



Conceptualizing climate change governance
beyond the international regime: a review of four
theoretical approaches

Chukwumerije Okereke and Harriet Bulkeley

October 2007

Conceptualizing climate change governance beyond the international regime: a review of four theoretical approaches

Chukwumerije Okereke, UEA, and Harriet Bulkeley, Durham University

Tyndall Centre Working Paper No. 112 October 2007

Please note that Tyndall working papers are "work in progress". Whilst they are commented on by Tyndall researchers, they have not been subject to a full peer review. The accuracy of this work and the conclusions reached are the responsibility of the author(s) alone and not the Tyndall Centre.

Abstract: We review four theoretical approaches for considering the governance of climate change at the international level – regime theory, global governance, neo-Gramscian and governmentality perspectives – to assess their respective strengths and weaknesses. Based on the review, we draw out some concepts around which future research on the involvement of non-nation state actors (NNSAs) in global climate governance might be framed. These include: (i) the nature of the state; (ii) the character of power and authority in the international arena; (iii) the underlying dynamics of governance; and (iv) governance as a process. We conclude that although eclecticism is hardly celebrated in the IR scholarship, one ultimately would have to draw from the four theoretical traditions in order to generate a robust framework for conceptualizing climate governance beyond the international regime.

1. Introduction

The vast majority of research concerning the governance of climate change has focused on the development of the international climate change regime, its constituent agreements, the UNFCCC and the Kyoto Protocol, and their implementation (Biermann 2005; Bodansky 1993; Dessai and Schipper 2003; Grubb and Yamin 2001; Paterson 1996b; Rowlands 1995; Sterk and Wittneben 2006; Vogler 2005). However, over the past decade, there has been an explosion of parallel initiatives, at a variety of scales, by non-nation state actors (NNSAs), seeking to reduce emissions of greenhouse gases – in cities, at the regional level, through corporations, voluntary offset schemes and so on – which have significant implications for climate change governance.¹ First, such initiatives may have a material impact on the success or otherwise of the international regime as they offer the means through which international goals might be achieved. Second, such initiatives may achieve reductions in emissions of greenhouse gases independently of the success or otherwise of the current regime and post-2012 architectures for governing climate change.² Third, through seeking to govern climate change in their own right such initiatives fundamentally alter how we conceptualize and understand the nature of global climate politics.

As efforts to negotiate a post 2012 climate agreement get under way, and especially given the expectations that NNSAs could play a critical role in this process, and indeed in the on-going efforts to mitigate and/or adapt to the effects of climate change, there is an urgent need to address the theoretical challenges associated with the involvement of this group of actors in climate governance. A better understanding of the basis of their involvement and their relationship with the state as well as how they actually get things done, would prove invaluable in assigning responsibilities, coordinating efforts, and in promoting equity, accountability and qualitative participation in the global management of climate change. Such insights are also crucial for mapping research, and in advancing or weighing different proposals for the engagement of NNSAs in both present and future

¹ For detailed accounts of the roles of various non-state actors in governing climate change, see, among many others; Newell (2000), Auer (2000), Betsill and Corell (2001), Betsill and Bulkeley (2004; 2006), Gulbrandsen and Andresen (2004).

² These are empirical questions that we intend to address through this project.

environmental regimes. Towards these ends, in this paper we review four theoretical approaches for considering the governance of climate change at the international level in order to identify their insights and limitations. The review is also intended as a means of identifying critical concepts needed in framing empirical research on the involvement and material contributions of NNSAs in the current and future global climate governance arrangements.

We start with a brief treatment of regime approaches which are arguably the most established method for understanding global environmental governance. Regime analysis has a fairly neat conception of power and agency which in turn allows for a parsimonious explanation of regime development. The main limitation however stems from the fact that the regime approach is predominantly state-centric and thus does not provide much space for the conceptual analysis of the involvement of NNSAs. The recent proliferation of a body of work on global governance can be seen as an attempt to address this issue and hence to conceptualize governance ‘beyond’ the realms of the regime.³ Section 3 looks at the concept of global environmental governance as a theoretical perspective and considers the extent to which it serves as a corrective to the regime approach as well as reviewing its limitations. Global governance literature excels in highlighting the role of NNSAs in climate change governance but in general provides few if any of the analytical tools required to interpret or conceptualize this phenomenon.

In the search of the possible ways to transcend the limitations of regime and global governance approaches, we also present an account, first, in Section 4 of the neo-Gramscian perspective and then, in Section 5, of the governmentality approach. These two approaches have not been traditionally “applied” in the theorization of environmental governance at the international

³ We note that it is rather unsatisfactory to use the term ‘global governance’ to describe both a phenomenon in world politics and the theoretical approach used to analyze it, but as this is commonly done we do not break with that convention here.

level⁴ but are selected because their methods and assumptions offer notable prospects for opening up the space for critical reflections on the involvement NNSAs in climate governance. Gramscian ideas are useful given their sensitivity to the complex relationship between structure and agency and to the intricate connection between state, capital and social institutions. However, the approach does not perform very well in capturing the practical means through which governance is conducted. Governmentality perspectives are valuable because they provide insight into the techniques and practices of governance. But the approach is mostly insensitive to the overt resistance and power struggle that has often characterized international climate governance efforts.

Having considered the strengths and weakness of the four theoretical approaches, we then highlight, in section 6, some of the conceptual topics that should inform the framing of a more in-depth empirical research on the involvement of NNSAs in the governance of climate change. This is followed in section 7 by brief concluding remarks.

2. Regime approaches and climate governance

Much of the early effort to interpret international climate co-operation proceeded from the basis of the regime approach (Paterson 1996a, 1996b; Rowlands 1995; Saurin 1996; Ward 1996; Young 1989).⁵ This is not surprising because, until very recently, the regime approach was the dominant theoretical lens for the study of international rule-based co-operation (Haggard and Simmons 1987; Hasenclever et al. 1997; Keohane 1984; Keohane and Nye 1977; Krasner ed. 1983; Young 1980). Besides, as Newell (2000:23-24) points out, regime analysis was particularly attractive since it ‘responds to a number of overlapping concerns’ that traditionally characterize the global environmental problematic’. These include the desire to regulate states’ behaviour in order avoid the

⁴ There have been previous attempts to use these theories independently to explain global environmental governance. But these accounts despite yielding very fruitful insights have never managed to find their way into mainstream scholarship. For some example of these endeavours, see sections 4 and 5.

⁵ It is fair to say that some, if not most of these authors did express at one point or the other the sentiment that the dominant international regime approach proves inadequate as a means of capturing the politics of climate change (see for example Paterson 1995: 265).

“tragedy of commons”, the need to control tendencies towards “free-riding”, and the need to respond to the distributive questions arising from the collective response to global environmental challenges. The regime approach also proved popular because it was able to provide a relatively neat account of international rule-based co-operation by focusing on the actual strategic behaviour of states actors while treating the sources of interests as exogenous. It not much of a surprise then that notwithstanding the appeals of this perspective, it does not, suffice as a way of conceptualizing the increased profile of NNSAs in the global governance of climate change.

2.1 Key ideas and concepts

Regime approaches can be conceived as the systems of thought devoted to explaining the mechanisms and procedures through which nation states in the absence of a world government or supranational authority seek to regularize behaviour in a given issue-area in international relations.⁶ Much of the early regime research agenda emerged as a counterpoint to the zero-sum “realist” approaches of the international system in which international politics is characterized solely in terms of anarchy and the quest for dominion (Keohane 1984; Krasner ed. 1983; Vogler 2000: 21-22). In contrast to this “Hobbessian” conception of the international system, the regime literature emphasized the prevalence of inter-state co-operative institutions and the tendencies of states to regulate their practices in a fairly well co-coordinated manner in order to solve collective action problems or simply to maintain order and stability in the international system (Keohane 1984; Keohane and Nye 1977; Krasner ed. 1983; Young 1980, 1989; Vogler 2000).

It is however crucial to point out that the development of regime thought witnessed important differences in emphasis and understandings of the process through which regimes are created, the factors that are important and the extent to which regimes matter (Hasenclever et al.

⁶ A popular definition of regimes is offered by Krasner (1983:3): regimes are sets of implicit or explicit principles, norms, rules and decision making procedures around which actors’ expectation converge in a given issue area of international relations.

1997; Haggard and Simmons 1987).⁷ For instance, power-based theories posit that regimes are created by the hegemon, that is, the state that commands the most (economic and military) power either to further its specific interest or simply to promote international management in order to forestall conflict (Gilpin 1987; Grieco 1988a; 1988b; 1993; Snidal 1985; Waltz 1979). Accordingly, power is seen as the most important factor in the creation and maintenance of regimes such that international institutions on their own, that is, as independent variables, do not matter much. Instead, the crucial factor is said to be the motivation and disposition of the hegemon or the power configuration prevalent in the international system. Utility-based approaches, on the other hand, emphasize interest as the main causal factor in the formation of regimes (Keohane 1984; Young 1989; 1994; 1998). Functionalists hold that regimes are formed when state actors perceive that individual actions with respect to a given issue-area will not promote their interests in the long run. Regimes, here, are seen as the medium used by state actors to reduce vulnerability, opportunism and uncertainty while stabilizing the expectations needed to promote collective action.⁸ A third strand is the constructivist approach where emphasis is placed on consensual knowledge as the key causal factor in the formation of regimes (Haas E. 1975; Haas 1989; 1992; Kratochwil and Ruggie 1986; Litfin 1994; Onuf 1989). In this view, a regime will be formed mainly when there is common knowledge or understanding on the nature of the issue and what needs to be done to achieve solution.⁹

⁷ Although the terminology “regime theory” is widely used in discussions on international co-operation, the term “regime theory” is strictly speaking a misnomer. In real terms, there is nothing like regime theory but rather different ‘theories about regimes’ (Vogler 2000: 23). The reason as noted is that despite the fact that a consensus definition exists there has always been huge disagreements over: the meaning of the key phrases; the manner in which regimes arise and are sustained; whether regimes matter at all; and even the usefulness of the concept as an analytical tool in the study of world politics (see Keohane and Nye 1977; Young 1982; Krasner ed. 1983; Haggard and Simons 1987; Kratochwil 1989; Keohane 1989; Hasenclever et al. 1997; Vogler 2000). In recognition of the significance of these controversies some scholars now tend to talk, not of regime theory, but of ‘a plethora of contending theories to explain regime creation maintenance and transformation’ (Haggard and Simons 1987: 429) and of ‘various schools of thought within the study of international regimes’ (Hasenclever et al., 1996:178).

⁸ Expectation here is used in terms of the demand for reciprocity and obedience to rules and of the establishment of long-term behavior patterns by states.

⁹ It is important to note that there are some other “shades” of regime theory within these broad divisions. There are also some variants that are difficult to place within any of the broad categories. For example, Hasenclever et al. (1997) identify a strand - “strong cognitivism” - whose main variables include shared values and belief system.

Despite differences, however, there are still a few connecting ideas that enables one to speak in terms of a “regime approach”. Two are particularly important with respect to the focus of this paper. The first is that regimes are generally seen as a medium through which state actors solve problems or respond to challenges that are *international* in nature. The critical assumption implied here is that it is easy to differentiate between issues that are national and the ones that are international in scope (Paterson 1995:215 1996a: 63). This assumption relates to the basic paradigmatic conception about the nature of the state and its spatial characteristics in mainstream international relations literature. Here, the state is for the most part regarded as a bounded and largely self-sufficient entity and the complex independencies of the global natural system are hardly emphasized (Bulkeley 2005). The second and perhaps the most important factor is that the regime approach is more or less a state-centered theory. The approach, as Newell (2000:23) puts, it ‘takes as given the preeminent status of the nation-states as the key point of reference in seeking account for the ways issues unfold in the global agenda’. Critically, there is very limited space for the account of the involvement of NNSAs in international institutions building. There are some strands of regime theory, especially the constructivist approaches (Kratowchwil 1989; Ruggie 1998; 2004; Vogler 2003; Wendt 1999) that attempt to accommodate the role of NNSAs, however much of the endeavor is couched in terms of the roles of this group of actors in influencing state actors rather than in being ‘governors’ in their own right (Auer 2000; Betsill and Bulkeley 2004).

Furthermore, under the regime approach states are mostly conceived as homogenous unitary actors with well-defined orders of preference. In conceptualizing states as “black boxes” (Stokke 1997:29), the regime approach critically ignores the significance of internal politics including the diverse motivations and interests that are mixed up in this process (Newell 2000; Paterson et al. 2003).¹⁰ The reason for this may be that under the regime approach, power is basically conceived as ‘territorially bounded’ and ‘equated with the nation state’ (Betsill and Bulkeley 2006:146). Moreover,

¹⁰ One noteworthy exception might be Moravcsik (1999; 2002). In his writings Moravcsik propose a multi-layered approach for understanding international institutions and stresses the importance of domestic politics in this process. He does this mostly in his studies on the EU where he clearly looks at how member states positions are shaped by domestic actors.

in this view, a zero-sum notion of power is assumed.¹¹ Accordingly, once the central state is identified as the location of authority, it is impossible to ascribe non-state actors with the power or legitimacy in the international arena. Given that the nation-state has the monopoly of power, and that all other sub-national actors act merely within the purview of the state and or in a bid to influence it, regime theory attempts to account for the outcome of international co-operative effort by focusing exclusively on the possible strategic options or behaviour of national governments (Biermann 2005; Keohane 1984; Paterson, 1996a; Ward 1996).

By maintaining a rigid divide between the national and the international and a state-centric account of agency, regime theory manages to provide a neat and parsimonious account of international co-operation. The functionalist strand goes even further to increase its attraction by making allowance for modicum of changes in the behavior of state actors and in the outcome of international negotiations (Hansenclever et al. 1997; Paterson 1996b 72). This is possible by retaining the core assumptions mentioned above and building in the hypothesis that nation states have a wider space (zone of maneuver) under which they can compute and pursue their national interests. Enlargement of the zone of maneuver is important because it accommodates some measure of uncertainty and variations in outcomes without sacrificing the theoretical gains associated with a tight conceptualization of motive, agency and structure (Keohane 1984:4; Young 1989). In practice, this means that whereas preference over policies, that is the strategic behaviour of states may change, preferences over outcomes remains fairly stable such that the direction and end results of international co-operative arrangements could all be fairly accurately predicted per time (Hasenclever 1997:23-24; Keohane 1989:39-40; Snidal 1985; 1986).

¹¹ Again there are variants of regime theory that make attempt to address this flaw. For instance, Zürn (1997; 2000) in his situation structural model provides a more dynamic account of power. In this approach actors' constellations and secondary structural factors are taken into account. Power is more or less residing in the changing constellations among state actors, not purely in the states themselves. And in this regard - power being context-dependent and residing in constellations among actors - at least some regime theories are not that far away from neo-Gramscian and governmentality theories.

2.2 How is climate governance conceptualized under the regime approach?

It is implied in what has been said in the preceding section that under regime theory, global environmental governance is seen as an attempt by states to manage the global environment for the collective interest of all. This function, according to Vogler (2000) has two main dimensions. The first consists in the attempt to respond to the threats and challenges posed by global environmental degradation. The second involves the attempt to ensure ‘efficiency and equity in the way common pool resources are held and exploited and in the way common sinks are used’ (Vogler 2000:16). In other words, regime theory conceives of global climate governance essentially in terms of the management of a collective action problem (Newell 2000).

This endeavor, insofar as it draws upon the key regime concepts, implies three things. First, the management of climate change is seen primarily as the duty of governments. The obvious implication of this notion, as pointed out by Betsill and Bulkeley (2006:146), is that the regime approach ‘is more consistent with government as opposed to governance’. Governments are expected to identify and bring issues to the international negotiating table, agree on response strategies and return to apply the agreed rules. This perception is directly related to the notion that states are the only legitimate authority in the international arena as well as to the assumption that states have the absolute capacity to mobilize, and direct efforts of all persons and groups within their domain.¹² Second, the basic assumption under regime theory is that the primary purpose of interstate climate co-operation is for the protection of the self-interests of individual state actors. The global climate regime is thus seen mainly in terms of the attempt to avoid the classical problem of “free-riding” and “tragedy of commons” (Newell 2000:24). This assumption provides the central logic for Oran Young’s (1989:199) defense of international environmental regimes in general. He says;

¹² This perception is also partly rooted in the nature of the environmental problems that first attracted international attention most of which mainly require action from the level of national governments. Examples of such early generation environmental agreements include The Antarctica Treaty (1959) and the 1967 Treaty on Principles Governing the Activities of States in the Exploration and Use of the Outer Space (see Okereke 2008).

By now, every one is aware that rational egoists operating in the absence of effective rules or social consensus often fail to realize feasible joint gains and end up with sub-optimal (sometimes drastically suboptimal) outcomes...It follows that individual actors frequently experience powerful incentives to accept behavioral constraints of the sort associated with institutional arrangements in order to maximize their own long-term gains regardless of their idea of the common good.

The emphasis, accordingly to Vogler (2000:169) is that inter-state co-operation for the environment is purely a rationalistic endeavour and 'need not be based on anything as fickle as notions of common good'. He further points out that the implication of a purely material utilitarian account of environmental regimes is that the key for the explanation of the emergence and pattern of development of environmental regimes 'is to be found, not so much in the mutual gains that become available through co-operation in an institutional setting, but in the management of mutual vulnerability' (Vogler 2000: 197). This rationalistic interpretation in mainstream regime approaches has deep implications in the way rules, negotiations, and activities of various agencies in global climate management ought to be interpreted (see Okereke 2008). Indeed, it is according to this material utilitarian interpretation that Ridley and Low (1993) argue that the way to strengthen global environmental co-operation is by tapping into the 'boundless and renewable resource: the human propensity for mainly thinking of short term interests rather than appealing to some form of rare altruistic behaviour that cost the performer and benefit someone else' (Ridely and Low 1993:3). Third, in line with the rigid divide between the national and the international under regime theory, global climate governance is conceptualized in terms of minimalist rule-based co-operation rather than, for instance, as a threat requiring fundamental changes in the way national and international societies are currently structured and/or changes in the values that prevail within these societies (cf Barry 1999; Barry and Eckersley eds. 2005; Lohmann 2006; Paterson 1995).

2.3 Critiques

As already noted, the attraction of regime theory inheres in its emphasis on the regularized behaviour of states in international relations as opposed, on the one hand, to the anarchical conception of international politics, and on the other hand, to the highly improbable notions of world government (Keohane 1984; Young 1997:4). Furthermore, the exclusive focus on states and the tight conceptualization of motive makes for a neat and simplified account of regime development.¹³ But despite its strength, the regime approach has important drawbacks most of which have been alluded to in the preceding sections.

First and foremost is that the predominant focus on nation states severely limits attention to the role of actors that operate either below or above the level of the state. Despite the notable attempts by some of the variants of regime theory to highlight the involvement of NNSAs, the analytical framework of the regime approach has for the most part remained firmly state-centric. As such, there is little space within this frame to give exhaustive and comprehensive attention to the influence of environmental non-governmental organizations, corporations, transnational networks, or sub-national actors like cities and local governments in the development and function of the climate change regime (cf. Betsill and Bulkeley 2004; 2006; Bulkeley and Betsill 2003; Chatterjee and Finger 1994; Leggett 2000; Levy and Newell eds. 2005; Newell 2000). Second, by modeling states as essentially homogenous unitary actors the regime approach is unable to give serious recognition to domestic politics including the multiplicity of opinions, preferences and approaches within states that is clearly visible in the global politics of climate change (cf. Leggett 2000; Lohmann 2006; Mintzer and Leonard eds. 1994; Paterson 1996b). Third, the account of power implicit in the dominant regime approach is zero-sum. Neither the realist nor the neoliberal institutionalist approach to regime would seem prepared to consider that the involvement of NNSAs, even if it is limited to influencing the activities of state actors in the international arena, warrants a more

¹³ It would have been so much easier, for example to exclude the wide range of non-state actors in the account of the development and function of the climate change regime.

nuanced account of power and authority. Newell (2000:27) endorses this point when he argues that 'if it can be shown that non-governmental actors have some influence on the interests and expectation that states bring to the process of institutional bargaining in the international fora, then an important challenge is posited to the way in which we currently seek to explain policy'. At the same time, the location of power and authority solely within national territorial boundaries neglects the significance of the structure of world economy as well as the complex relationship between state and capital and how this impacts on international climate efforts (cf. Chatterjee and Finger 1994; Coen 2005; Leggett 2000; Paterson 1996b; 2000;).

Fourth, the rigid inside/outside divide between what is seen as 'domestic' politics and that which is seen as 'international' leaves little room for appreciation of the peculiarities of environmental problems like climate change. The regime approach for, example cannot countenance the fact that the global climate is simultaneously micro and mega in scale and consequently on how actions at local and transnational levels might impinge on inter-state climate co-operation (Bulkeley 2005). Fifth and related, regime theory is basically 'single-issue focused' (Vogler 2000) and as such does not provide ample opportunity for attention to the interconnectedness of the environment. This is a notable weakness especially with respect to climate change which has been shown to have intimate link with many other issue areas such as agriculture, tourism, housing, forestry etc. Newell (2000:27) underscores this point when he argues that the quest to provide a generic, scientific account of international co-operation and 'generalisable hypothesis that applies across issue areas' renders the regime approach incapable of appreciating the 'particular political dynamics and problem structure' that characterize climate change (cf. Rowlands 1995).

3. Global governance theory and climate governance

The increasing visibility of NNSAs in international politics has been accompanied by a recent proliferation of work on global governance. Although not all the accounts of this hugely variant

literature provide a counterpoint to the state-centered regime approach, it is nonetheless fair to suggest that the growth in the literature reflects a certain dissatisfaction with the regime approach and hence to conceptualize governance ‘beyond’ the regime (Weiss 2000:795; cf. Ruggie 1998; 2004; Stokke 1997; Wapner 1997). For the most part, it was international co-operation for the environment that offered the clearest evidence of ‘the striking advances’ (Young 1997:2) of NNSAs in influencing international governance, thus bringing to light the limitations of the regime approach in this regard (cf. Willets ed. 1982; Paterson 1996b; Newell 2000; Yanacopulos 2005). But despite its usefulness in terms of drawing attention to the role of NNSAs in global climate governance, the global governance approach provides a very limited analytical tool-kit for understanding the basis of the rising profile of these actors and the implications for core concepts like the state, power and authority in international politics.

3.1 Key ideas and concepts

Governance has been defined as ‘the processes that create the conditions for ordered rule and collective action within the political realm’ (Stoker 2004: 22). The term has also been described as the establishment and operation of a set of rules of conduct that define practices, assign roles, and guide interactions so as to grapple with collective problems (Stokke 1997:28; cf. Young 1994:15). A more elaborate definition is offered by The Commission on Global Governance (Our Global Neighborhood 1995: ii). The Commission conceives global governance as:

the sum of the many ways individuals and institutions, public and private, manage their common affairs. It is a continuing process through which conflicting or diverse interests may be accommodated and co-operative action may be taken. It includes formal institutions and regimes empowered to enforce compliance, as well as informal arrangements that people and institutions either have agreed to or perceive to be in their interest.

What unites these definitions (and contrasts them from the concept of a regime) is the removal of emphasis from state actors and the explicit acknowledgement that governance involves the activities of non-nation state actors. Olav Schram Stokke (1997: 28) underlines this distinction. He notes that:

regime analysis tends to study governance through statist lens, focusing on the creation and operation of rules in *international affairs*. The term *global governance*, on the other hand, encompasses not only those phenomena but also situations in which the creators and operators of rules are nonstate actors of various kinds, working within and across state boundaries

Analytically, the notion of global governance owes much to the conceptual distinction between “government” and “governance” as espoused in the writings of James Rosenau (Rosenau 1989; 1995; 1997; 2000; 2002). In these works, Rosenau equates government with the authority of sovereign states and reserves the term “governance” for the numerous activities which are significant both in establishing international rules and in shaping policy through “on-the-ground” implementation even when some of such activities originate from actors that, technically speaking, ‘are not endowed with formal authority’ (Rosenau 1992: 6). Usually included in this group of actors are international organizations, global social movements and NGOs, transnational scientific networks, business organizations, multinational corporations and other forms of private authorities (Dingwerth and Pattberg 2006:189; O’Brien et al. 2000).

However, much like regime analysis, the concept of global governance has not been used consistently across board. Both Paterson et al. (2003) and Dingwerth and Pattberg (2006) identify at least four different perspectives. The first are those who employ the concept of global governance in more or less regime terms and accordingly perceive the roles of non-state actors as mainly complementary to those of state agents. In this framework, the concept of global environmental

governance ‘refers principally, if not exclusively, to the sum of the overlapping networks of inter-state regimes on environmental issues’ (Paterson et al. 2003:4 cf. Young 1997; Vogler 2000). Implicit in this usage is the understanding that there is little or no shift in authority from sovereign states and that NNSAs merely serve a mechanistic function. The second are those who use the concept of global governance to reflect utopian visions of world politics. In this view, the notion conveys a vision of the emergence of a global civil society with the possibility of supplanting the inter-state system (Scholte 2002). Here, the involvement of civil society is closely associated with the “thickening” of cosmopolitan values and the activities of NNSAs are seen as principally underpinned by a ‘desire for global integration based on shared values and norms especially those of global welfare, global rule of law and global equity’ (Messner and Nuscheler 1998; cited in Dingwerth and Pattberg 2006:195). A third perspective is the one in which the involvement of NNSAs is explained in terms of a collective problem solving approach by all those concerned to find effective solution to the environmental problems arising out of the uncontrolled process of economic globalization. Here, global governance is perceived in terms of ‘higher levels of co-operation among governments, private institutions, non-state actors, business and ‘people everywhere’ in order to achieve results ‘in areas of common concern and shared destiny’ (Commission for Global Governance viii). This perspective, in the words of Paterson et al. (2003:3) ‘conveys a much looser, broader, meaning’ of governance and involves an attempt to depoliticize the concept of governance and disentangle it from power and authority. The final perspective is what Dingwerth and Pattberg (2006:196) call the “critical version” of global governance in which the concept is seen more as ‘a hegemonic discourse to disguise the negative effects neoliberal economic development at the global level’. Paterson et al. (2003) describe this perspective as arising on the one hand from ‘the pursuit of neoliberal forms of globalization’ by the state and the Multinational Corporations, and on the other hand, the ‘resistance of such centralization of power’ by communities, individuals and social groups (cf. Ford 2003).

Nonetheless, these perspectives are united in the sense that the notion of governance conceived in purely state-centric terms is rejected and that both the role and importance of actors below and above the level of the state are explicitly recognized in theorizing world politics (Dingwerth and Pattberg 2006:197; Paterson 2003:2-4; Rosenau 1999; 2000; Risse 2002; Ruggie 2004; Wapner 1997). The critical argument underpinning the main body of global governance literature is that the activities of NNSAs posit important transformations in the traditional locus of power and authority in global politics and, therefore, that an adequate account of international co-operation must include the role of this group of actors (Biremann and Dingwirth 2004; Duffy 2005; Karkkainen 2004; Newell 2000; Rosenau 1992; Stokke 1997; Wapner 1997). This claim involves two linked core assumptions. The first is that the variety of activities by NNSAs occurring at local, national and transnational levels can be legitimately considered as acts of governance in their own right to the extent that these activities are not strictly speaking within ‘the direct purview of the state system’ (Wapner 1997: 66).¹⁴ What is suggested here is not simply the involvement of actors other than states in the management of global order but also the view that global (environmental) governance itself is a much more fragmented, chaotic and loosely coordinated process than is normally implied in mainstream approaches to regime analysis (Paterson et al. 2003:1-2). A second and related claim is that the growing influence of NNSAs in international politics involves some level of power shift from state actors to agencies beyond the (nation) state (Gordenker and Weiss 1995; Keck and Sikkink 1998). Other accounts however prefer to speak in power sharing rather than power shift between these groups of actors (Rosenau 1999; 2002; Scholte 2002).

In general, the concept of global governance emphasizes new relevant actors, new forms of authority and new modes of interaction and transactions between these authorities (Leaonard 2005: 163; cf. Rosenau 1999:289). More explicitly, it implies ‘a fragmengrative world view’ rooted in ‘the lessening of [states] ability to evoke compliance and govern effectively’ (Rosenau 1997: 173).

¹⁴ This claim would not apply to those who continue to see the activities of non-state actors as subordinate and merely complimentary to the state system. As already noted, scholars who use global governance in this regard do not even appreciate the fundamental claim of shifts in authority (cf. Young 1997).

Particularly noteworthy is the fact that power is conceptualized in zero-sum terms such that once NNSAs are gaining power, states must be losing. These arguments are, in effect, the basis on which some global governance theorists claim that the world is experiencing a transition from international to 'post-sovereign' (Karkkainen 2004) or 'postinternational' politics (Rosenau 1989:3; 2000:219).

3.2 How is climate governance conceptualized under global governance?

Global environmental governance theorists argue that their perspective represents an important corrective to the traditional regime approach in a number of ways (Auer 2000; Leonard 2005; Wapner 1997; Young 1997). Four are highlighted in this section. The first is simply that the concept is a better 'heuristic device' (Weiss 2000) for capturing observable phenomenon. In other words, that it is terminologically superior to 'inter-national co-operation' to the extent that it conveys the reality of a situation in which a myriad of actors actually take part in the negotiation and implementation of multilateral environmental agreements. As Dingwerth and Pattberg (2006: 191) put it, the term acknowledges that 'a plethora of forms of social organization and political decision-making exists that are neither directed towards the state nor emanate from it'. Hence rather than focus solely on international climate institutions, such as the UNFCCC and the related Kyoto Protocol, a governance approach would 'refer to all purposeful mechanisms and measures aimed at steering social systems towards preventing, mitigating, or adapting to the risks posed by climate change' (Jagers and Striiple 2003:385).

Second, it is argued that the global governance lens makes it possible, to bring into focus the wide range of interests and motivations including survival, distributive equity, profit, aesthetic and inter-temporal concerns that are brought to bear in the process of governing climate change. This implies a departure from the rational utilitarian conception of motive associated with the dominant neoliberal institutionalist regime approach. John Vogler underscores this point in his critique of regime theory in relation to environmental governance. He notes that 'rational choice assumptions cannot encompass the whole range of human motivations and values and particularly in relation to

environmental politics' (Vogler 2003:27). He continues by insisting that 'politically significant ideas of environmental justice or wilderness values are largely inaccessible to rational choice analysis' (Vogler 2003:27). This arrow apparently drives home since it is evident that the interest and participation of NNSAs in current international climate change emanate from a wide range of motives including inter- and intra-generational equity, environmental ethics, various notions of ideal human-nature relationship, health and cultural concerns (Adger et al. eds. 2006; Paavola and Lowe eds. 2005; Paterson et al. 2003; Wilk 2002).

Third, it has been argued that the concept of global governance makes room for emphasis on multilevel interplays and issue-linkages in the understandings of approaches to global climate politics (Jagers and Striiple 2003; Newell 2000; Wapner 1997). Thus, while the concept of regime refers to 'more specialized arrangements that pertain to well defined activities or geographic areas and often involve only some subset of the members of the international society' (Young 1989:13; cf. Vogler 2000:23) the notion global governance, in contrast, emphasizes issue-linkages and the interactions between different levels or scales of governments from local to international (Young 1997; 2002). Furthermore, emphasis on the relevance of inter-linkages and multi-scale responses call attention to an understanding of the term "global" 'as a causal category rather than a spatial one' (Paterson et al. 2003:4). This means that the term "global environment" refers not only 'to those environmental phenomena with global scope but also to those whose causal dynamics are shaped by other global processes such as economic globalization' (Paterson et al. 2003: 4).

Fourth, the concept of global governance builds on the notion of the reality of a global civil society and thus points to the importance of norms, values and beliefs in international climate politics (Hough 2003; Lipschutz 2005; Paavola and Lowe eds. 2005; Wapner 1997). In this way, it draws out the similarity between the domestic and the international arena, highlights the importance of international society and rejects the rigid outside/inside divide which has been a standard assumption in IR / regime literature for so long (Paterson 1995; Vogler 2003).

3.3 Critiques

It would seem that the concept of global governance offers some important correctives at least to mainstream approaches and provides a promising base for theorizing the involvement of NNSAs in international climate politics. We say a “promising base” because global governance literature still has some way to go in developing its core concepts and assumptions. Indeed, the literatures on global governance have highlighted the role of agencies below and above the level of the state in steering international climate policies as well as the value of informal practices and multilevel interplays in this process. However, in the main they have yet to engage critically with what these might mean for how we might conceptualize the state, its relationship with civil society or the forms and relations of power and authority implied in the process of global governance (Sending and Neumann 2006:654).

As we suggested above, one the principal claims of the global governance literature is that NNSAs are new relevant players in the international arena and (in some accounts) that states are losing power to these new groups of actors (Leonard 2005:163; Rosenau 1992; 1997:173; 2000; Wapner 1997; 78-9). However, several questions can be raised regarding these claims. Three would seem especially important. The first relates to what Barry and Eckersley (2005:3) call the ‘critical independence’ of NNSAs. Here questions are raised about the extent to which NNSAs can be regarded as “governors” (Jagers and Stripple 2003:385) simply on the basis that some of the activities of these actors have not been directly authorized or sponsored by the state (Hunold and Dryzek 2005). The second and related question concerns the validity of the claim that states are losing power to NNSAs or that the activities of NNSAs, insofar as they are not strictly ‘within the purview of the state’ (Wapner 1997:66) directly amount to the shift in the powers and authority off the state (see Bernstein 2001; Levy and Newell 2002; 2005; Lipschutz 2005). Clearly, this claim, as noted before, implies the conceptualization of power in zero-sum terms such that ‘an increase in the power of non-state actors is ipsofacto defined as a simultaneous reduction on state power and

authority' (Sending and Neumann 2006:652). Moreover, this claim is rooted in the conception of states as "black boxes" – a conception which global governance scholars themselves have criticized (see Stokke 1997). Third, if indeed there are shifts in locations of power and authority from states to non-state actors, what is the basis of this phenomenon and where is the change leading? In other words, how much change are we really experiencing in the international sphere and what is the qualitative difference between the so-called new order and the pre-existing order?

Current literatures on global governance are either simply silent or very tame in their take on these questions. Thus far, the focus of the literature is insistently empirical and descriptive while little attention is paid to analysis and conceptualization. Accordingly, to the extent that these theoretical challenges are even acknowledged, their treatments are extremely diffuse and woolly. This is all the more important because most analysis of global governance continue to place the state as the central actor in the global arena. Wapner, for example clearly argues that 'states remain the main actors in world affairs, and their co-operative efforts to establish regimes remain the essential building blocks of global governance in environmental and other issues' (Wapner 1997:67). Indeed, with the expectation of few critical works, the global governance literature display a general lack of attention to the *basis* of the emergence and rising influence of NNSAs in global governance and what these mean for power and authority in the international arena. And yet as James Rosenau ([1966] 1980: 118) himself once said in the service of another argument:

To identify factors is not to trace their influence. To uncover processes that affect external behavior is not to explain how and why they are operative under certain circumstances and not under others. To recognize that foreign policy is shaped by internal as well as external factors is not to comprehend how the two intermix or to indicate the conditions under which one predominates the other

The general lack of attention to these pressing theoretical concerns has led some to question the extent to which it is correct to regard global governance as an alternative theoretical perspective (cf. Strange 1989; Finkelstein 1995). For Sending and Neumann (2006: 653) it is not so much that global governance literatures are inattentive to these concerns but that ‘their ontology and concomitant analytical tools are not equipped’ to deal with the relevant conceptual issues. They point out that the commitment of the extant global governance literature to the ‘changing roles and power of states and nonstate actors’ (Sending and Neumann 2006: 654) as well as the conceptualization of power in zero-sum terms ultimately results in an insistent focus on types and identities of actors and the degree to which power flows from one actor to another. In their view, this approach virtually entails that the thinking and actual dynamics of governance modalities are ignored. Moreover, they assert that in defining authority as ‘the capacity to generate compliance’ (Rosenau 2000:188), the studies ‘inadvertently perpetuate the very state-centric framework that they seek to transcend’ (Sending and Nuemann 2006:655).

There are at least two reasons that may go to explain the slow progress in addressing the conceptual issues that follow the involvement of NNSAs in international climate politics. The first is that whereas it seems clear that traditional IR theories such as idealism, realism and liberal institutionalism have limited purchase in explaining this phenomenon, there remains a discernable degree of reluctance by mainstream IR scholars to “apply” unorthodox theories in explaining the phenomenon. Perhaps this reluctance also has something to do with the desire to preserve the traditional boundaries of the IR subject discipline which is insistent state-centric. Hurrell and Kingsbury (1992:6) Vogler (1996:2) and Dyer (2001:106) have all in the service of different arguments pointed out that whereas it is admitted that global environmental governance poses a series of new challenges to the ‘abiding assumption’ and conventional approaches in the study of International Relations a certain reluctance towards diversity and theoretical integration remains. The other reason is that IR scholars have always felt the need to defend or explain things on the basis of one, clear cut, generalisable theoretical perspective. Since eclecticism is hardly celebrated

within the subject discipline, there is enormous pressure to adopt or stick to one analytical framework in explaining events in the international arena (cf. Waltz 1979; Dyer 1989:173; 2001:126; Buzan and Little 2001:30). However, it seems clear from observable events in international climate politics, especially the increasing number and influence of NNSAs that it is simply impossible to “fit” everything within one theoretical framework. Specifically, these developments invite the employment of theories that take seriously the agency of non-state actors, their relationship with the state, and the complex nature of power and authority in the international arena. It is to this end that we also review the neo-Gramscian and governmentality theories in order to indicate how aspects of these perspectives provide insights into the conceptual issues surrounding the involvement of NNSAs in global climate politics.

4. Neo-Gramscian theory and climate governance

Neo-Gramscian concepts offer a promising means of explaining the dynamics of NNSA involvement in global environmental governance for a number of reasons. First, the perspective recognizes the ‘agency of the civil society’ (Wapner 1997: 78) and actors other than the state in shaping policies and managing collective problems (Gramsci 1971; Cox 1983; 1989). Indeed, as we shall see, the notion of the state in Neo-Gramscian terms is far more complex and less bounded than is suggested by regime and global governance approaches. Second, the approach has a broad conception of power which makes it useful for capturing the dynamic nature of the issues of authority, legitimacy and autonomy implicated in the rising involvement of NNSAs in climate change governance (Lee 1995; Levy and Newell 2005). Third, Neo-Gramscian ideas are sensitive to the complex relationship between structure and agency and to intricate connection between state, capital and social institutions. Fourth, Neo-Gramscian concepts ‘put emphasis on the process of political contestations and compromise’ (Levy and Newell 2005:49) as well as the role of cognitive-ideational factors in this process (Bernstien 2001:15). Finally, Neo-Gramscian ideas provide conceptual link between the national and the international and thus enable us to transcend the rigid

inside/outside dichotomy imposed by traditional approaches to regime analysis. The term Neo-Gramscian is used here because Gramsci did not personally organize his writings into a coherent system of thought nor did he devote his works to explaining international institutional politics. Rather, the usefulness of his work is in the insights provided by his core concepts in the analysis of the present social structural order (cf. Levy and Newell 2005:65).

4.1 Key ideas and concepts

A neo-Gramscian account proceeds from the core political economy postulate that the form of a polity and, by implication, its analysis is best situated within the context of class formation, class struggle and social relations of production. Its innovation lies principally in its construction and interpretation of the modalities of the relationship between the state, the dominant class and the civil society (Gramsci 1971; 1975). This is a complex issue, and we will only indicate the basic idea here. Contrary to a classical political economy formulation where the relationship between the historic bloc (the ruling alliance in the form of states, classes or transnational actors) and the subordinate classes is characterized in terms of struggle and dominion (McCarthy 2004; McCarthy and Prudham 2004; Paterson 1996b; 2000), a neo-Gramscian account posits a far more dialectical and complex relationship in which, among other qualities, the lines of distinction between the ruling elite and the civil society could be so blurred as to warrant their being termed two different aspects of the same social order. The principal element in this thought is the Gramscian concept of (cultural and ideological) hegemony.

For Gramsci, hegemony is successfully established when a dominant class is able to link its interests with those of the subordinate classes in the pursuit of a social order that reproduces its own dominant position (Gramsci 1971:181; Cox 1983). Accordingly, the successful establishment of hegemony implies that the ruling class need not enforce discipline by coercion but rather that hegemonic stability is rooted in *consensus* as manifested in the everyday operation of the institutions

of the civil society.¹⁵ This is possible because many of the subordinate classes have come to accept the hegemonic project as their own even though in critical terms the project serves to reproduce the dominance of the ruling elite.

To achieve hegemony, Gramsci insists that the small elite seeking dominance must move away from its 'narrow economic-corporate interest' to form alliances with a variety of other forces. This move requires making a number of non-core threatening compromises (Simon 1982:37). Moreover, this alliance must in addition to the control of the core structures of production and polity also provide both moral and intellectual leadership. Leadership is contrasted with coercion and forms the basic form of authority of the historic bloc (Cox 1983: 137; Lee 1995:150; Jessop 2002; Levy and Newell 2005:49-50).¹⁶ Moral leadership refers to setting the "tone" on what is right and wrong and what is considered acceptable and unacceptable ways of life in the polity. Similarly, intellectual leadership refers to the ability of the elite to set the tone and control public opinion on what is considered feasible and unfeasible ways of dealing with the political economic issues in the society. This way, the hegemonic class is able to define the "limits of possibility" within the polity but also to set its interest in universal terms. This important process, for Gramsci, is normally accomplished via social institutions including the school, the council, the media and the church all of which, to the extent that the hegemony has been successfully established, become the handmaiden of the historic bloc.

Paterson (2000), Leggett (2000), Bernstein (2001), Liverman (2006) and Lohmann (2006) have all provided detailed accounts of various aspects of climate change governance which show how the prior commitment to the neoliberal economic order serve to shape debates on what states and NNSAs can and cannot do in response to the threat of climate change. All of these observations can be seen as consistent with the working of the hegemonic neoliberal narrative that there is no

¹⁵ It is important to note that in Gramscian framework consensus does not mean harmony or active agreement; rather it simply implies absence of active resistance.

¹⁶ Gramsci does not deny the importance of the coercive instruments of the historic bloc in maintaining discipline but insists that leadership is the main and for that matter the more effective form of power (see Gramsci 1971; Cox 1983: 137).

alternative to market (cf. Paterson 1996b; Okereke 2006:735). However, and crucially, Gramsci is also very sensitive to the role of the social institutions and civil society as the sites for counter hegemonic struggles. In other words, a complex and dialectical relationship is posed where the social institutions and the civil society become as Ford (2003:132) puts it, ‘simultaneously a site for the maintenance of, as well as challenges, to hegemony’. Moreover, this dialectical relationship helps to recognize ‘the importance of agency and strategy in challenging groups with superior resources’ (Levy and Newell 2005:51) but also the constraints imposed by structural forces in the path of change (Holifield 2004; Lohmann 2006; McCarthy and Prudham 2004; Paterson et al. 2003).

Critically, a neo-Gramscian perspective completely rejects a ‘one-dimensional’ (Lukes 1974) or zero-sum notion of power. Rather than see power as residing permanently with, or as a unique characteristic of, specified entities, Gramsci conceptualizes power in terms of the ‘configuration of forces relative to each other and to adversaries’ (Levy and Newell 2005:51). In this view, power derives from social identities as much as it arises from structural forces (Jessop 2002). Thus, power is broadly ‘implicated in the constitutions of the conditions of interaction’ among the different forces within a given social order (Isaac 1987:74-5; quoted in Lee 1995:148). It follows as Lee (1995: 148) explains, that ‘unequal power relations and conflicting interests may exist where the consent of the subordinate groups is achieved’. Moreover, this implies that a proper understanding of the location of power lies in a thorough reading of the alignments and matrices of the key elements or forces that animate or oppose a given a socio-political and economic order.

4.2. How could climate governance be conceptualized from a neo-Gramscian perspective?

From a neo-Gramscian perspective, the proliferation and involvement of NNSAs in environmental governance in general and climate change governance in particular is rooted in two related developments. The first is the crisis of the mixed economy and the Keynesian welfare system in Western democracies. The second is the internationalization or globalization of world economy along neoliberal lines (Levy and Newell 2005; Jessop 2002:452; Wapner 1997: 70). Moreover, from

this perspective, the character and orientation as well as the limits and capabilities of any given NNSA is explained mainly in terms of its relationship with the state (cf. Barry and Eckersley 2005; Hunold and Dryzek 2005:75-88) and its position within the prevailing relations of production and other prevalent social structural arrangements that define the existing world order (Cox 1983; 1989; Lee 1995:146-150; Levy and Newell 2000; 2005).¹⁷

The push for greater free market economy in western democratic countries has a long history and different dimensions. It is generally held, though, that the chief drivers were the aggressive neoliberal monetarist economic reforms in key Western states and the concomitant realignment of social structural forces needed to stabilize the new order (McCarthy 2004; McCarthy and Prudham 2004; Saad-Filho and Johnston eds. 2005). These reforms and realignments involved firstly, significant changes in the forms of ownership of material and cognitive-ideational production capacities, and, secondly, substantial transformation in the forms and functions of the state (Paterson 2000; Jessops 2002; 2007). With respect to the former, the direction of change was mainly in form of movement away from common ownership of key public utilities towards the acceptance that free market should provide ‘the optimal organizing mechanism’ (Lapavitsas 2005:30) for national and global economies. This rationality is therefore expected to underpin the efforts to respond to changes in the global climate regardless of the type or identity of actors involved. With regards to the latter dynamic, the main change was in the form of the reduction in the size of government through privatization and downsizing according to which the core function of government changed to encouraging self-entrepreneurship and providing rules and guidelines needed to effectively organize the new relevant actors (Josselin and Williams eds. 2001). It follows, here, that a sizable percentage of government’s involvement in climate change governance could be indirect, significantly involving the mobilization and coordination of other actors provided that the core interest of the historic bloc is preserved.

¹⁷ Hence, a neo-Gramscian approach would make a qualitative distinction between actors like World Business Council for Sustainable Development (WBCSD) or World Resource Institute (WRI) with enormous resources and proximate relationship with the ruling elite and the World Council of Indigenous people.

Furthermore the emphasis on competition, profitability and efficiency not only leads entrepreneurial governments to mobilize and use businesses, private-public partnerships and non-governmental organizations as replacements for many of the functions traditionally performed by the administrative liberal state, it also leads to the encouragement of decentralization and greater regional/local autonomy (Christoff 2005; Paterson and Barry 2005; Rhodes 1996:563). It is of course apparent that not all NNSAs are actively mobilized by the state as mechanistic tools for the governance of climate change. Some have developed to insatiate the space created by limited government and subsequently sought to influence policies on various issues and fronts. Moreover the neo-Gramscian perspective is sensitive to the existence of 'bottom-top' counter-hegemonic actors like the Indigenous groups who mobilize mainly to oppose the dominant paradigm. The key fact remains, though, that the basis of their more active involvement in governance – working to formulate or refine policies, as well as in actual implementation – lies in the political space that arose as a result of changes in the logic of the state, government structure and changes in state capital relations.

The foregoing account implies a far more cautious view on the much vaunted power and authority shift from the state to NNSAs. Insofar as it is assumed that the historic bloc leads by consent rather than by coercion it follows that talks of diminishing of state authority might be overstated. Of course it remains the case that the activities of NNSAs are important in explaining policy direction and change, but this is not the same as saying that it amounts to the erosion of state-based power. If, as it appears, much of the activities of these actors are mobilized by the government who also regulate such activities, it may be that in the end, it is the orientation of the state towards these groups that actually determine their critical independence (cf. Barry and Eckersley 2005; Hudson and Dryzek 2005). If this is the case, it might be that what we have is more akin to transformations in the form of the state rather than to diffusion in the power and authority of the state. Further, if the intimate relationship between capital and state is acknowledged, it would follow

that the increasing influence of corporate actors and MNCs is consistent with states' interests rather than posing a danger to state authority.

It is on the basis of these critical assumptions that neo-Gramscians tend to look beyond the microphysics of 'local' power play to focus on the end result of negotiation and outcome of policies (Bernstein 2000; 2001; Levy and Newell 2000; 2005; Ford 2003). Proceeding from this, they point out that there has been no fundamental change in the overall direction of climate policy following the involvement of these actors, and neither can any such radical change be reasonably envisaged (Lohmann 2006). In this case, the overarching commitment is the 'promotion and maintenance of the neoliberal economic order' (Bernstein 2001: 4) and the activities of these NNSAs cannot really be said to constitute a fundamental challenge to the historic bloc. Indeed, they claim that much of the contestations and compromise occur within a limit set by the commitment to the prevailing economic model and state capital relationship (Paterson 1996b; 2000; Bernstein 2001; Ford 2003; Lohmann 2006). Hence, they are not strictly speaking involvements capable of causing radical/fundamental changes in the structures of production and the prevalent social order.

4.3 Critiques

Notwithstanding the insights offered by the neo-Gramscian ideas, the approach does have some drawbacks. Some of these have been articulated in the literature. Bernstein (2001) for example acknowledges the utility of the neo-Gramscian approach in identifying the underlying class interests and structural forces that shape international environmental policies. However, he insists that the approach performs less well in explaining the 'actual dynamic processes' through which these interests are legitimised. Similarly, in terms of governance, it would appear that while neo-Gramscian concepts are able to capture the macro-structural factors that determine the end-result of policies, they are less able to account for the constellation of micro socio-cultural dynamics that so often determine how a given policy plays out in the local level. Bernstein (2001) further argues that the neo-Gramscian approach ascribes too much importance to the role of capitalist development and

relations of production while ignoring the role of values and norms in the development of environmental institutions. It is of course a moot question as to what exactly is the role of class and economic interests in the development of international climate policies, but what is more certain is that the overwhelming emphasis on interest definition makes the neo-Gramscian approach incapable of grasping the role of moral values and norms in shaping international climate efforts (cf. Okereke 2006).

Another critique discussed by both Bernstein (2001) and Levy and Newell (2005) is that despite acknowledging the agency of the civil society, the neo-Gramscian approach might still be read as being too deterministic. Bernstein (2001:16) worries that the approach might be construed in terms of a passive struggle ‘where classes empowered by the current mode of global production ultimately triumph’ above the groups with less resources. It is true that the neo-Gramscian approach places emphasis on the top down structures of governance and on the structural constraints in the path of change, however a thorough reading as indicated by Levy and Newell (2005:51) makes it clear that Gramsci allows for the ‘role of agency and strategy in challenging groups with superior resources’.¹⁸ Gramsci fully acknowledges that the relationship between the hegemonic group and the subordinate classes is very active and dynamic consisting in series of moves and counter moves intended to negotiate and renegotiate the “limits of possibility” and ultimate form of policy. The problem though is that because structure and agency are posed as having a mutually determining relationship, it is difficult to pin point the chains of causation (Uitermark 2005).

Finally, Wapner (1997) highlights the difficulties involved in transposing the Gramscian idea of civil society in Western democracies to the global level. He acknowledges the position of a number of scholars who have argued that the concept of civil society is historically specific such that it makes little sense to speak of a global civil society. However, Levy and Newell (2005:54) note that while much of Gramsci’s writing focused on the national context, he nonetheless recognised that

¹⁸ Gramsci himself warns explicitly against deterministic structural accounts of history. He says: ‘The active politician is a creator, an initiator; but he neither creates from nothing nor does he move in the turbid voice of his own desires and dreams. He bases himself on effective reality... but does so in order to dominate and transcend it’ (cited in Levy and Newell 2005:51).

‘capitalism and class consciousness traversed national boundaries’ such that the approach does have potent application in analyzing international relations. Moreover, as Wapner (1997:73) notes, the concept of the global civil society retains analytical importance ‘when it becomes apparent that the same type of space as well as similar affections and relations that define society at the domestic level are prevalent at the global one’.

5. Governmentality and climate governance

The notion of governmentality was coined by Foucault to capture the ‘rationality of government’ (Gordon 1991:3); the logic, technique and ‘socio-political functions and processes of governance’ (Sending and Neumann’ (2006:651). Foucault’s concept of governmentality was developed in the context of an analysis of the changes in statecraft which took place between the sixteenth and nineteenth centuries in Europe (Bryant 2002: 270; Sending and Neumann 2006). This led him to an account of the ‘reason of the state’,¹⁹ the *bons* of governance and the relationship between government and civil society. With its focus on the nature and processes of governing, theories of governmentality provide a promising perspective for conceptualizing climate change governance beyond the regime.

In these approaches, government is understood not as the apparatus of the state per se but rather as “the manifold ways in which the conduct of individuals and groups are directed” (Triantafillou 2004: 4). Government therefore entails the sum of the processes and activities ‘aiming to shape, guide, or affect the conduct of some person or persons’ (Gordon 1991:2) or what Foucault (2000:341) terms the ‘conduct of conduct’. The focus on the processes, techniques and practices of governance implies that Governmentality scholars are concerned not with the location of power and authority as such, but how it is exercised. Accordingly, a global governmentality perspective, unlike other accounts of global governance, allows the analyst to engage with how governing is

¹⁹ This is not the reason of state in the realist sense by which is meant the need to protect the sovereign integrity of the state at all cost. Foucault’s ‘reason of the state’ means the essence of the state in terms of its relevance to the citizens and the citizens’ allegiance to the state.

accomplished in practical and technical terms and the notions of power implied in this process. Indeed, by regarding government as just one means of power and acknowledging the multiple actors involved, the approach avoid the traps that zero-sum concepts of power create. On the other, hand, it has been argued that the governmentality perspective is largely insensitive to class divisions, overt power struggles and resistances that sometimes characterize socio-political relations (Raco and Imrie 2000). A related critique is that the approach implies a voluntaristic view of decision-making process and therefore ‘fails to take full account of the importance of the properties of the institutional context in which authorities operate and which facilitates as well as constrains action’ (Uitermark 2005:147).

5.1 Key concepts and ideas

Foucault’s concept of governmentality has evolved through the work of a number of neo-Foucauldian scholars. Although there is a range of interpretation of the concept, work in this area basically aims to capture the ‘changing logic or rationality of government’ (Sending and Neumann 2006:652). This implies detailed attention to ‘the operation of government both in terms of the institutions of the state and the power relations that permeate society’ (Thompson 2005:323). The concept equally implies the redirection of attention ‘away from the actions of representatives of capital and state who are commonly held to exercise power towards the local settings in which power actually makes itself visible and sensible’ (Uitermark 2005:145).

Critical in this endeavour is Foucault’s analytical distinction between sovereignty and government. For Foucault, sovereignty speaks to the power and functions of the state concerned with control over territory and the use of sanction and the rule of law as means of enforcement. In contrast, government speaks to the totality of ‘the specific mechanisms, techniques, and procedures which political authorities deploy to realize and enact their programmes’ (MacKinnon 2000: 295; see also Dean 1999). Government is thus ‘an indirect form of rule that acts explicitly on populations rather than territory’ (Thompson, 2005:324). In Foucault’s words, it is: ‘The ensemble formed by the

institutions, procedures, analyses and reflections, the calculations, and tactics, that allow the exercise of this specific, albeit complex, form of power' (Foucault 1991:102).

By focusing on the processes through which governing is accomplished, Governmentality approaches are concerned with two related phenomenon – the rationalities and technologies of government. Governmental rationalities 'define both the objects (what should be governed) and nature (how they should be governed) of government, in effect rendering reality governable through the collecting and framing of knowledge' (Bulkeley et al. 2007). Governmental technologies 'both make rationalities "visible" and permit their extension through time and space' (Murdoch 2000: 505). Current thinkers in the field of governmentality define the present era as one of advanced liberal government and suggest that two forms of governmental technology are critical to its operation (Dean 1999; Haahr 2004; Raco and Imrie 2000). First, technologies of performance, which seek to determine what counts as relevant knowledge and provoke action on the ground, for example through targets, monitoring, audit processes and so on. Second, technologies of agency, which seek to determine the nature of 'the subject' and their participation in processes of governing, and include different forms of participation and partnership, as well as infrastructures and materials through which action is created and sustained. Such technologies serve to propagate and disseminate governmental rationalities. However, a key feature of the governmentality literature is the emphasis that governmental technologies do not merely reflect any given rationality, but are central to actively defining 'the domains which are to be governed' (Murdoch 2000: 513). This means that, 'forms of political authority and subjectivity are not determined outside of the particular rationalities and technologies of government, but are actively created and mobilized through this process' (Raco 2003; cf. Bulkeley et al. 2007). It is, in particular, this 'technical aspect of government ... [which] has often been neglected in ... traditional analyses of political power' (Rose-Redwood 2006: 473).

The governmentality approach draws attention to how knowledge and power are co-constituted in order to 'make social order possible and inevitable' (Bryant 2002: 271). However, while power may be seen as flowing from a centre, it is nevertheless held that its final form is

‘determined by the specific socio-cultural dispositions of the local setting. Indeed a cardinal aspect of the governmentality perspective is the notion of ‘bottom-up approach to social power’ (Jessop 2007:34). For Foucault, then, the local level is the arena where power is felt (Peters 2001:72; Uitermark 2005:149). Essentially, government as a form of power involves: first, the use of tactics and techniques rather than coercion/laws to steer conduct (Dean 1999; Sending and Neumann 2006; cf. Foucault 1991:95); and second, the organization of society into forms and functions that enhance the welfare of the population and individual liberty without eroding the ability of the state to exercise socio-political control. In other words, the political freedom and agency of the citizens are ‘considered both as an end as a means of governing’ (Sending and Nuemann 2006:656; cf. Peters 2001: 76).

Adopting a governmentality approach therefore implies a focus on the empirical matter of the techniques and practices through which governing is accomplished; the identification of the ‘rationality’ of governing; and an appreciation of the multiple means through which power is exercised (Sending and Neumann 2006: 656-7). In order to operationalize this approach, scholars have examined the regimes of practice, ‘organized ways of doing things’ (Dean 1999: 17) through which rationalities, technologies, authorities and subjectivities are created and sustained (Dean 1999: 30-33). Importantly, it is argued that through these regimes, government ‘is an undertaking conducted in the plural. There is a plurality of governing agencies and authorities, of aspects of behaviour to be governed, or norms invoked, of purposes sought, and of effects, outcomes and consequences’ (Dean 1999, cited in Bryant 2002: 268). This multiplicity is seen in terms of competing rationalities (Murdoch 2000: 510) as well as in the co-existence, overlap, intersection, fragmentation, and contestation between, regimes of practice (Dean 1999: 21). As Bryant (2002: 273) suggests, this results in ‘a number of regimes of practice which criss-cross both conventionally understood state/civil society divisions and each other’ (see Bulkeley et al. 2007).²⁰

²⁰ Unfortunately, in the field of global governance the use of the term ‘regime’ has a very specific meaning, as discussed above, so that using the term ‘regimes of practice’ is only bound to result in confusion within this disciplinary field.

Governmentality is, therefore, not a practice confined to the state but one which can be undertaken by both state and nonstate actors. Given the focus on this project in seeking to examine the potential role of states and non-nation-state actors in new forms of climate change governance, the strength of the governmentality perspective is that it provides a means for examining how both types of actors seek to govern. Moreover, and critically, a governmentality perspective negates the pervasive assumption in extant global governance literature that the increasing visibility of NNSAs in international governance implies that states powers are being eroded. Rather, the approach leads us to view the phenomenon in terms of the outworking of a changing logic of government characterized by competing rationalities and deep transformations in the ways by which governments get things done. In essence, this perspective shows us that ‘the ascendance of nonstate actors in shaping and carrying out global governance functions is not an instance of transfer of power from the state to non-state actors, or a matter of the changing sources of, or institutional locus for authority. Rather it is an expression of a change in governmentality’ where civil society is rendered both an object and the subject of governing (Sending and Neumann 2006: 658).

5.2 How could climate governance be conceptualized from a governmentality perspective?

To date most analysts who have sought to apply and develop Foucault’s thinking on governmentality have remained within the bounds of the nation-state (Burchell et al. eds. 1991; Larner and Walters 2004; Thompson 2005). However, there is no apriori reason why this should be the case. As Lipshutz (2005: 15) suggests, the ‘extension of his idea to the international arena is rather straightforward’. Because governmentality perspectives focus not on the state, or government as an institution, but rather on the processes through which governing is accomplished, there is no necessary reason why this should be limited to a concern with governmental rationalities and technologies as they apply within a territorially demarcated state arena. Moreover, because governmentality is concerned with the ‘conduct of conduct’ there is no need to keep ‘the state’ at the centre of analysis, though in practice it is the case that more often than not scholars have sought to

examine governmentality as a means through which state-based authorities operate (Gordon 1991; Isin 1998; MacKinnon 2000; Thompson 2005; Uitermark 2005). For example, through taking a governmentality approach Bryant (2002) suggests that non-state actors have been enrolled in to the practices of neoliberalism in ways that are deeply ambivalent. Lipschutz (2005: 15) makes a similar argument, concluding that global civil society is ‘almost fully internalised within the system of governmentality that constitutes and subjectifies it, yet which GCS presumes to contest, regulate and modify through its projects.’ A ‘global’ governmentality which addresses both state and nonstate actors is therefore a conceptual possibility, and one which has been operationalised by various authors (see especially the collection by Larner and Walters 2005; Lipschutz 2005; Sending and Neumann 2006). To date, however, few accounts have engaged a ‘green’ governmentality in order to examine the politics of environmental governance (Backstrand and Lovbrand 2006; Bryant 2002; Darier 1999; Murdoch 2000), with only limited reference to the politics of global environmental change. Taking a governmentality approach for the analysis of global environmental issues therefore requires a carefully (and defensible) consideration of what it might add to existing approaches.

Sending and Neumann (2006: 657) are specific about the advantages which they consider a governmentality approach offers the analysis of global governance. First, it provides a means for studying the process of governing. A focus on the process as opposed to actors or the ‘institutionalization of political authority’ (Sending and Neumann 2006: 655) enables us to transcend the state versus non-state debate that characterizes existing global governance scholarship to explore the ‘micro-physics of governance’ (Peters 2001) including the techniques and practices that embody this process. This in turn would yield insights that would prove valuable in terms of policymaking. For example, a deeper understanding of the processes of climate governance would impact the choice of policies and architecture that might be considered in the design of a post 2012 climate regime. Further, as Merlingen (2006) points out, emphasis on the technologies of government provides a means for analysing the role of ‘intellectual technologies’ (reports, statistics, definitions etc.) in governing. The second benefit of as pointed out by Sending and Neumann (2006:657) is the

fact that the governmentality approach helps scholars to identify the logic and rationality that underpin prevalent systematic thinking as well as the knowledge and technologies that ‘render possible different modes of governing.’ Here again, the prospect of the approach is the possibility to expose and thus focus debates on the deeper justifications or rationale upon which prevalent practices and modes of governance are based. For, example rather than concentrate on the diffusion of authority from state to non-state actors in climate governance circles, efforts might be focused on the underpinning logic of market rationality and the extent to which this rationality is compatible to ecosystemic integrity (cf Lipschutz 2005).

A third potential benefit is that the perspective promises to refigure the spatiality of environmental governance in two ways which are critical to our project. First, it can yield increased understanding of how national and international regulations are put into practice in local settings and the power or institutional dynamics that ultimately determine the “on the ground” implementation of these regulations. Such understandings would generate consideration of the factors that require attention in order to achieve a more efficient and effective climate regime. Indeed the perspective generally enables researchers to move between micropolitical sites and practices (as for example, in our case studies) and macro-political arenas (perhaps the ‘regimes of practice’ within which they are located as defined above). Second, as Merlingen (2006) suggests, because of its conceptualisation of power in relational (network) terms, the approach ‘has the capacity to cast new light on heterarchical governance in world politics’ (2006: 185). A governmentality perspective therefore allows us to move beyond the conception of architectures for global environmental governance as necessarily hierarchical (global, national, local), and recognize instead the inter-relatedness between the local and the global, and the transnational arenas and networks through which governance is taking place (see Bulkeley 2005).

5.3 Critiques

In the most part, critiques of the governmentality perspective relate not to its potential, but to how it has been put into practice. Four points are particularly worth noting in the context of this project (see Bulkeley et al. 2007). First, despite Foucault's concern with the microphysics of power, contemporary governmentality accounts can appear to circumscribe 'the capacities of subjects to challenge, contest and modify their contexts of governance' (Raco 2003: 91) by emphasizing their totalizing, inevitable nature. In some accounts, governmental rationalities can appear to be universal and uncontested. Second, and in a related argument, there has been a tendency to neglect 'government from below' (Herbert-Cheshire 2003: 458) so that while 'neo-Foucauldian theory provides a framework for examining how governmental programmes and technologies are received and experienced by sub-national institutions' (MacKinnon 2000: 311), to date little analytical attention has been directed to the geographical variation in government, and the ways in which institutional structures, routinized practices, and, significantly in the case of environmental issues, infrastructural networks, mediate regimes of practice. Together, these points mean that the governmentality perspective can appear to be largely insensitive to class divisions, overt power struggles and resistances that can characterize socio-political relations (Raco and Imrie 2000). However, by explicitly including a concern for the multiple sites within which government is practiced, and recognizing the means through which rationalities are resisted and technologies disrupted, these points could be addressed.

Third, despite its promise in terms of opening up the sites and scales of environmental governance, this has been limited in practice. There has, as noted above, been an emphasis on the nation-state as the centre of governmental power, and, for an approach which prioritizes network relations, there has been little consideration of the potential multi-scalar nature of governmentalities (Uitermark 2005) and to the plural nature of 'regimes of practice'. Focusing on the complex arrangements through which climate change is governed could provide a means of extending the conceptual terrain of governmentality. Finally, taking a governmental approach is demanding

empirically. It requires an analysis not only of the rationalities of government – the ways in which problems and objects of governance are defined – but also of the technologies, or practices, through which these rationalities are circulated, challenged and recast.

6. Concepts for Framing Future Research

In this section, we highlight four conceptual topics that have emerged in the process of the review which would seem to merit more detailed attention in the theorization of global climate governance. These include (i) the nature of the state and its relation with NNSAs; (ii) the character of power and authority in the international arena; (iii) the underlying dynamics of environmental governance; and (iv) the practice and process of governance. Moreover, since effective theory building requires empirical evidence, it follows that these conceptual topics would have to be taken into serious account if not directly inform the framing of a future research on climate governance. Appendix 1 provides a table showing how the theoretical perspectives conceptualize some of these topics.

The Nature of the State

Firstly the review indicates that effective conceptualization of climate governance beyond the international regime requires a fresh examination and understanding of the nature of the state. In particular there is the need to examine the nature of private and public authority and the connections between these two aspects of influence in climate governance. We indicated that the regime approach is very helpful in emphasizing the tendency and ability of states to regularize their behavior on single issue-areas through rule-based institutions. But it was also pointed out that this process very often involves a lot of input from NNSAs in ways far too complex than is suggested in the regime approach.

A critical step that might be needed in understanding this process could be to drop conceptions of the state as a bounded entity in favor of those that suggest a more dynamic picture. Although there have been some notable attempts to highlight the complexity in the boundary and

relationship between states and NNSA within the regime approach, much of the scholarship from the dominant strands still portrays the state as a black box. Understanding the state as a more dynamic entity would imply the need for a differentiation to be made between the concept of “self-limiting state” and the concept of “retreating state”. The former underscores the possibility that the space within which NNSAs act might have been willfully created by the state which leads to a more cautious approach to the claim view that the states are losing power to NNSAs.

Both the Neo-Gramscian and the governmentality perspectives, as noted above, accommodate a more dynamic account of the state and thus offer some insights into the complexity of the relationship between public and private authorities. The dynamic account of states is important because it negates the idea of the state as a ‘homogenous entity that operates according to a single logic’ and opens the space for the understanding of the ‘different ways in which the state can come to serve different purposes of capital accumulation and, as such can take on different kinds of selectivity (Uitermark 2005:139). Second, it also opens up space for understanding how various NNSAs attempt to insatiate the spaces that are constantly result from the dynamic nature of the state as well as how government attempts to use that ‘the political agency of and self association of civil society as a key asset for the formation of new policies and for the practice of governing societies’ (Sending and Neumann 2006:652). Third, these insights might suggest the need to shift from the pervasive dichotomous states versus non-state characterization to a focus on the *hows* of governance and the embedded rationality that underpin such modalities.

The Character of Power in the International Arena

Secondly, the review suggests the need for a critical re-examination of the character of power and authority in the international arena. In particular there seems to be a need to move away from the accounts that conceptualize power in zero-sum terms towards those that embrace a multiple and more complex accounts of power. Constructivist strands of the regime approach have proved useful in challenging the more traditional accounts which conceive power in military and economic

resource terms. These accounts succeed, we think, in showing how knowledge and information might translate to a veritable source of influence in international decision-making circles. This insight would seem particularly useful with respect to climate change where there are multiple knowledges shaping policy and significant uncertainties. Nonetheless, it would appear that an adequate conceptualization of climate governance beyond the regime requires a much more complex account of power and authority than is suggested by even the constructivist accounts of the regime approach.

Some global governance accounts provide important input by showing that power is not always monopolized by state actors but rather is often shared between nation states and non-nation state actors in the process of climate governance. However in much of this approach power is still conceptualized in zero-sum terms such that the gain of one group of actors is seen as the loss of the other group. Both Neo-Gramscian and governmentality perspectives offer complex accounts of power which might prove helpful in taking the theory of climate change beyond the current state. In the Neo-Gramscian perspective the notion of power is one that is co-constitutive of social relations as well as implicated in relations of production. Similarly, governmentality perspectives indicate that power is neither zero-sum nor one-dimensional. Rather, a plural and multiple centre of calculation whereby both states and non-state actors are seen as possible loci of governmental power is envisaged. A socio-structural and ideational account of power invites attention on the multitude of overt and covert as well as advertent and inadvertent ways in which power and authority could be expressed in both national and international arena. In relation to climate governance, these insights mean that there are many points and ways in which power and authority might be exercised. For example this may take the shape of issue definition, agenda setting, claim to specialized knowledge, influencing of public opinion, setting the limits of possibility in terms of what can be or can not be done, capacity to implement or monitor policy etc. What is important though is that a broadened understanding of power enables us to shift from power conceived in terms of capacity to control to look at how actors (states and non-states alike) deploy their strategic resources in the bid to

influence the final form of policy. At the same time the precise way through which these aspects of power manifest in the practice would need to be investigated more closely through empirical research.

The Underlying Dynamics of Climate Governance

Thirdly, the review points to the need for a better understanding of what might be called the underlying dynamics of climate governance. By underlying dynamics we refer to how changes in property rights, structures of production and political economy might be affecting the forms and functions of governments as well as the political subjectivity of citizens and the civil society. There is a need to fully investigate and incorporate in theory building the influence of the dominant ideas and structural frameworks in governance.

There are indications that the ways in which public and private authority are configured, and the relations between them, are shaped by structure and dominant political economic ideas. In this regard, structure could be used very broadly to include both the architecture but also the hard wired rules of states and international institutions while ideas refers to the dominant thinking on how societies should be organized and how its socio-political challenges should be tackled. Some regime theories emphasize that it is not possible to understand the rules of institutions outside of the wider social and political economic context under which they are negotiated and in doing allude to the important of structure and ideas in regime development. (Franck 1990). However, these statements are a generally made in the context of state actors rather than NNSAs. Similarly there are some critical global governance perspectives which see the concept of governance more as a hegemonic discourse designed 'to disguise the negative effects neoliberal economic development at the global level' (Dingwerth and Pattberg 2006:196). However the full implication of these statements in regard to NNSAs involvement in climate governance has not been fully explored.

Subject to detailed examination and more empirical research, the governmentality and Neo-Gramscian perspective could offer some ways forward. Foucault is clear that advances in the

knowledge of political economy is key in explaining changes in the mode and rationalities of the logic of government. Part of the definition he offered for governmentality was that it speaks to '[T]he ensemble formed by the institutions, procedures, analyses, and reflections, the calculations and tactics that allow the exercise of this specific albeit complex form of power, which has as its target populations, [and] as its principal form of knowledge *political economy*...' (Foucault 1991:102, Emphasis added). Gramscian ideas are also rich in the interaction between structure and agency and how the dominant ideas and structure might work to privilege some actors or solutions over contending alternatives. The difference of course is that while the neo-Gramscian perspective conceives of the changes in structures of production as part of grand logic designed to generate discipline and social control, perspectives on governmentality hold the view that the changes are not essentialist but explicable on the basis of a number of factors and contexts including social, institutional and ethnographic. A balanced theoretical approach would therefore have to address the elements of determinism (neo-Gramscian) and voluntarism (neo-Foucauldian) detectable in the respective approaches.

Governance as a Process

Lastly, the review highlights the need for serious attention to be devoted to understanding the actual practice and process of governance. The review shows that much of the focus in regime theory is on accounting for the factor that is the most important in regime creation and. This is answered in terms of power (neorealism); interest (neoliberal institutionalism) and knowledge (constructivism). For most of the global governance perspectives, the main focus is identifying the increasing influence of NNSAs and their changing roles in the context of existing institutional arrangements (Sending and Newman 2006). In general, therefore not much attention has been devoted to understanding how governance is actually executed in practice and the rationalities with which such practices are supported.

The Neo-Grainsicn approach was identified to be relatively weak in offering insight into the actual mechanics of governance but governmentality is a perspective which focuses explicitly on such processes. Indeed the notion of governmentality was coined by Foucault to capture the “socio-political functions and processes of governance” (Sending and Neumann 2006:651). Accordingly, a global governmentality perspective, unlike other accounts allows the analyst to engage with how governing is accomplished in practical and technical terms. Governmental rationalities “define both the objects (what should be governed) and nature (how they should be governed) of government, in effect rendering reality governable through the collecting and framing of knowledge” (Bulkeley et al. 2007). Hence in focusing on these processes it should be possible to clearly understand the influence of competing rationalities as well as how nation states and NNSAs might be attempting to deploy these framings to leverage their positions in the steering of climate policies. Obviously, empirical investigation would be needed to understand how this works in practice and how this aspect relates with the other three conceptual categories discussed.

7. Conclusion

We found that all the four theoretical traditions provide important insights needed to conceptualize climate governance at the global level. However, the review equally indicates that each approach has some important limitations which imply that no one perspective can be solely relied on to provide the means of theorizing global climate governance beyond the regime. Although eclecticism is hardly celebrated in IR scholarship, the review strongly indicates that one ultimately would have to draw from different theoretical traditions in order to generate a robust framework for conceptualizing climate governance at the international level. Four conceptual topics that require attention in theorizing climate change beyond the regime are identified. These include the nature of the state, the nature of power, the influence of structure and the governance as a process. Moreover, since

effective theory building requires empirical evidence, there is need to reflect these conceptual categories in the framing of future research on climate governance that is sensitive to the role of NNSAs in climate politics.

Appendix 1

Table 1: Key concepts and their implications for climate governance in the four approaches reviewed

	Nature of state	Nature of power	Relationship between state and non-state actors	Implications for climate change governance
Regime	Homogenous and unitary	Territorially bounded; resides in the national government	Non-state actors hardly recognized or at the most considered in the light of their influence on state actors	The business of climate change governance is placed squarely on the shoulders of state actors. Climate policies are conceived as collective action problem; the aim of co-operation is to avert mutual vulnerability
Global Governance	Homogenous but not unitary actors; the activity of non states are recognized	Power is seen as zero-sum; power is mainly but not exclusively located within states; power is not territorially-bounded;	Relationship is conceived in dichotomous terms. If non Non-state actors gain power, it is because state actors are losing it.	Literature does not indicate clear implication. Much of the reading suggests that this is a good development for climate change governance.
Neo-Gramscian	Complex; intimately related to dominant class capital and the civil society	Power is a function of the specific alignment of social and structural forces per time; it is constantly contested by all the classes but much of it is wielded by the historic bloc; power is implicated in social relations	Very dialectical. The civil society can be simultaneously seen as an extended state as well as the site upon which opposition (counter hegemonic struggle) against the historic bloc is most likely to occur	More critical of the limits and capabilities of NNSAs. Only incremental change can be permitted. Successful climate change response requires fundamental changes in the current matrices of social structural forces.
Governmentality	Multiple centres of calculation	Two distinct forms: sovereignty and government. Argument that government has become more central to the workings of modern statecraft. Government involves the 'conduct of conduct', shaping the right disposition of things through the use of governmental technologies. The two main technologies of advanced liberal rule are technologies of agency and technologies of performance.	State and non-state actors are seen as possible centres of governmental power. Equally, both can be the objects of governance (how governance is achieved) and the subject (what governance aims to effect).	Threefold. First, a focus on processes through which governance is accomplished rather than the actors and institutions that undertake it. Second, emphasizes the need to understand the underlying rationality of governance, and that these can be multiple. Third, disrupts existing spatiality of global environmental governance.

References

- Adger, W. N. et al (eds)(2006) *Fairness in Adaptation to Climate Change*. Cambridge: MIT Press.
- Auer, M. (2000) 'Who participates in global environmental governance? Partial answers from international relations theory', *Policy Sciences* 33:155-180.
- Backstrand, K. and Lovabrand, E. (2006) 'Planting trees to mitigate climate change: contested discourses of ecological modernization, green governmentality and civic environmentalism', *Global Environmental Politics*, 6 (1): 50-75.
- Barry, J. (1999) *Rethinking Green Politics*. London: Sage Publications.
- Barry, J. and Eckersley R. (2005) 'An Introduction to Reinstating the State', in *The State and Global Ecological Crisis* by J. Barry and R. Eckersley (eds). Cambridge: MIT Press, pp. ix-xxv.
- Bernstein, S. (2001) *The Compromise of Liberal Environmentalism*. New York: Columbia University Press.
- Bernstein, S. (2000) 'Ideas, Social Structure and the Compromise of Liberal Environmentalism', *ECPR*, Vol. 6 (4): 464-512.
- Betsill, M. and Bulkeley, H. (2006) Cities and the Multilevel Governance of Global Climate Change, *Global Governance* 12 (2): 141-159.
- Betsill, M. M. and Bulkeley H. (2004) 'Transnational Networks and Global Environmental Governance: the Cities for Climate Protection program', *International Studies Quarterly*, 48:471-493.
- Betsill, M. M. and Corell, E. (2001) 'NGO influence in international environmental negotiations: a framework for analysis', *Global Environmental Politics*, 1(4): 65-85.
- Biermann, F. (2005) 'Between USA and the South: strategic choices for European climate policy', *Climate Policy* 5: 273-290.
- Biermann, F. and Dingwirth, K. (2004) 'Global environmental change and the nation state', *Global Environmental Politics* 4 (1): 1-22.
- Bodansky, D. (1993) 'The United Nations Framework Convention on Climate Change: A commentary', *Yale Journal of International Law* 18 (2): 451-558.
- Bryant, R. (2002) Non-governmental organizations and governmentality: 'consuming' biodiversity and indigenous people in the Philippines, *Political Studies* 50: 268-292.
- Bulkeley H. (2005) 'Reconfiguring environmental governance: Towards a politics of scales and networks', *Political Geography* 24: 875-902.
- Bulkeley, H. (2001) Governing climate change: the politics of risk society. *Transactions of the Institute of British Geographers*, NS 26: 430-447.
- Bulkeley H. and Betsill, M. M. (2003) *Cities and Climate Change: urban sustainability and global environmental governance*. London: Routledge.
- Bulkeley, H., Watson, M. and Hudson, R. (2007) 'Modes of governing municipal waste', forthcoming in *Environment and Planning A* (online).
- Burchell et al. (eds) (1991) *The Foucault's Effect: Studies in Governmentality*. University of Chicago Press
- Buzan, B. and Little, R. (2001) Why International Relations has Failed as an Intellectual Project and What to do About it. *Millennium Journal of International Studies* 30 (1): 19-39.
- Chatterjee, P. and Finger, M. (1994) *The Earth Brokers: power, politics and world development*. London: Routledge.

- Christoff, P. (2005) 'Out of chaos, a shining start? Towards a typology of Green states' in *The State and Global Ecological Crisis*, J. Barry and R. Eckersley (eds) Cambridge: MIP Press, pp. 25-51.
- Coen, D. (2005) 'Environmental and Business Lobbying Alliances in Europe: Learning from Washington', in *The Business of Global Environmental Governance* by David Levy and Peter Newell (eds) Cambridge: MIT Press.
- Commission for Global Governance (1995) *Our Global Neighbourhood*. Oxford: Oxford University Press.
- Cox, W. R. (1989) 'Production, the State and change in World Order' in *Global Challenges and theoretical Challenges: Approaches to world Politics for the 1990s*, E. Czempiel and J. N. Rosenau (eds). Toronto: Lexington Books.
- Cox, W. R. (1983). 'Gramsci, Hegemony and International Relations: An Essay in Methods', *Millennium* 12 (2): 162-175.
- Darier, E. (1999) Foucault and the environment: an introduction, in *Discourses of the Environment*, Darier, E. (ed) Blackwell, Oxford, pp1-34.
- Dean, M. (1999) *Governmentality, Power and Rule in Modern Society*. London: Sage.
- Dessai S. and Schipper E. L. (2003) 'The Marrakech Accords to the Kyoto Protocol: analysis and future prospects', *Global Environmental Change*, 13 (2): 149-153
- Dillon, M. (2007) 'Governing through contingency: The security of biopolitical governance,' *Political Geography*, 26: 41-47.
- Dingwerth K. and Pattberg P. (2006) 'Global Governance as a perspective on World Politics', *Global Governance* 12 (2): 185 -203.
- Duffy, R. (2005) 'Global environmental governance and the challenge of shadow states: the impact of illicit sapphire mining in Madagascar', *Development and Change* 26 (5): 825-843.
- Dyer, H. (2001). 'The Environment in International Relations', *The British Journal of Politics and International Relations* 3 (1): 105 -114.
- Dyer, C. H. (1989) 'Normative Theory and International Relations', in *The Study of International Relations: The State of the Art*, H. C. Dyer and L. Mangasarian (eds). London: Macmillan, pp.172-185.
- Finkelstein, S. L. (1995) What is Global Governance, *Global Governance* 1 (3): 368.
- Ford, I. H. (2003) 'Challenging Global Governance: Social Movement Agency and global civil Society', *Global Environmental Politics*, 3 (2): 120-134.
- Foucault, M. (1978 [1991]) 'Governmentality'. In *The Foucault Effect: Studies in Governmentality*, Burchell, G. Gordon, C. Miller P. (eds). London: Harvester Wheatsheaf.
- Foucault, M. ([1982] 2000) *The Subject and Power*. In *Power: Essential Works of Foucault, 1954-1984*, Vol. 3, edited by James Faubion. London: Penguin.
- Gilpin, R. (1987) *The Political Economy of International Relations*. Princeton University Press.
- Gordenker, L. and Weiss, T. (1995) 'Pluralizing global governance: analytical approaches and dimensions', *Third World Quarterly*, 13 (3): 357-387.
- Gordon, C. (1991) 'Governmental rationality: An Introduction', in *The Foucault's Effect: Studies in governmentality*, G. Burchell, C. Gordon and P. Miller (eds).
- Gramsci, A. (1975) *Further selections from the prison notebooks* (D. Boothman Trans.) Minneapolis: University of Minneapolis Press.

- Gramsci, A. (1971) *Selections from the prison notebooks* (Q.Hoare and G. Nowell-Smith eds, and Trans.) New York: International Publishers.
- Grieco, J. (1993) 'The Relative-Gains problems for International Co-operation', *American Political Science Review* 87: 729-35.
- Grieco, J. (1988a) 'Anarchy and the limits of co-operation; A Realist Critique of the Newest Liberal Institutionalism', *International Organisation* 42: 485-507.
- Grieco, J. (1988b). 'Realist Theory and the Problems of International Co-operation, Analysis with and Amended prisoners Dilemma', *Journal of Politics* 50: 600-24.
- Grubb, M. and Yamin, F. (2001). 'Climatic Collapse at The Hague: what happened, why, and where do we go from here?', *International Affairs* 77 (2).
- Gulbrandsen, L. H. and Andresen, S. (2004) 'NGO influence in the implementation of Kyoto Protocol: compliance, flexibility mechanisms and sinks', *Global Environmental Politics*, 4(4): 54-75.
- Haahr, H. J. (2004) Open co-ordination as advanced liberal government, *Journal of European Public Policy*, 11 (2): 209-230.
- Haas, E. (1975) 'Is there a hole in the Whole: Knowledge, technology, Interdependence and construction of environmental regimes', *International Organizations* 29:827-76.
- Haas, P. (1992) 'Introduction: Epistemic Communities and International Policy', *International Organization* 46 (1).
- Haas, P. (1989) 'Do Regimes Matter? Epistemic Communities and the Mediterranean Pollution Control', *International Organizations* 43: 377-403.
- Haggard, S. and Simmons, B. A. (1987) 'Theories of International Regime', *International Organization*, 41 (3): 491-597.
- Hansenclaver, A. et al (1997). *Theories of International Regimes*. Cambridge: Cambridge University Press.
- Hasenclever, A., Mayer, P., and Rittbeger, V. (1996) 'Interests, Power, Knowledge: The Study of International Regimes', *Mershon International Studies Review* 40 (2): 117-228.
- Herbert-Cheshire, L. (2003) 'Translating policy: power and action in Australia's country towns', *Sociologia Ruralis*, 43 (4): 454-473
- Holifield, R. (2004) 'Neoliberalism and environmental justice in the United States environmental protection agency: Translating policy into managerial practice in hazardous waste remediation', *Geoforum*, 35: 285-297
- Hough, P. (2003). 'Poisons in the System: Global Regulation of hazardous Pesticides', *Global Environmental Politics* 3 (2): 11-24.
- Hunold, C. and Dryzek J. (2005) 'Green Political Strategy and the State: Combining Political Theory and Comparative History' in *The State and the Global Ecological Crisis* edited by John Barry and Robyn Eckersley. Cambridge: MIT Press.
- Hurrell, A. and Kingsbury, B. (1992). 'The International Politics of the Environment: An Introduction', In *The International Politics of the Environment*, A. Hurrell and B. Kingsbury (eds). Oxford: Clarendon Press, pp.1-47.
- Isaac J. (1987) *Power and the Marxist Theory: A realist View*. Ithaca, NY: Cornell University press.
- Isin, E. (1998) 'Governing cities governing ourselves', In E. Isin, T. Osborne and N. Rose (eds) *Governing cities, Liberalism, Neoliberalism and advanced liberalism*, York University, Urban Studies Program, working paper no. 19
- Jagers, C. S. and Stripple J. (2003) 'Climate Governance Beyond the State', *Global Governance* 9 (3) 385-399.

- Jervis, R. (1976) *Perception and Misperception in International Politics*. Princeton, NJ: Princeton University Press.
- Jessop, B. (2007) 'From micro-powers to governmentality: Foucault's work on statehood, state formation, statecraft and state power', *Political Geography* 26: 34-40.
- Jessop, B. (2002) Liberalism, Neoliberalism, and Urban Governance: A state-Theoretical Perspective. *Antipode* 34 (3) 452-472.
- Jessop, B. (1990) *State theory: Putting capitalist states in their places*. Cambridge: Polity Press
- Josselin, D. and Wallace W. (eds) (2001) *Non-State actors in World Politics*. New York: Palgrave.
- Josselin D. and Wallace W. (2001) 'Non-State actors in world Politics: a Framework,' in *Non-State actors in world Politics*, J. Daphne and W. Williams (eds). New York: Palgrave.
- Karkkainen, B. (2004) 'Post-sovereign environmental governance', *Global Environmental Politics*, 4 (1): 72-96.
- Keck, M. E. and Sikkink K. (1998) *Activists beyond Borders. Advocacy Networks in International Politics*. Ithaca: Cornell University Press.
- Keohane, R. (1989) *International institutions and State Power- Essays in International Relations Theory*. Boulder: Westview Press.
- Keohane, R. (1984) *After Hegemony Co-operation and discord in the World Political Economy*. New Jersey: Princeton University Press.
- Keohane, R.O. and Nye, J.S. (2001). *Power and Interdependence*, 3rd Edition. New York: Person Publishers.
- Keohane, R. and Nye, J. (1977) *Power and Interdependence- world Politics in Transition*. Boston. Little Brown and Co.
- Krasner, S. D. (ed.) (1983) *International Regimes*. Ithaca, N.Y.: Cornell University Press.
- Kratochwil, F. V. (1989). *Rules, Norms and Decisions: On the Conditions of Practical and Legal Reasoning in International Relations and Domestic Affairs*. Cambridge: Cambridge University Press
- Kratochwil, F., Ruggie, J G., (1986) 'A State of the Art on an Art of the State', *International Organization* 40,753-775.
- Larner, W. and Walters, W. (2004) *Globalization as Governmentality*. Alternatives: Global, Local, Political, 29:
- Litfin, T. K. (1994) *Ozone Discourses: Science and Politics in Global Environmental Cooperation*. New York: Columbia University Press.
- Lee, K. (1995) 'A Neo-Gramscian approach to International organisation: an expanded analysis of current reforms to UN development activities' in *Boundaries and Questions New Directions in International Relations* J. Macmillan and A. Linklater (eds). London and New York: Pinter Press.
- Leggett, J. (2000). *The Carbon war: Global Warming at the end of the oil era*. London: Penguin Books.
- Leonard, K. E. (2005) *The Onset of Global Governance: International Relations Theory and the International Criminal Court*. USA: Ashgate.
- Levy, L. D. and Newell, J. P. (eds) (2005). *The Business of Global Environmental Governance*. Cambridge: MIT Press.
- Levy, L. D. and Newell, J. P. (2005). 'Introduction', in *The Business of Global Environmental Governance*, L.D. Levy and J.P. Newell eds. Cambridge: MIT Press.

- Levy, L. D. and Newell, J. P. (2002) Business Strategy and International Environmental Governance: Towards a Neo-Gramscian Synthesis, *Global Environmental Politics* 2 (4): 84-101.
- Lipschutz, R. (2005) Power, politics and global civil society, *Millennium*, 33 (3): 747-769.
- Liverman, D. M. 2006 (submitted). "Conventions of Climate Change: Constructions of Danger and the Dispossession of the Atmosphere." *Journal of Historical Geography*.
- Liverman, D. M. and S. Vilas (2006) 'Neoliberalism and the Environment in Latin America', *Annual Review of Environment and Resources* 31(1): 327-363.
- Lohmann L. (2006). 'Carbon Trading: a critical conversation on climate change, privatization and power' *Development Dialogue* 48:
- MacKinnon, D. (2000) 'Managerialism, governmentality and the state: a neo-Foucauldian approach to local economic governance', *Political Geography*, (19): 293-314.
- McCarthy, J. (2004). 'Privatizing conditions of production: trade agreements as neoliberal environmental governance', *Geoforum* 35 (1): 327-341.
- McCarthy, J. and Prudham, S. (2004) 'Neoliberal nature and the nature of neoliberalism', *Geoforum* 35 (1): 275-283.
- Messner D. and Nuscheler (1998) 'Global Trends, Globalization and Global Governance', In, Stiftung Frieden und Entwicklung (ed.) *Global Trends*. Frankfurt am Main: Fischer.
- Mintzer, I. and Leonard J. A. (1994) *Negotiating Climate Change: the Inside Story of the Rio Convention*. Cambridge England: Cambridge University Press.
- Moravcsik (1999) A New statecraft: Supranational Entrepreneurs and International Co-operation International Organization 1999 53 (2) 267-306.
- Moravcsik, A. (2002) Reassessing Legitimacy in the European Union. *Journal of Common Market Studies* 40 (4), 603-624.
- Murdoch, J. (2000) Space against time: competing rationalities in planning for housing, *Transactions of the Institute of British Geographers*, 25 (4): 503-519.
- Newell J, P. (ed.) (1999) *Globalisation and the Governance of the Environment*. IDS.
- Newell, P. (2000) *Climate Change: Non-State actors and the Politics of the Greenhouse*. Cambridge: Cambridge University Press.
- O'Brien R. et al. (2000) *Contesting Global Governance: Multilateral Economic Institutions and Global Social Movements*. Cambridge: Cambridge University Press.
- Okereke, C. (2006) 'Global environmental sustainability: Intra-generational equity and conceptions of justice in multilateral environmental regimes' *Geoforum*, 37: 725-738.
- Okereke, C. (2008) '*Global Justice and Neoliberal Environmental Governance*', London: Routledge.
- Onuf, N. G. (1989) *World of Our Making: Rules and Rule in Social Theory and International Relations*. Columbia: University of South Carolina Press.
- Paavola J. and Lowe I. (eds) (2005) *Environmental Values in a Globalizing World: nature Justice and governance*. London: Routledge.
- Paterson, M. (2000) *Understanding Global Environmental Politics: Domination, Accumulation and Resistance*. Houndmills: Macmillan.

- Paterson M. (1996a) 'IR Theory: Neo-realism, neo-institutionalism and the Climate Convention', in *The Environment and International Relations*, J. Vogler and M. Imbers (eds) London: Routledge, pp. 59-77.
- Paterson, M. (1996b) *Global Warming and Global Politics*. London: Routledge.
- Paterson, M. (1995) 'Radicalizing regimes? Ecology and the critique of IR theory', in *Boundaries and Questions New Directions in International Relations*. J. Macmillan and A. Linklater (eds). London and New York: Pinter Press.
- Paterson M. and Barry J. (2005) 'Modernizing the British State: Ecological Contradictions in the New Labour's Economic Strategy', In *The State and Global Ecological Crisis*, J. Barry and R. Eckersley (eds) Cambridge: MIT Press, pp. 53-74.
- Patterson, M. et al. (2003) 'Conceptualising Global Environmental Governance: From Interstate Regimes to Counter Hegemonic Struggles,' *Global Environmental Politics* 3 (2): 1-8.
- Peters, M. (2001) *Poststructuralism, Marxism, and Neoliberalism*. NY: Rowman & Littlefield Publishers.
- Raco, M. (2003) Governmentality, subject-building and the discourses and practices of devolution in the UK, *Transactions of the Institute of British Geographers*, 28 (1): 75-95.
- Raco, M. and Imrie, R. (2000) Governmentality and rights and responsibilities in urban policy, *Environment and Planning A*, 32: 2187-2204.
- Rhodes, R. A. W. (1996) 'The New Governance: Governing without Government', *Political Studies* 44 (4): 652-667.
- Ridely, M. and Low, B. (1993a) 'Can selfishness save the Environment?' *Human Ecology Review* 1 No. 1: 1-13.
- Ridely, M. and Low, B. (1993b) 'Why we are not Environmental Altruists', *Human Ecology Review* 1 no. 1, 107-36.
- Risse, T. (2002) 'Transnational Actors and world Politics,' in *Handbook of International Relations*, W. Carlsnaes, T. Risse, and B. A. Simmons (eds).. London: Sage.
- Robinson, W. (1996) *Promoting polyarchy: Globalisation, U.S. intervention, and hegemony*. New York: Cambridge University Press.
- Rose, N. (200) 'Governing Liberty', in *Governing Modern society*, R. Ericsson and N. Stehr (eds). Toronto: Toronto University Press.
- Rosenau, N. J. (2002) Governance in anew global Order, In. David Held and Anthony McGrew (eds) *Governing Globalization: Power Authority and Global Governance*. Cambridge: Polity Press.
- Rosenau J. (2000) 'Change, Complexity and Governance in a globalizing space', in *Debating Governance*. J. Pierre (ed) Oxford: Oxford University Press, pp. 167-200.
- Rosenau, N. J. (1999) 'Towards and Ontology for Global Governance', in *Approaches to Global Governance theory*, M. Hewson and T. J. Sinclair (eds). Albany, NY: State University of New York Press, 287-302.
- Rosenau, J. (1997) *Along the Domestic Foreign Frontier: Exploring Governance in a Turbulent World*. Cambridge: Cambridge University Press.
- Rosenau, N. J. (1995) 'Governance in the Twenty-first century', *Global Governance* 1: 13-43.
- Rosenau, N. J. (1992) Governance, Order and Change in World Politics,' in *Governance without Government: Order and Change in World Politics*, J. Rosenau and E. Czempiel (eds), Cambridge: Cambridge University Press, pp 1-29.

- Rosenau, N. J. (1989) 'Global Changes and Theoretical Challenges: Towards a Postinternational Politics for the 1990s', in *Global Challenges and theoretical Challenges: Approaches to world Politics for the 1990s*, E. Czempiel and J. N. Rosenau (eds). Toronto: Lexington Books.
- Rosenau J. (1962/1980) Pre-Theories and Theories of Foreign Policy, in *The Scientific Study of Foreign Policy*, James Rosenau 2nd ed. Rev. New York: Nichols.
- Rose-Redwood, R. (2006) Governmentality, geography and the geo-coded world, *Progress in Human Geography*, 30 (4): 469-486.
- Rowlands, H. I. (2001) 'Transnational Corporations and Global Environmental Politics', in *Non-State actors in world Politics*, D. Josselin and W. Wallace (eds). New York: Palgrave.
- Rowlands, I. H. (1995) *The Politics of global atmospheric change*. Manchester: Manchester University press.
- Ruggie John G. (2004) Reconstituting the global public domain – issues, actors and practices, *European Journal of International Relations* 10 (4): 499-531.
- Ruggie, John G. (1998) 'The Social Constructivist Challenge', *International Organization* 52: 855-885.
- Ryall, D. (2001) 'The catholic Church as a Transnational Actor', in *Non-State actors in world Politics*, D. Josselin and W. Wallace (eds). New York: Palgrave.
- Saad-Filho, A. and Johnston D. eds. (2005) *Neoliberalism: a critical reader*. London: Pluto Press.
- Saurin, J. (1996) 'International Relations Social ecology and globalization of environmental change', in *The Environment and International Relations*, J. Vogler and M. Imbers (eds). London: Routledge, pp. 77-99.
- Scholte J. A. (2002) 'Civil Society and Democracy in Global Governance', *Global Governance*, 8: 281-304.
- Sending J. O. and Neumann, B. I. (2006) Governance to Governmentality: Analysing NGOs, States, and Power. *International Studies Quarterly* 50, 651-672.
- Simon R. (1982) Gramsci's *Political Thought: An Introduction*. London: Lawrence and Wishart.
- Snidal, D. (1985) 'Coordination Versus Prisoners Dilemma: Implications for International Cooperation and Regimes', *American Political Science Review* 79, 923-942.
- Snidal, D. (1986) 'The Game theory of International Politics', in K. Oye (ed.).
- Sterk W. and Wittneben B. (2006) 'Enhancing the clean development mechanism through sectoral approaches: definitions, applications and ways forward', *International Environmental Agreements*, (6): 271-287.
- Stoker, G. (2004) *Transforming Local Government: from Thatcherism to New Labour*, Basingstoke: Palgrave Macmillan.
- Stoker, G. (1998) Governance as Theory: Five propositions, *International Social science Journal* 155, 17-28.
- Stokke Olav Schram (1997) 'Regimes as Governance System', In *Global Governance: Drawing Insight from the Environmental experience*, Oran Young (ed.) Cambridge: MIT Press pp 27-63.
- Strange, S. (1983) 'Cave! Hic dragones: A critique of regime analysis', in *International Regimes*, D. S. Krasner (ed.). Ithaca: NY: Cornell University Press.
- Strange, S. (1989) 'Towards a theory of transnational empire', in *Global Challenges and Theoretical Challenges: Approaches to World Politics*, E. Czempiel and J. Rosenau (eds). Toronto: Lexington Books, pp 161-176.
- Thompson N. (2005) 'Inter-institutional relations in the governance of England's national parks: A governmentality perspective', *Journal of Rural Studies*, 21: 323-334.

- Triantafyllou, P (2004) Conceiving 'network governance': the potential of the concepts of governmentality and normalization, Centre for Democratic Network Governance, Roskilde, Denmark, Working Paper Series, Working Paper 2004; 4, available online (accessed May 2006); http://www.ruc.dk/demnetgov_en/working_papers/
- Uitermark, J. (2005) 'The genesis and evolution of urban policy: a confrontation of regulationist and governmentality approaches', *Political Geography*, 24: 137-163.
- Vogler J. (1996). 'The Environment in International Relations, Legacies and contention', in *The Environment and International Relations*, J. Vogler and M. Imber (eds),. London: Routledge.
- Vogler, J. (2005) 'The European contribution to global environmental governance', *International Affairs*, (81) 4: 835-850.
- Vogler, J. (2003). 'Taking Institutions Seriously: How Regimes can be relevant to multilevel Environmental Governance', *Global Environmental Politics* 3 (2): 25-39.
- Vogler John. (2000). *The Global Commons Environmental and Technological Governance*, 2nd ed. Chichester: John Wiley Press.
- Waltz, K. (1979) *Theory of International Politics*. Reading Massachusetts: Addison Wesley.
- Wapner, P. (1997) 'Governance in Global Civil Society', in Oran Young (ed.) *Global Governance Drawing Insight from Environmental Experience*. Cambridge: MIT Press.
- Ward, H. (1996) 'Game theory and the politics of global warming: The state of play and beyond,' *Political Studies*, XLIV, pp. 850-71.
- Weiss, T. (2000) 'Governance: Good Governance and Global Governance: Conceptual and Actual Challenges', *Third World Quarterly* 21 (5): 795.
- Wendy, L. and William, W. eds. (2006) *Global Governmentality: Governing International Spaces*. London: Routledge.
- Wendt, A. (1999) *Social Theory of International Politics*. Cambridge: Cambridge University Press.
- Wilk, R. (2002) 'Consumption, human needs, and global environmental change', *Global Environmental Change*, 12 (1): 5-13.
- Willets, P. (ed.) (1982). *Pressure Groups in the global System: The Transnational Relations of Issue-Oriented Non-governmental Organisations*. London: Pinter.
- Yanacopulos, H. (2005) 'The strategies that bind: NGO coalition and their influence', *Global Networks*, 5 (1) 93-110.
- Young, O. (1998). 'The Effectiveness of International Environmental Regimes', *International Environmental Affairs* 10 (4), 267-289.
- Young O. (1997) 'Rights Rules and Resources in World Affairs', In *Global Governance: Drawing Insight from the Environmental experience*, Oran Young (ed.) Cambridge: MIT Press, pp 2-23.
- Young O. (1994) *International governance: Protecting the environment in a stateless Society*. Ithaca, NY: Cornell University Press.
- Young, O. (1989) *International Co-operation: Building Regimes for Natural Resources and the Environment*. Ithaca, NY: Cornell University Press.
- Young, O. (1980) 'International Regimes: Problems of Concept Formation', *World Politics* 32, 331-56.

Zürn, M. (1997) Assessing State Preferences and Explaining Institutional Choice: The Case of Intra-German Trade. *International Studies Quarterly*, 41 (2) 295-320.

Zürn, M. (2000) Democratic Governance beyond the State: The EU and Other International Institutions. *European Journal of International Relations* 6 (2) 183-221.

The Tyndall Centre working paper series presents results from research which are mature enough to be submitted to a refereed journal, to a sponsor, to a major conference or to the editor of a book. The intention is to enhance the early public availability of research undertaken by the Tyndall family of researchers, students and visitors. They can be downloaded from the Tyndall Website at:

http://www.tyndall.ac.uk/publications/working_papers/working_papers.shtml

The accuracy of working papers and the conclusions reached are the responsibility of the author(s) alone and not the Tyndall Centre.

Papers available in this series are:

- Doulton, H., Brown, K. (2007) **'Ten years to prevent catastrophe'? Discourses of climate change and international development in the UK press:** Tyndall Working Paper No. 111
- Dawson, R.J., et al (2007) **Integrated analysis of risks of coastal flooding and cliff erosion under scenarios of long term change:** Tyndall Working Paper No. 110
- Okereke, C., (2007) **A review of UK FTSE 100 climate strategy and a framework for more in-depth analysis in the context of a post-2012 climate regime:** Tyndall Centre Working Paper 109
- Gardiner S., Hanson S., Nicholls R., Zhang Z., Jude S., Jones A.P., et al (2007) **The Habitats Directive, Coastal Habitats and Climate Change – Case Studies from the South Coast of the UK:** Tyndall Centre Working Paper 108
- Schipper E. Lisa, (2007) **Climate Change Adaptation and Development: Exploring the Linkages:** Tyndall Centre Working Paper 107
- Okereke C., Mann P, Osbahr H, (2007) **Assessment of key negotiating issues at Nairobi climate COP/MOP and what it means for the future of the climate regime.** : Tyndall Centre Working Paper No. 106
- Walkden M, Dickson M, (2006) **The response of soft rock shore profiles to increased sea-level rise.** : Tyndall Centre Working Paper 105
- Dawson R., Hall J, Barr S, Batty M., Bristow A, Carney S, Evans E.P., Kohler J., Tight M, Walsh C, Ford A, (2007) **A blueprint for the integrated assessment of climate change in cities.** : Tyndall Centre Working Paper 104
- Dickson M., Walkden M., Hall J., (2007) **Modelling the impacts of climate change on an eroding coast over the 21st Century:** Tyndall Centre Working Paper 103
- Klein R.J.T, Erickson S.E.H, Næss L.O, Hammill A., Tanner T.M., Robledo, C., O'Brien K.L.,(2007) **Portfolio screening to support the mainstreaming of adaptation to climatic change into development assistance:** Tyndall Centre Working Paper 102
- Agnolucci P., (2007) **Is it going to happen? Regulatory Change and Renewable Electricity:** Tyndall Centre Working Paper 101
- Kirk K., (2007) **Potential for storage of carbon dioxide in the rocks beneath the East Irish Sea:** Tyndall Centre Working Paper 100
- Arnell N.W., (2006) **Global impacts of abrupt climate change: an initial assessment:** Tyndall Centre Working Paper 99
- Lowe T.,(2006) **Is this climate porn? How does climate change communication affect our perceptions and behaviour?,** Tyndall Centre Working Paper 98
- Walkden M, Stansby P,(2006) **The effect of dredging off Great Yarmouth on the wave conditions and erosion of the North Norfolk coast.** Tyndall Centre Working Paper 97

- Anthoff, D., Nicholls R., Tol R S J, Vafeidis, A., (2006) **Global and regional exposure to large rises in sea-level: a sensitivity analysis**. This work was prepared for the Stern Review on the Economics of Climate Change: Tyndall Centre Working Paper 96
- Few R., Brown K, Tompkins E. L, (2006) **Public participation and climate change adaptation**, Tyndall Centre Working Paper 95
- Corbera E., Kosoy N, Martinez Tuna M, (2006) **Marketing ecosystem services through protected areas and rural communities in Meso-America: Implications for economic efficiency, equity and political legitimacy**, Tyndall Centre Working Paper 94
- Schipper E. Lisa, (2006) **Climate Risk, Perceptions and Development in El Salvador**, Tyndall Centre Working Paper 93
- Tompkins E. L, Amundsen H, (2005) **Perceptions of the effectiveness of the United Nations Framework Convention on Climate Change in prompting behavioural change**, Tyndall Centre Working Paper 92
- Warren R., Hope C, Mastrandrea M, Tol R S J, Adger W. N., Lorenzoni I., (2006) **Spotlighting the impacts functions in integrated assessments. Research Report Prepared for the Stern Review on the Economics of Climate Change**, Tyndall Centre Paper 91
- Warren R., Arnell A, Nicholls R., Levy P E, Price J, (2006) **Understanding the regional impacts of climate change: Research Report Prepared for the Stern Review on the Economics of Climate Change**, Tyndall Centre Working Paper 90
- Barker T., Qureshi M, Kohler J., (2006) **The Costs of Greenhouse Gas Mitigation with Induced Technological Change: A Meta-Analysis of Estimates in the Literature**, Tyndall Centre Working Paper 89
- Kuang C, Stansby P, (2006) **Sandbanks for coastal protection: implications of sea-level rise. Part 3: wave modelling**, Tyndall Centre Working Paper 88
- Kuang C, Stansby P, (2006) **Sandbanks for coastal protection: implications of sea-level rise. Part 2: current and morphological modelling**, Tyndall Centre Working Paper 87
- Stansby P, Kuang C, Laurence D, Launder B, (2006) **Sandbanks for coastal protection: implications of sea-level rise. Part 1: application to East Anglia**, Tyndall Centre Working Paper 86
- Bentham M, (2006) **An assessment of carbon sequestration potential in the UK – Southern North Sea case study**: Tyndall Centre Working Paper 85
- Anderson K., Bows A., Upham P., (2006) **Growth scenarios for EU & UK aviation: contradictions with climate policy**, Tyndall Centre Working Paper 84
- Williamson M., Lenton T., Shepherd J., Edwards N, (2006) **An efficient numerical terrestrial scheme (ENTS) for fast earth system modelling**, Tyndall Centre Working Paper 83
- Bows, A., and Anderson, K. (2005) **An analysis of a post-Kyoto climate policy model**, Tyndall Centre Working Paper 82
- Sorrell, S., (2005) **The economics of energy service contracts**, Tyndall Centre Working Paper 81
- Wittneben, B., Haxeltine, A., Kjellen, B., Köhler, J., Turnpenny, J., and Warren, R., (2005) **A framework for assessing the political economy of post-2012 global climate regime**, Tyndall Centre Working Paper 80
- Ingham, I., Ma, J., and Ulph, A. M. (2005) **Can adaptation and mitigation be complements?**, Tyndall Centre Working Paper 79
- Agnolucci, P (2005) **Opportunism and competition in the non-fossil fuel obligation market**, Tyndall Centre Working Paper 78
- Barker, T., Pan, H., Köhler, J., Warren, R and Winne, S. (2005) **Avoiding dangerous climate change by inducing technological progress: scenarios using a large-scale econometric model**, Tyndall Centre Working Paper 77
- Agnolucci, P (2005) **The role of political uncertainty in the Danish renewable energy market**, Tyndall Centre Working Paper 76

- Fu, G., Hall, J. W. and Lawry, J. (2005) **Beyond probability: new methods for representing uncertainty in projections of future climate**, Tyndall Centre Working Paper 75
- Ingham, I., Ma, J., and Ulph, A. M. (2005) **How do the costs of adaptation affect optimal mitigation when there is uncertainty, irreversibility and learning?**, Tyndall Centre Working Paper 74
- Walkden, M. (2005) **Coastal process simulator scoping study**, Tyndall Centre Working Paper 73
- Lowe, T., Brown, K., Suraje Dessai, S., Doria, M., Haynes, K. and Vincent., K (2005) **Does tomorrow ever come? Disaster narrative and public perceptions of climate change**, Tyndall Centre Working Paper 72
- Boyd, E. Gutierrez, M. and Chang, M. (2005) **Adapting small-scale CDM sinks projects to low-income communities**, Tyndall Centre Working Paper 71
- Abu-Sharkh, S., Li, R., Markvart, T., Ross, N., Wilson, P., Yao, R., Steemers, K., Kohler, J. and Arnold, R. (2005) **Can Migrogrids Make a Major Contribution to UK Energy Supply?**, Tyndall Centre Working Paper 70
- Tompkins, E. L. and Hurlston, L. A. (2005) **Natural hazards and climate change: what knowledge is transferable?**, Tyndall Centre Working Paper 69
- Bleda, M. and Shackley, S. (2005) **The formation of belief in climate change in business organisations: a dynamic simulation model**, Tyndall Centre Working Paper 68
- Turnpenny, J., Haxeltine, A. and O’Riordan, T., (2005) **Developing regional and local scenarios for climate change mitigation and adaptation: Part 2: Scenario creation**, Tyndall Centre Working Paper 67
- Turnpenny, J., Haxeltine, A., Lorenzoni, I., O’Riordan, T., and Jones, M., (2005) **Mapping actors involved in climate change policy networks in the UK**, Tyndall Centre Working Paper 66
- Adger, W. N., Brown, K. and Tompkins, E. L. (2004) **Why do resource managers make links to stakeholders at other scales?**, Tyndall Centre Working Paper 65
- Peters, M.D. and Powell, J.C. (2004) **Fuel Cells for a Sustainable Future II**, Tyndall Centre Working Paper 64
- Few, R., Ahern, M., Matthies, F. and Kovats, S. (2004) **Floods, health and climate change: a strategic review**, Tyndall Centre Working Paper 63
- Barker, T. (2004) **Economic theory and the transition to sustainability: a comparison of approaches**, Tyndall Centre Working Paper 62
- Brooks, N. (2004) **Drought in the African Sahel: long term perspectives and future prospects**, Tyndall Centre Working Paper 61
- Few, R., Brown, K. and Tompkins, E.L. (2004) **Scaling adaptation: climate change response and coastal management in the UK**, Tyndall Centre Working Paper 60
- Anderson, D and Winne, S. (2004) **Modelling Innovation and Threshold Effects In Climate Change Mitigation**, Tyndall Centre Working Paper 59
- Bray, D and Shackley, S. (2004) **The Social Simulation of The Public Perceptions of Weather Events and their Effect upon the Development of Belief in Anthropogenic Climate Change**, Tyndall Centre Working Paper 58
- Shackley, S., Reiche, A. and Mander, S (2004) **The Public Perceptions of Underground Coal Gasification (UCG): A Pilot Study**, Tyndall Centre Working Paper 57
- Vincent, K. (2004) **Creating an index of social vulnerability to climate change for Africa**, Tyndall Centre Working Paper 56
- Mitchell, T.D. Carter, T.R., Jones, .P.D, Hulme, M. and New, M. (2004) **A comprehensive set of high-resolution grids of monthly climate for Europe and the globe: the observed record (1901-2000) and 16 scenarios (2001-2100)**, Tyndall Centre Working Paper 55
- Turnpenny, J., Carney, S., Haxeltine, A., and O’Riordan, T. (2004) **Developing regional and local scenarios for climate change mitigation and adaptation Part 1: A framing of the East of England** Tyndall Centre Working Paper 54

- Agnolucci, P. and Ekins, P. (2004) **The Announcement Effect And Environmental Taxation** Tyndall Centre Working Paper 53
- Agnolucci, P. (2004) **Ex Post Evaluations of CO₂ –Based Taxes: A Survey** Tyndall Centre Working Paper 52
- Agnolucci, P., Barker, T. and Ekins, P. (2004) **Hysteresis and Energy Demand: the Announcement Effects and the effects of the UK Climate Change Levy** Tyndall Centre Working Paper 51
- Powell, J.C., Peters, M.D., Ruddell, A. and Halliday, J. (2004) **Fuel Cells for a Sustainable Future?** Tyndall Centre Working Paper 50
- Awerbuch, S. (2004) **Restructuring our electricity networks to promote decarbonisation**, Tyndall Centre Working Paper 49
- Pan, H. (2004) **The evolution of economic structure under technological development**, Tyndall Centre Working Paper 48
- Berkhout, F., Hertin, J. and Gann, D. M., (2004) **Learning to adapt: Organisational adaptation to climate change impacts**, Tyndall Centre Working Paper 47
- Watson, J., Tetteh, A., Dutton, G., Bristow, A., Kelly, C., Page, M. and Pridmore, A., (2004) **UK Hydrogen Futures to 2050**, Tyndall Centre Working Paper 46
- Purdy, R and Macrory, R. (2004) **Geological carbon sequestration: critical legal issues**, Tyndall Centre Working Paper 45
- Shackley, S., McLachlan, C. and Gough, C. (2004) **The Public Perceptions of Carbon Capture and Storage**, Tyndall Centre Working Paper 44
- Anderson, D. and Winne, S. (2003) **Innovation and Threshold Effects in Technology Responses to Climate Change**, Tyndall Centre Working Paper 43
- Kim, J. (2003) **Sustainable Development and the CDM: A South African Case Study**, Tyndall Centre Working Paper 42
- Watson, J. (2003), **UK Electricity Scenarios for 2050**, Tyndall Centre Working Paper 41
- Klein, R.J.T., Lisa Schipper, E. and Dessai, S. (2003), **Integrating mitigation and adaptation into climate and development policy: three research questions**, Tyndall Centre Working Paper 40
- Tompkins, E. and Adger, W.N. (2003). **Defining response capacity to enhance climate change policy**, Tyndall Centre Working Paper 39
- Brooks, N. (2003). **Vulnerability, risk and adaptation: a conceptual framework**, Tyndall Centre Working Paper 38
- Ingham, A. and Ulph, A. (2003) **Uncertainty, Irreversibility, Precaution and the Social Cost of Carbon**, Tyndall Centre Working Paper 37
- Kröger, K. Fergusson, M. and Skinner, I. (2003). **Critical Issues in Decarbonising Transport: The Role of Technologies**, Tyndall Centre Working Paper 36
- Tompkins E. L and Hurlston, L. (2003). **Report to the Cayman Islands' Government. Adaptation lessons learned from responding to tropical cyclones by the Cayman Islands' Government, 1988 – 2002**, Tyndall Centre Working Paper 35
- Dessai, S., Hulme, M (2003). **Does climate policy need probabilities?**, Tyndall Centre Working Paper 34
- Pridmore, A., Bristow, A.L., May, A. D. and Tight, M.R. (2003). **Climate Change, Impacts, Future Scenarios and the Role of Transport**, Tyndall Centre Working Paper 33
- Xueguang Wu, Jenkins, N. and Strbac, G. (2003). **Integrating Renewables and CHP into the UK Electricity System: Investigation of the impact of network faults on the stability of large offshore wind farms**, Tyndall Centre Working Paper 32
- Turnpenny, J., Haxeltine A. and O'Riordan, T. (2003). **A scoping study of UK user needs for managing climate futures. Part 1 of the pilot-phase interactive integrated assessment process (Aurion Project)**, Tyndall Centre Working Paper 31
- Hulme, M. (2003). **Abrupt climate change: can society cope?**, Tyndall Centre Working Paper 30

- Brown, K. and Corbera, E. (2003). **A Multi-Criteria Assessment Framework for Carbon-Mitigation Projects: Putting "development" in the centre of decision-making**, Tyndall Centre Working Paper 29
- Dessai, S., Adger, W.N., Hulme, M., Köhler, J.H., Turnpenny, J. and Warren, R. (2003). **Defining and experiencing dangerous climate change**, Tyndall Centre Working Paper 28
- Tompkins, E.L. and Adger, W.N. (2003). **Building resilience to climate change through adaptive management of natural resources**, Tyndall Centre Working Paper 27
- Brooks, N. and Adger W.N. (2003). **Country level risk measures of climate-related natural disasters and implications for adaptation to climate change**, Tyndall Centre Working Paper 26
- Xueguang Wu, Mutale, J., Jenkins, N. and Strbac, G. (2003). **An investigation of Network Splitting for Fault Level Reduction**, Tyndall Centre Working Paper 25
- Xueguang Wu, Jenkins, N. and Strbac, G. (2002). **Impact of Integrating Renewables and CHP into the UK Transmission Network**, Tyndall Centre Working Paper 24
- Paavola, J. and Adger, W.N. (2002). **Justice and adaptation to climate change**, Tyndall Centre Working Paper 23
- Watson, W.J., Hertin, J., Randall, T., Gough, C. (2002). **Renewable Energy and Combined Heat and Power Resources in the UK**, Tyndall Centre Working Paper 22
- Watson, W. J. (2002). **Renewables and CHP Deployment in the UK to 2020**, Tyndall Centre Working Paper 21
- Turnpenny, J. (2002). **Reviewing organisational use of scenarios: Case study - evaluating UK energy policy options**, Tyndall Centre Working Paper 20
- Pridmore, A. and Bristow, A., (2002). **The role of hydrogen in powering road transport**, Tyndall Centre Working Paper 19
- Watson, J. (2002). **The development of large technical systems: implications for hydrogen**, Tyndall Centre Working Paper 18
- Dutton, G., (2002). **Hydrogen Energy Technology**, Tyndall Centre Working Paper 17
- Adger, W.N., Huq, S., Brown, K., Conway, D. and Hulme, M. (2002). **Adaptation to climate change: Setting the Agenda for Development Policy and Research**, Tyndall Centre Working Paper 16
- Köhler, J.H., (2002). **Long run technical change in an energy-environment-economy (E3) model for an IA system: A model of Kondratiev waves**, Tyndall Centre Working Paper 15
- Shackley, S. and Gough, C., (2002). **The Use of Integrated Assessment: An Institutional Analysis Perspective**, Tyndall Centre Working Paper 14
- Dewick, P., Green K., Miozzo, M., (2002). **Technological Change, Industry Structure and the Environment**, Tyndall Centre Working Paper 13
- Dessai, S., (2001). **The climate regime from The Hague to Marrakech: Saving or sinking the Kyoto Protocol?**, Tyndall Centre Working Paper 12
- Barker, T. (2001). **Representing the Integrated Assessment of Climate Change, Adaptation and Mitigation**, Tyndall Centre Working Paper 11
- Gough, C., Taylor, I. and Shackley, S. (2001). **Burying Carbon under the Sea: An Initial Exploration of Public Opinions**, Tyndall Centre Working Paper 10
- Barnett, J. and Adger, W. N. (2001). **Climate Dangers and Atoll Countries**, Tyndall Centre Working Paper 9
- Adger, W. N. (2001). **Social Capital and Climate Change**, Tyndall Centre Working Paper 8
- Barnett, J. (2001). **Security and Climate Change**, Tyndall Centre Working Paper 7
- Goodess, C.M., Hulme, M. and Osborn, T. (2001). **The identification and evaluation of suitable scenario development methods for the estimation of future probabilities of extreme weather events**, Tyndall Centre Working Paper 6
- Barnett, J. (2001). **The issue of 'Adverse Effects and the Impacts of Response Measures' in the UNFCCC**, Tyndall Centre Working Paper 5
- Barker, T. and Ekins, P. (2001). **How High are the Costs of Kyoto for the US Economy?**, Tyndall Centre Working Paper 4

- Berkhout, F, Hertin, J. and Jordan, A. J. (2001). **Socio-economic futures in climate change impact assessment: using scenarios as 'learning machines'**, Tyndall Centre Working Paper 3

- Hulme, M. (2001). **Integrated Assessment Models**, Tyndall Centre Working Paper 2

- Mitchell, T. and Hulme, M. (2000). **A Country-by-Country Analysis of Past and Future Warming Rates**, Tyndall Centre Working Paper 1

© Copyright 2007

Tyndall°Centre
for Climate Change Research

For further information please contact

[Javier Delgado-Esteban](#)