

What's the Point of Environmental Security?

Paper for the SGIR 7th Pan-European International Relations Conference

Stockholm, 9-11 September 2010

Panel SA-61

Saturday 10 September 2010 (9am-10:45am)

Edward Page

Department of Politics and International Studies

University of Warwick

e.a.page@warwick.ac.uk

1. Introduction

There has been a strong convergence in recent years in the conceptual tools adopted by, and the analytical focus of, scholars of international security, international relations theory and normative political philosophy. One driver, and reflector, of this convergence has been the increasing salience of environmental problems such as declining species diversity; trans-boundary air pollution; resource depletion; and, above all, climate change. Scholars from once distinct traditions of thought now deploy the same concepts and defend strikingly similar arguments and policy prescriptions. In 1987, the year of the publication of the influential report *Our Common Future*, trans-disciplinary concepts such as 'environmental security', 'sustainable development', 'human security', 'global environmental justice' and 'climate security' were either rarely used or had yet to be introduced into the academic lexicon. In 2002, for example, a search via the Google.com search engine registered 1.75 million entries for 'environmental security' and 1.87 million entries for 'sustainable development' (Page, 2003: 173). In 2010, these figures had risen to 36.3 million and 27.2 million respectively. 'Climate security', meanwhile, the most recent introduced of the trans-disciplinary concepts, surpassed both of its precursors in terms of internet presence with an astonishing 65.1 million entries; while 'human security' reached 99.7 million entries.

As is the case with all political and moral concepts that reach this level of exposure, there are those who view these concepts as being indispensable for the characterization, and eventual solution, of global environmental problems and those who view them as vacuous or worse.¹ To pursue the issues of meaning and significance beyond such intuition or conjecture, however, it is necessary to examine in more detail what these influential concepts, and the architecture of thought with which they are supported, have in common; how they facilitate the understanding of security and justice in the broadest sense of these normative ideals; and how they might contribute to the solution to the problems which they are premised.

In the following, I provide an overview of conceptual contributions to the literature on environmental security, both supportive and critical; outline a simple typology of contributions to environmental security and compare these contributions with those of normative theorists engaged with the topic of social justice; and they go on to analyse, and critique from the perspective of social justice, concepts of human and environmental security. I argue that the convergence in the concepts, and focus, of ethicists and security scholars (most evident in the growing literature on human, environmental and climate security) threatens to mystify, not demystify, the practical and theoretical challenges posed by global environmental change.

2. Traditional Conceptions of Security

On the face of it, and however we define environment, the prospect of achieving a full reconciliation between the notions of *environment* and *security* is not encouraging if we adhere to a traditional conception of security. The security studies literature has traditionally restricted its remit to the discussion of threats to a state's security emanating from human, intentional, activities – such as those threats posed by the military activities of other states or terrorist groups. The explanation for this can be found in the way in which security has usually been characterised as 'the effort to protect a population and territory against organised force while advancing state interests through competitive behaviour' (Dabelko and Dabelko, 1995. p. 3). The traditional view has a simple understanding of the scope (which agents threaten, and are threatened, by security risks) and content (which risks can be viewed coherently as security threats) of security studies, and thus the way the concept of security relates to the arena of international relations more generally. The view is basically that states are the only significant entity in international relations; states seek to maximize their own power and security; and the only threats that are genuinely threatening to state security are threats associated with organised, military, force.

The heyday of traditional accounts of security was the cold war period. At that time, virtually all sectors of the security community held that the paradigmatic threat to national security was the capacity of another state to mount a decisive nuclear attack. This reflected the fact that cold war security theorists were preoccupied with the possibility of a first, and decisive, strike against the people and institutions of the state. The consequence of this preoccupation was that the politics of nuclear confrontation, and nuclear weapons proliferation, became the key focus of security scholarship during this period; and further that threats to national security that did not have the immediacy and decisiveness of nuclear attack were neglected. Put simply, the view was that threats arising from highly complex and unpredictable biological and physical systems associated with environmental change, could

not threaten a state's security. A similar scepticism, moreover, applied to other potential non-military security threats, such as those posed by refugee movements, social inequality and trans-national organised crime.

Several developments have combined in recent years to undermine the view that security studies should be restricted to considering military threats. Three of these considerations are particularly worth mentioning. First, the break up of the Soviet Union was a critical event in the evolution of the security concept, particularly for the way in which this reduced the threat of full-scale nuclear confrontation between the superpowers and created space for the discussion of other potential threats to national security. Second, the growing awareness of the interdependence of economic relations throughout the world, as manifested in a series of global economic and financial crises, has led to an awareness that destabilising changes in economic variables in one part of the world can lead to significant levels of instability and insecurity in distant regions. Third, increasing evidence has emerged that certain environmental problems could endanger the existence of whole communities, as well as exacerbating existing social problems such as poverty, mortality, morbidity, overpopulation, and so on. This consideration has gained particular salience in the light of successive reports on the likely future impacts of environmental degradation and climate change on coastal zones; small islands states; and the developing world in broader terms (WCED, 1987; UNDP, 1994; IPCC, 2001; parry et al, 2007; UNDP, 2007).

3. Environmental Change and Violent Conflict

A common assumption amongst security scholars, even more so amongst policymakers and the media, is that environmental degradation (either in the form of resource scarcity or environmental damage) is a persistent, and growing, cause of violent conflict within and between states. The implication of the alleged environment/violence relationship is that the security of a diverse range of referent objects (states, populations, citizens) is constantly under threat from environmental problems (such as climate change) with the developing world being particularly vulnerable. The crux of this violent conflict explanation of environmental security is a simple, and in many ways intuitive, causal mechanism explaining how environmental scarcity has a significant bearing on the incidence and intensity of violent conflict within and between states. Changes in environmental variables (such as those affecting access to food and fresh water) trigger social-political effects (such as increasing competition for scarce resources) which in turn trigger insecurity enhancing violent conflicts amongst those affected (Homer-Dixon, 1999: 6-8). If the ensuing violence is sufficiently intense and widespread, both national and international security interests are involved (Homer-Dixon, 1999: 166-8).

Rather than arising as a direct result of states competing for scarce natural resources, environmental degradation is usually assumed to be a much more *indirect*² cause of violent conflict than inter-state rivalry for precious resource ownership. According to Elliot, for example, to the extent that environmental change gives rise to violent conflict, it does this by 'interacting with other social, economic, political and cultural drivers which (taken together) reduce stability in a given domain' (Elliot, 1996: 159). The sorts of socio-economics drivers that have attracted most interest in the literature concern the impact of growing environmental stress on demographic variables, such as mass migrations and refugee crises; economic variables, such as employment and competitiveness; and exacerbation of existing inequalities and socio-political cleavages.

Perhaps the most sophisticated research on the link between environmental degradation and violent conflict has emerged from the work carried out by Thomas Homer-Dixon and associates. This research was, above all, motivated by the authors' dissatisfaction with the level of abstraction associated with the initial wave of research on environmental security, which asserted the need to modify the concept of security on the basis of conceptual analysis and 'anecdotal evidence' of potential environmental threats (Homer-Dixon, 1991: 83). In response to the irresolvable conflicts that arise from conceptual discussions of the meaning and scope of security, Homer-Dixon's strategy was to supervise a targeted set of empirically-focused studies of the way in which environmental stress gives rise, either *directly* or *indirectly*, to violent conflict in various parts of the world. The authors identified several case studies according to whether they evinced a link between environmental change and violent conflict, and went on to investigate whether or not resource scarcities and environmental stresses were accompanied by violent conflict (Homer-Dixon, 1994: 7; 1999: 133-66).

Although there is not here the space to do justice to the Toronto group's extensive research in this area, it is worth outlining briefly some of its key findings, as well as reviewing the main criticisms of the research raised by other writers. The findings of the research are outlined in a much cited, and criticised, series of journal articles, books and opinion pieces by Homer-Dixon and other research group members (Homer-Dixon, 1994; 1999). Four key claims are outlined in this research (Homer-Dixon, 1994: 8-17; 1999: 177-82; 2000). First, the most important environmental resources as far as environmental causes of violent conflict are concerned are land, forests, water and fish. Second, there are three main sources of environmental stress: environmental change, population growth, and social inequality. Third, these three sources of environmental resource scarcity are mutually reinforcing. Fourth, societies that are able to adapt to environmental stress are more likely to avoid significant turmoil and conflict than those that are not. Pulling these findings together, Homer-Dixon the authors found that there was 'substantial evidence' for the claim that environmental scarcity

causes violent conflict. This finding was then contrasted the claims of ‘sceptics’ of the environmental scarcity/conflict relationship, who held that environmental factors, such as resource depletion and environmental pollution, play a minor role in violent conflict in comparison with socio-political factors (which themselves are often the triggers of environmental scarcity) (Homer-Dixon, 1999: 28-44; 2006: 131-51).

While the Toronto Group’s primary research project on environmental scarcity and violent came to an end at the end of the 1990s, a number of original group members, as well as a new generation of scholars, have harnessed analogous methods to investigate the environmental change, in particular climatic change, and violent conflict. Homer-Dixon himself has gone on to focus on the dangers of civilization collapse as a consequence of a series of factors including, but not merely, resource depletion and climate change. In fact, his work has taken on, if anything, an even more extreme view of the environmental scarcity/conflict relationship. In his 2006 book, *The Upside of Down*, he writes that

Environmental damage weakens poor societies from the bottom up and top down. Combined with other stresses – like friction between ethnic groups, external economic shocks, or unmanageable megacities – it can fray a society’s social fabric; erode its community, urban, and government institutions; and foster civil violence, including riots, insurgency, guerilla war, and even ethnic cleansing. We see these results everywhere in poor countries (Homer-Dixon, 2006: 14).

A yet more dramatic summary of the problem followed in 2007:

Evidence is fast accumulating that, within our children’s lifetimes, severe droughts, storms and heat waves caused by climate change to international security just as dangerous – and more intractable – than the arms race between the United States and the Soviet Union during the Cold war or the proliferation of nuclear weapons among rogue states today’ (Homer-Dixon, 2007:1)

Echoing Homer-Dixon’s analysis, a series of high profile scientists, commentators and security agencies have warned of national security threats posed by environmental problems such as climate change. David King, former Chief Scientific Advisor to the UK Government, argued in 2004 that ‘climate change is the most severe problem that we are facing today - more serious than the threat of terrorism’ (King, 2004:176). Ban Ki Moon attributed past, and potentially future, conflicts in Africa in part to climatic changes in the region (2007:1). Most recently, two major US Government reports came to similar conclusions:

Climate change and energy are two key issues that will play a significant role in shaping the future security environment...While climate change alone does not cause conflict, it may act as an accelerant of instability or conflict, placing a burden to respond on civilian institutions and

militaries around the world (US Government, 2010a:84-5)

Climate change and pandemic disease threaten the security of regions and the health and safety of the American people... The change wrought by a warming planet will lead to new conflicts over refugees and resources; new suffering from drought and famine; catastrophic natural disasters; and the degradation of land across the globe (US Government, 2010b: 8, 47).

The conclusions of other scholars in the field, however, unlike the media headlines that have often accompanied them, have generally been more nuanced than those that preceded them. Climate change, it has been argued, can be linked as a casual factor in existing, and, by extrapolation, *future* armed conflicts over developing world states prone to the adverse effects of sea-level rise and extreme weather events (Brown, Hamill and McLeman, 2007; Brown and McLeman, 2009; Reuveny, 2008).³ More broadly, an influential European Commission report describes climate change as a ‘threat multiplier’ which exacerbates pre-existing trends, tensions and instabilities underlying intra-state and inter-state violent conflict such as competition for energy resources; migration; water and food shortages; and environmental disasters (European Commission, 2008).⁴

Though highly influential amongst policymakers and the media, a number of criticisms have been raised against the environmental change/violent conflict thesis as developed by the Toronto Group and its successors. If valid, these criticisms undermine the idea that environmental scarcity (defined either in terms of resource depletion or adverse environmental impacts – or both) is a primary trigger of violent conflict and (inter)national insecurity. I focus here on three only.⁵ First, following Gleditsch, the theoretical scheme in operation is highly complex with the result that the conclusions are difficult to replicate or validate. The case-studies used by Homer-Dixon, for example, are typically analysed in terms of several independent and intervening variables. This raises the question of how the analysis might be tested. As Gleditsch (1998: 391) observes, ‘whether in a large-*N* or a comparative case-study mode, such a comprehensive scheme would be very difficult to test’ (see also, Barnett, 2003 and 2006). The Group’s predictions of future environmental violence may borne out in the future, that is, but they nonetheless are not grounded in sound science but conjecture.

Second, the Toronto Group claim that ‘environmental scarcity contributes to violent conflict’ (Homer-Dixon, 1999: 166; see also Homer--Dixon, 1994: 39) and go on to claim that ‘in coming decades the incidence of such violence will probably increase as scarcities of cropland, freshwater, and forests worsen in many parts of the developing world’ (Homer-Dixon, 1999:177). Let us suppose that the evidence gathered in the case studies justifies the former claim. It does not appear to provide any underpinning for the latter, or the related claim that conflicts over environmental resources they examined ‘are probably the early sings

of an upsurge of violence in the coming decades' (Homer-Dixon, 1999: 166; see also Homer Dixon, 1994: 6). Such statements are, that is, unwarranted extrapolations from case studies selected precisely *because* they exhibited pre-existing violence *and* environmental scarcity (Gleditsch, 1998: 391-2; Matthew, 2002: 209). Homer-Dixon has since countered this objection by claiming that selecting cases on the basis of both the independent (environmental scarcity) and dependent (violent conflict) variables, rather than a creator of bias, is an invaluable method of investigating mechanisms of causality common to instances of environmental change induced violence given the complexity and relative youth of this area of research (Homer-Dixon, 1999:169-170; Schwartz, Deligiannis and Homer-Dixon, 2000: 85-6). Homer-Dixon calls this *deliberate* infraction of traditional principles of research design, where cases are selected where both violent conflict and environmental scarcity are present, 'process tracing' (Homer-Dixon, 1999:171-2). However, the suspicion remains that the Group's claims exceed what could reasonably be inferred from the case-study evidence.

Third, as noted above, the environment/conflict thesis emerged from 'process tracing' studies where the environment/violence relationship is studied within a context where conflicts have already emerged. However, environmental theorists – and more recently empirically focussed security analysts – have argued that non-conflictual behaviour (passive resistance; overt cooperation; psychological denial) may also characterise environmental change. Reuveny (2008: 668), for example, found that half of a sample of thirty eight instances of environmental change-induced migration prompted little or no violence; and an increasing amount of research has shown that co-operative solutions to environmental scarcities are as common, if not more common, than violent conflicts (Salehyan, 2008: 318-320; Nordås and Gleditsch, 2007: 631-2). If a balanced analysis of the relationship between environmental security *theory* and environmental security *practice* is the goal, both cooperative and conflictual pathways must be evaluated to reflect the fact that (i) causal mechanisms exist on both sides of the argument (Page, 2002: 57ff; Nordås and Gleditsch, 2007: 633-5) and (ii) at least some of the key environmental changes with which mankind is faced will confer benefits as well as burdens (Parry, Canziani and Palutikof, 2007). The assumption that 'in a crisis people will fight rather than trade and cooperate', that is, must itself be scrutinised rather than treated as if it were an integral part of the security concept (Dalby, 2008: 272-3).

Does the selection bias, lack of control group, and avoidance of cooperative solutions inherent in the Toronto Group's research render its findings merely 'inconclusive'⁶ or deeply flawed in offering 'more anecdotes, but not more understanding?'⁷ The debate continues.⁸ What is known with a high degree of confidence is that climate change poses significant risks for the health, wealth and security of existing and future generations. Although some regions

will escape discrete climate impacts (and others may benefit from the localised effects of rising global temperature and sea-levels if they remain modest) successive intergovernmental reports in 1990, 1995, 2001 and 2007 have confirmed that the net impact of climate change, to pick one of the many environmental challenges with which mankind is faced, will be both significant and adverse, with members of future generations and developing countries being worst affected (UNDP, 2007: 71-108; IPCC, 2001; Parry, Canzani and Palutikof, 2007: 48-65). Even if these impacts, viewed in isolation or in combination, do *not* trigger intra- and inter-national armed conflict in the manner suggested by Homer-Dixon and associates, it remains an open question whether such impacts pose a security threat. It seems we have more reason than ever to investigate the *conceptual* issues surrounding the scope and content of security discourse if the Toronto Group's research is to be given the correct interpretation. I outline some of the some of the seminal contributions to these conceptual debates below.

4. Theorising the link between environment and security

A number of academics and security actors have defended the view that there are a range of security threats that cannot be reduced to threats to intra- or inter-state violent conflict. These accounts can be divided into two camps depending on the account they offer of the scope of security discourse. The first camp seeks to include non-military threats in discussions of security but only insofar as these threats undermine the security of states (Ullman, 1983; Schwartz and Randall, 2003:14-19; US Department of Defense, 2010: 84-88). I call this the *shallow de-militarised view* of security. The second camp seeks to include non-military threats in discussions of security insofar as these threats undermine the security of states and at least some other entities (principally, individual human beings). I call this the *deep de-militarised view* of security. The key difference between the camps is that members of the former camp retain the traditional rubric of *national security* whereas member of the latter embrace the more radical rubric of *human security*.

4.1 The shallow de-militarised conception (national environmental security)

An early, and influential, example of the shallow de-militarised view is to be found in the work of Richard Ullman. He argues that it is a mistake to define national security in military terms for two key reasons. First, it ignores the salience of other variables, such as environmental degradation, that can be more harmful to the security interests of a state than intra-state, or inter-state, military conflict. Second, he outlines the *normative* objection that to retain a traditional, militarised, view of security 'contributes to a pervasive militarization of international relations that in the long run can only increase global insecurity' (Ullman, 1983: 129).⁹ Ullman goes on to propose a broader definition of a security threats as:

an action or sequence of events that (1) threatens drastically and over a relatively brief spell of time to degrade the quality of life for the inhabitants of a state, or (2) threatens significantly to shallow the range of policy choices available to the government of a state or to private, nongovernmental entities (persons, groups, corporations) within the state (Ullman, 1983: 133).

Ullman's argument appears to have five steps.

1. States commonly devote a great deal of resources to military defence in the belief that this increases national security.
2. This investment is justified in terms of the omnipresent risk of military conflict with other states.
3. Much research by natural, and social, scientists demonstrates that developed and developing states are far more vulnerable to non-military threats (such as those associated with environmental degradation) than they are to traditional armed confrontations with other states.
4. In order to protect national security, more attention and resources should be focused on environmental (and other non-military) threats.
5. It should be recognized, by theorists and policymakers, that the concept of national security needs to be broadened to incorporate a sensitivity to non-military threats.

The shallow de-militarised view has two obvious advantages. First, it can be fairly easily accommodated within the mainstream of traditional thinking on security. This has meant that Ullman, and other proponents of this view, have been read and cited widely by non-academic members of the security community. Second, it is compatible with, but not dependent on, the existence of the environmental scarcity/violence mechanisms proposed by Homer-Dixon and associates for Ullman does not reject violence as a trigger of insecurity but rather supplements it with additional triggers. Nonetheless, this conception is also problematic in its own right. One problem is that instances of organised violence and environmental degradation often pose very different sorts of threats to human communities. Environmental problems such as climate change, ozone depletion, deforestation and so forth, undoubtedly contribute massively to mortality and morbidity rates throughout the world. However, to say that in so doing they undermine the security of the states where they hit hardest in the same way as wars and other violent conflicts seems problematic. The problem is that labeling all activities that cause a decline in human well-being 'security threats' may result in the degradation of the security concept, either as a result of detachment from common meanings of the term (Deudney, 1991: 24) or making it subservient to a theory of social welfare (Page, 2003: 181-2). Suppose, for example, that the human misery of traditional military conflicts and environmental stresses could be separated and that each gave rise to identical levels of morbidity and mortality in a

given state, and in a given year. Would these two sources of conflict and misery pose equally prominent threats to national security? There are at least two reasons to think that they would not. First, environmental threats and threats of violence have very different sources and impacts. No one state is responsible for even the majority of the anthropogenic greenhouse gas emissions which drive climatic change, nor will any state be the sole recipient of the effects of climatic change. Rather, the causes and effects of climate change (as well as many other environmental problems) escape analysis in terms of the nation state (De Wilde, 2008). The causes and effects of organised violence, however, are much more readily investigated through the lens of the state and its security. This would not matter if nation states were not the only referent object in play for environmental national security.

Second, at the heart of the national security paradigm is the thought that there is an important *intentional* aspect to the sorts of threats that undermine a state's security. The act of declaring war on another state, or states, can be viewed as an intentional act undertaken by a deliberative entity. The causes of environmental stress and degradation, on the other hand, are more often than not unintended, if unwelcome, by-products of other intentional action (Waeber, 1995: 63; Deudney, 1991: 24). Climate change is a case in point. No one seriously believes that present and past generations intentionally set out to increase greenhouse gas emissions *in order to* bring about global warming. We believe, rather, that the accumulated stocks of these gases came about as an unfortunate byproduct of the activities of billions of agents operating over a number of centuries – activities that in most cases were performed for their human welfare producing benefits for those involved. To the extent that we think an environmental change (X) has to have been brought about intentionally for it to threaten an agent (Y's) security we will not view many of the climatic changes projected by scientists to threaten Y in security terms. The same logic applies to most other environmental problems that will potentially create insecurities for future generations such as ozone depletion, deforestation, species extinction, peak oil, and global warming.

Third, a number of contributions to the literature have emphasized the rhetorical vein of prominent de-militarist views. Here it is argued that the popularity of the notion of environmental security can be explained largely by the desire of the environmental community to attach environmental concerns to the security debate in order to raise their awareness amongst political elites and the general public. The assumption here is that problems that are considered to be part and parcel of 'high' politics are more likely to receive the attention and resources that are a prerequisite of their eventual solution. Let us suppose that this is a defensible assumption. One worry is that, by bringing environmental problems under the rubric of national security, shallow de-militarist views also undermine their ability to question the centrality of the state in discussions of environmental issues. The idea here is

that, even if the proponents of environmental national security are successful in ‘securitizing the environment’ without ‘de-nationalising the security discourse’, this may not lead to the solutions that Ullman and others hope. There are theoretical and practical grounds for this concern. Deudney (1991: 25) famously conjectured that ‘thinking of the environment as a national security problem risks undercutting the sense of world community and common fate that may be necessary to solve the problem.’ De Wilde (2008) follows up on this line of thought when he notes that both the security mindset and the reality of international political economy mean that the world’s 200 states have as many divided interests when it comes to climate change impacts and policies as they do interest commonalities. Finally, there is ample empirical evidence from 20 years of inter-national climate negotiations to show that the logic of national security does not always lead to solutions and this failure is not traced to the scope of security but the reality of security interest conflicts.

4.2 Deep De-Militarised Conceptions of Security (human environmental security)

Aside from those who are sceptical of even the weakest conceptualisation of environmental security, the problem that a number of writers have with Ullman’s view is that, by retaining a state-centric architecture, it ignores one of the critical insights to be drawn from recent discussions of environmental politics and philosophy. This is that any viable solution to global environmental problems must, at least in some sense, transcend the context and category of the nation state. It is not sufficient, so the argument goes, to *deepen* the content of security studies to incorporate new threats to national security; rather the scope of security must also be *broadened* to include entities qualitatively different from the state.¹⁰ The idea behind this simultaneous broadening and deepening of security is well expressed by Myers (1993:31):

in essence, and little though this is generally recognised by governments, security applies most at the level of the individual citizen. It amounts to human wellbeing: not only protection from harm and injury but access to other basic requisites that are the due of every person on earth.

Two influential versions of this deeper version of de-militarised security can be found in the research being carried out under the *Global Environmental Change and Human Security* (GECHS)¹¹ and *Human Security Now* (HSN)¹² projects. According to the former:

human security is achieved when and where individuals and communities have the options necessary to end, mitigate, or adapt to threats to their human, environmental, and social rights; [and] have the capacity and freedom to exercise these options and actively participate in attaining these options (Lonergan, 1999, p. 29).

According to the latter:

Human security is concerned with reducing and—when possible—removing the insecurities that plague human lives. It contrasts with the notion of state security, which concentrates primarily on safeguarding the integrity and robustness of the state and thus has only an indirect connection with the security of the human beings who live in these states (Ogata and Sen, 2003: 8; Gasper, 2005: 223-8).

One interesting question that the GECHS/HSN conception of security raises is whether ‘human security’ can exist in states that have not fully entrenched basic welfare systems to guarantee some level of economic equality or universal, rights of democratic citizenship. This is because each incorporates a fairly sophisticated notion of human autonomy and well-being. The implication, here, is that we cannot discuss the security, or insecurity, of referent objects (which here are limited to individuals and the cultural groupings to which they belong) without considering the question of whether they operate in conditions conducive to their autonomy or overall well-being that is alien to traditional discussion of security. The GECHS definition, for example, implies that democracy is a necessary condition of security and in so doing plays down the importance of geological, demographic, ethnic and historical factors that influence the political and socio-economic significance of environmental events. These factors are at the very least partly independent of the political system they relate to; and seem more relevant to the issue of environmental insecurity than issues of democracy or autonomy.

The understandings of security defended by GECHS and HSN raise a further question that is central to the development of the concept of environmental security. That is, they raise the question of the link between the *concept of security* and the *value of security*. Traditional accounts of security attempted to keep these two issues separate, presupposing that insightful judgements can be made about the extent to which an entity is secure in isolation of the question of whether this security is ethically valuable. These traditional accounts can thereby be described as ‘thin’ in the sense that they seek only to put forward an account of the necessary and sufficient conditions of a certain entity being secure from external or internal threats (or an account of the social construction of security threats and actors, in the case of the Copenhagen School) rather than an account of the higher ethical purpose that security might serve. As a result, these ‘empirical accounts’ could accommodate the thought that entities maintaining a high degree of security in the absence of similarly high standards of social justice or political freedom. A related consideration is that, to have any point of contact with the common-sense notion of security and avoid the trap of expressing a theory of social justice in securitised form, human/environmental security should be restricted to the basic conditions enabling individuals and communities to pursue the values which they affirm *whatever they may be*. As some of these values might not be consistent with liberal ideals of autonomy and equality of democratic citizenship, these liberal values are too ‘thick’ to be incorporated into the concept of human/environmental security if the goal is an account to

which representatives of all states can endorse. In effect, the problem is that the GECHS/HSN conception fails to avoid this trap and it is unsurprising, therefore, that it has achieved much greater salience in the developed world than it has in the developing, where non-liberal political traditions are more prevalent (Barnett, 2001; De Wilde, 2008).

5. The Case Against Human/Environmental Security

Despite the fact that numerous recent articles in the literature have defended the view that the concept of security should be extended on the axes of scope and content, writers in the realist and neo-realist traditions of international relations have staunchly defended the core conceptual basis the 'traditional' conception of security: the restriction of the primary referent objects of security to national states and the primary threats of security to intra-state or inter-state violent conflict. For these 'sceptics', the analytical division of militarised views into shallow and deep variants is either conceptually redundant, or merely reflective of a 'securitising move' than any underlying material condition. As a result, there is no reason for these writers to take advantage of the conceptual space created by the fact that one could reject the deepening of the security concept without rejecting the widening of security.

There are essentially two versions of the sceptical view - an objectivist (realist) conception of environmental security and an inter-subjective (constructivist) conception of environmental security (Strippel, 2002: 154-6; De Wilde, 2008: 598-602; Trombetta, 2008:589-91). The first tradition, which essentially denies that there is any more to security than the security of *states* against *threats of violence*, is most associated with the work of Daniel Deudney (1990; 1991; 1999). Deudney (1991:28) writes:

The degradation of the natural environment upon which human well-being depends is a challenge of far-reaching significance for societies everywhere. But this emerging problem has little to do with national security from violence. Not only do the causes and solutions to these two problems have little in common, but the nationalist and militarist mindsets closely associated with national security thinking directly conflict with the core of the environmentalist world view. Harnessing their sentiments for a war on pollution is unnecessary, dangerous, and probably self-defeating. The prospects for resource and pollution wars are not great but, ironically, could be increased if the national security mindset becomes as pervasive as some environmentalists hope.

This passage is interesting in that it spells out the three key aspects of the case against broadening the security debate to include non-military threats. The first aspect is the claim that the phenomena of security from threats of violence and security from environmental threats are too different to be subsumed under a generic notion of security (Deudney, 1991: 23-4). Second, it is claimed that incorporating environmental threats into mainstream debates about national security will not prove to be a step forward in terms of finding solutions to

environmental problems – rather it could actually prove counter-productive to the goals of the environmentalism (Deudney, 1991: 24-6). Third, it is claimed that the vast majority of environmental problems will have little impact on the national security of the states that experience these problems (Deudney, 1991: 26-8).

The second tradition is captured well by de Wilde (2008: 597-8, 599):

Environmental security is a catchall for a wide variety of issues...The reason to talk about environmental security is that the process of human civilization involves a manipulation of the rest of nature that in several respects has achieved self-defeating proportion...The ultimate referent object of environmental security is the risk of losing achieved levels of civilization-a return to 'raw anarchy' and forms of social barbarism-while being able (or having the illusion so) to prevent this.

According to the Copenhagen School, it is incorrect to view human or environmental security as nonsense concepts per se, proponents of the terms are criticized for making the mistake that these terms reflect any underlying, objective, condition of the associated referent objects or threats they experience. Human and environmental security are not, as the GECHS and HSN conceptions suggest, 'objective categories waiting to be discovered.' Rather, they are social constructions that signal a change in the way an issue is handled politically (Trombetta, 2008: 587ff; De Wilde, 2008). This reflects the fact that this school of thought views human/environmental security through a conceptual lens whereby 'security is not viewed as something that can objectively be established but is a social category that arises out of, and is constituted by, political practice' (Strippel, 2002: 163). So there can be no objective basis wither to affirm or reject their existence as such, even if clarifying work can be done in terms of the way these terms are used and the extent to which the actors that use them have been successful in spreading their usage amongst security actors and networks.

One clarification made by this more subtle form of human/environmental skepticism is that the discourses rarely distinguish clearly environmental security (where the environment itself is the entity to be secured *from human agency*) and environmental security (where human civilization is the entity to be secured *from environmental change*). This indicates a certain looseness inherent in the conceptualization of environmental (and, by extension, climate security) that detracts from its value (De Wilde, 2008: 598-9). The suggestion, here, is that only the latter, anthropogenic, interpretation of environmental security is coherent even if there exists some conceptual slippage in the literature. 'Environmental security is *not* about threats to nature of to "Mother Earth" as such'¹³ but rather 'concerns the maintenance of the local and the planetary biosphere as the essential support system on which all other human enterprises depend.'¹⁴ By extension, climate security reflects a concern for the way in which human enterprises are shaped, largely for the worse, by the climate system's susceptibility to anthropogenic forcing (Wilde, 2008: 600; Trombetta, 2008: 595).¹⁵

Another clarification is that the two forms of environmental security are subject to deep rooted conflicts which suggest that they will not be successful in terms of solving the environmental problems on which they are premised. The problem here is that global environmental change poses dispersed, and uneven, affects amongst key referent objects that securitizing the environment will result in international division rather than unity as the GECHS/HSN conceptions assume. The result is that, although not strictly speaking nonsense as Deudney claims, human/environmental security is at best utopian and at worst positively harmful to global justice in magnifying conflicts by security concept's inherently conflictual roots. The logic of securitizing the climate problem, for example, is that civilization will itself have to change (in order to transition to a post-carbon economy) but this will create conflicts between social groups and national states. The ultimate conflict here is between the global poor and the global rich, not between these two sets of actors and the natural environment (De Wilde, 2008: 599-600). The effects will be spread unevenly and the security actors will act accordingly in the way the threats are constructed: the referent objects will not feel the existential threats to the same degree. As Buzan, Wæver and De Wilde (1998:92) write: 'Global warming has worldwide causes, but its likely effects are not global' Some states, such as those in Northern latitudes, may benefit due to the agricultural impact of longer summers and shorter winters; while other states (such as the Small Island states of the Pacific) risk disappearance. This undermines the global pretensions of environmental security conceptions proposed by GECHs and HSR. But it also undermines the progressive pretensions of these conceptions since securitising the climate problem in the instances where impacts are internationalized (due to climate migration; energy security conflicts; and trans-boundary extreme weather events) threatens to transform complex ethical and political problem into a struggle of existential and national interests.¹⁶ Such a struggle - which constructivist scholars note is an integral not incidental component of discourses of security - is unlikely to work in favour of the interests of the most vulnerable states or citizens. In short, though solutions to global environmental problems requires politicization, discourses of equity, justice and international cooperation can provide this role without posing many of the conflictual risks of securitization (O'Brien et al, 2010: 170; Buzan, Wæver and De Wilde, 1998: 87-9).

6. Frameworks of Environment, Security and Justice

Given the complexities of the environmental/security debate explored above, it is useful to pose three questions that enable us to think more clearly about the relations amongst environment, security and social justice.¹⁷ Each question serves to isolate a different component of the overlapping debates between justice and security theorists focusing on environmental change. As with any typological exercise, there exists a certain amount of fuzziness at the boundaries of each component both within, and between, the traditions of

thought in play. It is, for example, very difficult at times to assign contributions to the literature exclusively to these three questions, or discuss the nature of one of the three without discussing the others. Nevertheless, posing these questions generates a useful a three-dimensional space that can be used to explore the strengths, weaknesses and overlaps of security and social justice approaches to environmental change:

1. Who are the entities that matter from the perspective of security/justice (*the scope question*)?
2. In terms of what metrics should the claims and roles of the referents entities of security and justice be evaluated (*the currency question*)?
3. How should security/justice be distributed and what are the temporal and spatial limits of their distribution (*the pattern question*)?

I aim to show that the theoretical coherence and progressive agenda of environmental/human security is constrained by structural limitations in its attempt to answer these questions in a way that does not apply to accounts of social justice.¹⁸

(i) The Scope of Security (who are the recipients and providers of security?)

As we have seen, there are a number of entities, other than the nation state, that could conceivably be the subjects of security discourse. For example, a key condition of an entity being a *prima facie* referent object of security is that external events render that entity more or less insecure. It seems that several entities other than the state would seem to pass this test, the most obvious of these being individual human beings; collectivities such as ethnic or linguistic minorities; and domestic and international institutions. Moreover, if we were to embrace a 'bio-centric' or 'eco-centric' approach, we might go on to suggest more radical suggestions for the referent objects of security studies. However, even if we subscribe to the most radical view of the scope of environmental security, many entities will *not* count as units of value or security analysis (rocks, fossils, plants, trees, micro-organisms etc). In between the extremes of the national state and rocks are a large category of potential referent objects whose inclusion within the security discourse is a matter of profound, and irreducible, debate amongst security scholars. There is no clear answer to where the boundaries of security discourse should lie, but there are norms of consistency, coherence and parsimony that may facilitate this selection.

The problem of the scope of justice concerns the entities we identify as the legitimate recipients of benefits and burdens in society. It concerns, for example, the question of which agents are bearers of value, and why, and what sorts of claims these agents hold against others. It also concerns the issue of the strength of this value, and these claims. There are, as

such, a wide range of positions available to those exercised by the question of scope. We might apply our theory of distribution only to human beings; to human beings and non-human animals; to all living creatures; or to all living creatures plus certain physical structures or processes (such as the climate system or carbon cycle) on which all life depends. Even within an anthropocentric frame of reference, there are a number of additional issues of scope to settle of which the most important is the identification of the entities responsible for providing the benefits outlined by any theory of distribution.

Security studies and social justice, then, are plagued by strikingly similar problems of scope – and the lack of a clear, a priori, answer to how to draw the line between those that count, and those that do not count, from either perspective. This is perhaps unsurprising since one of the many features that justice and security have in common is that they exhibit the properties of an ‘essentially contested concepts’ (Gallie, 1956: 171-2; Connolly, 1993: 10-11).

(ii) Currencies of security and justice

Once we have decided who, or what, the basic units of security discourse happen to be, we must then turn to what things can threaten their security. As we have seen, human/environmental security proponents embrace the idea that security studies should be amended to incorporate a sensitivity to non-military threats to national and/or sub-national security. The threats which the de-militarised conception seeks to introduce into security debates will usually arise out of circumstances which endanger entrenched societal values or goals such as individual or collective human rights; income or wealth generation; international competitiveness; cultural diversity; gender equality; health; and, of course, environmental quality. There is, however, a lack of treatment amongst human/environmental security scholars as to how to deal with security threats that arise from the uncoerced behaviour of the agents they affect. Should these threats be include within the currency of security or not? If so, then should these threats trigger security enhancing actions of the same quality and intensity as unchosen risks? The lack of answers to such questions means that the role of security providers is not made clear in these versions of the security concept; and this is amplified by the fact that the currency of human/environmental security (generally defined as some version of Amrtya Sen’s notion of ‘capabilities to function’) is not well distinguished from related notions of basic needs, human rights, resources, or welfare. If the goal of human/environmental security scholars is to provide theoretical clarity and policy relevant guidance to security providers (Gasper, 2005: 236-9) a harder currency is surely required.¹⁹

Turning to justice, the question becomes one of which aspect of human well-being should be the centre of our distributive concerns. The idea is that a clear account of the entities that count for a theory of justice, as well as what the profile of benefits should be across these

entities, must be attached to some further account of what it is that should be shared between these entities. Popular suggestions for what we should seek to distribute across society have been resources, welfare, opportunities for welfare, basic capabilities to function, and access to advantage (Page, 2006: 54-75). Problem of responsibility are well advanced in social justice. It is generally, though not universally, held that agents whose lack of resources (or experience of harms) can be traced to their own autonomous behaviour should receive less protection than those whose disadvantage was brought about by other agents or by natural factors.

(iii) Distributing security and justice

The pattern of security concerns the optimal spread of risks reasonably supposed to threaten the existential security of appropriate referent objects. It concerns, that is, the question of how security be distributed amongst states (in the case of national security) or persons (in the case of human security). There is a surprising lack of discussion of this problem amongst proponents of human, environmental and climate security. These writers tend to outline a definition of security and some triggering conditions for its degradation without specifying how conflicts of interest (such as those between different societies or generations) might be settled. Proponents of human security, for example, erroneously assume that adopting a normal species functioning range of values for, rather than a specific pattern of, human well-being avoids the problem of distributive conflict. But this ignores the problem that there may be trade-offs not merely between the effective freedoms (eg capabilities to function) of rich and poor (which is to be expected) but also within poor, and within rich, populations. Moreover, these conflicts may extend to relations between generations. While problems associated with the appropriate timescale of justice has attracted a huge literature amongst theorists and policy analysts, 'intergenerational security' has not even registered in the vocabulary of security re-conceptualisers as an accepted term.²⁰ It is also notable that human security scholars do not generally address the 'site of justice' problem, that is, the appropriate location of efforts to enhance security and minimise insecurity whether it be rules and practices of public institutions or personal conduct. Finally, it has been claimed that discourses of human/environmental security have superior insecurity dampening credentials to discourses of justice since the latter 'concerns fair distribution of whatever is present, including risks, and so does not ensure security' (Gasper, 2005: 224). The problem here is that no argument is given as to how human/environmental security will deal with threats that are so profound that some degree of burden must be borne by all parties.

Turning to social justice, the pattern problem concerns the appropriate sharing of benefits and burdens (however described) across a population. As noted above, this population could be comprised of individuals, states or some other level of agency. Popular answers to the

pattern question have been offered in terms of efficiency, equality, priority and sufficiency. That is, it has been suggested that we distribute benefits and burdens so that the well-being of appropriate agents is maximised, or so that all are equal, or so that the worst off group in society is as well-off as possible, or so that as many people as possible have enough to lead a good life (Page, 2006: 79-96). Discussions of the pattern of justice have also embraced the question of the site of justice; the role of responsibility norms in mediating justice; and the spatio-temporal limits of justice claims. On all of these levels, the justice literature is more developed – and arguably more policy-relevant – than the human/environmental literature.²¹

Conclusion: what is the point of human/environmental security?

Gasper (2005) has argued that there is an urgent need for ‘boundary objects’ with which environmental, security, development and equity issues can be pursued by multiple academic disciplines and political actors. Boundary objects, Gasper writes, are ‘practices, ideas or sets of ideas that are employed for the inter-community interchange’ and are ‘malleable enough to be used by diverse parties, while robust enough to keep sufficient shared meaning across this range of users’ (2005: 235). Gasper is half-right. There is an urgent need for greater co-ordination and congruence amongst the security and justice traditions. But this multi-disciplinary enterprise is unlikely to bear fruit so long as justice is rendered derivative to security in areas of concern where it has a clear superiority. As we have seen, the security concept cannot be detached from its divisive, conflictual, roots in national security circles; and cannot, even in revised form, offer clear and convincing answers to the some of the questions that need answering if a lasting solution to climate change and other global environmental problems is to be achieved. Gasper (2005: 236) suggests that ‘ethical concerns must be embedded in a policy/planning approach rather than left as disembodied words, detached from power’ but fails to see that policy relevant normative theory (which uses empirical and normative premises leading to concrete conclusions valid for regulating political activity) is in rude health. Researchers have combined normative premises with empirical research to enhance our understanding of, and formulate public policy on, a range of social issues such as education, health and environment.²² Human/environmental security, by contrast, has hitherto provided an air of *urgency*, but comparatively few policy solutions; and climate security has fared little better. Ole Wæver has suggested that in many instances, social problems would be more soluble if their securitisation was resisted: ‘less security, more politics!’ he exclaimed (1995: 56). The suggestion of the paper is the similar, if slightly nuanced, suggestion: ‘less security, more justice!’

Bibliography

- Adger, W.N. (2004) 'The Right to Keep Cold', *Environment and Planning A*, 36: 1711-15.
- Adger, W.N. (2010) 'Climate Change, Human Well-Being and Interests', *New Political Economy*, 15(2): 275-92.
- Ban, K.M. (2007) 'A Climate Culprit in Darfur', *Washington Post*, Saturday 16 June: http://www.washingtonpost.com/wp-dyn/content/article/2007/06/15/AR2007061501857_pf.html
- Barnett, J. (2001), *The Meaning of Environmental Security*, London: Zed Books.
- Barnett, J. (2003) 'Security and Climate Change', *Global Environmental Change* 13(1): 7-17.
- Barnett, J. (2006) 'Climate Change, Insecurity and Injustice', in W.N. Adger, J. Paavola, S. Huq and M.J. Mace (eds) *Fairness in Adaptation to Climate Change* (Cambridge, MA: MIT Press): 115-29.
- Barnett, J. and Adger, W.N. (2007) 'Climate Change, Human Security and Violent Conflict', *Political Geography* 26: 639-55.
- Bauhaug, H. (2010) *Climate Change not to Blame for African Wars* (Oslo: PRIO): <http://climsec.prio.no/papers/Climate%20wars%20DKNVS2010.pdf>
- Brown, O. and McLeman (2009) 'A Recurring Anarchy? The Emergence of Climate Change as a Threat to International Security', *Conflict, Security and Development*, 9(3): 289-305.
- Brown, O., Hamill, A. and McLeman, R. (2007) 'Climate Change as the 'New' Security Threat: Implications for Africa', *International Affairs* 83(6): 1141-54.
- Burke, M.B., Miguel, E., Satyanth, S., Dykema, J.A. and Lobell, D.B. (2009) 'Warming Increases the Risk of Civil War in Africa', *Proceedings of the National Academy of Sciences*, 106(49), December 8: 20670-20674.
- Buzan, B. (1991) *People, States, and Fear: An Agenda for International Security Studies in the Post-Cold War Era* (New York: Havester Wheatsheaf).
- Buzan, B., Waever, O. and De Wilde, J. (1998) *Security: A New Framework for Analysis* (Boulder, CO: Lynne Rienner).
- Caney, S. (2005) *Justice Beyond Borders* (Oxford: Oxford University Press, 2005)
- Connolly, W.E. (1993), *The Terms of Political Discourse*, Oxford: Blackwell.
- Dabelko, G. and D. Dabelko (1995), 'Environmental security: issues of conflict and redefinition', *Environmental Change and Security Project Report*, Washington, DC: the Woodrow Wilson Center. Vol. Spring, 3-13.
- Dalby, S. (2008) *Security Studies: An Introduction* (London: Routledge).
- De Wilde, J.H. (2008) 'Environmental Security Deconstructed', in H.G. Brauch (ed) *Globalization and Environmental Challenges (Volume 3)* (Berlin: Springer): 595-602.
- Deudney, D. H. (1999) 'Environmental security: A critique', in D.H. Deudney and R.M. Matthew, *Contested grounds: Security and conflict in the new environmental politics* (Albany, NY: State University of New York Press): 187-222.

- Deudney, D.H. (1990) 'The case against linking environmental degradation and national security', *Millennium: Journal of International Studies* 19(3):461-76.
- Deudney, D.H. (1991), 'Environment and security: muddled thinking', *The Bulletin of Atomic Scientists*, April, 22-28.
- Dworkin, R. (2000) 'Justice and the High Cost of Health', in R.Dworkin *Sovereign Virtue* (Cambridge, MA: Harvard University Press): 307-19.
- Dyer, G. (2008) *Climate Wars* (Toronto: Random House).
- Elliot, L. (1996), 'Environmental conflict: reviewing the arguments', *Journal of Environment and Development*, 5 (2), 149-67.
- European Commission (2008) *Climate Change and International Security*: http://www.consilium.europa.eu/ueDocs/cms_Data/docs/pressdata/EN/reports/99387.pdf.
- Gallie, W.B. (1956), 'Essentially contested concepts', *Proceeding of the Aristotelian Society*, 56, 167-98.
- Gaspar, D. (2005) Securing Humanity: Situating 'Human Security' as Concept and Discourse, *Journal of Human Development*, 6(2): 221-45.
- Gleditsch, N.P. (1997), 'Environmental conflict and the democratic peace', in N.-P. Gleditsch (ed.), *Conflict and the Environment*, Dordrecht: Kluwer, pp. 91-106.
- Gleditsch, N.P. (1998), 'Armed conflict and the environment: a critique of the literature', *Journal of Peace Research*, 35 (3), 381-400.
- Goldsworthy, H. (2010) 'Women, Global Environmental Change, and Human Security', in R.Matthew, J.Barnett, B.McDonald, and K.L .O'Brien, K.L eds, *Global Environmental Change and Human Security* (Cambridge, MA: MIT Press):215-36.
- Gosseries, A. and Meyer, A. (2009) *Intergenerational Justice* (Oxford: Oxford University Press).
- Gyabaah, K.N. (2002), 'Human security and the environment in Sub-Saharan Africa: the challenge of the new millennium', in E. Page and M.R.R. Redclift (eds), *Human Security and the Environment*, Cheltenham: Edward Elgar, pp. 224-43.
- Gyabaah, K.N. (2010) 'Human Security as a Prerequisite for Development', in R.Matthew, J.Barnett, B.McDonald, and K.L .O'Brien, K.L (eds) *Global Environmental Change and Human Security* (Cambridge, MA: MIT Press): 237-60.
- Swift, A. (2004) 'The Morality of School Choice', *Theory and Research in Education*, 2(1): 7-21.
- Hayward, T. (2004) *Constitutional Environmental Rights* (Oxford: Oxford University Press)
- Homer-Dixon, T. (1991), 'On the threshold: environmental changes a causes of acute conflict', *International Security*, 16 (2), 18-23.
- Homer-Dixon, T. (1994) 'Environmental scarcities and violent conflict: evidence from cases', *International Security*, 19 (1), 5-40.

- Homer-Dixon, T. (1999), *Environment, Security and Violence*, Princeton: Princeton University Press.
- Homer-Dixon, T. (2000) *The Ingenuity Gap: Facing the Economic, Environmental and Other Challenges of an Increasingly Complex and Unpredictable Future* (New York; Vintage)
- Homer-Dixon, T. (2006) *The Upside of Down* (Washington, DC: Island Press).
- Homer-Dixon, T. (2007) 'Terror in the Weather Forecast', New York Times, 24 April: 1-2 (<http://www.nytimes.com/2007/04/24/opinion/24homer-dixon.html>).
- IPCC (2001), *Climate Change 2001: Impacts, Adaptation, and Vulnerability*, Cambridge: Cambridge University Press.
- Kaplan, A. (1994) 'The Coming Anarchy', *The Atlantic Monthly*, 273(2): 44-76.
- King, D.A. (2004) 'Climate Change Science: Adapt, Mitigate, or Ignore?', *Science* 303, 9 January: 176-7.
- Levy, M. (1995), 'Time for a third wave of environment and security scholarship?', *Environmental Change and Security Project Report*, Washington, DC: the Woodrow Wilson Center. Vol. Spring, 44-46.
- Matthew, R.A. (1997), 'Rethinking environmental security', in N.-P. Gleditsch (ed.), *Conflict and the Environment*, Dordrecht: Kluwer, pp. 71-90.
- Matthew, R.A. (2002), 'Human security and the environment: the North American perspective', in E. Page and M.R.R. Redclift (eds), *Human Security and the Environment*, Cheltenham: Edward Elgar, pp. 199-223.
- Matthew, R.A. and Upreti, B.R. (2010) 'Environmental Change and Human Security in Nepal', in R. Matthew, J. Barnett, B. McDonald, and K.L. O'Brien, K.L. (eds), *Global Environmental Change and Human Security* (Cambridge, MA: MIT Press): 137-54.
- Myers, N. (1993), *Ultimate Security*, New York: Norton.
- Norhås, R. And Gleditsch, N.P. (2007) 'Climate Change and Conflict, Political Geography 26(6): 627-38.'
- O'Brien, K.L. and Leichenko, R.M. (2010) 'Global Environmental Change, Equity and Human Security' in R. Matthew, J. Barnett, B. McDonald, and K.L. O'Brien, K.L. eds, *Global Environmental Change and Human Security* (Cambridge, MA: MIT Press): 157-76.
- O'Neill, O. (2000) *Bounds of Justice* (Cambridge: Cambridge University Press, 2000).
- Ogata, S. and Sen, A. (2003) *Human Security Now* (New York: United Nations Commission on Human Development): <http://www.humansecurity-chs.org/finalreport/index.html>.
- Page, E.A. (2002) 'Human Security and the Environment' in E. Page and M.R.R. Redclift (eds), *Human Security and the Environment* (Cheltenham: Edward Elgar): 27-44.
- Page, E.A. (2003) 'Environmental Security', in E.A. Page and J.L.R. Proops (eds) *Environmental Thought* (Cheltenham: Edward Elgar): 173-90.

- Page, E.A. (2006) *Climate Change, Justice and Future Generations* (Cheltenham: Edward Elgar).
- Page, E.A. (2011) 'Political Theory and Greenhouse Emissions Trading', *Critical Review of International Social and Political Philosophy*, forthcoming.
- Parry, M.L., Canziani, J.P. and Palutikof, J.P. (2007) 'Technical Summary', in M.Parry, O. Canziani, J.P. Palutikof, P. van der Linden and C. Hanson (eds.) *Climate Change 2007: Impacts, Adaptation and Vulnerability*. Cambridge: Cambridge University Press, pp.23-78.
- Percival, V. and T. Homer-Dixon (1998), 'Environmental scarcity and violent conflict: the case of South Africa', *Journal of Peace Research*, 35 (3), 279-298.
- Pumphrey, C. (ed) (2007) *Global Climate Change: National Security Implications* (Carlisle, PA: Strategi Studies Institute, US Army War College).
- Reuveny, R. (2007) 'Climate change-induced migration and violent conflict', *Political Geography* 26(6): 656-73.
- Salehyan, I. (2008) 'From Climate Change to Conflict: No Consensus Yet', *Journal of Peace Research*, 45(3): 315-26.
- Schwartz, D.M., Deligiannis, T. and Homer-Dixon, T. F. (2000) 'The Environment and Violent Conflict: A Response to Gleditsch's Critique and Some Suggestions for Future research', *Environmental Change and Security Project Programme Report*, 6: 77-94.
- Schwartz, P. and Randall, D. (2003) *An Abrupt Climate Change Scenario and its Implications for United States national Security* (Washington, DC: Environmental Media Services): http://oco.jpl.nasa.gov/pubs/Abrupt_Climate_Change_Scenario.pdf.
- Soroos, M.S. (2010) 'Approaches to Enhancing Human Security' in R.Matthew, J.Barnett, B.McDonald, and K.L .O'Brien, K.L eds, *Global Environmental Change and Human Security* (Cambridge, MA: MIT Press): 177-192.
- Stripple, J. (2002), 'Climate change as a security issue', in E. Page and M.M.R. Redclift (eds), *Human Security and the Environment*, Cheltenham: Edward Elgar, pp. 105-27.
- Stritzel, H. (2007) 'Towards a Theory of Securitization: Copenhagen and Beyond', *European Journal of International Relations*, 13(3): 357-83.
- Swift, A. (2004) 'The Morality of School Choice', *Theory and Research in Education*, 2(1): 7-21.
- Hayward, T. (2004) *Constitutional Environmental Rights* (Oxford: Oxford University Press)
- Trombetta, M.J. (2008) 'Environmental Security and Climate Change: Analysing the Discourse', *Cambridge Review of International Affairs*, 21(4): 585-602.
- Ullman, R. (1983), 'Redefining security', *International Security*, 8 (1), 129-53.
- United Nations Development Programme (UNDP) (1994) *Human Development Report* (Geneva: United Nations):
- United Nations Development Programme (UNDP) (2007) *Human Development Report*

- 2007/2008: *Fighting Climate Change: Human solidarity in a divided world* (Basingstoke: Palgrave).
- United States Government (2010a) *Quadrennial Defense Review Report* (Washington, DC: Department of Defense): http://www.defense.gov/qdr/images/QDR_as_of_12Feb10_1000.pdf
- United States Government (2010b) *National Security Strategy* (Washington, DC: The White House).
- Waever, O. (1995), 'Securitization and Desecuritization', in R. Lipschutz (ed.), *On Security* (New York: Columbia University Press): 46-86.
- WCED (1987), *Our Common Future*, Oxford: Oxford University Press.

¹ De Wilde, for example, describes human security as 'the latest buzz word repeating the same diagnosis without offering the cure' (De Wilde, 2008: 599).

² Environmental stress brings about national insecurity *directly* when it 'results directly in the significant loss of life or welfare ... or otherwise impairs our most important national values'; and *indirectly* when it degrades a state's most important values through an intervening degradation of political and economic variables (Levy, 1995: 46). See also Percival and Homer-Dixon (1998: 297-98).

³ Burke *et al* (2009: 20670) go as far as claiming that climate change could be expected to cause a 54 per cent increase in the incidence of armed conflict in Africa (and an extra 393,000 battle deaths) by 2030 by 2030.

⁴ The report goes on to identify the Arctic, Latin America, Africa, Central Asia, the Middle East and South Asia as most at risk from climate induced violent conflict (European Commission, 2008)

⁵ The main conceptual and methodological objections to the environmental scarcity/violence thesis are usefully described in Gleditsch (1998) Nordhås and Gleditsch (2007). Homer-Dixon and associates respond to these objections in Schwartz, Deligiannis and Homer-Dixon, 2000; and Homer-Dixon, 2000: 169-76.

⁶ Barnett, 2003: 10; Reuveney, 2007; Barnett and Adger, 2007: 646.

⁷ Levy, 1995: 56; See also Gleditsch, 1998.

⁸ See Pumphrey (ed) 2008; Brown and McLeman, 2009; Burke *et al*, 2009; and Dyer, 2008 for a defence of the environment/violent conflict thesis. See Salehyan, 2008; Nordås and Gleditsch, 2007; and Buhaug (2010) for critique of the thesis.

⁹ A similar, broadly state-centric, expression of environmental insecurity can be found in *Our Common Future* (WCED, 1987). The authors write that: 'The whole notion of security as traditionally understood - in terms of political and military threats to national sovereignty - must be expanded to include the growing impacts of environmental stress - locally, nationally, regionally, and globally. There are no military solutions to 'environmental insecurity' (WCED, 1987: 19).

¹⁰ The use of the concepts of breadth and depth to characterise the different conceptions of environmental security is drawn from Barnett (2000: 48-9).

¹¹ The Global Environmental Change and Human Security (GECHS) project is an international interdisciplinary research forum designed to advance research and policy efforts in the area of human security and global environmental change. It has an extensive web site at <http://www.gechs.org>.

¹² Details of the Commission on Human Security's 2003 report are available on the United Nations Human Security Unit (HSU) web site: <http://ochaonline.un.org/Home/tabid/2097/language/en-US/Default.aspx>. The HSU was established in September 2004 under the auspices of the United Nations Office for the Coordination of Humanitarian Affairs and is charged with placing human security 'in the mainstream of UN activities.'

¹³ Buzan, Wæverand De Wilde, 1998: 76.

¹⁴ Buzan, 1991: 19-20. See also Buzan, Wæverand De Wilde, 1998: 75; De Wilde, 2008: 600.

¹⁵ In this sense, proponents of security re-conceptualisation have generally been far more conservative in their discussion of the referent objects than they have been on security threats. Few have argued, for example, that animals, environmental objects, species or biological systems can coherently be viewed as referent objects as such. Instead, these entities are valued because of their mediating role in the production of human well-being and security. However, at the conceptual level, the direct extension of 'deep green' theories of environmental ethics is that the environment itself should be secured from human modifications of the biosphere. There are two main possibilities through which this 'ecological security' discourse might be developed. According to *biocentric security*, all living entities should be viewed, alongside human agents, as the referent objects of ethics and security. The idea is that ethical and security status should be attributed to all organisms that can be said to possess interests in the sense that their lives can go better or worse in response to external stimuli. According to *ecocentric security*, our ethical and security concerns should extend beyond living things in order to protect the biological and physical systems (such as the carbon cycle) even if this requires sacrificing human interests to do so (see Page, 2006: 139-40).

¹⁶ The conflictual logic of security is outlined by De Wilde (2009: 600): 'securitising moves point at an entity that is threatened (referent object 1) but also at an entity that is causing the threat (referent object 2). To preserve the quality of referent object 1, referent object 2 is requested to pay a price. This results in conflict. The environmental security discourse therefore always implies a struggle between groups in society.'

¹⁷ See Page, 2006: 50-2. Social justice is a complex concept but, at bottom, it concerns the normative question of how benefits and burdens should be distributed amongst agents with competing claims. As such, it involves both the specification of the entitlements that people have; the obligations that persons or other agents possess to respect these entitlements; and the procedural protections that mean that these distributions can be justified to the agents to whom they apply.

¹⁸ This is the strong version of the argument. The weaker version of the argument is that environmental/human security analyses hitherto have yet to answer some of these questions adequately.

¹⁹ It is notable in this regard that, whereas the currency of 'capabilities to function' remains popular amongst human/environmental security theorists, it has fallen largely out of fashion amongst many normative political theorists. See page (2006: 71ff) for further background on this debate.

²⁰ At the time of writing, 'intergenerational security' registered just over one million entries on the <Google.com> search engine, overwhelmingly focused on issues of pension and social service provision.

²¹ Some of the problems associated with defining the appropriate spatial scope of justice are well summarised by Simon Caney (2005: 102-147) and Onora O'Neill (2000:186-202). For the key problems associated with defining the appropriate temporal scope of justice, see Gosseries and Meyer (2010); Page (2006: 99-160).

²² Seminal contributions to policy relevant normative ethics include Dworkin (2000) on just health policy; Swift (2004) on just education policy; and Hayward (2000) on constitutional environmental rights. The author is currently working on a policy relevant normative analysis of global emissions trading (see Page, 2011).