be traded between countries.[32] Essentially, this framework is a way of demonstrating how equal per capita shares could be practically implemented.[33]

While this framework puts a heavier burden on those countries that are high emitters than on those who emit less carbon (as the higher a country's emissions are at the time of agreement, the bigger the likely changes to infrastructure as they transition to a lower carbon system), it still faces the difficulty of not accounting for the historical discrepancies in carbon emissions.

In terms of implementation, Contraction and Convergence requires that two global agreements be reached. First, countries must agree on a limit of acceptable warming, from which the total budget of available carbon can be determined. Second, they must agree on a date at which convergence should be reached.[34] The first of these agreements has already happened in the Copenhagen Accords of 2009, when the 2°C limit was set.[35] The second agreement might be negotiated based on how quickly countries believe it is feasible for emissions patterns to change and lower-carbon infrastructure to be developed. Logically, the farther into the future the convergence date is, the lower the per capita allotment would have to be, as high-emitting countries would have taken longer to reduce their emissions, thereby using up the global carbon budget more quickly.

Greenhouse Development Rights

[31] Meyer, A. (2006) What is Contraction and Convergence? *RSA Journal 153*(5522) 32-33
[32] Meyer: 32
[33] Brown, 165
[34] Brown, 164
[35] Ramanathan, Xu and Clark (2011): 8055

The Greenhouse Development Rights framework (GDR) does not give one definitive set of national responsibility shares, but instead suggests various ways these shares might be distributed.[36] By taking into account variables such as the acceptable level of warming, historical responsibility, and capacity to reduce emissions, among others, various outcomes can be calculated, such that any given country would have a range within which its emissions could be considered a fair or proportionate share.[37]

The strengths and weaknesses of this approach are more or less the inverse of the equal per capita shares approach. The vast plurality of outcomes under GDR means that it may be difficult to find a clear way forward. However, if even the most permissive national shares under GDR would still allow targets to be reached, it would follow that even if all countries were to calculate their GDR shares separately, under different assumptions, and then complied with the recommended shares, warming might be kept below the limit of 2^{o}C, without all countries having to agree on exactly which assumptions should be prioritised.

A Beneficiary Pays Framework

The current UNFCC framework requires that accounting for greenhouse gas emissions be done in terms of production of good rather than consumption. However, a problem with this approach is that countries which are reliant on imports do not pay for their high levels of consumption, as manufacturing is outsourced to other countries.[38] A shift from production to consumption based accounting of greenhouse gas emissions would entail that emissions produced during the creation of export goods be subtracted from a country's contributions, and emissions produced during the creating of their imports would be added. While this would be more complex, and have a higher level of uncertainty than the current system, it would have the benefit of ensuring that countries that enjoy high levels of consumption would pay for that consumption.[39] Furthermore, this framework allows for emissions related to international travel to be accounted for – these constitute up to 3% of emissions annually, and are not currently accounted for under any existing framework.[40] Depending on how elastic the demand for any particular good is, it may be that requiring payment for emissions on imports would reduce the demand for that good, and overall patterns of

[36] Ecoequity & Stockholm Environment Institute. (2015) *Climate Equity Reference Project*. Retrieved 14/08/2015 from http://gdrights.org/
[37] Ibid.
[38] Csutora, M. and Z. Vetoné mozner. (2014) Proposing a Beneficiary-Based Shared Responsibility Approach for Calculating National Carbon Accounts during the Post-Kyoto Era. *Climate Policy 14*(5) 600
[39] Ibid., 603
[40] Peters, G. and E. Hertwich. (2008) Post-Kyoto Greenhouse Gas Inventories: Production versus Consumption. *Climatic Change 86*:52

consumption may change. A problem would remain, however, for developing countries that must depend on imports but may have trouble paying for greenhouse gas emissions.

While a beneficiary based approach has many strengths in terms of ethics, implementation under UNFCCC may be difficult given that the history of emissions responsibilities under the convention has always been in terms of production rather than consumption.

An Integrated Framework?

The frameworks for calculating distribution shares are not necessarily mutually exclusive. For instance, it is conceivable that a combination of GDR and beneficiary based systems could be developed, such that countries would be responsible for the emissions tied to products they consume, but also recognising the right of developing countries to reach a decent standard of living for their people. Drawing on aspects of Contraction and Convergence, such as setting a target date in the future at which the goal must be achieved, may also be useful.

Conclusion

As Wilkins aptly writes, climate change will be an ongoing problem; even if national responsibility shares can be reached, the consequences of climate change will carry on for the foreseeable future.[41] It is therefore vital that acceptable mitigation and adaptation targets are set as quickly as possible, so as to avoid further adverse effects. Both legally (under UNFCCC) and ethically, there is an obligation to act. It is clear that any distribution of shares must account for obligations of UNFCCC along with the concerns of current and future generations.

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[41] Jenkins, W. (2013) Atmospheric Powers: Climate Change and Moral Incompentence. In *The Future of Ethics: Sustainability, Social Justice and Religious Creativity.* Georgetown University Press, Washington, D.C.: 17

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