

# Neoclassical realism and international climate change politics: moral imperative and political constraint in international climate finance

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In this article, I present a neoclassical realist theory of climate change politics that challenges the idea that cooperation on climate change is compelled alone by shared norms and interests emanating from the international level and questions if instead material factors also play a significant constraining role. Relative-gains concerns incited by the international resource transfers implicit in climate change policy may compel some states to be prudent in their international climate change efforts and conserve resources domestically for future contingencies, including their own adaptation and resiliency. Neoclassical realism recognises such systemic constraints while also identifying international and domestic factors — a ‘two-level game’ — that explain variation in state sensitivity to relative gains. As a preliminary test of this theory, I compare the latest data on the magnitude, distribution and financial ‘additionality’ of climate funds and carbon markets. Climate funds are found to be more vulnerable to systemic forces identified by neoclassical realism because they are largely drawn from existing official development assistance budgets despite international commitments that funds are ‘new and additional’. Carbon markets engage a relatively broader number of states and, contrary to moral hazard concerns, have been used to a greater degree by states reducing emissions domestically. While there are concerns about whether carbon credits represent genuine emission reductions, the effectiveness of climate funds is equally, if not more, dubious. I conclude that, while imperfect, carbon markets have too often been unfairly compared with an ideal climate finance mechanism that assumes few political constraints on international resource transfers for climate change.

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## Introduction

In this article, I present a neoclassical realist theory of climate change politics that questions whether the design of the international climate change regime and lack of



recognition of climate science and norms of climate justice are the primary obstacles preventing meaningful progress on climate change. The overwhelming attention paid to regime design (Keohane and Victor 2011: 7–8; Ostrom 2010; Victor 2011) and norm penetration (Gardiner 2004; Grundmann 2007), while not unimportant, still leaves other important politics in the dark. Nearly 30 years ago, Strange (1983: 349) argued that regime analysis ‘encourages academics to practice a kind of analytical *chiaroscuro* that leaves in shadow all the aspects of the international economy where no regimes exist and where each state elects to go its own way’.

As an alternative, the neoclassical realist theory I present recognises systemic constraints on climate change cooperation — relative-gains concerns associated with international resource transfers implicit in climate change policy — while also identifying political factors that help explain variation in individual state behaviour. Here I elaborate a two-level game (*sensu* Putnam 1988) where I distinguish between political forces that influence the state leadership’s sensitivity to relative-gains concerns, including international political forces (international and state specific) as well as domestic ones. By identifying centrifugal forces that may induce states to go their ‘own way’ — though not in themselves determining state behaviour — neoclassical realism offers considerable innovation over neoliberal institutionalism and constructivism, which both assume that cooperation on climate change will be compelled by shared norms and interests emanating from the international level.<sup>1</sup> Nonetheless, while there is a tragic character to classical realist thought (Lebow 2003), I maintain that neoclassical realism does not succumb to the determinism often associated with neorealism — that systemic forces alone affect state behaviour — and leaves more room for effective moral action, especially when climate strategies recognise political constraints.

I undertake a preliminary test of my neoclassical realist theory of climate change politics by comparing two forms of international climate finance: carbon markets and climate funds. Finance is a key issue in climate change politics. The United Nations (UN) has estimated that between US\$200–340 billion per year needs to be directed towards mitigation efforts in the developing world and \$67–130 billion per year is needed for climate change adaptation — *in addition to* current international financial flows (United Nations Framework Convention on Climate Change (UNFCCC) 2007: 6 and 8; 2008: 54; Parry *et al.* 2009: 14). In the Copenhagen and Cancun Accords, developed countries committed to deliver \$100 billion per year by 2020, from public and private sources, to support mitigation and adaptation activities in developing countries (UNFCCC 2009: Paragraph 8; 2010a: Paragraphs 97–111). However, the means of sourcing such financing has been an area of considerable discussion and debate. As Jinnah *et al.* (2009: 5) observe, ‘the fund/public *vs* market discussion underlies virtually all issues considered [in climate change negotiations]’. While climate finance is not the only issue in climate change politics, it is one of the most salient ones.



Particular criticism has been directed of late towards the international carbon market, especially the Clean Development Mechanism (CDM) of the Kyoto Protocol (Prins and Rayner 2007; Barrett 2005: 359–98; Wara 2008; Paulsson 2009; Böhm and Dhabbi 2011; Victor 2011: 90–6).<sup>2</sup> The exchange of carbon credits between developed and developing worlds is arguably losing political support — the CDM only just survived 2012 UN climate change talks where a (much less ambitious) second commitment period for the Kyoto Protocol was agreed (IISD 2012). Even the European Union (EU), which remains a key player in Kyoto’s carbon market, is reconsidering its level of engagement with the CDM. The European Commission is currently considering limiting access to the CDM in the EU Emissions Trading Scheme (EU-ETS), arguing that ‘the quantity limit of international credits in the period 2008 to 2020 has turned out to be rather generous and is a major driver for the build-up of the surplus [emission allowances]’ (European Commission 2012: 9). Disappointed with the approach of the Kyoto Protocol and CDM, some have called for climate funds as an alternative strategy (Newell *et al.* 2011; Wara 2008; Prins and Rayner 2007). Such funds have arisen rapidly following a commitment in Copenhagen towards \$30 billion in ‘fast-start’ finance for 2010–2012 (UNFCCC 2009: Paragraph 8, 2010a: 95). The UNFCCC is also establishing a Green Climate Fund that is intended to ‘play a key role in channelling new, additional, adequate and predictable financial resources to developing countries and will catalyse climate finance, both public and private, and at the international and national levels’ (UNFCCC 2011: Paragraph 3).

In this article, I examine the latest data on the magnitude, distribution and financial ‘additionality’ of carbon markets and climate funds and consider their relative effectiveness in actually reducing emissions. Briefly, my comparison indicates that the latter are more at risk of systemic forces identified by neoclassical realism: climate funds are drawn almost entirely from official development assistance (ODA) budgets while carbon markets leverage more of their seed financing from the private sector and have engaged a broader number of states in the process. There is a very real chance that resources pledged to climate funds will eat further into ODA (despite calls for ‘new and additional’ financing). While there are concerns about whether carbon credits represent genuine emission reductions, measurement of the effectiveness of climate funds is equally, if not more, dubious. Ultimately, while carbon markets are far from perfect, they have too often been unfairly compared with an ideal climate finance mechanism that assumes few political constraints on international mitigation and adaptation efforts (see Price 2008: 199–200). Though I am sympathetic to critiques of market-based solutions, neoclassical realism admonishes that political choices can often only be made between deeply imperfect choices.

The article proceeds as follows. First, I introduce neoclassical realism and demonstrate how it differs from neoliberal institutionalism and constructivism,



particularly in terms of its recognition of relative-gains concerns. Second, I describe the relative gains implicit in climate change policy. Third, recognising that not all relative gains are politically salient, I explain whether relative-gains concerns emerge through a two-level game that combines systemic and domestic political factors to explain individual state behaviour. Finally, I test this two-level model by comparing state engagement with carbon markets and climate funds.

### **Towards a neoclassical realist theory of climate change politics**

Realist arguments are rare in the literature on climate change politics. Paterson (1996: 67–71), for example, has held that neorealism — arguably the dominant theory in international relations until recently — is inadequate for explaining climate change politics because of its denial of the influence of domestic actors, international moral norms and epistemic communities and its questionable ontological foundations that appear to deny change and political transcendence (Donnelly 2000: 161–67). Such criticisms are, in my view, warranted. However, neorealism is not representative of the full breadth of realist thought. Neoclassical realism in particular asserts that international relations are co-determined by systemic and domestic-level politics (Rose 1998; Sterling-Folker 1997, 2002; Taliaferro *et al.* 2009), leaving greater space for moral action, which has always been an element of classical realist thought (Donnelly 2000; Lebow 2003).

The advantage of a realist posture to climate change politics is its recognition of an important systemic variable overlooked in neoliberal institutionalism and constructivism: the redistribution of material capabilities and the relative-gains concerns that it triggers. Realists have maintained that states are concerned not with absolute gains but with the possibility of losing their position relative to other states in the international system (Mearsheimer 1994: 12). This does not preclude all forms of cooperation. Rather, the international regime ultimately agreed upon will be one that has the most acceptable relative-gains distribution for the most powerful states (Krasner 1991). The moral implications of this for less powerful states are troubling. Recognition of relative-gains concerns gives formal expression to the tragic character that informs much classical realist thought (Lebow 2003). However, neoclassical realism recognises that relative-gains concerns are not in themselves determinant of state behaviour. It accepts that states will vary in their sensitivity to relative gains concerns because climate change is a two-level game involving international political forces (international and state specific) as well as domestic ones to which state leaders must respond. Some of these forces, particularly domestic ones, will be moral in nature.

Neoclassical realism can be applied to climate change politics. Pending a technological breakthrough that would rapidly bring down costs, climate



change mitigation and adaptation require the international redistribution of politically salient levels of resources (Grundig 2006; Vezirgiannidou 2008). Increasing concerns over relative gains may compel the state leadership of certain states to be prudent in their international efforts and conserve resources domestically for future contingencies, including their state's own adaptation to climate change. As climate change proceeds, domestic adaptation and resiliency may increasingly be favoured because it avoids dilemmas facing international mitigation and adaptation.

However, before moving forward with my argument it is important — particularly for the reader who is more knowledgeable of climate change policy than international relations theory — to review briefly why relative gains are dismissed in neoliberal institutionalism and constructivism, theories which inform much of current climate change policy. I do not argue that these theories are wrong, but that under certain conditions — when relative gains are sufficiently large — many of their underlying assumptions about the irrelevance of relative gains no longer apply. The upshot of the neoclassical realist critique of neoliberal institutionalism is that the design of the international regime (or regime complex) may not be the most important factor frustrating cooperation on climate change. The neoclassical realist critique of constructivism is that state leadership may already possess sufficient scientific knowledge of climate change and be cognisant of the moral implications of the failure to act, but is still constrained by other political factors.

### **Relative-gains concerns in neoliberal institutionalist and constructivist explanations of climate change politics**

Neoliberal institutionalism's main premise is that international institutions can structure policy outcomes to the benefit of all players and create disincentives for cheating, by providing stable venues for iterative encounters and by cultivating trust (Keohane 1984). Neoliberal institutionalism has provided important insight into climate change politics. Improving the institutional design of the climate change regime (complex) would make international efforts more effective (see Keohane and Victor 2011; Victor 2011).<sup>3</sup> However, neoliberal institutionalism errs in dismissing relative-gains concerns.

I base my argument on two relevant realist critiques of neoliberal institutionalism. The first is neoliberal institutionalism's emphasis on absolute gains, which permeates much of the climate policy literature: cooperation should be preferred because it results in a Pareto improvement for all states. In the Stern Review, for example, the costs of climate change are reported in absolute terms: 'the estimated effects of even ambitious climate change policies on economic output are estimated to be small — around 1 per cent or less of national and world product, averaged across the next 50 to 100 years'



(Stern 2006: 248). Much of science on climate change impacts similarly speaks in global or regional terms and not in political units.

The second critique of neoliberal institutionalism is that cooperation is assumed to be the ineluctable consequence of participation in international institutions (Sterling-Folker 1997). Once states become involved in an international institution, the virtues of cooperation are assumed to become self-evident and states should become disposed to greater cooperation — despite starting from widely divergent domestic political interests. In this way, neoliberal institutionalism grants international political processes greater causal weight than domestic politics in a state's determination of whether or not to cooperate. As all states stand to benefit from the prevention of dangerous climate change, it is assumed that states will find it in their interests to cooperate to reduce emissions. This assumption informs many analyses of climate change politics. For example, Victor (2011: 11–12) differentiates between 'enthusiastic' countries (rich market-based democracies) and 'reluctant' countries (rest of the developing world) by assuming that capabilities and interests in addressing climate change are correlated. However, neoclassical realism cautions against a simple relationship between level of development and international climate action.

Constructivism has also downplayed the relative-gains concerns embedded in climate change politics. Much of the constructivist literature on global environmental politics has stressed the ability of transnational ideas and norms about environmentalism, cosmopolitanism and climate science to effect political change. For example, Pettenger (2007: 3) suggests that 'new "levels of consciousness" are required to address the substantial "problem" of climate change'. A normative emphasis on human rights 'could result in a renewed sense of urgency in the stagnant political debate over climate change and jumpstart international diplomacy towards solutions' (Aminzadeh 2006: 258). Another stream of constructivist thinking looks beyond norms of moral responsibility. There is an emerging consensus that, by creating actors with a vested interest in climate policy such as firms that specialise in emissions trading and related services, international carbon markets lend themselves to transnational coalitions that leverage greater support for climate action (Yandle and Buck 2002; Bernstein *et al.* 2010: 170; Meckling 2011). While an important insight, this aspect of constructivism does not explain the bigger question of why transnational norms of moral responsibility are insufficient for generating a response to climate change in the first place.

Finally, the epistemic communities theory of Haas (1992) has been particularly important in demonstrating how improved scientific knowledge about environmental problems translates into action. As scientific understanding of climate change improves, so too, it is assumed, should motivation to act. However, there are reasons to doubt that scientific understanding of climate change alone explains the lack of progress in climate change politics. For example, Bernstein has demonstrated that epistemic community theory cannot



explain the broader normative shift towards liberal environmentalism. There 'is a lack of fit between ideas generated by an epistemic community of natural scientists and observed normative shifts' (Bernstein 2001: 176). Rather, environmental norms have only been successful when they achieve a degree of compatibility with the international social structure, which is currently delineated by the (neo)liberal economic order (Bernstein 2001: 178–212).

The question is, what is the source of the international social structure into which environmental norms need to fit in order to gain traction? For Wendt (1992: 407, 1999: 104), international social structure is due to the 'distribution of interests', which is itself 'constituted by collective meanings that are always in process'. The neorealist rejoinder has been to question the ability to know how the distribution of interests will unfold into the future. Such uncertainty compels states to be cautious and prudent in their deployment of material capabilities because of the possibility that other states will become aggressive in the future (Copeland 2000: 205–06) — the distribution of material capabilities has behavioural effects on states independent of the distribution of interests (Sørensen 2008: 11).

While recent constructivist thinking has come to recognise some realist insights (Adler 1997; Barkin 2003; Jackson 2004), I agree with Sterling-Folker (2002: 91) that much of the constructivist literature embraces only socially constructed political constraints 'that have been learned and can be unlearned with human effort'. Constraints on the transcendence of group politics, though not the impossibility of such political transcendence, remain the unique explanatory tool offered by realism.

### **Realism, morality and political transcendence**

Before proceeding further, it is important to address one possible misinterpretation of my argument: that neoclassical realism denies an important role for moral politics. To be clear, I share the conviction that climate change is a moral imperative. Climate change is real and it is happening. Indeed, global emissions continue on a trajectory that surpasses the highest emissions scenarios anticipated (Raupach *et al.* 2007; Peters *et al.* 2011), while state commitments to reduce emissions still fall considerably short of emissions levels likely to avert a dangerous 2°C rise in global temperature (UNEP 2010: 11). Those living in developing countries face, and future generations will face, a problem that is largely the product of historical emissions from countries that are now rich (Neumayer 2000). I agree that in the final analysis both the 'moral positions adopted by the North and South reach the same conclusion: greater burden for climate protection should be borne by the North, and North–South transfer of resources should be used to facilitate climate protection and adaptation in



the South' (Ikeme 2003: 203; Gardiner 2004: 579; Posner and Sunstein 2008: 1611–12).

But is it correct to claim that '[c]limate change is fundamentally an ethical issue' (Gardiner 2004: 556)? While the moral imperative is clear, the feasibility of any response to climate change is also shaped by political constraints. Political feasibility has a moral dimension: it is not ethically superior to counsel a course of action that is unlikely to be politically attainable (Price 2008: 200). Though discussion of political constraints is unsettling, neoclassical realism offers important insights into how to combine the moral and political spheres in an effective manner.

Many critiques of realism rest on its apparent denial of the political significance of morality in international politics. Indeed, Morgenthau (1948/1985: 12) is well known for having written in *Politics Among Nations* that 'while the individual has a moral right to sacrifice himself in defence of such a moral principle, the state has no right to let its moral disapprobation ... get in the way of successful political action, itself inspired by the moral principle of national survival'. I agree with Donnelly (2000: 164) that such a formulation is contentious on moral grounds: morality compels us to act as though the interests of others are the same as our own. However, the citation above does not do justice to Morgenthau's broader thinking. As Cozette (2008: 670) argues, *Politics Among Nations* was a polemical piece intended to counterbalance what Morgenthau saw as a disregard for power politics in immediate post-World War II US foreign policy. Morgenthau actually assigned near-equal weight to power and morality in publications both before and after *Politics Among Nations* (Lebow 2003).

A close reading of other classical realists reveals them not to be insensitive to moral responsibility. First, classical realists — including Thucydides, Machiavelli and Carr — recognised that moral action often confronts significant political constraints (Donnelly 2000: 167–88). While Carr (1939/1966: 97) is often held to be a pre-eminent classical realist who dismissed the utopian idealism that failed in the interwar period, he also argued that '[p]olitical action must be based on a co-ordination of morality with power'. Amoral realism and the abandonment of ethical restraint — famously attributed by Thucydides to the Athenians in the Melian Dialogue — are, arguably, actually what led to the eventual demise of the Athenian empire (Donnelly 2000: 180–84).<sup>4</sup> Donnelly makes a convincing argument that Thucydides sought to convey that morality is compatible with strategic thinking and that Athens' demise could have been avoided.

Second is the classical realists' recognition that morality is defined in terms of community and identity (Lebow 2003). In contrast to neorealism's emphasis on the nation-state as the only meaningful political community, classical realists have been conscious of the malleability of political communities and the possibility of political transcendence: 'by showing that alternative forms of political community were already imminent in the existing order of things, [Carr] began to transcend





this false antithesis [of utopianism and realism]’ (Linklater 1997: 324). The emergence of transnational norms and identities in current climate change politics (see Cerny 1995; Risse-Kappen 1995) does not deny realism. Neoclassical realism stresses only the politics of group identity: ‘it is precisely because we are a social species that ... we form groups — implying division, competition, and structural concerns with relative power — and that these dynamics are transhistorical’ (Sterling-Folker in Jackson 2004: 342). The key element in realist theory is anarchy and not the sovereign units that comprise the anarchical system.

Acknowledging that political groups can change does not mean that the nation-state is irrelevant for climate change. Sufficient time may simply be unavailable for the establishment of a compelling global political community before climate change reaches a point of no return. An emission pathway ‘likely’ to avoid a dangerous 2°C rise in global temperature would need emissions to peak within the next 10 years, begin reductions in 2020 and see steep emission reductions afterwards (UNEP 2010: 10). It seems unlikely that the nation-state will disappear in the next 10–20 years and, in the meantime, many of the political constraints identified by realism will still hold.

## **Relative gains in climate change politics**

### **Relative gains implicit in international climate change policy**

Having reviewed arguments about relative gains in the international relations literature, I now move on to describe them in the context of climate change. Relative gains arise for four reasons: patterns of international redistribution, the non-excludable character of climate mitigation, the magnitude of resources to be redistributed and time lags between the costs and benefits of redistribution.

First, climate policy anticipates the redistribution of resources from the developed to developing world. It is well known that the Kyoto Protocol places the burden on developed countries (Barrett 1998: 25; Ellerman and Decaux 1998: 17). However, even recent analyses of the expected redistribution via international emissions trading under conditions of ‘perfect’ coordination in a post-Kyoto scenario maintain this pattern. For example, Underdal *et al.* (2011: 11) conclude that while all actors are better off with international emissions trading, China and India will benefit significantly more than the EU, Japan or the United States. Alternative climate change strategies such as a global carbon tax (Peterson and Klepper 2007) or imposing carbon border tariffs to ensure comparable levels of effort in the developed and developing world (Lady 2012) would shift costs onto the developing world, which makes them politically unfeasible.

Second, from the perspective of individual states, relative gains arise because the benefits of climate change mitigation only partially accrue to those states expected to bear the costs. As Grundig (2006) has demonstrated, the large upfront



resource transfers required of climate change mitigation are likely to trigger relative-gains concerns because benefits are non-excludable.<sup>5</sup> In contrast to the international trade regime, where relative gains are weak because cooperating states can effectively keep the benefits among themselves (Snidal 1991), those countries taking on the economic burden of emission reductions cannot prevent non-parties from enjoying benefits. The insight that non-excludable public goods present cooperation dilemmas is not new (e.g., Samuelson 1954), but is particularly problematic in climate change.

The third reason that relative-gains concerns are likely to arise is that the upfront costs of addressing climate change are larger than in other areas of global environmental politics. As indicated earlier, the UN has estimated that an additional \$200–340 billion and \$67–130 billion per year needs to be directed towards mitigation and adaptation efforts, respectively, in the developing world. At recent UN climate change conferences, countries committed to deliver \$100 billion per year by 2020 from public and private sources to support mitigation and adaptation activities in developing countries. By way of comparison, the budget of the international financial mechanism of the ozone regime has remained at a mere \$166 *million* per year (Multilateral Fund 2010). Notably, costs for international climate action are in addition to the costs developed countries should incur to reduce emissions and adapt domestically. Related to this, there are indications that estimates of the costs of mitigation are more optimistic than is warranted (Tavoni and Tol 2009).

Fourth, climate change time lags mean that the realisation of the benefits of mitigation will only occur over the range of 100–200 years (Meehl *et al.* 2005). This complicates the argument that the upfront costs of mitigation will be matched by future global benefits. For example, Barrett and Stavins (2003: 358) have argued that an efficient climate change regime would see ‘each country mitigating its emissions to the point where its own marginal abatement costs were equal to the sum of marginal benefits globally’. For realists, even as climate change unfolds over the next century, states must be prepared for other events requiring material resources — including war. Thus, even if there is a long-term symmetry between costs and benefits of climate change, the upfront resource transfers implicit in climate policy are still capable of generating relative-gains concerns in the short term — precisely when action is needed.

### **Power in climate change politics**

The implications of the relative gains implicit in international climate change policy are clearer when power in climate change politics is reconceptualised to highlight linkages between power and resiliency. This contrasts with how power in climate change is often framed in climate change politics: the amount of emissions and ability to control them. For example,



Victor (2011: 9) states ‘power is first and foremost a function of emissions. China and the United States are the most powerful countries on global warming because they have the largest emissions and thus the greatest ability to inflict global harm and avoid harm through their actions’.

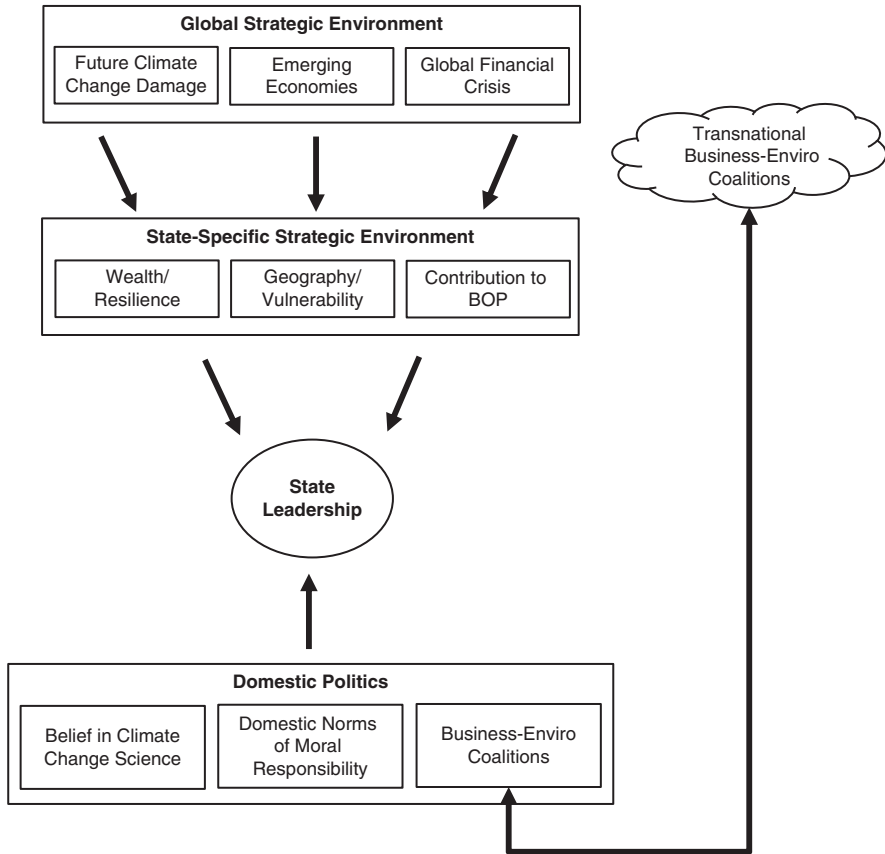
Underdal (2001b: 29–33) identifies two faces of power in environmental politics: (i) autonomy, or control over events important to oneself, and (ii) hegemony, or control over events important to others (DeSombre 2000). However, the bulk of Underdal’s (2001a: 450) discussion of different international environmental regimes relates to power as hegemony — how powerful nations compel others towards their environmental goals.<sup>6</sup> I argue that the autonomous dimension of power is more important in climate change politics — the economic power to ensure a state’s resilience in the face of climate change (Boulding 1989: 10).

Framing power as economic power finds support in the literature on sustainability, particularly in the debate between strong and weak sustainability (Neumayer 2003). Briefly put, weak sustainability recognises the possibility of using human ingenuity and innovations such as trade, migration and technology to substitute for the scarcity of natural capital. Recognition of the power dimensions of weak sustainability reveals a disturbing paradox about climate change politics: environmental resilience — the economic power to innovate, produce and exchange goods and services to compensate for local resource scarcities — is derived largely through economic growth that leads to climate change. A potential rational response to rising climate change vulnerability is then, paradoxically, economic development. It is in this light that Lomborg (2007: 48) and Schelling (1997) have argued that economic growth is a more appropriate strategy for addressing climate change because it gives those who are now vulnerable the capacity to adapt in the future — ‘richer is safer’ (Wildavsky 1980).<sup>7</sup>

Homer-Dixon’s (1999: 28–46) ingenuity gap model cautions that if the magnitude of scarcity resulting from rapid environmental change is large enough, it may overwhelm the very institutions needed to supply the ingenuity necessary for solving the scarcity problem. He instead urges states to strive towards aggressive mitigation efforts (*ibid.*: 126). However, it is also possible that developed countries will pursue economic growth to bolster their domestic adaptive capabilities and resiliency — that is, the power go their ‘own way’ — instead of mitigation because domestic adaptation avoids relative-gains dilemmas.

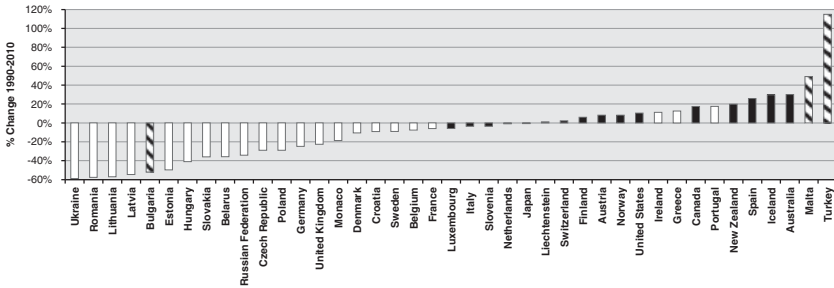
### **Climate change politics as a two-level game**

I draw on neoclassical realism to build a model of climate change politics that combines systemic and domestic politics in order to explain variation in state



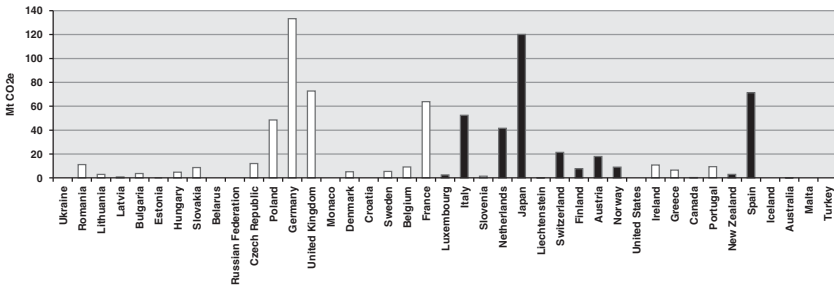
**Figure 1** Neoclassical realist model of climate change politics.

behaviour regarding climate change as a two-level game (Putnam 1988). This two-level game is presented in Figure 1. Such a two-level model is necessary because, despite the relative-gains implications of climate change policy described above, it is clear that not all states are concerned about relative gains to the same degree. Some are making considerable progress in reducing emissions and contributing to climate finance; others are not. Figure 2 presents the relative performance of developed countries and economies in transition ('Kyoto Annex 1 countries') in reducing their emissions domestically (shown further below). Apart from the collapsed former Soviet economies, a number of states have reduced emissions domestically — the United Kingdom and Germany significantly so.<sup>8</sup> The challenge for neoclassical realism lies in



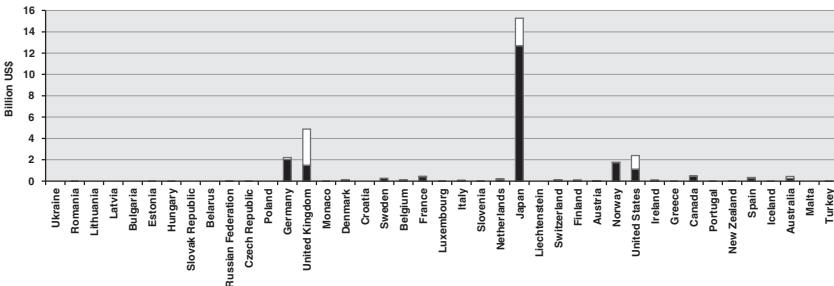
**Figure 2** Emissions trends (no LULUCF) independent of carbon credits of Kyoto Annex 1 countries, 1990–2010.<sup>9</sup>

White bars indicate countries already below their emission reduction targets of Kyoto/EU burden sharing agreement independent of the carbon markets; black bars indicate above their target while striped bars indicate no target under the first crediting period of the Kyoto Protocol.



**Figure 3** Cumulative net holdings of CDM credits of Kyoto Annex 1 countries, 2007–2011 (MtCO<sub>2e</sub>).<sup>10</sup>

White bars indicate countries already below their emission reduction targets of Kyoto/EU burden sharing agreement independent of the carbon markets and domestic forest carbon sinks. Black bars indicate countries which have not met their respective emissions targets.



**Figure 4** Total resources pledged and deposited to climate funds of Kyoto Annex 1 countries as of December 2012.<sup>11</sup>

Total bar height indicates pledged contributions. Black indicates finances actually deposits; white indicates pledged but not deposited.



explaining when domestic political processes exert greater or lesser effects (Walt 2002: 211).

Looking up from the vantage of the state leadership, I first distinguish between international and state-specific strategic environments. The international strategic environment has been evolving to make relative gains more security relevant for developed countries. However, the sensitivity of the state leadership to relative-gains concerns is also filtered through structural factors that constitute each state's specific strategic environment, including each state's resilience and vulnerability as well as contribution to the balance of power. Looking down, domestic political forces are shaped by the popular recognition of climate science, the relative importance of norms of moral responsibility as well as domestic coalitions advocating for action on climate change — the latter themselves also influenced by transnational coalitions.

### **Change in the international strategic environment**

In response to the neorealist emphasis on relative gains, neoliberal institutionalists have pointed out that not all redistributions lead to significant relative-gains concerns — it is actually the international strategic environment in which the cooperative venture takes place that determines whether the relative gains are politically salient (Keohane and Martin 1995: 44–45). There are three reasons to believe that the international strategic environment is evolving to make the relative gains implicit in climate change policy more salient for developed countries.

First, as climate change proceeds, it is expected that damages will increase, putting greater pressure on states to retain resources for domestic adaptation. The prospect of catastrophic climate change (IPCC 2007: 15–18; Lenton *et al.* 2008) could have a regressive impact on cooperation if it compels states to conclude that international mitigation efforts would compromise their ability to support domestic adaptation and resiliency. Increasing scientific understanding may lead some states to conclude that climate change is too far gone to warrant an effective international response. Václav Klaus (2007), recent former President of the Czech Republic, has stated: 'If we accept global warming as a real phenomenon ... [i]nstead of hopeless attempts to fight it, we should prepare ourselves for its consequences'.<sup>12</sup> The 'ourselves' to which Klaus refers is more likely to favour national communities rather than international ones. For example, following a crippling 2010 drought, Russia enacted an export ban on wheat to ensure its food security, at significant cost to world supplies (Wegren 2011).

Second, the rise of emerging economies has made established powers, particularly the United States, more sensitive to international resource transfers, such as to China (Drezner 2009; Vezirgiannidou 2008). Third, the global



financial crisis has led to significant international wealth transfers that have seen the position of the United States and other Western powers diminished (Gourinchas *et al.* 2011). Under these conditions, international action on climate change will increasingly be perceived as draining developed countries of material resources to the benefit of rising powers.

### **State-specific strategic environment**

Structural factors specific to each state also colour how the state leadership interprets changes in the international strategic environment and thus how concerned each state will be about relative gains. The first two factors are well known in climate change policy circles: state resiliency and vulnerability. Each state's relative wealth affects its resilience to climate change, which also recalls the definition of power in climate change politics advanced earlier. While all states will be increasingly constrained by the prospect of future climate change damage, the current resiliency of rich economies is greater than climate change impacts (which makes the moral argument for international resource transfers to developing countries so compelling). The second factor specific to each state is vulnerability, which is largely framed in terms of geography.<sup>13</sup> States with large, populated coastlines as well as people in the Arctic, Africa, small island states and around the mega-deltas of Africa and Asia are recognised by the IPCC (2007: 64) as being especially vulnerable. Depending on their resiliency and vulnerability, each state will perceive the threat of climate change differently.

However, neoclassical realism also draws attention to a third factor accounting for variation in sensitivity to relative gains: each state's role within the global balance of power. It is less burdensome for some states to take greater moral action on climate change because the international wealth transfers involved hardly affects their own security. For example, many developed countries are ultimately reliant on the United States for their collective security, especially Japan, European countries and Canada. Since their defeat in World War II, Germany and Japan have refrained from expressing their strength through traditional military means (Samuels 2007; Noetzel and Schreer 2008). Thus, the diversion of additional funds to climate change instead of military expenditures would not significantly affect these states' position in the global balance of military power.

### **Domestic politics**

In addition to international and state-specific changes in the strategic environment, neoclassical realism also recognises that domestic political factors shape state sensitivity to relative gains. I argue that there are three key domestic



political forces that will affect the decisions taken by state leaders. First is the recognition of climate change science by domestic political actors. It is well known that there is a significant degree of scepticism about climate change science in the United States, which is often used to explain US opposition to climate change policy (Antilla 2005). Second are norms of moral responsibility for climate change. Domestic climate change politics will be determined in part by the specific culture and history of various states and international norms of climate change justice (Andonova *et al.* 2009). As indicated earlier, constructivists have paid particular attention to these two domestic factors.

Third, domestic politics can also be affected by climate change policy itself, which is coterminous with neoliberal institutionalism and constructivism. As discussed earlier, one explanation for the popularity of carbon markets is their appeal to self-interested actors and thus their ability to engage a broader range of actors than those motivated by moral goals alone. Oddly, the high transaction costs of the carbon markets, often a point of critique (Michaelowa and Jotzo 2005), may be justified if this affords greater political engagement. As climate funds are relatively new, it is unclear what effect they will have on domestic politics — something I examine below.

### **Testing the neoclassical realist model: the politics of international climate change finance**

As a preliminary test of the neoclassical realist model of climate change politics advanced here, I compare the effectiveness of two forms of international climate finance: carbon markets and climate funds. Such a comparison has the effect of isolating all factors in the neoclassical realist model except for the engagement of business–environment coalitions. I consider two null hypotheses about trends in climate finance, one informed by constructivism and the other by neoliberal institutionalism.

First, the constructivist hypothesis is based on the assumption that the threat of climate change and moral responsibility to address it are sufficiently clear to compel the international resource transfers necessary to address climate change. As ‘new and additional’ resources are expected to emerge, climate finance instruments should focus on their effective and efficient deployment. Because they are expected to reduce information asymmetries and perverse incentives relative to carbon markets (Wara 2008: 1801–02), climate funds should cultivate greater confidence as to their effectiveness. Consequently, the constructivist hypothesis is that climate funds will lead to greater and more effective international resource transfers for climate change as understanding and awareness of the problem improves. While carbon markets may cultivate favourable business–environment coalitions, the monetisation of emission





reductions is perceived as an ineffective and costly strategy given the administrative hurdles and transaction costs involved in its regulation. As indicated earlier, it is not clear what effect climate funds will have on domestic politics, but this is of lesser importance for constructivists as the reasons to act are assumed to be sufficiently clear.

Second, under neoliberal institutionalism, there are two divergent hypotheses of state behaviour in the carbon markets. One expectation is that under ideal conditions where carbon markets are viewed as effectively reducing emissions, carbon markets bring down the total costs of climate change and allow developed countries to reduce net emissions more cheaply. However, this comes at the cost of moral hazard behaviour, where the purchase of credits serves as a disincentive to domestic emission reductions by developed countries (Neuhoff and Vasa 2010). By purchasing carbon credits, developed countries put off efforts to reduce emissions domestically and fundamentally transform to a low-carbon economy. This moral hazard concern lies at the heart of the current debate on the role of international credits in the EU-ETS. Another expectation is that if carbon markets are poorly designed as a result of weak measurement, reporting and verification procedures, developed countries will distrust them for fear of throwing money at activities that do little to reduce emissions. Overlapping with the constructivist hypothesis above, climate funds are similarly expected to better align incentives for reducing emissions.

Results of my investigation of international climate finance flows indicate that there is considerable variation in engagement with climate finance across developed countries, which cannot be explained by constructivism or neoliberalism alone. Such variation can be better explained through neoclassical realism, which anticipates that some states will conclude it is in their best interests to go their 'own way' and disengage from the climate change regime while still permitting other states to exhibit greater moral action. As they rely on public seed money, climate funds are more vulnerable to international systemic forces compelling states to be prudent about international climate finance and largely represent a shift in ODA budgets instead of being 'new and additional'. As carbon markets appeal to the self-interest of actors to address climate change, they are more resilient to relative-gains concerns expected under neoclassical realism. Overlooked in the debate on climate finance is the possibility that states will disengage from international cooperation because of increasing relative-gains concerns.

For my analysis, I have relied upon the most recent data on carbon market and climate funds. The CDM has been the primary carbon market instrument, and my analysis focuses largely upon it. For the magnitude of resource transfers to developing countries through the CDM primary market, I made use of the World Bank's annual *State and Trends of the Carbon Market* (Capoor and Ambrosi 2006, 2007, 2008, 2009; Kossoy and Ambrosi 2010;

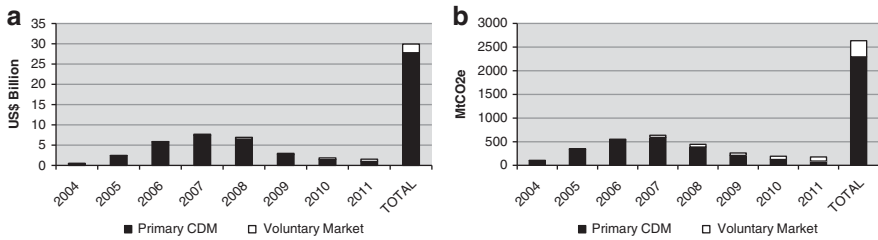


Linacre *et al.* 2011; Kossoy and Guigon 2012).<sup>14</sup> As for the distribution of CDM credits for individual state compliance purposes, I relied on Standard Electronic Format (SEF) country reports submitted under the Kyoto Protocol for the period 2007–2011, which are unique in showing which states have acquired what quantity of Kyoto carbon credits. Similar analyses of CDM credit buyers have focused on the primary CDM market, which is inappropriate because it is restricted to carbon entrepreneurs largely based in the United Kingdom (e.g., Victor 2011: 74 and 286).<sup>15</sup> To the best of my knowledge, national trends in CDM credit holdings have not been analysed in the climate policy literature before. As for climate funds, these were derived from the eponymous ‘climatefundsupdate.org’ website. All data are up to date as of December 2012 unless otherwise indicated.

### **Magnitude and distribution of climate finance**

Carbon markets to date have sourced a larger amount of seed or ‘incremental’ financing and engaged a broader number of countries than have carbon funds (Figures 3 and 4). Over 2004–2011, the CDM generated approximately 2,300 million tonnes of carbon credits valued on the CDM primary market at more than \$27 billion (Figure 5). This represents a significant transfer of resources from highly industrialised countries to emerging economies and developing countries, though concentrated in China, India and Brazil.<sup>16</sup> The voluntary carbon market is also becoming increasingly important in terms of value and volume (Figure 5). Developing countries have accounted for 40–70 per cent of this supply, with a mildly better representation of least developed countries (Hamilton *et al.* 2009: 8, 2010: vii; Peters-Stanley *et al.* 2011: v). However, only 758 million tonnes of CDM carbon credits have shown up in the holding accounts of developed countries’ Kyoto budgets as of 2011 (Figure 3), indicating that the remaining roughly 1,500 million tonnes of CDM credits are still on the primary market and at some stage of the CDM’s project administrative cycle or are held by project developers and speculators.

My investigation of the carbon market also dispels moral hazard claims: those states acquiring CDM credits also tend to be making the most progress in reducing emissions domestically (Figures 2 and 3). Germany, Japan, the United Kingdom, France and Spain have acquired the most CDM credits. Germany and the United Kingdom are making the most progress in reducing emissions domestically, independent of the carbon markets. France is already below its emission reduction target. Japan’s economy is already highly efficient and the domestic emission reductions it has achieved are laudable. Indeed, nine developed countries are holding surplus CDM credits — their domestic emissions are already below their emission reduction targets and/or the EU emissions burden sharing arrangement. Three economies in transition — Poland, the Czech Republic and



**Figure 5** Comparison of primary CDM and voluntary carbon offset market (omitting Chicago Climate Exchange), including (a) financial flows and (b) volumes for 2004–2011.<sup>17</sup>

Romania — hold sizeable surplus CDM credits. In addition, while the United States is ineligible to participate in the CDM, firms in the United States have consistently been among the largest collective purchasers of carbon credits on the voluntary carbon markets; in 2011, the United States accounted for 43 per cent of market share (Hamilton *et al.* 2008, 2009, 2010; Peters-Stanley *et al.* 2011; Peters-Stanley and Hamilton 2012: 44). The only state that demonstrates moral hazard behaviour is Spain; domestic emissions have increased significantly but Spain has sought to compensate for this through the acquisition of CDM credits.

Rather, states that do not purchase credits tend *not* to reduce emissions domestically — which is consistent with the neoclassical realist theory I have proposed. Particularly salient are Canada, New Zealand, Iceland and Australia (Figures 2 and 3). Their lack of engagement with the CDM is one reason that 1,500 million tonnes of CDM credits remain on the primary market. This could indicate a lack of trust in the CDM, which would be consistent with neoliberal institutionalism. In 2006, the Canadian Minister of Environment explained the government’s decision not to partake in international emissions trading: ‘[the Canadian government] will not be using taxpayers’ money to play in [the carbon] market...[t]he emissions trading markets are still relatively new’ (Ambrose 2006). However, this is unlikely the entire story. At the same Parliamentary committee the Minister continued, ‘We first of all want to ensure that industry sectors are making investments in their own in-house technology, in-house reductions. Second, we will hopefully put in place compliance mechanisms that will see money stay within the country’ (*ibid.*). The perceived ineffectiveness of the carbon market could be an excuse to prevent international resource transfers necessary to address climate change. Current Canadian Prime Minister Stephen Harper wrote in 2002 that ‘Kyoto is essentially a socialist scheme to suck money out of wealth-producing nations’ (CBC News 2007). Notably, Canada announced its withdrawal from the Kyoto Protocol in 2011.

How do climate funds compare? Most climate funds have been initiated as a response to the commitment made in Copenhagen and formalised in Cancun



towards \$30 billion in ‘fast-start’ finance for the 2010–2012 period to be allocated equally between mitigation and adaptation (UNFCCC 2009: Paragraph 8, 2010a: 95). Approximately \$34.5 billion have been pledged to climate funds as of December 2012 (ClimateFundsUpdate.Org 2012a). However, caution is required in interpreting these figures because many analyses are made based on pledges instead of on the actual deposit of funds. As of December 2012, only \$25.6 billion, or 74 per cent, have been deposited (*ibid.*). Much then depends on whether developed countries will honour their pledges to climate funds. In terms of allocations to climate funds, Japan, the United Kingdom, the United States, Norway and Germany lead pledges (Figure 4). Importantly, the number of countries actively contributing to climate funds is much lower than those engaging in the international carbon markets.

The analysis up to this point has focused on mitigation. How do carbon markets and climate funds compare in terms of adaptation? Despite increased attention given to adaptation and calls for adaptation financing to equal that of mitigation (Burton *et al.* 2002; IIED 2009), climate funds are still skewed towards mitigation. Because of the overlapping mandates of the various climate funds, it is difficult to interpret *a priori* whether each fund will target mitigation or adaptation. However, of the \$8.9 billion in climate funds approved as of December 2012, 66 per cent have been committed towards mitigation and an additional 13 per cent towards the reduction of deforestation; only \$1.4 billion (15 per cent) have been directed towards adaptation.<sup>18</sup> This is a significant increase over the Kyoto Protocol’s Adaptation Fund, which has only sourced \$0.17 billion thus far and might source a maximum of \$0.5 billion through a tax on the CDM (IIED 2009). However, resources sourced through carbon markets and climate funds pale in comparison with the \$67–130 billion per year identified as necessary. Soberly, I conclude that developing countries should lower their expectations about sourcing significantly greater international funds specifically for adaptation and develop contingency plans for adaptation based on domestic capacities.

### **New and additional financing?**

At the Copenhagen/Cancun UN climate change negotiations, countries agreed that funding for international climate change activities would be ‘new and additional, predictable and adequate’ though it ‘may come from a wide variety of sources, public and private, bilateral and multilateral, including alternative sources’ (UNFCCC 2010a: Paragraph 97 and 99). If public funds for climate change are not new and additional, they likely represent a shift in aid budgets of industrialised countries away from traditional issues of international development towards climate change. Both carbon markets and climate funds



have relied on ODA, yet my findings suggest that carbon markets do so to a significantly lesser degree.

‘Additionality’ is a term used in climate policy circles to describe a performance standard intended to ensure that climate finance is significantly greater than in a counterfactual ‘business-as-usual’ scenario (Purdon and Lachapelle 2012). It is important to emphasise that both carbon markets and climate funds are similar in that each represents the use of seed money to leverage additional financing towards climate action. A recent study of climate finance flows to developing countries confirms that private finance already has the lead role in international climate finance, representing \$37–73 billion in 2010 (Buchner *et al.* 2011b: 23). However, the relationship of private finance to international climate finance mechanisms is unclear. Reported leverage ratios, the amount of private finance relative to climate seeding financing for a particular project, range from 4:1 to 9:1 for mitigation projects, with little apparent variation between carbon markets and climate funds (Table 1).<sup>19</sup> The difference between carbon markets and climate funds is the source of this seed financing, which I discuss below.

The CDM has relied extensively on ODA to build capacity and infrastructure for the carbon market, but once operational it has been driven largely by private finance. While the CDM ostensibly prohibits any diversion of ODA towards the carbon market, the use of public spending was approved by the Organisation for Economic Co-operation and Development (OECD) for everything except the final purchase of CDM carbon credits (OECD 2004). The CDM’s initial rules emphasised ‘that public funding for clean development mechanism projects from [developed countries] is not to result in the diversion of ODA and is to be separate from and not counted towards the financial obligations of [developed countries towards ODA]’ (UNFCCC 2001: preamble). A 2007 study observed over \$44 million to have been spent on CDM capacity and institution building, only a small part of which has flowed to least developed countries (Michaelowa and Michaelowa 2007: 12).

However, ODA used to establish the CDM contrasts with the amount of co-financing it has brought in. The CDM is estimated to have attracted \$10–25 billion of co-financing per year through 2007–2009 (Buchner *et al.* 2011a: 25–26), including financing from developing countries hosting CDM projects (UNFCCC 2007: 141). The unique feature of carbon markets is that once established, which requires ODA support, they leverage their own seed financing. The carbon finance layer of any carbon offset project represents a layer of non-ODA financing (private or public) that is supposed to act as seed-financing to attract additional private finance. What is reported as carbon credits is generally only a portion of the total costs of any carbon mitigation project.

Climate funds are also expected to source a significant amount of co-financing. Since its inception in 1991, the Global Environment Facility (GEF) claims to have

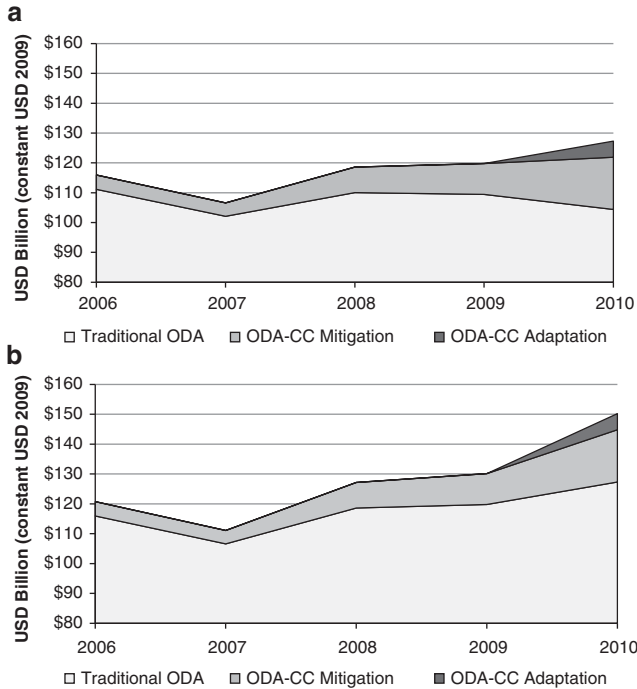


**Table 1** Leverage ratios of various carbon markets and climate funds

<i>Financial mechanism</i>	<i>Specific mechanism</i>	<i>Seed money (US\$ billion)</i>	<i>Co-financing (US\$ billion)</i>	<i>Leverage ratios</i>	<i>Reference</i>
Carbon market	CDM	23	106	4.6:1	World Bank (2009: 6)
Climate funds	GEF	na	na	9.0:1	World Bank (2010: 2)
		2.7	17.2	6.4:1	GEF (2009: 2)
	Multilateral Development Banks	na	na	3.8:1	World Bank (2009: 12)
	CTF	na	na	8.3:1	World Bank (2010: 2)
		na	na	8.6:1	Brown <i>et al.</i> (2011: 8)

leveraged \$17.2 billion in co-financing from \$2.7 billion in seed financing (GEF 2009: 2). The largest multilateral climate investment fund, the Clean Technology Fund, is projected to leverage \$27 billion in co-financing from its current \$4.4 billion allocation (CIF 2010). As suggested earlier, differences in leveraging capacity is not the distinguishing feature between carbon markets and climate funds. The real difference is that climate funds rely mostly on ODA as the source of their seed financing.

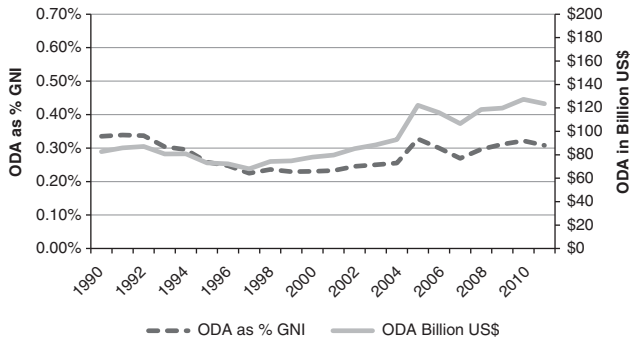
First, climate funds currently have few safeguards to ensure that funds are ‘new and additional’, hence, a significant share of climate funds is actually drawn from ODA. Of the total amount pledged under the Hatoyama Initiative, nearly half (\$7.2 billion) is to be classified as ODA (ClimateFundsUpdate.Org 2012b). All GEF financing is considered ODA (ClimateFundsUpdate.Org 2012c). Funds pledged to the Clean Technology Fund (CTF) and Pilot Program for Climate Resilience are both administered by the World Bank, and are likely also to be classified as ODA (ClimateFundsUpdate.Org 2012d). Second, available data suggest that climate change is eating into ODA budgets. From 2006–2010, bilateral aid towards climate change (which includes commitments to climate funds), amounted to \$45 billion in terms of mitigation and at least \$5.4 billion for adaptation (OECD 2011). However, the OECD only monitors ODA pledges towards climate change and not actual disbursements.<sup>20</sup> While this frustrates the determination of exactly how much climate finance diverts from ODA, I contend that climate change *must* cut into traditional ODA. If reported climate change ODA were additional to traditional ODA, total 2010 ODA would have amounted to \$150 billion instead of the actual \$127 billion reported (Scenario A in Figure 6). This is clearly not the case. If climate change ODA were not additional, this would have eaten into traditional ODA and reduced it to about \$110 billion levels shown in Scenario B of Figure 6.



**Figure 6** Two scenarios of climate change ODA relative to traditional ODA, 2006–2010. (a) Scenario A: Climate change ODA commitments additional to traditional ODA; (b) Scenario B: Climate change ODA commitments as part of traditional ODA.<sup>21</sup>

To sum up, climate funds have largely been financed from existing ODA budgets and thus are not ‘new and additional’. This is not necessarily a bad thing as climate change is increasingly becoming an ineluctable development challenge. However, the ‘new and additional’ language of carbon funds has generated expectations in climate change policy circles that net ODA will be significantly increased, expectations which are buttressed by theories of international relations that do not recognise systemic constraints on climate finance like neoliberal institutionalism and constructivism.

Neoclassical realism however admonishes that ODA is unlikely to rise to meet the challenge of climate change. First, ODA commitments are already below pledged amounts. It is true that ODA has increased in real terms since 1990 (Figure 7), but this appears to be due more to economic growth among OECD countries than to increasing generosity. As a percentage of OECD countries’ economies, ODA has hovered around 0.30 per cent gross national income (GNI). This is well below the pledged 0.7 per cent GNI target agreed



**Figure 7** Historical trends in ODA from OECD-DAC 1990–2011 (constant 2009 USD).<sup>23</sup>

as part of the 2002 Monterrey Consensus (UN 2002: Paragraph 42) and reaffirmed in the Doha Declaration on Financing for Development (UN 2008). In addition, though there is a growing discussion about ODA from emerging economies, the majority of aid still originates from the OECD (Gravier-Rymaszewska 2012: 2).

Second, historical precedent suggests ODA is usually cut back significantly, although not immediately, after a financial crisis (Mold *et al.* 2009). Emerging research confirms that ODA contributions from a number of OECD countries, including Germany, Norway, Sweden and the United States have decreased since the 2008 financial crisis, whereas aid volatility across the OECD has increased (Gravier-Rymaszewska 2012). The UN Secretary-General’s High-level Advisory Group on Climate Change Financing concluded that ‘political acceptability of [using ODA] will depend on national circumstances and on the domestic fiscal environment, which has currently put many developed countries under extreme pressure’ (UN 2010: 6).

Third, strategic interests to justify radically increased ODA are not readily apparent. Schelling’s (1997) allusion to the post-World War II Marshall Plan as a template for climate and development finance is vulnerable to such criticism. It is widely acknowledged that the Marshall Plan’s primary objective was not simply a humanitarian one to rebuild Europe, but rather to contain Soviet influence (Leffler 1988). For the same reasons that least developed countries are highly vulnerable to climate change, they can also be expected to be of less strategic importance. While international aid is in part an expression of international moral concern (Lumsdaine 1993), ODA also has a strategic component (Morgenthau 1962).

Fourth, regarding adaptation, if public resources are used, it is not inconceivable that adaptation financing might take the form of increased military





expenditures to stabilise regions affected by climate change, such as sub-Saharan Africa.<sup>22</sup> For example, the United States Department of Defense (2010: 85) has recently concluded that '[w]hile climate change alone does not cause conflict, it may act as an accelerant of instability or conflict, placing a burden to respond on civilian institutions and militaries around the world'. However, as Waever (1995) has argued, the 'securitisation' of environmental issues might trigger a state-centred response that contrasts with the internationalism expected by global environmentalism. A significant portion of aid already goes towards post-war reconstruction, with recent focuses on Iraq and Afghanistan (Gupta *et al.* 2006: 540–41).

### **Effectiveness in reducing emissions**

A final issue to be considered is whether carbon markets and climate funds differ in their actual ability to reduce emissions. There are certainly problems with estimates of emissions reductions claimed on the carbon market (Wara 2008; Wara and Victor 2008; Schneider 2007; Purdon 2012), though broad reforms are being undertaken to address some of these concerns (Figueres 2006; UNFCCC 2010b). Nonetheless, support for climate funds has been based in part on the assumption that perverse incentives and information asymmetries would be relatively lower, which should translate into greater effectiveness.

Emerging experience with climate funds indicates that the assumed regulatory advantages of climate funds have not materialised. For example, the GEF's claims of 1,000 million tonnes of emissions reductions over 1991–2009 is dubious because measurement, reporting and verification of GEF projects have been much less rigorous than under the CDM — UNDP's GEF portfolio is not monitored using standardised procedures (see UNDP 2002). A 2010 GEF workshop recognised some of the inadequacies of previous measurement and has sought to upgrade and standardise them (GEF 2010). Similar to concerns about CDM 'additionality', one recent study of climate funds finds 'it is hard to know if, without the [Clean Technology Fund] investment, the clean technology projects would still go forward' (Brown *et al.* 2011: 8). This indicates that problems of measurement are comparable between carbon markets and climate funds, though the effectiveness of climate funds has not attracted similar attention.

The apparent justification for the more lax measurement of climate funds is that, because emissions reductions are not traded against developed countries' emissions, the additional transaction costs for more precise measurement are unnecessary. There are two problems with this view. First, even if emission reductions are not traded through climate funds, fund managers are still accountable for the effective use of international resources. Second, the view



overlooks the political benefits of efforts to determine if measurements are accurate. Transaction costs in the carbon market can be seen as payments to a coalition of actors who now have a vested interest in the carbon market's performance. Such a coalition can put pressure on the state leadership to counter the systemic forces identified by neoclassical realism. However, by reducing such transaction costs by adopting lax measurement standards, climate funds may deprive themselves of such a coalition of actors and thus an important political ally. Critics of the carbon market discount the need to mobilise political action on climate change because they assume that cooperation will be compelled by shared norms and interests emanating from the international level.

Interestingly, when climate funds seek to engage more directly with the private sector, they come to resemble carbon markets. The Amazon Fund — one of the few funds established by a developing country to solicit international climate finance — grants *non-transferable* certificates which quantify emission reductions associated with donations (Brazilian Development Bank 2013). Will such limited commodification permit climate funds to attract sufficient private sector involvement? The Amazon Fund has succeeded in attracting financing only from the governments of Norway (\$0.112 billion), Germany (\$0.012) and the Brazilian state-controlled Petrobras (\$0.005 billion) — at levels considerably less than the over \$1 billion pledged. If governments remain the sole investor in climate funds, this may only replicate the unfavourable politics of ODA. Many interpret the Amazon Fund, including its non-transferable certificates approach, to represent the evolution of Brazil's deforestation policy towards engagement with the carbon markets (May 2009).

## Conclusion

This article has argued that the lack of progress on climate change is not simply the product of the poor design of the climate change regime, lack of awareness of climate change science or insensitivity to climate change's moral implications. Rather, the lack of progress on climate change is also the result of relative-gains concerns that compel some states to be prudent in their international climate change efforts. This gives formal expression to the tragic element often associated with classical realist thought.

Yet, the neoclassical realist theory of climate change politics advanced here does not insist that all states respond to this systemic constraint in the same manner. I have presented a model of climate change politics that innovates on Putnam's two-level game by distinguishing between political forces that can be expected to influence each state's sensitivity to relative-gains concerns including (i) the international strategic environment, (ii) each state's own specific strategic environment as well as (iii) each states domestic politics. Such a model avoids



the determinism of neorealism and leaves space for some of the more moral, progressive elements of neoliberal institutionalism and constructivism to take effect — especially if institutions are designed with an eye to these political constraints.

My brief analysis of international climate finance supports the neoclassical realist model by suggesting that carbon markets have performed better than climate funds in terms of the magnitude of international resource transfers and distribution of financial sources as well as the likelihood that more of its financing is ‘new and additional’. While this finding is consistent with constructivist arguments that carbon markets build strong coalitions for climate change action, neoclassical realism improves on this by explaining why such coalitions are necessary in the first place — to counter-balance systemic forces compelling states to be prudent in light of relative-gains concerns about climate change cooperation. The unique feature of carbon markets is that they attract private finance towards the creation of such incremental financing — leveraging seed-financing from the private sector itself — while climate funds rely for seed-financing on ODA, which is more vulnerable to the systemic centrifugal forces identified by neoclassical realism. Expectations that carbon markets present a ‘moral hazard’ in climate change cooperation overlook the possibility that states may simply disengage from any form of cooperation and go their ‘own way’, as Strange (1983) argued, in order to focus on domestic adaptation. Indeed, my results suggest just the opposite is true: states demonstrating leadership on climate change reduce emissions domestically *and* buy international carbon credits.

Overall, my findings suggest that arguments that encourage the pursuit of climate funds *instead of* carbon markets are unwise if the moral imperative of addressing climate change is to be realistically addressed. Given different advantages and disadvantages of each, it is preferable that carbon markets and climate funds work in conjunction with one another (see World Bank 2010). Climate funds may be an appropriate manner to deploy ODA to address gaps in the carbon market: adaptation and low-emissions development in least developed countries. However, even here the advantages of climate funds are not as significant as is often assumed. Decision makers need to navigate their way as best they can through imperfect choices, fully aware of what specifically is problematic about each feasible choice.

My relatively positive assessment of carbon markets may unsettle some readers, particularly those cognisant of the moral imperative of climate change. To be clear, I am not claiming that the carbon market alone will solve the climate crisis. However, the disproportionate amount of criticism heaped on carbon markets has too often been done without sufficient consideration of the political feasibility of alternatives. It is not ethically superior to counsel a course of action for which there are lesser grounds to consider it



politically feasible (Price 2008: 200). Amidst the ideological debates on climate finance, it is helpful to remember that markets are not only favoured for their economic efficiency, but also because they are an effective means of mobilising large numbers of people towards common societal goals (Hirschman 1977/1997).

In so concluding, it is also important to return to the bigger political dilemma introduced by the neoclassical realist model of international climate change politics: the relative-gains concerns that international climate change policy can engender. As they have the potential to reduce radically the costs of climate change mitigation, strategies promoting technological innovation and deployment (Victor 2011: 116–64; Barrett 2005: 393–98) as well as geo-engineering (Victor *et al.* 2009) have the potential to deflate relative-gains concerns. However, given the risks inherent in these approaches (Robock *et al.* 2009; Polimeni *et al.* 2008), an international climate finance strategy is still a worthwhile strategy for reducing emissions.

Inspired by classical realist thought, the neoclassical realist theory of climate change politics I have advanced here admonishes that often the only possible political choices are between deeply imperfect options. For all of its flaws, carbon markets may be amongst the more politically feasible strategies for meeting the very real moral imperative of climate finance.

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## Notes

- 1 There is also an expansive Marxist/Critical Theory literature on climate change politics (Newell and Paterson 1998; Clark and York 2005; Paulsson 2009; Prudham 2009). I do not engage with these theories in this article because of a lack of space. The reader should know that there are significant misgivings in the political science literature about the primary explanatory variable of Marxism/Critical Theory: that systemic world capitalist political forces are politically more salient than the nation-state or other political associations such as ethnicity. For criticism of Marxist approaches see Skocpol (1977), Horowitz (1985), Wendt (1987) and Jervis (1998). For criticism of Critical Theory see Adler (1997: 321) and Sørensen (2008).



- 2 As Victor has convincingly argued, the targets and timetables approach of the Kyoto Protocol required emissions trading to manage the costs of climate change: 'Emission targets begets trading' (Victor 2001: 11).
- 3 I agree with Victor (2011) that the architects of the climate change regime sought inspiration unwisely from other successful environmental treaties, such as the ozone regime, though climate change is more akin to international trade or development. Designing an effective comprehensive regime for climate change is particularly difficult because of 'a multiplicity of cooperation problems, a broad and shifting distribution of interests, extreme uncertainty about which measures governments are willing and able to implement, and ambiguity about how to craft viable linkages' (Keohane and Victor 2011: 15).
- 4 The Athenian rebuttal to the arguments of the Melians is well known: 'right, as the world goes, is only in question between equals in power, while the strong do what they can and the weak suffer what they must' (Thucydides 1982: Book V: 17).
- 5 Posner and Sunstein (2008: 1,568) make a similar observation: 'Suppose also that the United States is less vulnerable than many other nations to serious losses from climate change, and that the expected damage, in terms of health and agriculture, for example, is comparatively low — and that in those terms other nations, such as India and those in Sub-Saharan Africa, are likely to lose much more. If so, the United States might be a net loser from a specified worldwide carbon tax even if the world gains a great deal'.
- 6 It is worth noting that the international climate change regime was not investigated by Underdal (2001b).
- 7 Lomborg (2007: 11) bases much of his argument on a 2.6°C increase in global average temperature by 2,100, while the current emissions trajectory is towards a 4.0°C rise (IPCC 2007: 13; Raupach *et al.* 2007: 10,289).
- 8 A not insignificant part of the United Kingdom's reductions have been because of the discovery of offshore natural gas (Balat 2010), but much of the rest of its reductions reflect the priority that climate change has achieved within the United Kingdom (Owens 2010). Similarly, some have held that Germany's reductions are because of German reunification (Aldy *et al.* 2003: 380); however, given the extent of reductions, is difficult to explain this entirely as 'hot air' from the former East Germany (Schrader 2002; Bailey 2007).
- 9 UNFCCC (2012).
- 10 Holdings of CDM credits for years 2007–2011 derived from Table 5(a) of Standard Electronic Format (SEF) country reports submitted as 'Supplementary information under the Kyoto Protocol to the UNFCCC', [http://unfccc.int/national\\_reports/annex\\_i\\_ghg\\_inventories/national\\_inventories\\_submissions/items/5888.php](http://unfccc.int/national_reports/annex_i_ghg_inventories/national_inventories_submissions/items/5888.php) (accessed 20 December, 2012).
- 11 ClimateFundsUpdate.Org, 'The Donor Countries', <http://www.climatefundsupdate.org/global-trends/donor-countries> (accessed 20 December, 2012)
- 12 Klaus bases his argument on Lomborg who, as *supra* note 7 demonstrates, underestimates the severity of climate change impacts.
- 13 The IPCC (2007: 21) defines vulnerability in terms of geography and resilience, though I prefer to keep resilience distinct as a function of largely of wealth and the advantages in material and knowledge resources it provides.
- 14 The CDM primary market (to which project developers sell) better represents net resources transfers to developing countries than the CDM secondary market (where resellers sell to final buyers).
- 15 The 'Buyer' tab of the monthly Risoe Centre's 'CDM pipeline' also refers to primary market buyers. See 'December 2012 Update of CDM/JI Pipeline Overview Spreadsheet: CDM Projects', United Nations Environment Programme, Risoe Centre, <http://www.cdmpipeline.org/publications/CDMpipeline.xlsx> (accessed 20 December, 2012).
- 16 See 'Analysis' tab of the 'December 2012 Update of CDM/JI Pipeline Overview Spreadsheet: CDM Projects', United Nations Environment Programme, Risoe Centre, <http://www.cdmpipeline.org/publications/CDMpipeline.xlsx> (accessed 20 December, 2012).



- 17 CDM Primary Market: Capoor and Ambrosi (2006, 2007, 2008, 2009); Kossoy and Ambrosi (2010); Linaere *et al.* (2011); Kossoy and Guigon (2012).
- 18 'Focus' tab of approved climate funds as indicated at the ClimateFundsUpdate.Org website as of December 2012; see each fund's individual 'Focus' at <http://www.climatefundsupdate.org/listing> (accessed 10 December, 2012).
- 19 These leverage ratios should be treated with scepticism. There is little transparency or standardisation of the financial accounting for individual CDM or climate fund projects (Brown *et al.* 2011).
- 20 In contrast to its monitoring of regular ODA flows, OECD monitors ODA targeted towards climate change in relation to commitments, not disbursements. The \$22.9 billion of climate-related aid relates to bilateral commitments by DAC members; information on multilateral aid for climate change is not yet complete (personal communication with C. Piemonte, OECD).
- 21 Traditional ODA: Organisation for Economic Co-operation and Development, 'DAC1 Official and Private Flows', <http://stats.oecd.org/Index.aspx?DatasetCode=TABLE1> (accessed 20 December, 2012). Climate Change ODA: OECD, Environment: 'Climate change aid up to USD 22.9 billion in 2010, says OECD's Gurría', [http://www.oecd.org/document/4/0,3746,en\\_21571361\\_44315115\\_49170628\\_1\\_1\\_1\\_1,00.html](http://www.oecd.org/document/4/0,3746,en_21571361_44315115_49170628_1_1_1_1,00.html) (accessed 10 March, 2012).
- 22 For example, a number of respected US retired military officers offered the following warning: '[Sub-Saharan Africa] is becoming an increasingly important source of US oil and gas imports. Already suffering tension and stress...Africa would be yet further challenged by climate change. The proposal by DoD to establish a new Africa Command reflects Africa's emerging strategic importance to the US, and with humanitarian catastrophes already occurring, a worsening of conditions could prompt further US military engagement' (Center for Naval Analyses 2007: 47).
- 23 Organisation for Economic Co-operation and Development, 'DAC1 Official and Private Flows', <http://stats.oecd.org/Index.aspx?DatasetCode=TABLE1> (accessed 20 December, 2012).

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