



Ethical issues in the United Nations climate negotiations: a preliminary analysis of parties' positions

Jonathan Pickering, Steve Vanderheiden and Seumas Miller

Canberra, December 2009

Draft for comment (please notify authors if intending to cite)

CHARLES STURT
UNIVERSITY



<http://www.cappe.edu.au>

Ethical issues in the United Nations climate negotiations: a preliminary analysis of parties' positions

Jonathan Pickering,¹ Steve Vanderheiden² and Seumas Miller^{3,4}

Executive summary

Overview. While a promising body of work is emerging in the area of climate ethics, to date it has proved difficult to bridge the gap between ethical theory and policy debates in the negotiations. Our paper sets out a straightforward and morally defensible framework for analysing ethical issues in climate policy and applies it to analyse recent submissions by a range of parties to the current United Nations climate negotiations (including Australia, Brazil, China, the European Union, India, Russia and the United States, as well as several developing country negotiating groups). The analysis focuses in particular on issues of how to share the burdens and resources associated with climate change mitigation and adaptation between wealthy and poor countries. In doing so, we highlight areas of convergence and divergence between developed and developing countries, as well as some ethical principles that have been largely overlooked in the negotiations to date. We identify policy recommendations on several issues that we consider could provide the basis for an ethically sound and politically feasible consensus.

Recommendations. Our analysis suggests more nuanced approaches to applying ethical principles in the negotiations could both increase integrity in distribution and also provide legitimate avenues for compromise between developed and developing countries' concerns. The following recommendations aim not to support one particular country position over another, but to suggest principled options for clarifying and reconciling areas of ethical disagreement; and to highlight neglected ethical dimensions that deserve further attention.

1. **Fairness of the overall package.** The fairness of a future climate agreement should be judged by looking at the overall package of commitments, rather than only each element (e.g. mitigation or financing) in isolation. This could imply, for example, that countries in similar circumstances could differ in the relative balance of their mitigation and financing commitments, provided that their overall level of commitment corresponds to a fair share.

¹ Centre for Applied Philosophy and Public Ethics (CAPPE; an Australian Research Council Special Research Centre), Australian National University (ANU); jonathan.pickering@anu.edu.au (corresponding author).

² Associate Professor of Political Science and Environmental Studies, University of Colorado at Boulder; Professor, CAPPE, Charles Sturt University (CSU); vanders@colorado.edu.

³ Professor of Philosophy, CSU and ANU (Joint Position); Director (ANU Division), CAPPE; seumas.miller@anu.edu.au.

⁴ The authors would like to thank the following individuals for helpful comments at various stages in the drafting of the paper: Christian Barry, Owen Cordes-Holland, Deborah Fulton, Clive Hamilton, Annette Madvig and Stuart Pickering. We are also grateful for feedback from participants of ANU's Social and Political Theory seminar, at which a draft version of this paper was presented.

2. **Three ethical objectives in lexical priority.** In addition to mitigation and adaptation, a distinct category of compensation for residual anthropogenic harm should be recognised. These three objectives should be pursued in the following strict order of priority, based on the long-term aims of each intervention: (i) mitigation (up to a point where it is highly likely that dangerous climate change will be avoided); (ii) adaptation; and (iii) compensation. In the short term, it is important that adaptation needs that have already arisen are given due recognition in negotiations.
3. **Differentiating responsibilities.** A metric for differentiating national responsibilities should be established that accounts for variation in cumulative and current emissions and accounts for causation as well as fault. Options should not be limited only to counting all cumulative emissions versus counting none; other base years (such as 1990) could be considered that address arguments about excusable ignorance.
4. **Differentiating national capabilities.** A metric must be developed for differentiating national capabilities, accounting for relevant differences among nations, including affluence, current per capita emissions, abatement costs, and resource/geographical features.
5. **Replacing simplistic country categories with distinctions measured along a sliding scale of differentiated capability and responsibility.** The present division between developed vs. developing or Annex 1 vs. non-Annex 1 parties is inadequate to capture relevant forms of differentiated national capacity and responsibility, so a more nuanced sliding scale of capacity and responsibility should instead be used to determine national mitigation and adaptation responsibilities. The scale should be based on objectively measurable criteria (as proposed in recommendations 3 and 4) in order to ensure that responsibilities over time vary in accordance with changing country circumstances.
6. **Distinguishing principles applicable to mitigation and adaptation.** Given the different ethical imperatives involved in mitigation and adaptation, different principles may be appropriate for distributing burdens and resources for each. In particular, capabilities could play a greater role in assigning forward-looking mitigation responsibilities, while fault-based responsibility is more important for assigning backward-looking adaptation responsibilities. Vulnerability should be a primary criterion for determining the priority of various claims on scarce international resources for supporting adaptation, while cost-effectiveness should be a stronger factor in distributing international mitigation support. Compensation funding could be distributed according to principles similar to those for adaptation funding.
7. **Distinguishing immediate and long-term mitigation goals and assigning targets.** Short-run mitigation targets should be assigned on the basis of 'comparable effort' (understood in terms of differentiated capability), possibly in combination with some measure of differentiated responsibility, while long-run mitigation targets should be assigned on the basis of equal per capita

entitlements to the atmosphere's capacity to absorb emissions ('emissions absorptive capacity').

8. **Additionality of climate finance.** Consistent with a holistic approach to climate equity, a climate agreement should incorporate a strong commitment to the principle of additionality of climate finance in order to ensure that climate funding commitments do not adversely affect development assistance commitments.
9. **Net benefit to developing countries.** The fairness of financing proposals should be assessed according to the *net benefits* that countries would receive from such a scheme. Accordingly, it may be permissible to impose some burdens on developing countries that are net beneficiaries of the distributive scheme.

Table of contents

1. Overview.....	6
2. Ethics in climate negotiations: a framework for analysis.....	8
2.1. <i>The role and scope of ethics in international climate negotiations</i>	8
2.2. <i>Identifying the actions required to address climate change: key issues in the negotiations</i>	9
2.3. <i>Ethical principles for distributing the costs and benefits of actions to address climate change</i>	14
3. Key findings from comparative analysis	21
3.1. <i>Overview</i>	21
3.2. <i>General comments: the (qualified) persistence of the development divide</i>	22
3.3. <i>Mitigation actions</i>	23
Common elements	23
Divergence.....	23
Neglected principles.....	25
3.4. <i>International support</i>	27
Common elements	27
Divergence.....	28
Neglected principles.....	30
4. Conclusion and recommendations	30
5. Attachment A: comparative table of parties' positions.....	34
6. Attachment B: Assigning mitigation responsibilities	49
7. Glossary	51

1. Overview

Ethics in climate negotiations – framing the problem. A key challenge for achieving global consensus on the next phase of the international climate change negotiations is to develop an agreement that is not only effective and efficient in addressing climate change but equitable as well (Stern 2009). The equity concerns posed by climate change are widely recognised in the theoretical and policy literature, as well as in the United Nations Framework Convention on Climate Change (UNFCCC). Developed countries are largely responsible for the cumulative greenhouse gas emissions that have caused and will continue to cause climate change. However, residents of developing countries and poor residents of developed countries are likely to be worst affected by climate change – including through water scarcity, flooding and sea level rise, and increases in infectious diseases – and are least able to cope with its effects (IPCC 2007). At the same time, the proportional contribution of developing countries to global emissions is rapidly increasing, and any prospects of stabilising global concentrations of greenhouse gases will require the involvement of all major emitters, which now notably include China (the world's largest emitter in aggregate terms) and India. Unless an agreement is perceived by both developed and developing countries as fair in the way it apportions the costs and benefits of mitigating climate change and adapting to its impacts, it will have minimal chance of being effective.

Aims and scope of the paper. This paper aims to provide information and recommendations for policymakers that could help strengthen the incorporation of sound ethical principles in a post-2012 climate agreement, by:

- Developing a straightforward and ethically defensible framework for comparing the positions of parties to the current UN climate negotiations on key ethical concerns (with a particular focus on issues of distributive fairness), informed by recent research on the ethics of climate change and priorities in the negotiations;
- Providing a succinct overview of ethical positions of key parties to the negotiations;
- Noting ethical positions around which wide consensus has formed as well as assessing those positions now characterised by disagreement; and
- Highlighting some ethical principles that theorists argue should be relevant for climate policy, but which have been largely overlooked to date.

In pursuing these objectives, the paper aims to show that it is possible to develop a more nuanced framework for action than has been endorsed by any single national party, and one that maintains ethical integrity while also being politically feasible.

Indeed in some cases there may be scope for a more sophisticated framework to simultaneously balance competing concerns of different parties.⁵

The main text of the paper outlines a framework for analysis (section 2) and synthesises the main findings and recommendations from the analysis (sections 3 and **Error! Reference source not found.**). The annex contains a more detailed table containing information on individual parties' positions on specific elements in the negotiations.

Building on existing research. In recent years a substantial body of research relating to the ethics of climate change has emerged (surveyed for example by Gardiner 2004 and Gardiner et al. forthcoming, 2010) alongside a large volume of policy analysis. However, relatively little work to date has been able to bridge these two areas effectively by applying ethical theory in a way that can generate practically and politically feasible policy recommendations. Several papers have attempted to map specific climate policy proposals against frameworks of equity or justice (see e.g. Heyward 2007; Klinsky and Dowlatabadi 2009), while others (e.g. Aldy, Barrett, and Stavins 2003) include equity as one of several elements of analysis. However, most of these papers compare proposals put forward by researchers or policy institutes rather than comparing country positions. While country positions may not have the same degree of coherence or theoretical rigour as other views on climate change (often reflecting a compromise among competing domestic stakeholder interests), understanding and critically assessing the ethical perspectives informing country positions is essential for evaluating the prospects for obtaining shared understandings of what a fair agreement could comprise.

Methodology. Countries covered by the comparison will primarily include a representative selection of the major emitters in developed countries (the United States, the European Union and Russia) and developing countries (China, India and Brazil). Several other countries and groupings representing a wider range of interests have also been selected, including: other major negotiating groups, e.g. the Group of 77 (G-77) and China, and the Least Developed Countries (LDCs) Group; smaller high per capita emitters (Australia); and countries most vulnerable to climate change (the Association of Small Island States (AOSIS)).

The paper will draw principally on official submissions by parties to the UNFCCC's Ad Hoc Working Group on Long-Term Cooperative Action (AWG-LCA), which was established at the UN Climate Conference in Bali in 2007 with a view to reporting on future climate action at the December 2009 Climate Conference in Copenhagen. Where appropriate the paper also refers to some major domestic statements outlining parties' approaches to the UN negotiations.

⁵ Klinsky and Dowlatabadi 2009, for example, find that most of the thirty-two climate policy proposals they analyse use multiple distribution rules, suggesting that 'policy designers may try to incorporate multiple perspectives of distributive justice to increase the likelihood of acceptance' (99).

2. Ethics in climate negotiations: a framework for analysis

2.1. The role and scope of ethics in international climate negotiations

Robust debate continues about the relative importance that broader ethical norms have on the outcome of international negotiations on climate change (Roberts and Parks 2007). In the context of climate change, ideals of fairness are frequently invoked, but are often seen as merely a mask for self-serving purposes (Lange et al. 2009). Nevertheless, the inequalities inherent in the distribution of emissions and climate impacts inevitably bring to the forefront issues of equity, arguably to a greater extent than any other area of international environmental concern (Birnie, Boyle, and Redgwell 2009:378). There are, moreover, good reasons to believe that an agreement that is (and is perceived to be) fair is more likely to be effective (Barrett 2003; Vanderheiden 2008a:59) and to gain the requisite assent from key national parties than would an unfair one. Divergent perceptions of fairness in relation to both climate policy specifically and broader global inequalities of wealth have been accompanied by continuing mistrust between developed and developing countries in negotiations since the drafting of the Convention (compare Roberts and Parks 2007). A key challenge, therefore, is first to clarify different understandings of commonly invoked ethical principles that are often cited uncritically or given conflicting interpretations by contending parties, and then to identify points of consensus and possible compromise that could form the basis for a principled agreement.

Climate change raises a wide range of ethical issues,⁶ including:

1. How to evaluate the impacts of climate change, including characterising the goods and rights affected by climate change;
2. How to characterise the responsibilities or duties associated with addressing climate change (including causal and moral, and behavioural and epistemic dimensions) on the part of governments, individuals and other groups;
3. How to distribute the costs and benefits of mitigating and adapting to climate change across states and generations, as well as amongst individuals within states;
4. How to formulate ethically responsible policies and evaluate their differential impacts in the face of (a) scientific uncertainty about the impacts of climate change and (b) new technologies for reducing emissions or their effects;
5. Whether, how, and in what circumstances affected parties are entitled to compensation for being exposed to climate-related risk or harm, and how to assign liability for that compensation;
6. How to ensure fairness in relation to natural ecosystems (including non-human animals);

⁶ Brown et al. 2006 outline a comparable range of ethical dimensions of climate change.

7. Procedural fairness in the design and governance of institutions aiming to address climate change.

Addressing all of these would be beyond the scope of a brief paper. As discussed further below, distribution between developed and developing countries of the costs and benefits of addressing climate change (point 3 above) is arguably one of the critical ethical issues for the negotiations (Roberts and Parks 2007). Consequently, the comparative analysis will focus on elements of the negotiations where distributive fairness is a central issue (points 1 and 2 will also be addressed in the course of developing an analytical framework for distributive fairness). Rather than attempting an ethical evaluation of quantitative elements such as the numerical value of parties' mitigation or funding proposals, the paper will look more broadly to the ethical arguments expressed by parties to underpin those elements.

Substantive fairness in the policies to address climate change must be seen as in part dependent upon procedural fairness in making and implementing those policies. While our analysis and recommendations focus mainly on issues of substantive fairness, we recognise that greater attention needs to be paid to fair and inclusive process than has thus far been the case.

2.2. Identifying the actions required to address climate change: key issues in the negotiations

A fair distribution of benefits and costs (or resources and burdens) in addressing climate change requires identifying both a) the types of benefits and costs to be distributed; and b) the relevant *principles* that should govern their distribution. This section will address the former issue, and the next section will cover the latter.

There is considerable debate about how to characterise the resources or benefits associated with addressing climate change – for example whether individuals should have a right to emit a minimum amount of greenhouse gases required for a decent standard of living (see e.g. Shue 1993). Positing such a right acknowledges some tension between climate change mitigation efforts, which require substantial cuts in greenhouse gas (GHG) emissions, and the allowance for emissions beyond a 'survival' threshold. In addition, given the current linkage between emissions and economic development, the UNFCCC recognises that addressing climate change will also require taking account of developing countries' 'right to develop' (Art 3.4). In this sense, national GHG emission caps can threaten individual opportunities for decent living standards or national interests in development, and so must be regarded as among those benefits to be allocated by an international mitigation scheme. However, other rights are jeopardized by the failure to enact adequate mitigation efforts. For example, it is clear that climate change will affect a range of basic rights including rights to life, health and water (Hayward 2007; Caney 2006), and any distribution should be concerned with safeguarding these rights wherever possible. Hence, the human interests that such rights protect depend on both the

floor and ceiling of allowable GHG emissions, as development and flourishing interests require that a sufficient minimum of ‘luxury emissions’ be allowed while interests in climatic stability depend on a sustainable maximum of such emissions (Vanderheiden 2008b). The benefits associated with addressing climate change thus include those provided through the avoidance of climate-related harm as well as those maintained by mitigation and adaptation policies that do not restrict opportunities for sustainable development.

While the characterisation of climate-related rights is important (and will be discussed further below), the climate negotiations have been structured principally according to the types of burdens or costs associated with addressing climate change. This paper will follow that convention, but will adopt an analytical framework that draws key ethical distinctions in a way that remains relevant for the categorisation used in the current climate negotiations.

Major ethical distinctions

Different forms of climate-related action could be distinguished along several ethically relevant dimensions. For the purposes of the present framework, three dimensions will be highlighted: (i) the *stage in the causal chain* at which action takes place (e.g. preventing climate change versus addressing its effects); (ii) the *level* at which the action takes place (e.g. international, national or subnational); and (iii) the *modality* of action involved (e.g. whether through *behavioural* action such as changing economic incentives, or through *epistemic* action such as developing new technologies and disseminating knowledge).⁷

Different *stages in the causal chain* of climate change underpin the distinction commonly drawn in climate ethics and policy between *mitigation* (addressing the causes of climate change) and *adaptation* (adjusting to the impacts of climate change).⁸ While some earlier ethical analysis has tended not to place much emphasis on this distinction, more recent writing has noted the ethical significance of several features of adaptation and mitigation, including the largely local benefits generated by the former compared to the global benefits of the latter (Jagers and Duus-Otterström 2008).⁹ In addition, mitigation will primarily benefit future generations, while most currently proposed adaptation measures will initially benefit current generations, thus giving rise to questions of intergenerational equity (Page 2006). Although the two areas of mitigation and adaptation are often seen as covering the

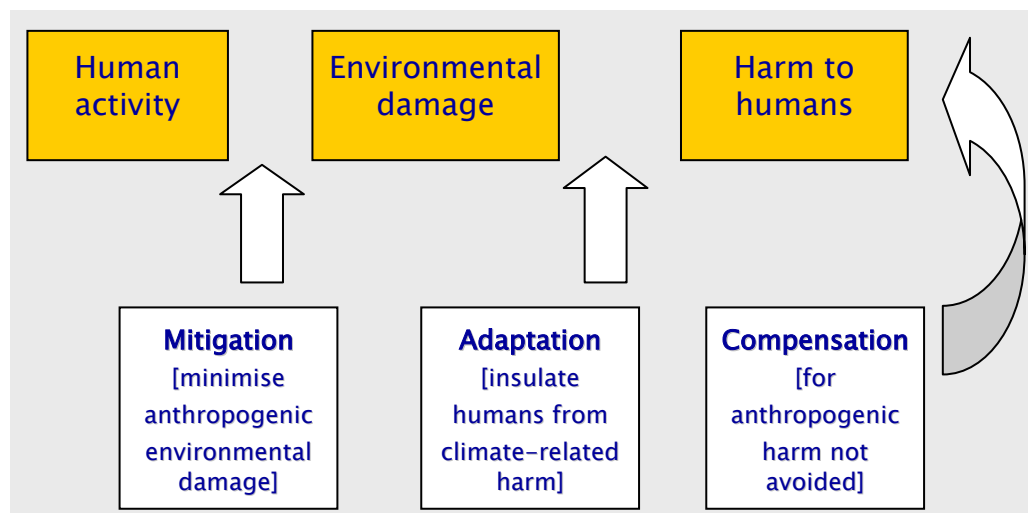
⁷ See Miller 2008 for a discussion of this distinction. Other dimensions of action that may be relevant, particularly at finer levels of detail, include: the sector in which the action takes place (e.g. in agriculture, health or infrastructure); and whether the activity is aimed at reducing emissions or increasing ‘sinks’ such as forests that store greenhouse gases (see Caney 2009 on the latter distinction).

⁸ The IPCC’s technical definitions are as follows: ‘Mitigation: An anthropogenic intervention to reduce the sources or enhance the sinks of greenhouse gases’; ‘Adaptation: Adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities’ (Klein et al. 2007).

⁹ Mitigation may also simultaneously produce benefits at the global level while producing benefits or negative impacts at the local level (see further below).

field of climate-related actions, it is recognised that even with the implementation of adaptation strategies, there will still be ‘residual damages’ from climate change (Stern 2007:404).¹⁰ Accordingly, some authors suggest the inclusion of a third area of *compensation* for harms that can neither be avoided (mitigated) or adapted to (Caney 2009:126; Dellink et al. 2009:412), or ‘compensation for residual damage’ (Tol and Verheyen 2004:1113). Unlike adaptation, which occurs after human activities alter the climate but before persons are adversely affected by such disruptions, compensation transpires further along the causal chain, after some avoidable harm is suffered. Although references to compensation in negotiations are inevitably controversial (as discussed further below), the inclusion of compensation appears justified at least from the perspective of ethical principle: if someone has a moral obligation to prevent harm but is unable to fulfil that obligation, they should compensate the victim for the harm done.

Figure 1: Ethical interventions in the causal chain of climate change



In each of these three areas, questions arise as to the extent of each party’s responsibility to act at several *levels*. Reflecting the paper’s focus on international negotiations, we will primarily address: (a) *national action* (either by developed or in some cases developing countries); and (b) *international support* for developing countries.¹¹ Both national action and international support can involve behavioural

¹⁰ Residual damage should be distinguished from the ‘impacts of the implementation of response measures’ (Convention, Art 4.8), which are costs associated with the effects of *mitigation actions*, such as declines in fossil fuel exports due to emission reduction programs in importing countries. This type of cost (for which compensation is sometimes claimed) is more appropriately considered as a cost associated with mitigation (see Bali Action Plan, para 1(b)(vi)), rather than as a fourth area of climate action.

¹¹ Note that some activities may involve both national and international elements, for example where ‘Nationally Appropriate Mitigation Actions’ implemented by developing countries could be carried out with international funding support. Offset programs that fund emissions reductions in developing countries (such as the Clean Development Mechanism) likewise involve a measure of international support and national action, but (in contrast to NAMAs) ultimately count towards *developed countries’* national commitments. In this paper we use ‘support’ as an umbrella term for finance and other in-kind support (e.g. technology transfer and capacity building). It should be noted, however, that ‘financing’ is often used

actions (such as policies and measures to reduce emissions) and epistemic actions (such as the development and diffusion of new technologies and institutional reform). Since mitigation activities require primarily domestic action and adaptation measures will largely involve international support, both kinds of action may be required at once.

As outlined in Table 1 below, which sets out a matrix of the first two dimensions of action, some areas have a greater degree of relevance for the climate negotiations than others (primarily those involving global benefits or international resource transfers). While a number of developing countries have argued for compensation, there is no consensus that it should constitute a separate area of action. A principal reason for this is developed countries' reluctance to expose themselves to potential claims under international law for compensation for environmental harm (compare Tol and Verheyen 2004:1114–15). However, this reluctance owes more to the limits of international tort law than to ethical principle. Other possible reasons for the lack of consensus on the need for compensation as a distinct category of action are that (i) the distinction between adaptation and compensation is sometimes hard to draw in practice; and (ii) if mitigation and adaptation are relatively successful, the amount of funding required for compensation relative to these other areas may be relatively small.¹²

Table 1. Two dimensions of climate-related action and their relevance to international climate negotiations (high, medium or low priority)

	Mitigation	Adaptation	Compensation
National action	High (global benefits; consensus)	Low ¹³ (primarily local benefits)	Low (up to national governments)
International support	High (consensus)	High (consensus)	Medium (controversial)

The Bali Action Plan framework

The framework set out in the Bali Action Plan, which has provided a basis for the current UN climate negotiations, outlines four main areas for action: (i) *mitigation*, (ii) *adaptation*, (iii) *technology* and (iv) *financing*. Areas (i) and (ii) reflect the conventional mitigation–adaptation distinction, while areas (iii) and (iv) can be seen as ways of supporting either mitigation or adaptation objectives. Area (iii) largely involves epistemic action, and may take place at the domestic or international level

as an equivalent umbrella term, and the conventional meaning of 'support' does not easily encompass compensation or some market-based finance.

¹² Note however that some limits to adaptation may already be reached in some areas, particularly in the case of natural ecosystems (through irrevocable loss of biodiversity), or may be reached in the near future (e.g. loss of land due to sea level rise).

¹³ With the exception of national adaptation actions in developing countries that require international support (which are grouped in the next row).

(with potentially global benefits at either level). Not all four areas have been accorded the same priority in the negotiations. A number of commentators have argued that mitigation and financing (or ‘support’) are the two critical issues that need to be resolved in a post–2012 agreement, since an agreement will only be effective if there are sufficiently ambitious mitigation targets set by developed countries, and sufficient commitments of finance to enable developing countries likewise to take substantial mitigation actions and adapt to climate change (Ott, Sterk, and Watanabe 2008).¹⁴

A hybrid framework for analysis and evaluation

The ethical distinctions and negotiating priorities outlined above suggest that it may be appropriate to adopt a simplified analytical framework for the purposes of the paper in the interests of coherence and conciseness. Accordingly, the paper will use a two–part framework comprising (i) domestic *mitigation* actions; and (ii) international *support*.¹⁵ Table 2 outlines the framework, which combines (a) the higher priority components of Table 1; (b) the third dimension of action outlined above; and (c) the different types of burdens and resources outlined in section 2.3 below.

Table 2. Hybrid framework for analysing and evaluating actions under a future climate agreement

	Principles for distribution of:	
	Burdens / costs	Resources / benefits
1. National mitigation actions	<ul style="list-style-type: none"> • Causal / moral responsibility • Capacity to act / pay • Comparable effort • Equal access to atmospheric resources (pay when equal share exceeded) 	<ul style="list-style-type: none"> • Equal or sufficient access to atmospheric resources • Equal opportunity for wellbeing
2. International support (for mitigation, adaptation and compensation for residual damage)	<ul style="list-style-type: none"> • Causal / moral responsibility • Capacity to pay • Comparable effort 	<ul style="list-style-type: none"> • Vulnerability / need • Capacity to use funds effectively

Within each of these areas, there are a number of elements under discussion that could have significant distributive implications (including the scope of sectoral or project–based crediting for developing countries’ mitigation actions, and the role of reducing emission from deforestation and forest degradation [REDD]). However, given the limited scope of the paper it will only be possible to focus on higher–level distributional issues.

¹⁴ Many of the most contentious issues in the remaining areas (adaptation and technology) could be seen as matters of how these should be financed or supported in kind, for example through collaborative development of new technologies or transfer of existing technologies.

¹⁵ A similar distinction between mitigation and support was adopted in the framework used by World Resources Institute 2009.

2.3. Ethical principles for distributing the costs and benefits of actions to address climate change

Equity in the UNFCCC

This section outlines several of the main principles cited by theorists and policymakers as a basis for distributing the costs and benefits of addressing climate change. Theorists differ on the extent to which the same or different principles should apply to each of the issues (Jagers and Duus-Otterström 2008), and whether the negotiations should aim for a fair distribution of each individual area of action or a broader measure of fairness across all areas (Caney 2009, for example, supports the latter). The text of the UNFCCC provides a useful starting point for framing the analysis.

Box 1. United Nations Framework Convention on Climate Change, Articles 3.1 and 3.2¹⁶

In their actions to achieve the objective of the Convention and to implement its provisions, the Parties shall be guided, inter alia, by the following:

1. 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**.
2. The **specific needs and special circumstances of developing country Parties, especially those that are particularly vulnerable to the adverse effects of climate change**, and of those Parties, especially developing country Parties, that would have to bear a disproportionate or abnormal burden under the Convention, **should be given full consideration**.

In the UNFCCC (as in international environmental law more broadly), equity represents a somewhat broad criterion of fair treatment (Shelton 2007). It may have substantive and procedural aspects, and may apply both to people currently living and across different generations. Equity could apply in an ‘atomistic’ sense only to the goods directly distributed through a climate agreement, or in a more ‘holistic’ sense to a broader range of goods distributed among parties (Caney 2009). In this regard, background inequalities of wealth and income between and within developed and developing countries may be relevant (Roberts and Parks 2007). Equity does not as such safeguard *equality* of any particular measure, but a measure of proportionality or even-handedness in the distribution of benefits and burdens. Accordingly other principles are necessary to give content to what equity requires.

Distributing costs: ‘Common but differentiated responsibilities and respective capabilities’

Central to the ethical analysis of both mitigation and international support (as indeed of the UNFCCC as a whole) is the concept of the ‘common but differentiated responsibilities and respective capabilities’ of all parties to protect the climate system (Article 3.1). This principle incorporates two key criteria according to which the burdens or costs of addressing climate change could be distributed. However,

¹⁶ Emphasis added.

both ‘responsibility’ and ‘capability’ (or ‘capacity’) are contested concepts, as is the question of what ‘common but differentiated’ implies in practice. Attachment B sets out a range of options for assigning mitigation responsibilities based on the principles discussed in this section

Responsibility, on the one hand, could be understood in several ways, including *causal* responsibility for contributing to climate change (and any *moral* responsibility associated with causation or other relevant factors) or the *remedial* responsibility (or liability) for addressing climate change.¹⁷ Remedial responsibility is often framed in terms of liability, which can either be ‘strict’ (based purely on causal responsibility) or ‘fault-based’ (based on some degree of moral responsibility). Responsibility to remedy some problem is often based on either causal or moral responsibility for creating it, but it need not be. Remedial responsibility could also be assigned based on parties’ ability to assist rather than their culpability (see discussion of capacity below).

Developed countries account for around two-thirds of cumulative emissions since 1850 (World Bank 2009:12). The ‘polluter pays’ principle is a widely accepted approach to allocating the costs of addressing environmental problems (Caney 2005), and in either its strict or fault-based formulation applies particularly well to assignments of liability for adaptation or compensation (Vanderheiden 2009). However, insofar as remedial responsibility for climate-related harm rests on fault-based rather than strict liability, it remains open to debate whether the current generation should be expected to pay either for (i) actions of previous generations; (ii) survival emissions that by definition cannot be avoided, or (iii) actions that they have taken themselves before being aware of the causes of climate change (the ‘excusable ignorance’ argument) (Caney 2005).¹⁸ Some have argued that moral responsibility should be limited to actions that parties ought to have foreseen and could have been prevented (e.g. Vanderheiden 2008a), exempting i–iii above from liability (see Tables 2 and 3 below).

Table 2. Criteria for assessing fault

Causation	Faulty acts must be causally connected to harm (or elevated risk)
Avoidability	Acts that are unavoidable, or which require the agent in question to forfeit basic needs, cannot be faulted
Foreseeability	Acts that cause avoidable harm can only be faulted if that harm could reasonably have been foreseen and thus consciously avoided, whether the agent in question does in fact foresee or consider avoiding that harm

¹⁷ A similar distinction is drawn in Miller 2001.

¹⁸ One counter-argument frequently noted in ethical analysis is that present generations in developed countries continue to *benefit* substantially from emissions of previous generations (Shue 1999:536).

Table 3. Differentiated fault-based responsibility

	Differentiation	Comments
Cumulative emissions	Higher = greater fault Lower = lesser fault Below threshold = faultless	Threshold set by emissions needed for survival (threshold may vary across countries depending on resources / geography); pre-1990 emissions excusable ignorance
Current emissions/cap	Higher = greater fault Lower = lesser fault Below threshold = faultless	Survival emissions threshold; captures recent effort; regular indicator of ongoing fault
Expected future emissions	Higher = greater (future) fault Lower = lesser (future) fault	Accounts for lag time between effort and impact on emissions

Causal responsibility combined with assessment of fault is often seen as playing a stronger role in identifying who should pay for adaptation (as compared with mitigation), since the impacts to be addressed through adaptation are a result of past emissions (compare Vanderheiden 2008a:222). Stronger claims about responsibility could also be made in the form of responsibility not to cause harm to other countries, and a corresponding responsibility (based on corrective rather than distributive justice) to make reparations or compensation for harm. Only a subset of these responsibilities may be translated into specific *legal* responsibilities, and some authors have raised concerns about the applicability of legal approaches based on corrective justice (see e.g. Posner and Sunstein 2007). Finally, in line with the distinction noted above between behavioural and epistemic action, a corresponding distinction can be drawn between behavioural and epistemic moral responsibilities (i.e. responsibilities to act or acquire knowledge), which may apply to either individuals or collective entities (Miller 2008).

Capacity to address climate change could likewise be defined in several different ways, including capacity to act domestically and capacity to pay for action either domestically or internationally (see Table 4). Given the existence of carbon markets for international trading of emissions rights and the likelihood that market-based approaches will be expanded under a post-2012 agreement, capacity to pay is likely to be the more important issue for distributing the costs of both mitigation and support.¹⁹ However, as discussed further below (section 3.3), a debate exists as to whether domestic emissions reductions should have greater moral priority. However, capacity to act domestically is based in the efficiency by which greenhouse emissions may be further reduced and so may be relevant to the assignment of GHG emission reduction targets, if not to the assignment of costs themselves. Hence, current per capita luxury emissions can provide not only a measure of responsibility but also a

¹⁹ Capacity plays a role in the distribution not only of responsibilities but also of the benefits of addressing climate change. This aspect is considered in subsequent paragraphs.

rough proxy for capacity to act, as countries with higher per capita emissions can likely achieve a larger unit reduction at a given cost than those with lower per capita emissions. Aggregate measures of national wealth or income like Gross National Product could approximate ability to pay for mitigation or adaptation measures. While developed countries are likely to exhibit both kinds of capacity, in some cases these two measures would identify different countries as most able to act. Wealthy nations with relatively low per capita luxury emissions that have achieved that status as the result of proactive sustainability efforts may be equally able to pay when compared against nations with relatively high emissions as the result of failures to take emission abatement actions. In such cases, the latter would like be considerably more able to act but equally able to pay for action. With limits on the proportion of mitigation burdens to be achieved through international rather than domestic action, these two measures of ‘respective capabilities’ yield divergent distributions of costs.

Table 4. Differentiated capabilities.

	Differentiation	Comments
Affluence (e.g. GDP)	Higher = more capable Lower = less capable Below threshold = not capable	Threshold defined by income available for luxuries; based on ability to pay
Current emissions per capita	Higher = more capable Lower = less capable Below threshold = not capable	Threshold defined by emissions necessary for survival; based on capacity to reduce emissions
Domestic abatement costs	Lower = more capable Higher = less capable	Not relevant to international mitigation financing
Resources/geography	Access to low-carbon fuels and energy sources, climate-related heating and cooling needs, size of territory for transportation	May affect survival threshold for emissions or abatement costs; no independent effect on capability

The negotiations have generally considered ‘responsibilities’ and ‘capabilities’ to be attributes of parties (i.e. states or groupings of states). However, some submissions see the possibility of applying them to individuals (see e.g. Maldives on behalf of LDCs 2009:60), or at least taking account of intra-country differentiation of these measures. This refinement is pertinent given the fact of intra-country domestic inequalities, and in particular the existence of wealthy and/or high-emitting individuals in poor countries, and poor and/or low-emitting individuals in wealthy countries. Accordingly, some climate policy proposals for have sought to distribute responsibilities in ways that depart from national averages and take into account, for example, the number of people in a country below a minimum income or emissions threshold (see e.g. Baer et al. 2008). Regardless of the level at which responsibilities and capabilities are defined, it is clear that they may change over time as the world’s economies develop. Correspondingly an agreement should incorporate appropriate flexibility to ensure that the distribution of resources and burdens continues to map

ethically relevant approximations of responsibility and capacity (see Persson et al. 2009:151).

While proposals for distributing remedial responsibilities are frequently based on causal or moral responsibility and capacity (either separately or in combination), principles of *equality* are also frequently invoked, for example in arguments that parties should make *equal proportional reductions* or undertake *equal burdens or efforts* to address climate change (Klinsky and Dowlatabadi 2009:93; Vanderheiden 2008a:234). The former proposal could require equal proportional reductions in emissions relative to a certain baseline (e.g. 1990, the base year chosen for the Kyoto Protocol), but most theorists would argue that this would produce a highly inequitable result, since it would involve highly unequal degrees of effort and would give more leeway to higher emitters that have delayed taking action (Vanderheiden 2008a:238; Caney 2009:128). Proposals for *equal or comparable effort* could involve proportionate reductions in the emissions intensity of economic production, or taking into account national circumstances affecting a country's capacity to mitigate domestically such as a country's geography and available energy sources.²⁰ Few theorists support either such proposal, however. Insofar as principles of equality are used to guide the distribution of costs related to climate change, they are most often invoked on behalf of mitigation rather than adaptation or compensation efforts. Equal per capita emission rights schemes, for example (see also further below), allocate differentiated mitigation burdens based on variable current GHG emissions such that higher per capita greenhouse polluters would face greater burdens to reduce their emissions to a common per capita target. Under such schemes, it is not historical responsibility that accounts for these differentiated mitigation burdens, but rather divergence in current emissions.

In addition to identifying principles for the distribution of mitigation, adaptation, and compensation responsibilities, the priority according to which those responsibilities should be addressed could be specified. Table 5 below seeks to rank the ethical imperatives in order of longer-term priority, giving the highest priority to mitigation, noting that in the shorter term it will be necessary to address adaptation needs that have not been avoided through earlier mitigation.

²⁰ The comparable effort approach bears resemblances to capacity arguments, but it should be noted that two countries may have the same capacity to pay (in terms of wealth) but differ in terms of the effort required to meet the same level of emissions reductions.

Table 5. Long-term intervention imperatives in lexical priority

Mitigation	Highest priority is to avoid causing dangerous climate change; always ethically better to avoid exposing others to higher risk of harm without their prior consent
Adaptation	Given elevated risk of harm from changing climate conditions, next priority is to insulate humans from anthropogenic harm; always better to avoid harming than to harm and then provide ex ante compensation
Compensation	Where environmental damage causes anthropogenic harm, ethically required to provide compensation where possible; compensation may not always be financial, and may often be impossible to fully provide or target to aggrieved parties

Distributing resources: rights, entitlements and vulnerability

Equity is relevant not only to the distribution of responsibilities but also of the resources or benefits associated with addressing climate change. Three criteria for equitable distribution of benefits are discussed here: (i) equal rights or entitlements; (ii) vulnerability or need; and (iii) capacity to use funds effectively.

Distribution according to certain *equal rights or entitlements* has been frequently proposed as a way of approaching the equitable distribution of rights to emit greenhouse gases. A range of theorists and developing countries have proposed that the global emissions budget be distributed across the world’s population on an *equal per capita* basis (e.g. Singer 2002, Baer et al. 2008, Vanderheiden 2008a, Caney 2009); see also Klinsky and Dowlatabadi 2009:92). This approach has been supported as both intuitively appealing, and consistent with both egalitarian principles of justice and with the idea that the atmosphere should be seen as a global commons to which everyone should have equal access (Vanderheiden 2008a:228). Basic variations of this approach include:

- (a) a purely forward-looking approach (such as the ‘contraction and convergence’ approach) whereby all countries converge over the longer term to an equal per capita proportion of a shrinking emissions budget; and²¹
- (b) an historical approach whereby equal per capita allocations are based on cumulative emissions (in which case developed countries could be seen as owing a substantial ‘ecological debt’ to developing countries for having used more than their fair share of emissions over time).

A pure equal per capita approach could be challenged from several points of view. First, different individuals may achieve different levels of wellbeing for the same amount of emissions (for example in colder countries where heating needs are

²¹ Note that the equal per capita approach implies not only a certain distribution of rights, but also a distribution of responsibilities (i.e. the requirement that high per capita emitters share the greatest burden of mitigation), although it does not necessarily lead to a conclusive view on *who should pay* for those reductions.

greater). Second, the historical approach could be vulnerable to the same criticisms as historical responsibility discussed above (compare Caney 2009). Some of these criticisms could potentially be resolved by adopting a modified equal shares approach, whereby equal entitlements represented a default position that could be adjusted according to exceptional and objectively verifiable needs (e.g. particularly hot or cold climates; see Vanderheiden 2008a:226–27; Roberts and Parks 2007:163). The historical approach of treating a nation’s past emissions as ‘ecological debt’ to be repaid through future GHG emission caps has been defended by theorists and developing countries, but may violate standards of fault-based liability for assessing adaptation burdens and equality for assigning shares of atmospheric space, conflating mitigation and adaptation burdens within the same distributive formula (Vanderheiden 2008a, Vanderheiden 2009).

Alternatives to an egalitarian distribution could be based on other approaches to distributive justice, including *sufficiency* (requiring that each person has a minimum level of certain basic rights or entitlements, but permitting inequalities beyond that point) or *priority* (requiring that the rights of the worst-off be addressed first, but likewise permitting some inequalities) (Vallentyne 2007:554–55; Page 2008:564–65). Some authors have proposed hybrid approaches combining equal per capita allocation of ‘subsistence’ emissions and market-based allocation of ‘luxury’ emissions (see e.g. Caney 2009). All of these approaches treat demands for equality in ‘survival’ emissions as valid claims of justice but seek principles other than equality to inform the distribution of ‘luxury’ emissions.

The UNFCCC identifies *vulnerability* of certain developing countries as a key criterion for prioritising adaptation measures (compare Art 3.2). Distribution according to vulnerability could be seen as a prioritarian approach, and is frequently reflected in theories of distributive justice that involve distribution of at least some goods according to need (see e.g. Goodin 1986; Miller 1999; Klinsky and Dowlatabadi 2009:91). Vulnerability can be seen as a combination of exposure to physical impacts of climate change and social and institutional capacity to cope effectively with those impacts (e.g. through early warning systems) (see box 2 below). However, to date it has proved difficult to identify consistent measures of climate vulnerability (Adger et al. 2007:727). Moreover, priority-based approaches to the distribution of adaptation benefits presume that some valid claims to adaptation resources will not be honoured, thus seeking a systematic order for failing to recognize justified claims to assistance. While such a priority system may be pragmatically justified, normative ethical and political theories don’t typically include provisions for when their requirements can be violated with impunity. While vulnerability and need underscore the urgency of some ethical obligations and so are policy-relevant for allocating scarce adaptation resources, they don’t serve as limiting principles that distinguish between acceptable and unacceptable anthropogenic harm.

Box 2. Australia on vulnerability (Australia 2008b:13)

The level of national vulnerability to climate change varies greatly between countries. Vulnerability to climate change is a combination of (1) the exposure of individual countries to the physical impacts of climate change that differ greatly on a regional and local level, and (2) the institutional and financial capacity of individual countries to respond to those differing impacts. ... The interrelationship between local physical vulnerability and capacity to adapt can be complex. For example, the Netherlands is highly vulnerable to sea level rise, whereas Afghanistan, a landlocked LDC, is not. By contrast, a similar percentage of the populations of the Netherlands and Tonga are equally vulnerable to the physical impact of sea level rise, but the Netherlands could be expected to have a greater national capacity to respond.

Whereas vulnerability seems to be a relatively well-accepted criterion for the principle of adaptation finance, there are some arguments in principle that mitigation finance should be distributed at least in part according to *capacity to mitigate*. In particular, given that reducing emissions will produce global benefits regardless of where the action takes place, it may be appropriate to allocate finance at least in part on the basis of a country's ability to use the funding most cost-effectively (World Bank 2009:286; compare proposals by the EU and Mexico: von der Goltz 2009:23). The 'flexibility mechanisms' established under the Kyoto protocol already allow for limited efficiency-based deployment of mitigation resources, including the Clean Development Mechanism (CDM), which allows developed countries to meet part of their mitigation targets through activities in developing countries. The current negotiations also envisage 'Nationally Appropriate Mitigation Actions' undertaken by developing countries, which may be financed through international support but would not necessarily count towards developed countries' targets. Since the pool of funding for both adaptation and mitigation will inevitably be finite, using a cost-effectiveness criterion for mitigation finance (while retaining an environmentally effective mitigation target) could actually increase the proportion of available adaptation funding, which could then be directed to the most vulnerable. However, it remains controversial that high-emitting developing countries might achieve their assigned emission cuts through international rather than domestic actions alone (see section 3.3 below).

3. Key findings from comparative analysis

3.1. Overview

In this section we apply the analytical framework set out in section 2 to views of parties and negotiating groups on a range of ethical issues in the negotiations, based on an analysis of over fifty submissions to the Ad-hoc Working Group on Long-Term Cooperative Action under the Convention (AWG-LCA) between August 2008 and October 2009. The following parties' submissions were surveyed:

- **Developing / non-Annex I parties and negotiating groups:** Brazil, China, India, G-77 and China, Least Developed Countries (LDCs), Alliance of Small Island States (AOSIS)

- **Developed / Annex I parties:** Australia, European Union, Russian Federation, United States of America.

Detailed summaries of parties' positions are provided in [Attachment A](#).

3.2. General comments: the (qualified) persistence of the development divide

Climate analysts have long observed a 'great divide' between developed and developing countries in their perceptions of equity (see e.g. Müller 2002). It is immediately apparent from parties' submissions that a substantial gulf remains. While all parties appear to accept basic formulations in the Convention such as 'common but differentiated responsibilities and respective capabilities', there are widely varying understandings of how those terms should be interpreted. In very general terms, developing countries tend to place stronger emphasis on ethical principles of distributive fairness in mitigation and strict liability for adaptation. The most common distributive arguments based on fairness, irrespective of their merits, are by and large in the interests of most developing countries, and strict liability as a standard for adaptation would favour late-developing nations at the expense of those whose industrialization occurred earlier. It should also be noted that in broad terms the bulk of ethical scholarship on distributive fairness in climate change is more consistent with the arguments made by developing countries than those made by developed countries.²² While arguments from fairness are certainly not absent from developed countries' submissions, they generally place greater emphasis on issues of effectiveness and efficiency as compared with equity or either strict or fault-based liability. Developing countries are also more likely than developed ones to call for procedural fairness in the development of global climate policy.

Despite the persistence of the development divide, its importance should not be overestimated. There remain important differences of principle within the two groups as currently defined, particularly between major developing country emitters such as India and China, and small and highly vulnerable developing countries such as AOSIS member states. Moreover, a number of countries (mostly but not all developed) have challenged the current definition of 'developed' and 'developing' (see [Attachment A, section 1\(d\)](#), e.g. Russia and Australia; and Mexico [von der Goltz 2009:11]).²³ At the very least, it is clear that the distinction is not reliably tied to an objective criterion since, for example, a number of 'developing countries' have higher per capita incomes than countries that were classed as not developing, and some countries grouped with developing nations under the Kyoto Protocol will soon

²² This finding is consistent with analyses of earlier negotiations such as Roberts and Parks 2007 and Lange, Vogt, and Ziegler 2007. Note, however, that the literature would appear to be consistent with some developed country positions such as more meaningful differentiation of countries according to capacity and responsibility.

²³ The current distinction is based on a list-based approach: 'developed' countries approximate roughly to parties listed in Annex I of the Convention, while 'developing' countries are considered comprise all other parties ('Non-Annex I countries'). Note however that the question of whether Eastern European 'economies in transition' listed under Annex I should be considered as 'developed' was left ambiguous in the Convention: Bodansky 1993:507-08.

surpass others grouped with developed nations in their per capita emissions.²⁴ Non-Annex I countries, however, have largely resisted efforts to revisit the methodology for categorisation of developing countries.

The following subsections outline key commonalities and differences in countries' positions on the main areas for action in a future climate agreement, as well as areas largely neglected in submissions that have been highlighted in research on climate ethics.

3.3. Mitigation actions

Common elements

There is virtually universal recognition that both developed and developing countries have a role to play in climate change mitigation, but that there should be reasonable differentiation in the nature of such actions (see Attachment A, section 1(a)).

Developed countries should undertake legally binding 'quantified emission limitation and reduction objectives' and at least some developing countries should undertake 'nationally appropriate mitigation actions' (Bali Action Plan, paras 1(b)(i)–(ii)) that may be measured as deviations from a baseline rather than an absolute reduction compared to present emissions. There is widespread agreement that least developed countries (LDCs), which account for only a tiny proportion of cumulative emissions (Dellink et al. 2009) should be exempted from specific emissions reduction obligations (see e.g. Australia 2009c:23). These findings are consistent with earlier empirical analysis showing that the 'polluter pays' principle and the principle of exemption due to low income are among the most widely accepted principles among negotiators and observers involved in climate policy (Lange, Vogt, and Ziegler 2007:546).

Divergence

Common but differentiated responsibilities to mitigate

Understandings differ as to how the 'leadership' of developed countries should be given effect: in particular, developed countries appear to interpret this requirement as being limited to the differentiation of actions outlined above, not as a justification for the permanent exemption of developing country emissions from binding emission caps (compare Attachment A, section 1(e)). By contrast, developing countries appear to view leadership as also requiring developed countries to make emissions reduction commitments regardless of (or not conditional on) what actions developing countries agree to. Developing countries emphasise, on the basis of Article 4.7 of the Convention, that any mitigation actions undertaken within their

²⁴ Compare Baer et al. 2008:64. In an attempt to illustrate what it views as the outdated nature of the current Annex I listing, Australia has compiled a 'Ukraine list' of forty-four non-Annex I countries with higher per capita GDP in 2007 than Ukraine, which was the poorest country to be included in Annex I (Australia 2008f:78). The list includes among other countries Singapore and South Korea.

borders can only be dependent on financing from developed countries,²⁵ and often reject binding emission caps as a threat to their right to develop (see [Attachment A, section 1\(f\)](#)). It should be noted, however, that including developing countries under a system of binding emission caps need not necessarily entail that they accept compulsory emission reductions, and participation in a universal regulatory scheme need not necessarily serve as an impediment to their social and economic development. Under ‘contraction and convergence’ approaches, for example, developing countries could accept GHG emissions caps that are considerably above their current emission rates. Particularly when paired with carbon markets that allow for the trading of unused emission shares on a global market, such participation could facilitate rather than hinder sustainable development within developing countries.

Developing countries place greater emphasis on the *historical* element of (causal and moral) responsibility, whereas developed countries mostly emphasise the *forward-looking* element of (remedial) responsibility (Persson et al. 2009:154).²⁶ AOSIS has explicitly linked responsibilities with the obligation of states not to cause environmental harm to other states and to make reparations when that obligation is breached (AOSIS 2008e:25). However, the extent to which obligations under customary international law require states to provide compensation for climate-related harms remains controversial among negotiators and legal theorists (see Birnie, Boyle, and Redgwell 2009:137ff), and as noted above the burdens associated with compensation for anthropogenic harm are often difficult to dissociate from adaptation burdens.

Box 3. Brazil on historical responsibility (Brazil 2008:26)

An important equity factor in determining the burden sharing for mitigation will be the historical responsibilities for climate change. Historical responsibility means that, in facing the challenge of climate change, countries should contribute to the solution according to their contribution to the problem. This is not a simple general reference, but a solid foundation which we can scientifically translate into a specific and fair distribution of commitments. Considering historical responsibility does not imply disregarding the future; it implies acting in the present, with a view towards the future, in a way that is equitable regarding the past.

Emissions entitlements: equity in their distribution and exchange

Several developing country submissions (e.g. those of China and India) propose allocation of equal *per capita emissions rights*, while developed countries focus more on equal or comparable *effort* (which tends to favour higher per capita emitters; see

²⁵ Article 4.7 states that ‘The extent to which developing country Parties will effectively implement their commitments under the Convention will depend on the effective implementation by developed country Parties of their commitments under the Convention related to financial resources and transfer of technology and will take fully into account that economic and social development and poverty eradication are the first and overriding priorities of the developing country Parties’.

²⁶ Some developed country parties have supported the polluter pays principle, e.g. the Netherlands (Persson et al. 2009:17), although debate exists over whether that principle should be interpreted as a historical or primarily forward-looking one (Shue 1993, Caney 2005).

Attachment A, section 1(c)). China's submission envisages equal per capita allocation of *cumulative* (not only present) emissions, as in historical responsibility approaches surveyed above, while India's submission indicates in more general terms that historical emissions need to be taken into account. Among developed countries, the EU has also indicated receptiveness to convergence of emissions in the long term, although the timeframe for convergence is not specified.²⁷ As noted above, versions of the equal per capita approach have been widely defended among theorists, and forms the basis for 'contraction and convergence' schemes that would allow developing country emissions to increase while developed country emissions are reduced to the same per capita level. Although controversial for privatising and commodifying the ecological capacity to absorb greenhouse emissions, and tendentiously described as granting a 'right to pollute', this approach enjoys a wide following among not only climate justice activists but also scholars working on climate justice frameworks. Recent empirical analysis has suggested that there may also be sufficient commonality in perceptions of fairness among people involved in climate policy to support a 'contraction and convergence' approach (Lange, Vogt, and Ziegler 2007:560).

Box 4. India on equal per capita emissions (India 2008e:31)

Equity must be central to the way forward. This requires that ... any stabilization target should be achieved on the basis of the principle that each human being has an equal right to the common atmospheric resource accounting also for the historical responsibility of developed countries in building the concentration of greenhouse gases in the atmosphere. Developing countries cannot be denied access to their equitable share of the global atmospheric resource and carbon space. ... As far as India is concerned we have stated publicly that our per-capita emissions will not exceed those of developed countries. We believe that a paradigm of convergence of per-capita emissions of developing and developed countries, also accounting for the historical responsibility of developed countries, provides an equitable approach to fair burden sharing.

A further difference relates to the tradability of emissions entitlements. While developed countries have indicated their interest in continuing to draw on international offsets in order to meet emissions reductions commitments, developing countries have called for limits on the percentage of mitigation burdens to be allowed through international offsets, most prominently in the 2001 Marrakesh Accords, which set out rules for the implementation of the Kyoto Protocol. Recent submissions raise concerns about developed countries seeking to purchase offsets without making domestic lifestyle changes (compare India 2008e:32–33).

Neglected principles

Justification for timeframe of historical responsibility. Submissions advocating a historical responsibility approach do not generally specify the basis for determining

²⁷ Previous empirical analysis has suggested that the egalitarian principle has significantly higher support within the climate policy community over a longer time horizon (over twenty years): Lange, Vogt, and Ziegler 2007:556.

how far back in time responsibility should stretch.²⁸ Some theorists advocating a strict liability standard for adaptation and compensation defend a standard whereby historical emissions since the Industrial Revolution are counted against nations in the assignment of such burdens, and developing country submissions that don't specify an initial date for culpable emissions imply this unlimited timeframe. While some theorists and submissions defend this long timeframe for assessing responsibility for historical emissions, none defend a similar approach for ongoing compliance, suggesting an asymmetry in justification. If the foreseeability of climate-related harm is taken into account in determining *moral* responsibility for climate change, as in fault-based liability approaches, an appropriate point from which historical responsibility is attributed could be the time at which no country could reasonably have been ignorant of the causes of climate change. 1990 (the date of publication of the first IPCC report) is widely considered to be an appropriate point in time for this purpose (see e.g. Vanderheiden 2008a:190; also Table 6 below).

Table 6. Three possible baselines for determining mitigation targets:

1750	1990	2009
Near-term mitigation targets calculated from year 1750 national emissions	Near-term mitigation targets calculated from year 1990 national emissions	Near-term mitigation targets calculated from current national emissions
Problems: changes to world map; limited data; includes some pre-industrial emissions	Justification: credits recent effort; discourages obstruction	Problems: fails to account for post-UNFCCC/IPCC efforts

Benefit. Developing countries have tended to place more emphasis on historical responsibility than on the extent to which the current generation in developed countries benefits from the emissions of past generations.²⁹ This focus is consistent with strict liability, which is indifferent to issues of fault or benefit in its attributions of responsibility, but conflicts with standard premises of moral responsibility. Focusing on the benefits derived from past emissions, whether in terms of early industrialisation or the social and political development that typically accompanies affluence, would offer a more defensible basis for assigning 'differentiated responsibilities' to current generations from the perspective of individual moral responsibility. Analysing and emphasising the benefits of past and present GHG emissions could assist in forging some common ground between developed and developing countries: developing countries could more effectively advocate the recognition of the 'right to develop' as an integral component of international

²⁸ One exception is a submission by Mexico, which outlines three options: (i) current emissions; (ii) all historical emissions; or (iii) 'cumulative emissions from 1990, a general reference for National Communications, or 1992, when the *Convention* was adopted' (Mexico 2008).

²⁹ It is important to note, however, that despite the link between emissions and economic growth it is considerably easier to quantify historical causal responsibility than benefit.

mitigation schemes, and developed countries could more effectively distinguish between those present emissions that yield benefits for their resident populations and those which do not, more effectively targeting decarbonisation activities that can minimise negative impacts on welfare. Uncertainties about how to measure benefit transparently may present a significant obstacle to its direct incorporation as an indicator for remedial responsibility, but this would not rule out an indirect role of benefit in placing the burden of proof on developed countries to demonstrate why a longer timeframe for responsibility is inappropriate.

Intergenerational equity. Despite references to intergenerational equity in the UNFCCC (e.g. Preamble; Art 3.1), most discussions about the appropriate balance between mitigation and adaptation do not invoke intergenerational implications (see [Attachment A, section 1\(g\)](#), with the exception of AOSIS). This neglect of future interests is due in part to the structural constraints that limit global climate policy development, as there are no mechanisms for representing the interests of future persons at current negotiations. Various uncertainties also plague efforts to equitably allocate costs for mitigation and adaptation projects over time, including uncertainties surrounding the climatic effects of current emissions trajectories and those regarding the relative affluence of future persons. Moreover, controversies concerning whether or not to discount future harm (Stern 2007) have likewise hampered efforts to incorporate intergenerational equity in current mitigation and adaptation efforts. While strong mitigation imperatives (e.g. the goals of stabilising CO₂ emissions at 450 ppm or below or avoiding temperature increases of more than two degrees Celsius) indirectly safeguard the interests of future persons, as does the UNFCCC objective of avoiding ‘dangerous anthropogenic interference’ with the planet’s climate system, there exist no provisions for equitably allocating either the costs or benefits of climate change mitigation over time. Indeed, conflicts between developed and developing countries are reduced by decisions to defer much of the costs of climate change and its mitigation into the further future. It is therefore likely that political efforts to promote intragenerational climate justice will exacerbate intergenerational climate injustice unless the interests of future generations can more effectively be represented within policy discourses and political negotiations. Such considerations recommend creative experiments in procedural justice, such as the appointment of proxies for future generations at climate policy conferences.

3.4. International support

Common elements

All parties appear to agree that substantial resources need to be raised for addressing climate change that are ‘new and additional’ to existing sources of funding for developing countries. All parties appear to agree further that the key criteria for funding burdens should be responsibility and capacity, with developed countries playing a major role in the commitment of that funding (see [Attachment A, section 2\(a\)](#)). It appears to be widely agreed, moreover, that least developed countries (LDCs) should be exempt from financial commitments (see e.g. Mexico

2008:44), as well as specific mitigation obligations, at least in the short term. There also appears to be widespread agreement about principles for the allocation of adaptation finance (if not necessarily mitigation finance), in particular the importance of prioritisation according to need or vulnerability (see also Persson et al. 2009:85).

Divergence

Responsibilities for financing: common or only differentiated?

An initial area of divergence is whether only developed countries should contribute to financing, or whether some developing countries other than LDCs should also be required to contribute (see [Attachment A, section 2\(b\)](#)). Some proposals (for example that of Mexico) would require those developing countries to contribute to a global fund, but those countries would also be recipients of resources from the fund. While proposals of this kind have been subject to some criticism, arguably the most important issue is not whether developing countries should contribute at all, but what is the *net benefit* that they would receive from such funding arrangements.³⁰

Related to this divergence is the relative weight that should be placed on criteria of responsibility and capability in determining shares of the financing burden. The EU's communication on climate finance, for example, frames responsibility in terms of current (rather than cumulative) emissions, which would require developing countries with rapidly increasing emissions (notably China and India) to bear a substantial proportion of the overall financing burden (European Commission 2009b:13). One potential resolution to these diverging positions distinguishes between financing burdens related to mitigation, for which current emissions are relevant only to the burdens required to bring those emissions down to sustainable levels, and those associated with adaptation, for which limited historical responsibility may be more relevant (see Vanderheiden 2008a, Vanderheiden 2009).

Vulnerability and cost-effectiveness as criteria for distribution

Although there is widespread agreement about the importance of vulnerability as a criterion for allocation, there is nevertheless some support for other criteria such as cost-effectiveness, including from developing countries (see [Attachment A, section 2\(c\)](#), e.g. India 2008a:149). As noted above, cost-effectiveness is primarily seen as a criterion for mitigation, while vulnerability is mostly associated with adaptation. The extent to which these two criteria diverge in their practical implications is unclear, since adaptation actions taken to protect the most vulnerable populations are also likely to be most cost-effective in minimising adverse effects of climate change on human welfare. Clarifying the distinct principles appropriate to each element of a comprehensive climate policy scheme might help to diminish apparent conflicts between ostensibly divergent principles or criteria.

³⁰ See Murphy and Nagel 2002:98 for a related argument in the context of domestic taxation.

Delineating the obligation to provide climate finance: additionality and entitlement

A further area of divergence is the relationship of climate funding to other sources of finance for developing countries, in particular overseas aid (or Official Development Assistance [ODA]). Some submissions argue that finance should be additional in the sense of being ‘separate and apart from ODA’, while others argue that ODA could be a legitimate component of climate finance commitments (see [Attachment A, section 2\(d\)](#)).

Related to this is the question of how to characterise the obligations underlying climate finance commitments (see [Attachment A, section 2\(e\)](#)). India, for example, has strongly emphasised that climate finance should be considered a matter of legal entitlement, and not a matter of aid that is subject to a greater level of discretion on the part of donors (see also von der Goltz 2009:19). Insofar as climate change finance is justified by political theories of distributive justice or ethical injunctions against harming combined with requirements of compensation for causing avoidable harm, the appropriate model for international climate transfers is the morally required and non-discretionary entitlement rather than the optional and beneficent charitable contribution. Limiting the discretion of both contributors and recipients of climate-related finance transfers to deploy these resources for other purposes would support the former model and avoid the risks of the latter.

Epistemic action: technology transfer

There is a clear divergence in views on whether the current system of intellectual property rights (IPRs) supports or inhibits the effective and equitable deployment of climate technologies (see [Attachment A, section 2\(h\)](#)). In general developing countries are in favour of measures that relax IPRs (for example through compulsory licensing of patented technologies), while developed countries favour stronger protection of rights. This divergence is based partly in the opposed interests of various parties, since stronger IPRs create economic incentives that drive technological development but hinder its widespread deployment, while weaker IPRs make possible wider deployment of new technologies but hinder their development. Given that effective climate policy requires both the development of new sustainability technologies and their widespread deployment in order to mitigate ongoing contributions to climate change, some balance needs to be struck between these opposed interests, which are based in the different stages in the causal chain of technological advancement occupied by various parties. Incentives must be set up in such a way to encourage continued or increased technological advances while still allowing their rapid and widespread deployment. Following models used to combat infectious disease, state or international industrial policies could be used to supplement or enhance market incentives to innovate while allowing IPRs to be used to advance public rather than private interests.

Neglected principles

- **Distinguishing principles for responsibilities for adaptation and mitigation finance:** most submissions appear to assume that responsibility and capacity will play the same roles in both types of finance, but this may not be required as a matter of necessity. As suggested above, conflicts between developing countries that emphasize historical responsibility as a distributive principle and developed countries that advocate some form of equality in its place might be diminished by distinguishing between those distributive principles that are most appropriate to the forward-looking imperative of mitigation and those appropriate to the largely backward-looking imperatives of adaptation and compensation.
- **Broader principles for allocation of mitigation finance:** While the role of vulnerability is clearer for adaptation, parties generally do not specify what different principles should apply in the case of mitigation finance other than cost-effectiveness per unit of emissions reductions (see e.g. Mexico 2008). Specifically, parties must clearly identify limits to the use of international offsets in compliance with emissions reduction targets, as such measures allow for the most cost-effective mitigation efforts in the short run but have proven objectionable and possibly counterproductive insofar as they allow developed countries to avoid undertaking effective domestic mitigation actions. Some mitigation actions confer both global and local benefits on the areas in which they are undertaken, as in conservation measures that reduce both greenhouse and other air and water pollutants that would otherwise be produced and released. Others produce global benefits while creating local harms, such as strict restrictions on land use that prevent poor peasants from converting forests into agricultural land. Accordingly, greater attention must be paid to the full effects of how mitigation finance is deployed rather than narrowly focusing on its efficiency in reducing aggregate greenhouse emissions.
- **Compensation for residual damage:** Although developing countries emphasise the distinct nature of climate finance, few specify compensation as an element of financing (see [Attachment A, section 2\(f\)](#); although see AOSIS 2008e; Brazil 2009b:58). While there may be an understandable reluctance on the part of developed countries to be exposed to open-ended legal claims of compensation, it may still be appropriate to consider initially the appropriateness of some forms of compensation such as insurance. Insurance is mentioned in the Convention (Art 4.8) as well as in several developed and developing country submissions (e.g. AOSIS 2008e and Switzerland 2008), and may provide a cost-effective and equitable approach to dealing with certain harms (such as natural disasters) for which adaptation is not possible.

4. Conclusion and recommendations

Our analysis suggests that simplistic approaches to applying principles such as ‘common but differentiated responsibilities and respective capabilities’ will skate over ethically significant differences across and within countries, as well as between

the different ethical imperatives of mitigation, adaptation and compensation. More nuanced approaches could both increase integrity in distribution and also provide legitimate avenues for compromise between developed and developing countries' concerns. Such approaches could be achieved without sacrificing transparency. Both developed and developing countries should identify opportunities to agree on distributive frameworks that take account of these nuances. The following recommendations aim not to support one particular country position over another, but to suggest principled options for clarifying and reconciling areas of ethical disagreement; and to highlight neglected ethical dimensions that deserve further attention.

1. **Fairness of the overall package.** The fairness of a future climate agreement should be judged by looking at the overall package of commitments, rather than only each element (e.g. mitigation or financing) in isolation. This could imply, for example, that countries in similar circumstances could differ in the relative balance of their mitigation and financing commitments, provided that their overall level of commitment corresponds to a fair share.
2. **Three ethical objectives in lexical priority.** In addition to mitigation and adaptation, a distinct category of compensation for residual anthropogenic harm should be recognised. These three objectives should be pursued in the following strict order of priority, based on the long-term aims of each intervention: (i) mitigation (up to a point where it is highly likely that dangerous climate change will be avoided); (ii) adaptation; and (iii) compensation. In the short term, it is important that adaptation needs that have already arisen are given due recognition in negotiations.
3. **Differentiating responsibilities.** A metric for differentiating national responsibilities should be established that accounts for variation in cumulative and current emissions and accounts for causation as well as fault. Options should not be limited only to counting all cumulative emissions versus counting none; other base years (such as 1990) could be considered that address arguments about excusable ignorance.
4. **Differentiating national capabilities.** A metric must be developed for differentiating national capabilities, accounting for relevant differences among nations, including affluence, current per capita emissions, abatement costs, and resource/geographical features.
5. **Replacing simplistic country categories with distinctions measured along a sliding scale of differentiated capability and responsibility.** The present division between developed vs. developing or Annex 1 vs. non-Annex 1 parties is inadequate to capture relevant forms of differentiated national capacity and responsibility, so a more nuanced sliding scale of capacity and responsibility should instead be used to distribute national mitigation and adaptation responsibilities. The scale should be based on objectively measurable criteria (as proposed in recommendations 3 and 4) in order to ensure that responsibilities over time vary in accordance with changing country circumstances.

6. **Distinguishing principles applicable to mitigation and adaptation.** Given the different ethical imperatives involved in mitigation and adaptation, different principles may be appropriate for distributing burdens and resources for each. In particular, capabilities could play a greater role in assigning forward-looking mitigation responsibilities, while fault-based responsibility is more important for assigning backward-looking adaptation responsibilities. Vulnerability should be a primary criterion for determining the priority of various claims on scarce international resources for supporting adaptation, while cost-effectiveness should be a stronger factor in distributing international mitigation support. Compensation funding could be distributed according to principles similar to those for adaptation funding.
7. **Distinguishing immediate and long-term mitigation goals and assigning targets.** Short-run mitigation targets should be assigned on the basis of ‘comparable effort’ (understood in terms of differentiated capability), possibly in combination with some measure of differentiated responsibility, while long-run mitigation targets should be assigned on the basis of equal per capita entitlements to the atmosphere’s capacity to absorb emissions (‘emissions absorptive capacity’).
8. **Additionality of climate finance.** Consistent with a holistic approach to climate equity, a climate agreement should incorporate a strong commitment to the principle of additionality of climate finance in order to ensure that climate funding commitments do not adversely affect development assistance commitments.
9. **Net benefit to developing countries.** The fairness of financing proposals should be assessed according to the *net benefits* that countries would receive from such a scheme. Accordingly, it may be permissible to impose some burdens on developing countries that are net beneficiaries of the distributive scheme.

Key conclusions and recommendations are summarised in the table below:

Table 7: Summary of responsibilities

	Mitigation	Adaptation
What?	Infrastructure upgrades, technology development and deployment, behavioural change, population change, land use change, financing of abatement projects, purchase of greenhouse offsets/credits	Disease eradication, infrastructure upgrades/repair, building response capacity (institutional and epistemic), disaster relief, relocation of vulnerable peoples, technology development and deployment, financing of adaptation activities

How much?	<p>Short run: maximum feasible while accommodating rights to development and adopting roadmap to stabilisation</p> <p>Long run: sufficient to stabilise emissions and avoid ‘dangerous anthropogenic interference’ (i.e. no imposed risk)</p>	<p>Short run: sufficient to shield humans from anthropogenic harm given climatic changes</p> <p>Long run: given mitigation goals, need for adaptation efforts should diminish over time, ideally to zero</p>
From whom?	<p>From nations, measured in terms of averted emissions, based on their differentiated capabilities and differentiated responsibilities</p>	<p>From nations, measured in dollar terms (as a proxy for averted welfare losses when joined with a vulnerability-based priority system), based on their differentiated responsibilities</p>
To whom?	<p>The world, with benefits felt in terms of present vulnerability to climate change</p>	<p>Those shielded from harm by the specific adaptation activity in question (priority to vulnerable)</p>
1: beneficiaries		
2: location	<p>Assigned national burdens based on total of domestic and international mitigation efforts, but some limit on use of latter toward compliance with caps</p>	<p>Assigned national burdens based on total of domestic and international adaptation efforts, but priority to most vulnerable in siting of adaptation activities</p>

5. Attachment A: comparative table of parties' positions

Issue / Principle	Parties' positions
1. Mitigation	
<p>a) 'Common but differentiated responsibilities' (CBDR) (including acknowledgement of historical responsibility and the 'polluter pays principle')</p>	<p>Brazil: 'Historical responsibility means that ... countries should contribute to the solution according to their contribution to the problem.' (Brazil 2008:26)</p> <p>China: 'It is the common responsibility of developed and developing countries to take mitigation and adaptation measures. Developed countries are responsible for causing climate change due to their high historical accumulative and current per capita emissions.' (China 2008b:115)</p> <p>India: Emphasis on GHG 'concentrations' in UNFCCC 'underscores the importance of cumulative emissions and the historical responsibility that goes along with contribution to the stock of greenhouse gases in the atmosphere' (India 2008e:31)</p> <p>G-77 and China: Emissions reductions commitments by Annex I Parties should be comparable and 'compatible with their level of historical responsibility for climate change and economic and technological capacity.' (Philippines on behalf of G-77 and China 2008b:48)</p> <p>Australia: 'All countries have a common responsibility to address climate change.' (Australia 2008f:73)</p> <p>Russia: 'this global challenge can only be met by a global efforts, in particular, by the contributions from all major economies, consistent with the principle of common but differentiated responsibilities and respective capabilities.' (Russian Federation 2008:84)</p> <p>US: 'What is common? Much attention has been paid by Parties to the word "differentiation" in the principle of common but differentiated responsibilities and respective capabilities ("CBDR"). Less time has been spent on the word "common" and how it should be applied in the mitigation context of the agreed outcome. We propose that time be spent setting forth views on which elements of the agreed outcome on mitigation will be "common" for all Parties.' (USA 2008d:106)</p>
<p>b) 'Respective capabilities' (capacity to act / pay)</p>	<p>Australia: 'Mitigation will be best enhanced by countries making a comparable effort to others at a similar stage of development taking into account differing national circumstances. ... 'A country's physical, economic and energy situation are key determinants of national circumstance. (Australia 2008f:74, 77; see also Australia 2009a:20)</p> <p>'the cost of mitigation needs to be considered in the context of a country's capacity to pay' (Australia 2009a:20)</p> <p>EU: 'it would be helpful if would [sic] not just refer to the first part of the CBRD [sic] principle but also to the second part,</p>

Issue / Principle	Parties' positions
	<p>which you all know refers to respective capabilities.' (France on behalf of EC 2008e:129; emphasis in original)</p> <p>'the overall target for developed countries must be distributed in a manner that is fair and ensures the comparability of efforts. We consider that the distribution of the overall target for developed countries should be guided by considerations of capability and responsibility, making use of a balanced combination of criteria, such as:</p> <ul style="list-style-type: none"> - the capability to pay for domestic emission reductions and to purchase emission reduction credits from developing countries; - the GHG emission reduction potential; - domestic early action to reduce GHG emissions; - population trends and total GHG emissions.' <p>(Czech Republic on behalf of EC 2009b:84; see also European Commission 2009c:4; Czech Republic on behalf of EC 2009a:11)</p> <p>US: Mitigation should be 'commensurate with all Parties' capabilities to act' (USA 2009:107)</p>
<p>c) Equality-based distribution of emissions (e.g. equal per capita emissions, or equal / comparable effort)</p>	<p>China: 'per capita accumulative emission convergence is a reflection of principle of equity.' (China 2008b:114)</p> <p>India: 'Equity must be central to the way forward. This requires that the any stabilization target should be achieved on the basis of the principle that each human being has an equal right to the common atmospheric resource accounting also for the historical responsibility of developed countries in building the concentration of greenhouse gases in the atmosphere. Developing countries cannot be denied access to their equitable share of the global atmospheric resource and carbon space. Equitable sharing of the carbon space, therefore, needs to be urgently agreed to by the international community. As far as India is concerned we have stated publicly that our per-capita emissions will not exceed those of developed countries. We believe that a paradigm of convergence of per-capita emissions of developing and developed countries, also accounting for the historical responsibility of developed countries, provides an equitable approach to fair burden sharing' (India 2008e:31)</p> <p>Australia: 'It was agreed, as part of the Bali mandate, that economy-wide targets should represent comparable effort by all advanced economies while taking into account national circumstances' (Australia 2008f:77)</p> <p>'One way to better reflect comparability of effort is to differentiate national emission reduction commitments according to relative economic costs' (Australia 2009a:21)</p> <p>EU: 'in the long term, gradual convergence of national per capita greenhouse gas emissions between developed and developing countries would be necessary, taking into account national circumstances' (France on behalf of EC 2008d:13)</p> <p>"Comparability of efforts amongst developed countries should primarily be considered in terms of emissions reductions</p>

Issue / Principle	Parties' positions
	<p>commitments, based on binding absolute quantified emission limitation and reduction objectives (QELROs) for all developed countries. When defining differentiated QELROs relevant differences in respect of <i>capability, responsibility, mitigation potentials</i> and <i>national circumstances</i> between developed countries should be acknowledged. In particular, cost-effectiveness of mitigation is important to enable ambitious targets. Thus the use of flexible mechanisms should be included when assessing costs of mitigation targets as this can enable the achievement of ambitious targets' (France on behalf of EC 2008d:14)</p>
<p>d) Basis for, and viability of, distinction between developed and developing countries</p>	<p>Brazil: 'The climate change regime operationally defines developed countries as Annex I Parties and/or Annex II Parties and developing countries as non-Annex I Parties. The Bali Action Plan does not authorize any renegotiation of this, nor does it warrant proposals for establishing new categories of countries or "graduation" of countries from one category to another. The developing countries, according to their specific capabilities, will implement different mitigation and adaptation actions, with different results.' (Brazil 2009c:17)</p> <p>China: 'The principle of "common but differentiated responsibilities" between developed and Developing countries is the keystone of the Convention and the Bali Action Plan. Any further sub-categorization of developing countries runs against the Convention itself' (China 2008a:34)</p> <p>G-77 and China: 'Based on the Convention and the BAP, the G77 and China expresses its firm rejection of any proposal directed towards differentiating between non-Annex I parties....' (Philippines on behalf of G-77 and China 2008b:48)</p> <p>Australia: 'it is likely that some current non-Annex I Parties could be expected to take comparable mitigation efforts to current Annex I Parties' (Australia 2008a:11)</p> <p>'A significant number of advanced economies are currently not members of Annex I. Examples of such include Singapore, Malta and Korea among others. Australia invites all advanced economies to take comparable actions It is desirable also for all advanced economies that have not yet nominated to join Annex I to do so.' (Australia 2008f:74)</p> <p>'Since the Convention was adopted in 1992 no work has been done to better differentiate the responsibilities of Parties beyond the simple list of Parties in Annex I and Annex II to the Convention.</p> <p>... Neither list reflects current realities Given the considerable variation in the circumstances of the 192 countries in the UNFCCC, there can be many different approaches to differentiating and grouping countries according to such circumstances. The development of a set of indicators would help assist Parties in applying the principle of common but differentiated responsibilities.' (Australia 2008f:76)</p> <p>EU: 'Binding emission reduction commitments should not be limited to the countries that have targets under the Kyoto</p>

Issue / Principle	Parties' positions
	<p>Protocol. The Copenhagen agreement should set emission reduction commitments for at least all countries listed in Annex I to the UNFCCC, all OECD member countries and all current EU Member States, EU candidate countries and potential candidates.' (European Commission 2009c:5)</p> <p>Russia: 'We consider a grouping of countries by "Annex I Parties" and "non-Annex I Parties" obsolete and irrelative to present-day realities. This was also recognized in the Bali Action Plan, wherein the Parties had agreed to handle with such terms as "developed countries" and "developing countries". ... Parameters, such as GDP per capita and other standard criteria describing social and economic distinctions between the countries, should be elaborated for a new regrouping of the countries.' Fossil fuel dependency should also be taken into account. (Russian Federation 2008:84)</p> <p>'There are two major distinctive features of the countries with economy in transition, which will be present yet during at least 8–10 years:</p> <ol style="list-style-type: none"> 1. we are not capable, being Annex I Parties though, either financially or technically to help other countries in the field of capacity building and technology transfer; 2. we have a number of barriers in implementation of our mitigation actions and adaptation strategies that implies our crucial need of corresponding technical assistance from other Annex I Parties.' <p>(Belarus on behalf of Russian Federation and Ukraine 2009:1)</p> <p>US: 'What are "developed" and "developing" countries? Another issue for further consideration, picking up on the idea that the Convention needs to remain relevant not just in terms of scientific advances but in terms of economic and emissions trends, is how best to apply the concepts of "developed" and "developing" countries in subparagraphs 1(b)(i) and 1(b)(ii) of the Bali Action Plan.' (USA 2008d:106)</p> <p>* Distinction should be based on 'objective criteria of economic development' (USA 2009:107)</p>
e) Leadership by developed countries	<p>Brazil: 'Subparagraph 1.b.i [of the Bali Action Plan] does not allow for a bottom-up approach, by which each developed country would select the nature of commitments it wishes to adopt. This would not suffice to ensure comparability or the level of mitigation ambition needed from developed countries as a group.' (Brazil 2009a:54)</p> <p>China: 'Developed country Parties shall continue to take the lead in reducing their GHG emissions so as to ensure adequate spaces for developing countries to achieve the goals of substantive development and eradication of poverty.' (China 2009a:19)</p> <p>India: 'All Annex I countries should adopt deep emission reduction targets for the medium term based not only on technology options but also by adopting specific policies and measures that promote sustainable patterns of consumption</p>

Issue / Principle	Parties' positions
	<p>and production, including life-style changes' (India 2008e:32-33)</p> <p>AOSIS: 'Developed country Parties should take the lead on addressing climate change, specifically in their commitment to reduce GHG emissions based on the principle of historical responsibility' (AOSIS 2008d:33)</p> <p>Australia: 'Australia and other advanced economies should continue to take the lead in mitigating climate change.' (Australia 2008f:73)</p> <p>EU: 'Developed countries must lead in meeting this global goal and demonstrate that a low-carbon economy is possible and affordable.' (European Commission 2009c:3)</p>
<p>f) Involvement of developing countries / non-Annex I countries (right to develop vs contributions by major emitters)</p>	<p>Brazil: 'the extent of developing country actions depends on the level of support they receive by means of enabling technology, finance and capacity building. Brazil has made it clear that it will continue to fight climate change, through national actions, to the full extent of its capacity. However, Brazil is ready to do more, if international positive incentives are established' (Brazil 2008:27)</p> <p>China: 'The right to development is a basic human right that is undeprivable. For developing countries, development is not only a fundamental condition to address climate change, but also an important element to maintain peace and security of the world. The right to development of developing countries should be adequately and effectively respected and ensured in the process of global common efforts in fighting against climate change.' (China 2009a:19; see also China 2009b:63)</p> <p>India: 'developing countries are not required to adopt a new commitment to implement measurable, reportable and verifiable mitigation actions in the absence of enabling financial and technological support from developed countries. For developing countries, MRV applies only in the context of <i>contractual arrangements</i> under which they receive financial, technological and capacity-building support to enable them to implement specific mitigation actions.' (India 2008e:155; see also India 2009d:42)</p> <p>'The Right to Development must be fully respected in the climate change regime. It must be recognized that, for poorer countries, rapid development is not only an economic and social imperative but also an essential requirement for building up a coping capacity against the adverse impacts of climate change. In this context, the imperative of development for adaptation is essential even from the point of Right to Life and basic issues of survival.' (India 2008e:31-32)</p> <p>LDCs: 'Implementation of NAMAs [Nationally Appropriate Mitigation Actions] of developing countries is contingent on provision of adequate financing and access to relevant technologies required to execute the activities' (Lesotho on behalf of LDCs 2009b:7)</p>

Issue / Principle	Parties' positions
	<p>AOSIS: 'All developing countries should take action to reduce their emission trajectories, with assistance from developed country Parties, in line with their cumulative emissions, mitigation potential and opportunities' (AOSIS 2008d:34)</p> <p>Australia: 'as part of the post-2012 outcome, as many developing countries as possible should make policy commitments implementing a range of mitigation actions.' (Australia 2008f:74)</p> <p>'Aside from general obligations stipulated in the treaty itself, Least Developed Countries would not be expected to undertake [mitigation] commitments.' (Australia 2009c:23)</p> <p>EU: 'It is becoming increasingly clear that climate change is going to have the most serious impacts in developing countries, faced with problems like flooding, drought and deforestation. So, although developed countries should continue to take the lead in reducing emissions, in particular in the immediate future, contributing to the 2°C objective is in the interest of developing countries too' (European Commission 2009c:5)</p> <p>'The EU fully agrees with the views stated by many Parties that due to their special circumstances and limited capabilities and responsibility for GHG emissions, Least Developed Countries should not have to take on any mandatory action.' (France on behalf of EC 2008f:5; see also France on behalf of EC 2008d:15)</p> <p>US: 'Some have commented that developing countries do not have any mitigation commitments under the Convention. In fact, Article 4.1 does contain mitigation commitments for all Parties. While the chapeau of that Article makes clear that not every Party is expected to implement such commitments identically, there nonetheless clearly are mitigation commitments for all.' (USA 2008d:106)</p> <p>'at least some developing countries (such as major emitters and emerging economies) should be taking the same kinds of mitigation actions as developed countries' (USA 2008c:71)</p> <p>* Developing countries should undertake 'nationally appropriate mitigation actions ... that are quantified (e.g., reduction from business-as-usual) and are consistent with the levels of ambition needed to contribute to meeting the objective of the Convention' (USA 2009:107)</p>
g) Intergenerational equity	<p>AOSIS: Actions under shared vision 'should reflect the principle of inter-generational equity – the need to protect the global climate for both present and future generations' (AOSIS 2008a:42)</p> <p>US: 'Actions should respect the development imperative of developing countries, just as all of our actions should increase the welfare of current and future generations' (USA 2008d:106)</p>
2. International support	

Issue / Principle	Parties' positions
<p>a) Basis for responsibility to commit funds (responsibility, capacity etc)</p>	<p>Brazil: Funds to be provided 'from the assessed and mandatory contributions of developed countries as part of their commitments under the UNFCCC' (Brazil 2009b:57)</p> <p>India: 'the determination of individual Annex-1 obligations shall be based on responsibility and respective capability' (India 2009b:110)</p> <p>G-77 and China: Finance to be raised through assessed contributions from Annex I countries (0.5-1% of GDP) ()</p> <p>LDCs: 'Assessed contribution of developed country Parties, taking into account GDP, historical cumulative contribution to GHG concentrations in the atmosphere' (Lesotho on behalf of LDCs 2009b:9)</p> <p>'Financial mechanism should be 'Guided by the principles of and provision of the Convention, including:</p> <ul style="list-style-type: none"> • equity, common but differentiated responsibility and respective capabilities; • polluter pays principle; • historical responsibility;...' (Lesotho on behalf of LDCs 2009b:9; see also Maldives on behalf of LDCs 2009:59) <p>AOSIS: * Funding should be 'consistent with the polluter pays principle'</p> <p>* Burden-sharing criteria for <i>adaptation</i> funding: 'Assessed contributions based on the level of countries' GHG emissions, taking into account their respective levels of development and ability to pay as well as historical responsibilities'</p> <p>* Burden-sharing criteria for <i>mitigation</i> funding: '(i) cumulative historical emissions; (ii) ability to pay (GDP).' (AOSIS 2008c:18)</p> <p>Australia: 'Criteria [for contribution of finance] should reflect the capacity of individual countries to contribute to future financial resources in line with their relative capabilities and national circumstances' (Australia 2008d:21; see also Australia 2008e:59)</p> <p>EU: International public finance contributions based on 'ability to pay' (i.e. GDP) and 'responsibility for greenhouse gas emissions' (without prejudice to internal EU burden-sharing).' (European Commission 2009a:9)</p> <p>'contributions should be dynamically assessed and regularly updated, to reflect the changing level of the criteria of contribution.' France on behalf of EC 2008c:123)</p>
<p>b) Involvement of developing countries in financing</p>	<p>Brazil: 'The financing commitments for developed countries defined by the Convention and the Bali Action Plan are an expression of the principle of common but differentiated responsibilities. Proposals to divide the burden of financing between developed and developing countries, such as global carbon taxes, contradict this principle and the basic rules of the climate change regime and it is, therefore, unacceptable and in contravention to the Bali Action Plan.' (Brazil 2009c:17)</p>

Issue / Principle	Parties' positions
	<p>AOSIS: 'Developing country Parties may also wish to make contributions to a central fund for mitigation action' (AOSIS 2008c:18)</p> <p>Australia: 'The AWG-LCA should recommend expanding the number of countries subscribed in Annex II based on current capacity to provide support.' (Australia 2008d:22)</p> <p>EU: 'it is essential to promote collective responsibility of all Parties in financing the protection of the climate, which is a global public good. Approaches mobilising contributions from all Parties should be explored in accordance with the principle of common but differentiated responsibilities and respective capabilities. This means that the poorest and most vulnerable countries could be exempted or could make small or negligible contributions to global financing mechanisms' (France on behalf of EC 2008c:122)</p> <p>* 'economically more advanced developing countries' should contribute (European Commission 2009a:3)</p> <p>'... any distribution key should be 'universal', i.e. not limited to developed countries as the responsibility for emissions today is shared' (European Commission 2009a:9)</p> <p>* "It should be explored how developing countries, except the LDCs and Small Island Developing States (SIDS), could also make increasing contributions over time, in line with their financial capability' (European Commission 2009c:10)</p> <p>US: 'Many non-Annex I Parties, and in particular the major emerging economies, have a level of financial and technical capacity far greater than two decades ago. It is important to carefully consider what national governments can be reasonably expected to do through their own policies and resources, consistent with their obligations under the Convention.' (USA 2008b:105)</p>
c) Criteria for distribution of finance	<p>Brazil: Adaptation finance should 'address the adverse effects of climate change in all developing countries, taking into account the urgent and immediate needs of developing countries defined as particularly vulnerable under the Convention, specially the LDCs, SIDs, and further taking into account the needs of countries in Africa affected by drought, desertification and floods, as well as those adaptation activities that need to be implemented over a longer time horizon.' (Brazil 2009b:56)</p> <p>India: "it is conceivable that differentiated criteria could be established for different developing country Parties or groups of developing Country Parties to match their differing needs and vulnerabilities. In general all developing country Parties would be eligible with special emphasis being laid on the needs of Vulnerable States and Least Developed Countries.' (India 2008c:148; see also India 2008b:29)</p> <p>"The criteria established for funding specific investments would largely be linked to outcomes and shall not enforce co-</p>

Issue / Principle	Parties' positions
	<p>financing from certain specified sources or harsh conditionalities that go beyond the objectives that address climate impacts as laid down under the Convention. The assessment criteria could, among other measures, include the following:</p> <ul style="list-style-type: none"> a) Impact on adaptive capacity and mitigation beyond business as usual. b) Adaptive capacity realized or emissions mitigated per unit of investment. c) Conformity to a host country's national program. d) Contribution to the host country's sustainable development objectives. e) Ability to fund the base costs directly or through other sources ...' (India 2008b:30; see also India 2008c:149) <p>LDCs: Approaches to adaptation should take into account 'the urgent and immediate needs of developing countries that are particularly vulnerable to the adverse effects of climate change especially LDCs and SIDS, and further taking into account the needs of countries Africa affected by drought, desertification and floods.' (Lesotho on behalf of LDCs 2009a:51; see also Lesotho on behalf of LDCs 2009b:10)</p> <p>Adaptation needs to take into account 'differing and specific characteristics of sub-national and national, and sub-regional and regional vulnerability, combining both physical, biological, and socio-economic aspects, including gender sensitivity' (Lesotho on behalf of LDCs 2009a:53)</p> <p>'The impacts of climate change are more felt by local communities and on national developments, therefore priority for supporting adaptation must be given to local and national level not so much at the regional level and global levels' (Lesotho on behalf of LDCs 2009b:6)</p> <p>AOSIS: 'Priority access for the most vulnerable – Particularly vulnerable developing countries especially the SIDS and LDCs should be given priority access to any financing for adaptation given their unique vulnerability, limited capacity to adapt and negligible contribution to the problem.' (AOSIS 2008c:17)</p> <p>Australia: 'The criteria for supporting mitigation activity should evaluate the relative cost-effectiveness of financial assistance, both in terms of the potential amount of emissions reduced per unit of money spent, and the degree of long-term impact in catalysing the transition to a low-carbon economy.' (Australia 2008d:23)</p> <p>'[Adaptation] [s]upport should be prioritised for those most vulnerable to climate change impacts that are least able to respond.' (Australia 2009b:19)</p> <p>'Vulnerability to climate change is a combination of (1) the exposure of individual countries to the physical impacts of climate change that differ greatly on a regional and local level, and (2) the institutional and financial capacity of individual countries to respond to those differing impacts.' (Australia 2008b:13)</p>

Issue / Principle	Parties' positions
	<p>'the traditional groupings of Parties are not necessarily an appropriate basis for identifying the most vulnerable countries. For example, many of the Parties listed as small island developing States by the UN warrant particular priority by the international community in supporting adaptation to climate change. However, not all small island developing States require this assistance. For example, Singapore, currently listed as a small island developing state, in 2006 had a per capita GDP higher than 35 Annex I countries' (Australia 2008d:23)</p> <p>'While no simple metric exists to measure capacity to adapt to climate change, there is a well-recognised link between adaptive capacity and level of human development. ... Efforts to evaluate vulnerability to climate change have been questioned because they involve judgments about the relative harm of different climate change impacts and value of adaptation responses – for example, whether it is more important to protect coastal areas from sea-level rise or develop more drought-resistant crops. Such judgments should not be made in a multilateral setting such as the UNFCCC. Decisions about which adaptation activities have priority should rest primarily with individual countries and be aligned with their broader sustainable development strategies.' (Australia 2008c:56)</p> <p>EU: 'the EU proposes that the international financial architecture be based on three core principles ...:</p> <ul style="list-style-type: none"> * <i>Effectiveness</i> – delivering and demonstrating concrete, positive outcomes, and results on climate change, in a timely manner and complying with mutual accountability...; * <i>Efficiency</i> – achieving the outcomes by the most cost-effective means, including by ensuring coherence and avoiding duplication of efforts; * <i>Equity</i> – ensuring the responsibility for these actions is shared fairly between Parties, minimising the burden on the poor and vulnerable, and that governance is legitimate and transparent as well as ensuring acceptance by all Parties.' (France on behalf of EC 2008c:120–121) <p>'Spending priorities should focus on effective mitigation action through performance-based incentives and on adaptation in developing countries' (European Commission 2009c:7)</p> <p>'Support to adaptation should give priority to the most vulnerable and poor developing countries' ((European Commission 2009a:3; see also France on behalf of EC 2008a:9, European Commission 2009c:8))</p> <p>US: Parties should 'provide financial support for the most vulnerable Parties and populations to build resilience and adapt to climate change, in particular the least developed countries and small island states' (USA 2009:111)</p>
d) Additionality	<p>China: Financial resources should be additional to existing ODA. (China 2008a:37; see also China 2009a:24)</p> <p>India: 'The financial resources committed under the Convention cannot be new and additional if they merely divert any</p>

Issue / Principle	Parties' positions
	<p>existing or likely resources, including ODA and other net foreign inflows, available for economic and social development and poverty alleviation to developing country Parties.' (India 2008a:145)</p> <p>G-77 and China: 'funding will be "new and additional" financial resources, which is over and above ODA.' (Philippines on behalf of G-77 and China 2008a:36)</p> <p>LDCs: Need for 'new, additional and predictable financial resources separate and apart from ODA' (Lesotho on behalf of LDCs 2009a:52)</p> <p>AOSIS: 'A significant injection of <u>new</u> money is required separate and apart from traditional ODA and the 0.7% target, and specifically devoted to adaptation' (AOSIS 2008c:17; emphasis in original)</p> <p>Australia: 'Australia reminds Parties that if international climate change support can be classified as ODA, then it will be reported as such and expects the AWG-LCA to apply the principles of aid effectiveness set out in the <i>Paris Declaration on Aid Effectiveness</i>' (Australia 2008e:60)</p> <p>EU: 'In the short term, grants and highly concessional loans that are ODA eligible will continue to play the central role in the public financing of adaptation measures, particularly in the LDCs and SIDS. Furthermore, in fulfilling the 0.7 % goal, world development aid will more than double ... Within this increase it will possible to accommodate some of the additional public funding required to cope with climate change, while maintaining the overall focus on reaching the Millennium Development Goals targets. As climate change imposes an additional burden to developing countries, finance provided for adaptation and mitigation should therefore not come at the expense of traditional development finance. ... In the medium/long term (after 2013), climate financing could become a blend of ODA and non-ODA resources depending on whether new financing mechanisms envisaged under the UNFCCC will progressively phase-in. In this context, ODA and additional climate change finance should be seen as complementary, and both financing streams shall support the development and implementation of national sustainable development strategies integrating climate-resilience and low-carbon development paths.' (European Commission 2009b:19)</p> <p>US: 'we have an interest in ensuring our funding is used effectively, and we are convinced that this can best be done if adaptation funding is integrated into broader development assistance' (USA 2008a:111)</p>
e) Nature of obligation to provide climate finance	<p>China: 'Developed country Parties shall take their full responsibilities under the UNFCCC in providing sufficient public funding for climate change while using enormous financial resources to deal with financial crisis.' (China 2009b:68)</p> <p>India: 'unlike in the case of "development finance", there is clear legal recognition in the UNFCCC of the "[CBDR] and respective capabilities" of Parties for addressing climate change. Accordingly, the provision of financial resources for</p>

Issue / Principle	Parties' positions
	<p>climate change must relate explicitly to this legal principle in any future climate change arrangements</p> <p>The providers of finance cannot be discretionary “donors”, but must be legally obligated “assesses”. This would also rule out repayable financial contributions; legal obligations premised upon responsibility are not repayable’. Funding should likewise not be subject to any conditionalities (India 2009e:41; see also see also India 2008b:28 and India 2008a:147)</p> <p>G-77 and China: ‘the current global financial situation does not justify any rolling back on financing commitments under the Convention. Short term financial difficulties, however serious, should not limit the support necessary to deal with the common long term interest of facing climate change’ (Philippines on behalf of G-77 and China 2008a:49)</p> <p>‘resources shall be essentially grant-based (particularly for adaptation), without prejudice to certain concessional loan arrangements in appropriate form’ (Philippines on behalf of G-77 and China 2008a:36)</p> <p>Australia: ‘the current global financial crisis should not delay or undermine the provision of new and additional financing as part of the post-2012 outcome.’ (Australia 2008e:58)</p> <p>EU: ‘The current worldwide financial crisis will have effects on the economies of all Parties. In this context, the EU stresses that such crisis cannot be an excuse to deviate from climate protection policies, which are a decisive element of long term sustainable economic development.’ (France on behalf of EC 2008c:120; see also France on behalf of EC 2008g:4)</p> <p>US: ‘the funding obligation in the UNFCCC with respect to adaptation is different from mitigation. Under Article 4.4 of the Convention, the obligation is to “assist” developing country Parties that are particularly vulnerable to the adverse effects of climate change in meeting costs of adaptation to those adverse effects – and assistance can and should take many different forms’ (USA 2008a:111)</p>
f) Compensation and insurance	<p>Brazil: Adaptation activities should include ‘Rehabilitation (and compensation) for loss and damages’ (Brazil 2009b:58)</p> <p>India: ‘Insurance is a general tool for addressing climate-related risks and hazards. As such, it may be considered as a part of the development baseline as a variety of insurance products (crop insurance, flood insurance etc.) are already in existence. However, climate change may alter the risk profiles, and given the uncertain and stochastic nature of extreme weather events may lead to the inability of existing insurance mechanisms to cope. A re-insurance mechanism to deal with catastrophic losses arising due to climate hazards may be created. A portion of the global resources generated for adaptation may be assigned for such a re-insurance Fund’ (India 2008d:25)</p> <p>LDCs: ‘Funding climate change is a commitment under the Convention for developed country Parties. It is not a donation to developing countries. It is payment for damage.’ (Lesotho on behalf of LDCs 2009b:9)</p> <p>AOSIS: ‘Multi-Window Mechanism to Address Loss and Damage from Climate Change Impacts’ should be established that</p>

Issue / Principle	Parties' positions
	<p>includes a 'Rehabilitation / Compensatory Component' to 'to address the progressive negative impacts of climate change, such as sea level rise, increasing land and sea surface temperatures and ocean acidification that result in loss and damage. Even with financial risk management mechanisms in place and efforts to reduce physical risks and exposure, some measure of loss and damage due to climate change impacts will be unavoidable and must be addressed.' (AOSIS 2008b:13-14; AOSIS 2008e:24)</p> <p>'Funding should be guided by 'Principle of State Responsibility – States have the responsibility to ensure that activities under their jurisdiction or control do not cause damage to the environment of other states or areas beyond national jurisdiction (Principle 21 of the Stockholm Declaration; Principle 2 of the Rio Declaration). Where there is a breach of this international obligation, there is a duty to cease and to make reparation.' (AOSIS 2008e:25)</p> <p>Australia: 'Risk sharing and transfer mechanisms such as insurance could be one of the options for better managing natural disasters and climate change impacts. ... It is important to remember that insurance by itself only transfers risk, it does not reduce it. Care needs to be taken to ensure insurance does not present a "moral hazard" or lead to maladaptation.' (Australia 2008c:57)</p> <p>EU: 'The EU is of the view that while insurance schemes do have a role to play in sharing the financial risk associated with climate change, they do not directly address the impacts of climate change. Such schemes should be seen as an element of a more comprehensive risk management approach, and should be established as a way of complementing and promoting overall risk management.' (France on behalf of EC 2008b:117)</p> <p>'A multilateral insurance pool to cover disaster losses should be explored to complement existing funding mechanisms in case of climate related natural disasters.' (European Commission 2009c:9)</p> <p>US: 'On the issue of insurance, the United States sees value in exploring ways the UNFCCC might catalyze development of private insurance mechanisms, micro-insurance and or indexed insurance mechanisms, and, particularly, risk reduction / risk prevention activities. However, the United States does not support calls for an additional fund or for intergovernmental insurance mechanisms' (USA 2008a:111)</p>
<p>g) Thematic priorities (adaptation, mitigation etc)</p>	<p>Brazil: 'REDD is very important as a mitigation action for developing countries with tropical forests, such as Brazil. Brazil expects that REDD will get the same level of financing and technology support as all other mitigation actions by developing countries' (Brazil 2009c:18)</p> <p>India: 'political commitment to adaptation in the UNFCCC process needs to receive the same level of attention as that given to mitigation' (India 2008d:22; see also India 2009c:109)</p>

Issue / Principle	Parties' positions
	<p>G-77 and China: 'both adaptation and mitigation must be addressed as equal priorities, redressing past imbalance and giving both their rightful place. If Annex I Parties do not reduce their increasing emissions and take urgent mitigation actions, the cost of adaptation would significantly increase' (Philippines on behalf of G-77 and China 2008c:50)</p> <p>LDCs: Need to '[d]istinguish between, and balance the needs for (i) adaptation to short-term climate shocks, due to increasing numbers of extreme events, including adaptation to the impacts of unavoidable climate change; and (ii) adaptation to long-term shifts in climatic conditions' (Lesotho on behalf of LDCs 2009a:53)</p> <p>AOSIS: 'There is a need to differentiate between securing financing for adaptation and securing financing for mitigation. Although securing financing for mitigation is a major challenge, financing for mitigation is more readily available and easier to access than financing for adaptation.' (AOSIS 2008c:20)</p> <p>EU: 'Spending priorities in the context of the Copenhagen agreement should focus on effective mitigation action through performance-based incentives and on adaptation in developing countries' (European Commission 2009c:7)</p> <p>US: 'recognizing the link between adaptation and mitigation, in that enhanced action on mitigation will reduce the need for adaptation' (USA 2009:110; see also USA 2008a:110)</p>
<p>h) Technology transfer and intellectual property rights (IPRs)</p>	<p>China: 'The existing IPR system does not match the increasing needs for accelerating D&T&D [development, transfer and deployment] of ESTs [environmentally sound technologies] to meet challenges of climate change. Compulsory licensing related patented ESTs and specific legal and regulatory arrangement to curb negative effects of monopoly powers shall be put in place as part of the efforts to implement the UNFCCC. An innovative IPR sharing arrangement shall be developed for joint development of ESTs' (China 2008a:36-37; see also China 2009a:23 and China 2009b:68)</p> <p>India: Costs covered by developed country funding for technology would include 'Compulsory licensing, cost of patents, designs, and royalties' (India 2009a:115)</p> <p>G-77 and China: A 'Technology Action Plan' should be established that 'will ensure that privately owned technologies are available on an affordable basis including through measures to resolve the barriers posed by intellectual property rights and addressing compulsory licensing of patented technologies.' (Antigua and Barbuda on behalf of G-77 and China 2008:8)</p> <p>LDCs: 'technology needs vary with level of development for instance the needs and capacities of major developing countries are significantly different from those of LDCs and therefore these groups of countries cannot be treated similarly. While the major developing countries have capacity to adapt technologies the LDCs and others will simply use these technologies as Black Boxes and therefore issues of intellectual property rights are of less significance....'</p>

Issue / Principle	Parties' positions
	<p>Intellectual property rights should not and must not be an excuse fulfilling commitments under the Convention.” (Lesotho on behalf of LDCs 2009b:7)</p> <p>AOSIS: ‘Adaptation technologies must be given the same prominence as mitigation technologies. SIDS and low-lying developing States are already experiencing the adverse effects of global climate change, and adaptation technologies applicable to SIDS and low-lying developing States are required now.’ (AOSIS 2008a:45)</p> <p>Australia: ‘While advanced economies can help finance clean development, it is not always Annex I countries whose economies drive low emission technologies. Technology is a global commodity. For some, the development and deployment of advanced technologies form a core part of their economy. Other countries, including Australia, rely heavily on importing technologies from other countries. As a rule, Australia imports wind turbines from China, and not the reverse. ... non-Annex I Parties represent eleven of the top twelve countries with the highest proportion of high-technology exports in 2005’ (Australia 2008g:17)</p> <p>‘the availability of technology is not well aligned to the current Annex I/non-Annex I categories of the UNFCCC’ (Australia 2008g:18)</p> <p>‘Since 1990, many non-Annex I parties have dramatically improved their technological capacities and do not require the same forms or levels of assistance to support technology cooperation.’ (Australia 2008h:91)</p> <p>‘Ownership of intellectual property (IP) rights is not a significant barrier to technology cooperation or use.’ (Australia 2008h:93)</p> <p>EU: ‘Protecting IPRs is necessary to encourage research, technology development and demonstration, as well as large-scale deployment. Well established and enforced IPR rules also help technology transfer through increasing the willingness of enterprises to invest and license technology in emerging and developing countries. Countries should explore options to strengthen IPR frameworks to protect and share technology and further strengthening incentives for innovation.’ (European Commission 2009d:8-9)</p> <p>US: ‘protection by countries of intellectual property rights is an essential component of an overall strategy to promote technology innovation, diffusion and transfer’ (USA 2008c:74)</p>

6. Attachment B: Assigning mitigation responsibilities

	Immediate ‘comparable effort’ formula	Long-run ‘equal per capita shares’ formula
Variable affluence	Other things being equal, equally affluent countries must reduce their per capita emissions by an equal percentage; more affluent countries must reduce by more and less affluent ones by less	all countries converge on equal per capita emission caps, based on some baseline population for each; this per capita cap is set by long-run mitigation goals; capability irrelevant to targets
Variable current emissions	Other things being equal, countries with equal per capita emissions must reduce those emissions by an equal percentage; bigger polluters countries must reduce by more and smaller ones by less	(see above)
Variable abatement costs	Other things being equal, countries with lower per unit abatement costs must reduce their per capita emissions proportionally more, while those with higher per unit costs face lower percentage cuts; equal per unit costs are assigned equal percentage cuts	(see above)
Geographic/resource variation	Such variation affects thresholds for survival emissions, which are by definition fixed, so the above formulae should be read in terms of assigned reductions of luxury but not survival emissions	(see above)
Variable cumulative emissions	near-future targets must be based on current national emissions, but this rewards inaction since the UNFCCC and punishes those countries engaging in proactive mitigation efforts since 1990; while variable current emissions and abatement costs partially account for post-1990 efforts,	Capacity and responsibility proposal would have those nations with greater historical emissions facing steeper cuts in per capita emissions in the short run, ceteris paribus, but they would converge on the same per capita entitlements in the long run; endorsing the proposal thus entails marginally higher

	<p>some argue that full or partial historical emissions should inform mitigation targets</p> <p>Capacity and responsibility proposal: other things being equal, nations with higher post-1990 emissions must reduce their per capita emissions by more, and those with lower reduce by less</p>	<p>short term mitigation burdens for early industrialising countries and marginally lower ones for those countries industrialising later, but variability in historical emissions would be irrelevant to the assignment of long term emissions targets</p>
--	--	--

7. Glossary

AOSIS	Alliance of Small Island States
AWG-LCA	Ad hoc working group on long-term cooperative action under the Convention
	Common but differentiated responsibilities
CBDR	Common but differentiated responsibilities
ESTs	Environmentally sound technologies
GHG	Greenhouse gas(es)
IPCC	Intergovernmental Panel on Climate Change
LDCs	Least developed countries
MRV	Measurable, reportable and verifiable
NAMAs	Nationally appropriate mitigation actions
ODA	Official Development Assistance
REDD	Reducing emissions from deforestation and forest degradation
SIDS	Small Island Developing States
UNFCCC	United Nations Framework Convention on Climate Change

Bibliography

- Adger, W.N., S. Agrawala, M.M.Q. Mirza, C. Conde, K. O'Brien, J. Pulhin, R. Pulwarty, B. Smit, and K. Takahashi. 2007. Assessment of adaptation practices, options, constraints and capacity. In *Climate change 2007: Impacts, adaptation and vulnerability. Contribution of working group ii to the fourth assessment report of the Intergovernmental Panel on Climate Change*, edited by M. L. Parry, O. F. Canziani, J. P. Palutikof, P. J. v. d. Linden and C. E. Hanson. Cambridge, UK: Cambridge University Press. 717–43.
- Aldy, J.E., S. Barrett, and R.N. Stavins. 2003. Thirteen plus one: A comparison of global climate policy architectures. *SSRN eLibrary*, <http://ssrn.com/paper=385000>.
- Antigua and Barbuda on behalf of G-77 and China. 2008. A technology mechanism under the UNFCCC (27 August 2008). Bonn: UNFCCC. FCCC/AWGLCA/2008/MISC.5 (27 October 2008). 6–9.
- AOSIS. 2008a. AOSIS input into the assembly document: “shared vision”. Bonn: UNFCCC. FCCC/AWGLCA/2008/Misc.5/Add.2 (Part I) (10 December 2008). 40–48.
- . 2008b. AOSIS input into the assembly paper on adaptation. Bonn: UNFCCC. FCCC/AWGLCA/2008/Misc.5/Add.2 (Part I) (10 December 2008). 9–16.
- . 2008c. AOSIS input into the assembly paper on financing. Bonn: UNFCCC. FCCC/AWGLCA/2008/Misc.5/Add.2 (Part I) (10 December 2008). 17–23.
- . 2008d. AOSIS input into the assembly paper on mitigation. Bonn: UNFCCC. FCCC/AWGLCA/2008/Misc.5/Add.2 (Part I) (10 December 2008). 33–37.

- . 2008e. Multi-window mechanism to address loss and damage from climate change impacts. Bonn: UNFCCC. FCCC/AWGLCA/2008/Misc.5/Add.2 (Part I) (10 December 2008). 24–32.
- Australia. 2008a. Emissions trading and the project-based mechanisms: Submission to the AWG-KP and the AWG-LCA. Bonn: UNFCCC. FCCC/AWGLCA/2008/MISC.2/Add.1 (27 August 2008). 10–12.
- . 2008b. Enhanced action on adaptation: Submission to the AWG-LCA. Bonn: UNFCCC. FCCC/AWGLCA/2008/MISC.2/Add.1 (27 August 2008). 13–16.
- . 2008c. Enhanced action on adaptation: Submission to the AWG-LCA (24 November 2008). Bonn: UNFCCC. FCCC/AWGLCA/2008/Misc.5/Add.2 (Part I) (10 December 2008). 56–57.
- . 2008d. Enhanced action on financial resources and investment: Submission to the AWG-LCA. Bonn: UNFCCC. FCCC/AWGLCA/2008/MISC.2/Add.1 (27 August 2008). 21–23.
- . 2008e. Enhanced action on financial resources and investment: Submission to the AWG-LCA and the AWG-KP (24 November 2008). Bonn: UNFCCC. FCCC/AWGLCA/2008/Misc.5/Add.2 (Part I) (10 December 2008). 58–60.
- . 2008f. Mitigation: Submission to the AWG-LCA and the AWG-KP (24 November 2008). Bonn: UNFCCC. FCCC/AWGLCA/2008/Misc.5/Add.2 (Part I) (10 December 2008). 73–79.
- . 2008g. Technology cooperation: Submission to the AWG-LCA. Bonn: UNFCCC. FCCC/AWGLCA/2008/MISC.2/Add.1 (27 August 2008). 17–20.
- . 2008h. Technology cooperation: Submission to the AWG-LCA (24 November 2008). Bonn: UNFCCC. FCCC/AWGLCA/2008/Misc.5/Add.2 (Part I) (10 December 2008). 91–93.
- . 2009a. Economic cost as an indicator for comparable effort: Submission to the AWG-KP and AWG-LCA (26 March 2009). Bonn: UNFCCC. FCCC/AWGLCA/2009/MISC.1/Add.3 (27 March 2009). 20–22.
- . 2009b. Enhanced action on adaptation (24 April 2009). Bonn: UNFCCC. FCCC/AWGLCA/2009/MISC.4 (Part I) (19 May 2009). 19–21.
- . 2009c. Schedules in a post 2012 treaty (24 April 2009). Bonn: UNFCCC. FCCC/AWGLCA/2009/MISC.4 (Part I) 44–51.
- Baer, P., T. Athanasiou, S. Kartha, and E. Kemp-Benedict. 2008. *The greenhouse development rights framework: The right to development in a climate constrained world*. 2nd ed. Berlin: Heinrich Böll Foundation, Christian Aid, EcoEquity and the Stockholm Environment Institute.
- Barrett, S. 2003. *Environment and statecraft: The strategy of environmental treaty-making* Oxford: Oxford University Press.
- Belarus on behalf of Russian Federation and Ukraine. 2009. Comments on non-papers of the bangkok session. Bonn: UNFCCC. http://unfccc.int/files/kyoto_protocol/application/pdf/belarus261009.pdf.
- Birnie, P., A. Boyle, and C. Redgwell. 2009. *International law and the environment*. 3rd ed. Oxford: Oxford University Press.
- Bodansky, D. 1993. The United Nations framework Convention on climate change: A commentary. *Yale Journal of International Law* 18:451–558.

- Brazil. 2008. Views and proposals on paragraph 1 of the Bali Action Plan (30 September 2008). Bonn: UNFCCC. FCCC/AWGLCA/2008/MISC.5 (27 October 2008). 26–32.
- . 2009a. Submission from Brazil on subparagraph 1.B.I of the Bali Action Plan (mitigation by Annex I countries) (24 April 2009). Bonn: UNFCCC. FCCC/AWGLCA/2009/MISC.4 (Part I) (19 May 2009). 54.
- . 2009b. Submission of Brazil on enhanced action on adaptation and its means of implementation, in the context of the Bali Action Plan (24 April 2009). Bonn: UNFCCC. FCCC/AWGLCA/2009/MISC.4 (Part I) (19 May 2009). 56–59.
- . 2009c. Views and proposals on paragraph 1 of the Bali Action Plan (6 February 2009). Bonn: UNFCCC. FCCC/AWGLCA/2009/MISC.1 (13 March 2009). 17–18.
- Brown, D., N. Tuana, M. Averill, P. Baer, R. Born, C.E. Lessa Brandão, R. Frodeman, T. Heyd, J. Lemons, R. McKinstry, M. Lutes, B. Müller, J.D. Gonzalez Miguez, M. Munasinghe, M.S. Muylaert de Araujo, C. Nobre, J. Paavola, C. Pires de Campos, L. Pinguelli Rosa, J. Rosales, A. Rose, E. Wells, and L. Westra. 2006. *White Paper on the ethical dimensions of climate change*. University Park, PA: Rock Ethics Institute.
<http://www.psu.edu/dept/rockethics/climate/whitepaper/edcc-whitepaper.pdf>.
- Caney, S. 2005. Cosmopolitan justice, responsibility, and global climate change. *Leiden Journal of International Law* 18:747–75.
- . 2006. Cosmopolitan justice, rights and global climate change. *Canadian Journal of Law and Jurisprudence* 19 (2):255–78.
- . 2009. Justice and the distribution of greenhouse gas emissions. *Journal of Global Ethics* 5 (2):125–46.
- China. 2008a. China's views on enabling the full, effective and sustained implementation of the Convention through long-term cooperative action now, up to and beyond 2012 (28 September 2008). Bonn: UNFCCC. FCCC/AWGLCA/2008/MISC.5 (27 October 2008). 33–38.
- . 2008b. Shared vision for long-term cooperative action (6 December 2008). Bonn: UNFCCC. FCCC/AWGLCA/2008/MISC.5/Add.2 (Part I) (10 December 2008). 114–15.
- . 2009a. China's views on the fulfillment of the Bali Action Plan and the components of the agreed outcome to be adopted by the conference of the parties at its 15th session. Bonn: UNFCCC. FCCC/AWGLCA/2009/MISC.1 (13 March 2009). 19–24.
- . 2009b. Elements to be included in the draft negotiating text (24 April 2009). Bonn: UNFCCC. FCCC/AWGLCA/2009/MISC.4 (Part I) (19 May 2009). 63–68.
- Czech Republic on behalf of EC. 2009a. Enhanced action on mitigation (1bi, 1bii of the Bali Action Plan) (29 March 2009). Bonn: UNFCCC. FCCC/AWGLCA/2009/MISC.1/Add.4 (7 April 2009). 10–14.
- . 2009b. A negotiation text for consideration at AWG-LCA 6 (28 April 2009). Bonn: UNFCCC. FCCC/AWGLCA/2009/MISC.4 (Part I) (19 May 2009). 83–93.

- Dellink, R., M. den Elzen, H. Aiking, E. Bergsma, F. Berkhout, T. Dekker, and J. Gupta. 2009. Sharing the burden of financing adaptation to climate change. *Global Environmental Change* 19:411–21.
- European Commission. 2009a. Stepping up international climate finance: A European blueprint for the Copenhagen deal. Brussels. COM(2009) 475/3.
- . 2009b. Stepping up international climate finance: A European blueprint for the Copenhagen deal: Commission staff working document. Brussels. SEC(2009) 1172/2.
- . 2009c. Towards a comprehensive climate change agreement in Copenhagen. Brussels: European Commission. COM(2009) 39 final (28 January 2009).
- . 2009d. Towards a comprehensive climate change agreement in Copenhagen: Additional background information [commission staff working document]. Brussels: European Commission. SEC(2009) 101.
http://ec.europa.eu/environment/climat/pdf/future_action/additional_background.pdf.
- France on behalf of EC. 2008a. Adaptation, including technology and finance (30 July 2008). Bonn: UNFCCC. FCCC/AWGLCA/2008/MISC.2 (14 August 2008). 8–12.
- . 2008b. Enhanced action on adaptation (21 November 2008). Bonn: UNFCCC. FCCC/AWGLCA/2008/Misc.5/Add.2 (Part I) (10 December 2008). 116–19.
- . 2008c. Enhanced action on the provision of financial resources and investment to support action on mitigation and adaptation and technology cooperation (21 November 2008). Bonn: UNFCCC. FCCC/AWGLCA/2008/Misc.5/Add.2 (Part I) (10 December 2008). 120–25.
- . 2008d. Enhanced national/international action on mitigation of climate change (14 November 2008). Bonn: UNFCCC. FCCC/AWGLCA/2008/MISC.5/Add.1 (21 November 2008). 13–16.
- . 2008e. EU ideas on elements contained in paragraph 1 of the Bali action plan, for the purpose of the assembly document (6 December 2008). Bonn: UNFCCC. FCCC/AWGLCA/2008/Misc.5/Add.2 (Part I) (10 December 2008). 126–34.
- . 2008f. Mitigation, including technology and finance (30 July 2008). Bonn: UNFCCC. FCCC/AWGLCA/2008/MISC.2 (14 August 2008). 4–7.
- . 2008g. A shared vision for long-term cooperative action (14 November 2008). Bonn: UNFCCC. FCCC/AWGLCA/2008/MISC.5/Add.1 (21 November 2008). 4–7.
- Gardiner, S., S. Caney, D. Jamieson, and H. Shue, eds. forthcoming, 2010. *Climate ethics: Essential readings*. Oxford: Oxford University Press.
- Gardiner, S.M. 2004. Ethics and global climate change. *Ethics* 114:555–600.
- Goodin, R.E. 1986. *Protecting the vulnerable: A reanalysis of our social responsibilities*. Chicago: Chicago University Press.
- Hayward, T. 2007. Human rights versus emissions rights: Climate justice and the equitable distribution of ecological space. *Ethics & International Affairs* 21 (4):431–50.
- Heyward, M. 2007. Equity and international climate change negotiations: A matter of perspective. *Climate Policy* 7:518–34.

- India. 2008a. Financing architecture for meeting financial commitments under the UNFCCC (4 December 2008). Bonn: UNFCCC. FCCC/AWGLCA/2008/Misc.5/Add.2 (Part I) (10 December 2008). 145–49.
- . 2008b. Financing architecture for meeting financial commitments under the UNFCCC (17 October 2008). Bonn: UNFCCC. FCCC/AWGLCA/2008/MISC.5/Add.1 (21 November 2008). 26–30.
- . 2008c. Government of India submission on financing architecture for meeting financial commitments under the UNFCCC (4 December 2008). Bonn: UNFCCC. FCCC/AWGLCA/2008/Misc.5/Add.2 (Part I) (10 December 2008). 145–49.
- . 2008d. Government of India submission to UNFCCC on enhancing action on adaptation (17 October 2008). Bonn: UNFCCC. FCCC/AWGLCA/2008/MISC.5/Add.1 (21 November 2008). 21–25.
- . 2008e. Government of India submission to UNFCCC on long term co-operative action (17 October 2008). Bonn: UNFCCC. FCCC/AWGLCA/2008/MISC.5/Add.1 (21 November 2008). 31–33.
- . 2009a. Development and transfer of technologies under the Convention (24 April 2009). Bonn, Germany: UNFCCC. FCCC/AWGLCA/2009/MISC.4 (Part I) (19 May 2009). 114–16.
- . 2009b. Enhanced action for provision of financial resources under the Convention (24 April 2009). Bonn, Germany: UNFCCC. FCCC/AWGLCA/2009/MISC.4 (Part I) (19 May 2009). 110–11.
- . 2009c. Enhanced action on adaptation and its means of implementation (24 April 2009). Bonn, Germany: UNFCCC. FCCC/AWGLCA/2009/MISC.4 (Part I) (19 May 2009). 109.
- . 2009d. Submission to UNFCCC on nationally appropriate mitigation actions (NAMAs) by developing countries. Bonn, Germany: UNFCCC. FCCC/AWGLCA/2009/MISC.1 (13 March 2009). 42.
- . 2009e. Supplemental submission by India: Why financial contributions to the financial mechanism of the UNFCCC cannot be under the paradigm of 'aid'. Bonn, Germany: UNFCCC. FCCC/AWGLCA/2009/MISC.1 (13 March 2009). 41.
- IPCC. 2007. *Climate change 2007: Synthesis report*. Cambridge, UK: Cambridge University Press.
- Jagers, S.C., and G. Duus-Otterström. 2008. Dual climate change responsibility: On moral divergences between mitigation and adaptation. *Environmental Politics* 17 (4):576–91.
- Klein, R.J.T., S. Huq, F. Denton, T.E. Downing, R.G. Richels, J.B. Robinson, and F.L. Toth. 2007. Inter-relationships between adaptation and mitigation. In *Climate change 2007: Impacts, adaptation and vulnerability. Contribution of working group ii to the fourth assessment report of the Intergovernmental Panel on Climate Change*, edited by M. L. Parry, O. F. Canziani, J. P. Palutikof, P. J. van der Linden and C. E. Hanson. Cambridge, UK: Cambridge University Press. 745–77.
- Klinsky, S., and H. Dowlatabadi. 2009. Conceptualizations of justice in climate policy. *Climate Policy* 9:88–108.

- Lange, A., A. Löschel, C. Vogt, and A. Ziegler. 2009. On the self-interested use of equity in international climate negotiations. *National Bureau of Economic Research Working Paper 14930*, <http://www.nber.org/papers/w14930>.
- Lange, A., C. Vogt, and A. Ziegler. 2007. On the importance of equity in international climate policy: An empirical analysis. *Energy Economics* 29:545–62.
- Lesotho on behalf of LDCs. 2009a. Adaptation and means of implementation (6 February 2009). Bonn: UNFCCC. FCCC/AWGLCA/2009/MISC.1 (13 March 2009). 51–55.
- . 2009b. Fulfillment of the Bali Action Plan and the components of the agreed outcome to be adopted by the conference of the parties at its fifteenth session (AWG-LCA) (30 April 2009). Bonn: UNFCCC. FCCC/AWGLCA/2009/MISC.4 (Part II) (19 May 2009). 5–10.
- Maldives on behalf of LDCs. 2009. International air passenger adaptation levy (13 December 2008). Bonn: UNFCCC. FCCC/AWGLCA/2009/MISC.1 (13 March 2009). 59–60.
- Mexico. 2008. Submission by Mexico (13 August 2008). Bonn: UNFCCC. FCCC/AWGLCA/2008/MISC.2 (14 August 2008). 40–45.
- Miller, D. 1999. *Principles of social justice*. Oxford: Oxford University Press.
- . 2001. Distributing responsibilities. *Journal of Political Philosophy* 9 (4):453–71.
- Miller, S. 2008. Collective responsibility and information and communication technology. In *Moral philosophy and information technology*, edited by J. van den Hoven and J. Weckert. New York: Cambridge University Press. 226–50.
- Müller, B. 2002. *Equity in climate change: The great divide*. Oxford: Oxford Institute for Energy Studies. <http://www.oxfordenergy.org/pdfs/EV31.pdf>.
- Murphy, L., and T. Nagel. 2002. *The myth of ownership: Taxes and justice*. New York; Oxford, UK: Oxford University Press.
- Ott, H.E., W. Sterk, and R. Watanabe. 2008. The Bali roadmap: New horizons for global climate policy. *Climate Policy* 8 (1):91–95.
- Page, E.A. 2006. *Climate change, justice and future generations*. Northampton, MA: Edward Elgar.
- . 2008. Distributing the burdens of climate change. *Environmental Politics* 17 (4):556–75.
- Persson, Å., R.J.T. Klein, C.K. Siebert, A. Atteridge, B. Müller, J. Hoffmaister, M. Lazarus, and T. Takama. 2009. *Adaptation finance under a Copenhagen agreed outcome*. Research Report. Stockholm: Stockholm Environment Institute.
- Philippines on behalf of G-77 and China. 2008a. Financial mechanism for meeting financial commitments under the Convention (25 August 2008). Bonn: UNFCCC. FCCC/AWGLCA/2008/MISC.2/Add.1 (27 August 2008). 35–37.
- . 2008b. Mitigation and means of implementation (6 December 2008). Bonn: UNFCCC. FCCC/AWGLCA/2008/MISC.5/Add.2 (Part II) (10 December 2008). 48–49.
- . 2008c. Shared vision (6 December 2008). Bonn: UNFCCC. FCCC/AWGLCA/2008/MISC.5/Add.2 (Part II) (10 December 2008). 50–51.

- Posner, E.A., and C.R. Sunstein. 2007. Climate change justice. *Georgetown Law Journal* 96:1564–612.
- Roberts, J.T., and B.C. Parks. 2007. *A climate of injustice: Global inequality, North–South politics, and climate policy*. Cambridge, MA: MIT Press.
- Russian Federation. 2008. Ideas and proposals on the elements of paragraph 1 of the decision 1/cp.13 (Bali Action Plan) (30 September 2008). FCCC/AWGLCA/2008/MISC.5 (27 October 2008). 81–85.
- Shelton, D. 2007. Equity. In *Oxford handbook of international environmental law*, edited by D. Bodansky, J. Brunnée and E. Hey. Oxford: Oxford University Press. 640–62.
- Shue, H. 1993. Subsistence emissions and luxury emissions. *Law and policy* 15 (1).
———. 1999. Global environment and international inequality. *International Affairs* 75 (3):531–45.
- Singer, P. 2002. *One world: The ethics of globalisation*. Melbourne: Text.
- Stern, N. 2007. *The economics of climate change: The Stern review*. Cambridge, UK; New York: Cambridge University Press.
- Switzerland. 2008. Funding scheme for Bali Action Plan: A Swiss proposal for global solidarity in financing adaptation (21 August 2008). Bonn: UNFCCC. FCCC/AWGLCA/2008/MISC.2/Add.1 (27 August 2008). 40–47.
- Tol, R.S.J., and R. Verheyen. 2004. State responsibility and compensation for climate change damages—a legal and economic assessment. *Energy Policy* 32 (9):1109–30.
- USA. 2008a. Adaptation: Ad hoc working group on long–term cooperative action under the Convention (1 October 2008). Bonn: UNFCCC. FCCC/AWGLCA/2008/MISC.5 (27 October 2008). 109–11.
———. 2008b. Finance and technology: Ad hoc working group on long–term cooperative action under the Convention (30 September 2008). Bonn: UNFCCC. FCCC/AWGLCA/2008/MISC.5 (27 October 2008). 105.
———. 2008c. Ideas and proposals on the elements contained in paragraph 1 of the Bali Action Plan: Submissions from parties: Addendum: Part ii (6 December 2008). Bonn: UNFCCC. FCCC/AWGLCA/2008/MISC.5/Add.2 (Part II) (10 December 2008). 71–75.
———. 2008d. Mitigation and its associated means of implementation: Ad hoc working group on long–term cooperative action under the Convention (30 September 2008). Bonn: UNFCCC. FCCC/AWGLCA/2008/MISC.5 (27 October 2008). 106–07.
———. 2009. Copenhagen agreed outcome (4 May 2009). Bonn: UNFCCC. FCCC/AWGLCA/2009/MISC.4 (Part II) (19 May 2009). 106–13.
- Vallentyne, P. 2007. Distributive justice. In *A companion to contemporary political philosophy*, edited by R. E. Goodin, P. Pettit and T. Pogge. 2nd ed. Vol. 2. Oxford; Cambridge, MA: Blackwell. 548–62.
- Vanderheiden, S. 2008a. *Atmospheric justice: A political theory of climate change*. New York: Oxford University Press.

- . 2008b. Climate change, environmental rights, and emission shares. In *Political theory and global climate change*, edited by S. Vanderheiden. Cambridge, MA: The MIT Press. 43–66.
- . 2009. Distinguishing mitigation and adaptation. *Ethics, Place and Environment* 12 (3):283–86.
- von der Goltz, J. 2009. *High stakes in a complex game: A snapshot of the climate change negotiating positions of major developing country emitters*. CGD Working Paper 177. Washington, DC: Center for Global Development.
- World Bank. 2009. *Development and climate change*. World Development Report 2010. Washington, DC: World Bank.
<http://siteresources.worldbank.org/INTWDR2010/Resources/5287678-1226014527953/WDR10-Full-Text.pdf>.
- World Resources Institute. 2009. Summary of UNFCCC submissions (August 2009).
http://pdf.wri.org/working_papers/unfccc_wri_submissions.pdf.