

The Essential Condition

Environmental Threats, Human Vulnerability, and
Global Insecurity

Wilfrid Greaves

Dr. Rob Huebert

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Introduction

The field of security studies has grappled for decades with the issue of whether environmental threats are an appropriate addition to the mainstream security discourse. Opinions on the subject have often been varied, divisive, and deeply held, yet gradually a consensus has emerged that the environmental sector is an essential component of contemporary security studies. As such, environmental threats deserve to be treated appropriately by scholars and policy-makers alike. Less certain, however, is precisely what this emergent consensus means given that conflictual definitions of security, threats, and the environment are themselves the subjects of contention. It is of little practical utility to agree that environmental threats are an appropriate part of the security studies field when there is still considerable debate over the nature and scope of that field, the referent objects whose security it should examine, and the nature of the threats which those referents can face. These debates tend to fall along the familiar cleavage of the broader traditional versus critical debate in international relations theory. Proponents of the traditional debate advocate a rationalist framework of material threats to state security, while critical scholars emphasize an alternative understanding of multi-sectoral threats to a scale-dependent variety of referent objects. While there may be no consensus on the subject of environmental security, a strong argument can be made in support of its rightful inclusion within security analysis regardless of which theoretical framework of international relations is employed.

This paper investigates two central questions. The first is whether there is indeed an appropriate place for environmental threats to security within security studies, and whether such a place exists regardless of whether one chooses to employ a traditional or alternative conception of security. Security threats to *all* referent objects can arise from any one of the

five principle sectors of security analysis: military, political, economic, societal, and environmental. State-centric traditional security will be examined in terms of its theoretical underpinnings, and with respect to whether environmental threats can pose both direct and indirect threats to states and their national interests. Likewise, alternative understandings of security, in particular the anthropocentric focus of the human security paradigm, will be examined in terms of their theoretical background and the theoretical acceptance of environmental threats within their analysis. The security of individuals and human collectivities will be examined to see whether it can be threatened directly by the environment, indirectly by the environment, or indirectly by the affects of the environment upon the security-provision capabilities of the state and its institutions.

The second central question of this paper is whether the environment should be understood as more than just one of five equal sectors of security analysis. Particularly with respect to the localized and global impacts of climate change, the question is whether the environment can be understood in terms of constituting a meta-threat to the security of both traditional and alternative referent objects. A destabilized global environment could conceivably constitute the definitive condition of insecurity for both state and non-state objects of analysis: without the maintenance of a sustainable biosphere, it is possible that no lasting security is achievable in any of the other sectors of security analysis. Concordantly, a stable global environment may be viewed as the essential condition for the provision of security in all other sectors. If it were, in fact, a higher order requirement for security, the specific environmental threat of global climate change would demand a privileged analysis in the same way as that afforded the specific military threat of nuclear destruction. The potentially existential nature of these two threats would require that they be treated separately

from other security analysis. While this understanding is commonplace in the nuclear instance, this paper will investigate whether similar privileged treatment must be employed to accurately assess the nature of climate change as a threat to security.

Security and the Environment

Foundational Concepts

Before further examination of environmental security is possible, it is necessary to clarify and define a variety of essential concepts. Given that the traditional and alternative paradigms of security sometimes employ radically different interpretations of security and insecurity, it is understandably difficult to find a definition of this most basic idea which is compatible with both. Accordingly, a specific understanding of ‘security’ will be defined for each of the two subsequent sections on the compatibility of environmental threats with both traditional and alternative frameworks. However, the major distinctions between traditional and alternative definitions centre on disagreement over the appropriate *referent* of security analysis, not the fundamental nature of security itself. Both paradigms take as their starting point that “security is about survival. It is when an issue is presented as posing an existential threat to a designated referent object” that survival is at stake and the referent’s security is said to be threatened (Buzan et al 1998: 21). Framed a different way, it can be said that “preservation of life is the essence of security,” (Ullman 1983: 16) with ‘life’ being understood to refer to the continued existence of the referent object, be it a state, sub-state, or individual actor. This shared emphasis upon survival provides valuable common ground upon which to build an understanding of environmental threats to security.

Acknowledging security as being linked to survival indicates that both theoretical paradigms are compatible with an understanding of security as being ‘broadly’ defined. If the focus of security is upon survival, then by extension a security threat can arise from any source capable of endangering the survival of a referent object. Both state- and anthropocentric security frameworks share an understanding that their respective referent objects can be threatened from multiple sources. These sources usually overlap with the five sectors commonly identified within security studies: military, political, economic, societal, and environmental (Nef 1999; Buzan et al 1998; UNDP 1994; Buzan 1991). These sectors are neither exhaustive nor mutually exclusive, but should be understood to exist in an overlapping and mutually reinforcing arrangement of multi-sectoral threats to security. Threats which arise in one sector may pose a danger in another, or be effectively addressed by action in a different sector. In many situations, these threats are mutually constitutive or engaged in a feedback cycle of insecurity similar to the classical security dilemma. There is often a reinforcing relationship between the emergence of threats in one sector and the exacerbation or creation of threats in another. As explained by one scholar, “security threats emerge as a direct consequence of dysfunctional regimes in their multiple, though overlapping, subsystemic dimensions” (Nef 1999: 26). Because of this emphasis on the multi-sectoral nature of security, both traditional and alternative frameworks of security can be understood as ‘broad’ in scope, but only the alternative understanding of security is ‘deep’ in its examination of different referent objects of security at different levels of analysis. The alternative security framework is thus ‘scale-dependent’, as exactly what object’s security is being examined will vary across time and space depending upon the unit of analysis employed within a specific security context.

Specific to one of these sectors of security analysis, environmental security is a concept which, though lacking a comprehensive definition, is conceptually applicable to both theoretical frameworks of understanding. Indeed, “there is growing acceptance today of the proposition that the environment and security are indissolubly linked” (Foster 2001: 374). Unsurprisingly, at the core of environmental security is the natural environment itself, understood as “biological or physical systems characterized either by significant ecological feedbacks or by their importance to the sustenance of human life” (Levy 1995: 35). Any agent, process, or event rooted in these biophysical systems or engaged in the ecological feedback loop thus constitutes a part of the environment. By extension, environmental security would encompass any threat to a referent object arising from within these biophysical systems or engaged in the feedback cycle. If the ideal for all systems, particularly organic ones, is a condition of homeostasis – the maintenance of internal stability and coherence – then environmental security “concerns the maintenance of the local and planetary biosphere as the essential support system on which all other human enterprises depend” (Buzan 1991: 19). However, an essential distinction must be made between the environment as a *source* of threat and as an *object* of threat itself. In this paper, environmental security does not examine the natural environment as an object of analysis. The exception to this is only insofar as a threat to the natural environment can also threaten a designated referent object: within traditional security – states; within alternative security - individuals and human collectivities.

The mutually constitutive nature of security makes it “necessary to recognize that security may be defined not merely as a goal but as a consequence” (Ullman 1983: 19). Decisions made in the military, political, economic, or societal sectors can impact security threats in the environmental sector, and vice versa. The environment is capable of directly

threatening a referent object, as in the case of natural disasters, resource scarcity, or changes to the global biosphere. Alternatively, it can be a source of indirect threat by acting as a causal or catalytic factor in the formulation of another threat, as in the case of scarcity-driven violence, resource-depletion resulting in mass migration, or global climate change fuelling wealth disparities between the developed and developing world. Within a conception of security in which “survival remains the base value of global politics, indeed, of all human agency,” (Nef 1999: 19) environmental security is relevant because of the fundamental causal relationship that exists between the natural environment and the ongoing conditions for human existence. The role of the environment in enabling human life and enterprise, including the state-based international system, inevitably establishes it as a primary factor in the maintenance of that life and of those enterprises. In short, “environmental conditions may underlie and contribute to political, social, and economic conditions having strategic and even military consequences . . . [just as] the state of the environment inevitably and invariably affects human well-being” (Foster 2001: 374).

Within these descending layers of analysis – from security, to the environmental sector, to environmental threats – it is necessary to define one final concept. Climate changes, both localized and on a global scale, are of specific importance towards analyzing environmental threats within the traditional and alternative frameworks. In this paper, “climate change [is] understood as an ongoing and complex pattern of changes in the composition of the earth’s atmosphere arising from human activity or natural variability” (Page 2007: 225). It acts as a major catalytic and multiplying factor in the formulation of other environmental threats, and has such varied manifestations that it is difficult to adequately conceive of as a single security threat. As will be examined in greater detail, the existential

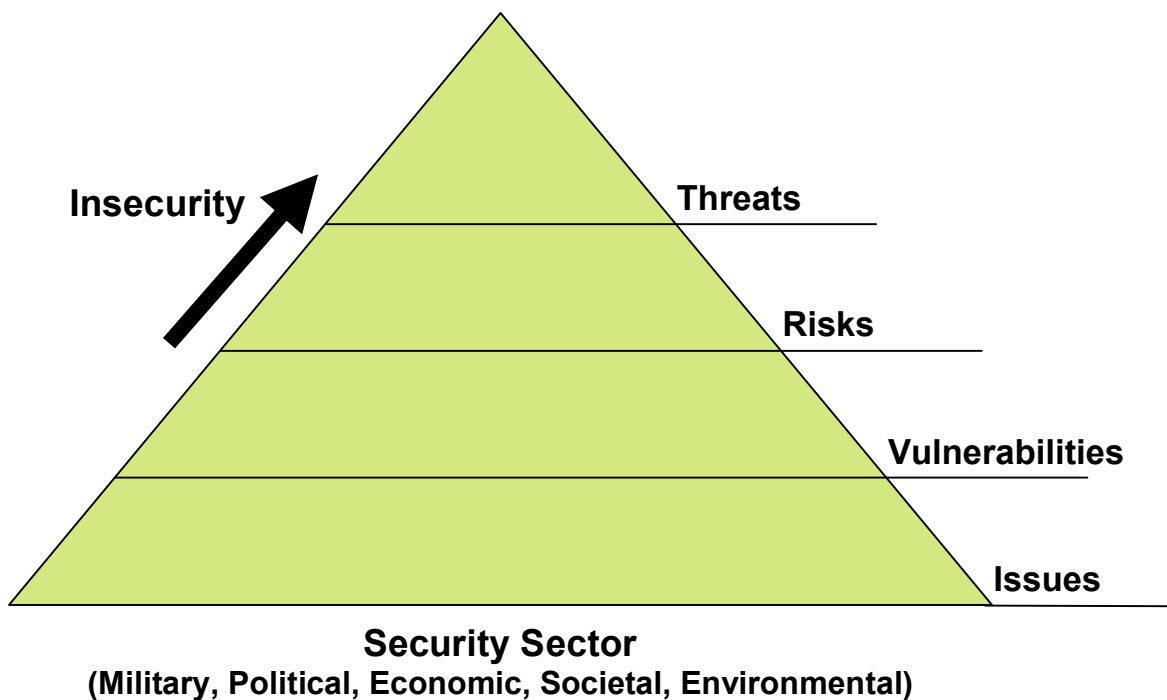
nature of climate change means that it must be treated as a meta-threat originating from within the environmental sector, capable of threatening the survival of *every* referent object by virtue of its potential to extinguish humanity, erase its accomplishments, and render uninhabitable the entirety of the very planet. With respect to potential dispute over whether current climate change is anthropogenic in origin, the purpose of this paper is not to enter the fray with regards to the origins of climate change, merely to examine the resulting security implications. As such, the definition employed above does not presume knowledge of the ultimate source of climate change, only accepting as fact that since “warming of the climate system is unequivocal,” (IPCC 2007: 30) such change is occurring. The essential significance of climate change, indeed, of environmental security as a whole, is the acknowledgment that “nature matters: we’re not separate from it, we’re dependent on it, and when there’s trouble in nature, there’s trouble in society” (Homer-Dixon 2006: 13).

The Insecurity Pyramid

Within the parameters outlined above, a serious conceptual problem exists, however, in the assertion of a single state of security, defined as the absence of threats to survival. Absolute security is an illusion, an ephemeral goal equally unattainable for both states and individuals. Rather, what exist are levels of security determined by a referent object’s degree of exposure to issues which could conceivably imperil its survival. Such security issues progress from the level of potentially conceivable danger to the ultimate level of imminent and recognizable threat, with a corresponding increase in the level of insecurity facing the referent. Lest anything that could potentially pose a threat to security be perceived as a threat, a clearly impractical analytic framework, it is necessary to employ various levels of security measured

against a common framework of security analysis. These levels allow for a distinction to be drawn between security issues which pose greater or lesser threats to the continued existence – survival – of a designated referent object. Additionally, and specific to the environment sector of analysis, it provides an effective means of distinguishing whether an environmental threat is direct, or whether the environment is performing a causal or catalytic function on the formulation of a different threat.

Figure 1: The (In)Security Pyramid

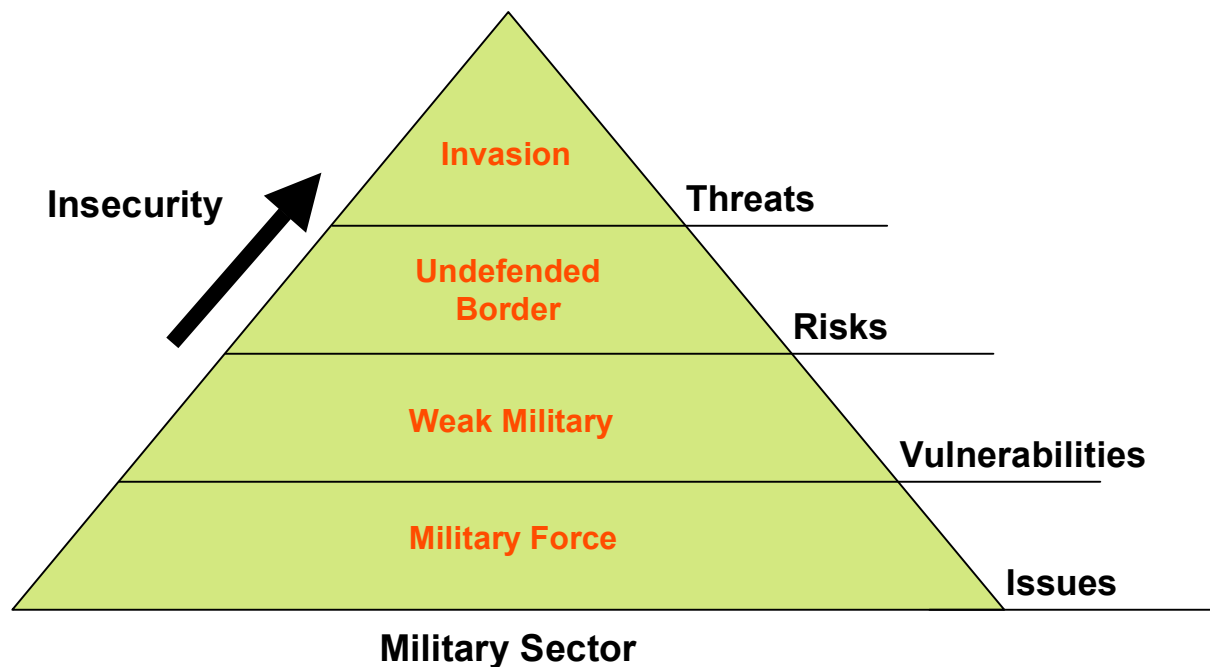


As illustrated in Figure 1, dangers to security can be divided into four categories: issues, vulnerabilities, risks, and threats. Collectively, these categories can be understood as security *hazards*. Each successive level of insecurity constitutes a greater likelihood of danger to the survival of the referent object; the referent’s overall level of security decreases the higher an issue ascends the pyramid. In this way, security and insecurity are understood as

indefinite and fluid states of existence, rather than as absolutes. Conceived as such, “security is a value, then, of which a [referent object] can have more or less and which can aspire to have in greater or lesser measure . . . A [referent’s] security can run a wide gamut from almost complete insecurity or sense of insecurity at one pole, to almost complete security or absence of fear at the other” (Wolfers 1952: 484-485). An important point here is the necessary construction of a threat to security, the *sense* of being either secure or insecure. As explained below, it is necessary for the referent object to be aware of a danger as a threat to its survival in order for that danger to be elevated to the highest point of the insecurity pyramid, that of security threat.

At the base of the pyramid are security *issues*, understood as all factors within a given sector of security analysis, which under adverse circumstances or given sufficient catalysis have the potential to endanger the survival of a referent object. It is a deliberately vague and unspecified category of danger, by necessity broad enough to encompass the numerous potential sources of threat to security. However, by themselves issues are not cause for significant concern, nor are they able to be independently securitized. Take one basic example, illustrated in Figure 2, that of a classic situation of interstate war. Whereas the security threat exists in the form of hostile invasion by a foreign power, the underlying security issue is the use of military force. In and of itself, military force is difficult to securitize, since it provides both the basis for the security threat and the response to it. The issue provides a means of understanding the origins of a security threat, and lays the parameters for such a threat’s determination.

Figure 2: Traditional Security Analysis



Vulnerability is the next level of danger within the security pyramid, but does not necessarily share a linear relationship with the more basic security issue. A vulnerability is also a broad concept, consisting of a phenomenon not clearly perceived, often not well understood, but recognized as posing a potential threat to security. If the issue defines the parameters of a threat, then the vulnerability begins to give it shape. However, “a vulnerability is often only an indicator, often not clearly identifiable, often linked to a complex of interdependence among related issues, and does not always suggest a correct or even adequate response” (Liotta 2005: 51). Referring to the example in Figure 2, if the relevant security issue is the use of military force, then a vulnerability might be a state’s possession of a weak military. The relative danger to a referent’s security posed by a particular vulnerability is thus determined by the respective security issue. In a context in which military force is *not*

an issue – were the use of force between states to be effectively and enforcedly outlawed, for example – a weak military does not constitute a vulnerability. The issue plays a key role in the determination of a vulnerability, although given the multi-sectoral nature of security analysis, issues in one sector can create define vulnerabilities in another. However, “in every sphere of policy and action, security increases as vulnerability decreases” (Ullman 1983: 32). With specific respect to the environmental sector, vulnerability can be defined as “the characteristics of a person or group in terms of their capacity to anticipate, cope with, resist and recover from the impacts of natural hazards” (Blaikie et al 1994: 9). This definition is of particular value to an analysis of environmental security because it captures the preventive, mitigative, and reactive aspects of vulnerability, all of which are necessary to assess the staggered temporal impacts of environmental disasters.

Ascending further up the pyramid, the next level of insecurity is *risk*, defined as factors which lead to an increased likelihood of the realization of a vulnerability. In and of themselves, vulnerabilities do not necessarily pose a significant danger to security; most referent objects are frequently vulnerable to issues which have an extremely low probability of occurring. A security risk exists at the confluence of two or more vulnerabilities, which results in an increased probability that a referent object will be exposed to danger. Building upon our example, the vulnerability of a state due to its weak military contributes to a security risk if that state also possesses an undefended border. As indicated earlier, a weak military need not constitute a vulnerability; even if it does, it requires the presence of another vulnerability, in this case an undefended border, to elevate its level of potential danger to that of security risk. Since a risk is the product of two or more prior vulnerabilities, it can be reduced by addressing either of the constituent vulnerabilities: in this case, garrisoning the

border, or improving the quality of the military to adequately respond to an invasion. In either case, the risk is eliminated, although depending upon the action undertaken a level of vulnerability may remain. This dynamism between vulnerability and risk is especially relevant to environmental security, where vulnerabilities are often intractable, but risks can be mitigated.

The highest level of the pyramid, and the correspondingly greatest level of insecurity, is that of a security *threat*. This has been defined as “an external cause of harm: identifiable, often immediate, which requires an understandable response” (Liotta and Owen 2006: 45). External in this context should be understood to mean exogenous to the referent object, although, in the case of environmental security, there exists a potential conflict given that actors can be, and often are, responsible for the sources of their own insecurity. For instance, to complete the example found in Figure 2, the state-centric security threat likely to arise from the issue of military force, the vulnerability of a weak military, and the risk of an undefended border is that of military invasion. In such a case, though, it is possible to suggest that the state being invaded is partly responsible for its situation given its own negative contribution towards providing for its own security. While the rising threat of invasion certainly constitutes an ‘external cause of harm’, the broader conditions of insecurity are ones to which the receiving state has been a passive contributor by failing to mitigate its vulnerability or address a security risk.

However, central to understanding security threats is the emphasis in the above definition upon the levels of recognition, reaction, and response necessary for a security threat to exist. First, a threat must be identifiable, that is the danger it poses to a referent object must be readily apparent. An important corollary to this is that security threats are often socially

constructed; an issue gets ‘securitized’, following which it “becomes a security issue – not necessarily because a real existential threat exists, but because the issue is presented as such a threat” (Buzan et al 1998: 24). Conversely, objective threats to a referent object’s security can exist and yet fail to be securitized, resulting in an absence of sufficient action. The determination of what constitutes a security threat is consistently complicated by political factors, which inject outside values to an objective security analysis. This is because of the policy implications once an “issue is presented as an existential threat, requiring emergency measures and justifying actions outside the normal bounds of political procedure” (Buzan et al 1998: 23-24).

In addition to the identification and designation of security threats, there is a temporal consideration, a need to consider when a threat will manifest itself to endanger the survival of a particular referent object. One blithe example would be construing the act of being born as a threat to security because it will inevitably result in death. A more serious facet of the same question might ask at what point a terminal disease becomes defined as a security threat to the individual, given that various fatal diseases have differing impacts upon life expectancy. An example of the significance of immediacy to the determination of a threat can be found within the military sector of security studies and the argument surrounding the legitimacy of pre-emptive war. The historical standard held that pre-emptive violence could only be justified if there was “a necessity of self-defence . . . instant, overwhelming, leaving no choice of means, and no moment for deliberation” (in Bowett 1958: 59). In short, a threat needed to be imminent and obvious, the pre-emption nothing more than “respond[ing] to an attack once we had seen it coming but before we had felt its impact” (Walzer 2006: 74). Were one to apply this to security studies writ large, a threat would need to not only imperil the existence of a

referent object, but also be on the verge, or in the midst, of actually doing so. Noted just war theorist, Michael Walzer, contests this limitation of military pre-emption, however, and it is possible to apply his objection more generally within security analysis in order to prevent too strict a temporal determination of threat. To Walzer, a reasonable line “is not going to be drawn at the point of imminent attack, but at the point of sufficient threat [to the state] . . . [including] a general situation in which waiting, or doing anything other than [acting], greatly magnifies the risk” (Walzer 2006: 81). Such an understanding of the temporal definition of a threat has considerable validity within security studies, especially within the environmental sector where the impacts of environmental threats are not always immediate.

Finally, a threat must have an understandable response. The emphasis on ‘response’ is not to suggest that a referent object necessarily knows the best way to defend itself against a security threat. Rather, the designation of a security risk as a ‘threat’ requires that the referent object at least attempt to take exceptional action in order to ensure its continued survival. There are strong normative elements to the designation of a security threat, since “crises call for resolution, and the patience of a mobilised populace is rarely long” (Deudney 1990: 466). This understanding of threat presumes a degree of rationality regarding the decision-making processes of the security referent, an assumption of self-knowledge that without resorting to exceptional action it risks elimination. However, almost all referent objects have a degree of self-awareness which enables them to respond to perceived threats. Within the traditional security framework, such a response mechanism is clearly evident within states, and within the alternative framework it exists in different ways in all manner of referent objects. Perhaps without exception, security studies analyses the prospects of survival of referent objects that possess an intrinsic valuation of their own existence.

Traditional Security and Environmental Threats

Understanding the Traditional

In this paper, ‘traditional’ security is understood to mean conceptions of security which take as their referent object the state, and which have historically privileged military threats over all others. These conceptions have generally fallen within the rationalist theoretical paradigm, particularly its realist variant, and have typically eschewed threats or vulnerabilities arising in other sectors. However, there is nothing within the rationalist framework which necessarily obviates the validity of environmental security or of environmental threats to the state. In fact, by employing any of several well-established understandings of ‘national’ – i.e. state – security, there is ample room for the inclusion of non-military threats to state security, paramount among them being in the environmental sector. Taken to their logical conclusion, these rational understandings of state security and national interests even require that environmental hazards be included within security analysis given the increasing level of insecurity which they pose to states.

The rationalist paradigm of security has typically privileged definitions of security that emphasize the central role of the military and the use of force. The most famous encapsulation of this framework is likely the postulation by Stephen Walt that “security studies may be defined as the study of the threat, use and control of military force” (1991: 212). His avowed intention is to limit the scope of security in order to retain the discipline’s internal coherence and policy applicability. However, this definition is irredeemably limited given the more general understanding previously established in this paper that security is focused upon the survival of the referent object. Survival, it is clear, can be threatened in

more ways than military force. The restrictions Walt imposes upon the study of security stem from a Cold War mentality in which the use of military force, because of the ultimate potential for conflict to devolve to the use of nuclear weapons, took analytic primacy. Concurrent to Cold War bipolarity, the scale of most environmental degradation was too small, and the level of knowledge surrounding global climate change too undeveloped, to warrant the inclusion of environmental security within the mainstream discourse. It was, thus, only in the late 1980s “with the waning of the ideological and military confrontation between the superpowers [that] a space for other issues opened in public discourse . . . [matching] a genuine shift in the scientific community’s perception of global environmental problems” (Homer-Dixon 1991: 79). The increased relevance of environmental issues to the maintenance of state and global security thus emerged towards the end of the Cold War, invalidating Walt’s attempt to narrow the scope of the field by way of definitional fiat.

Even prior to the end of the Cold War, there was longstanding recognition that security need not be limited to military issues, a position articulated most clearly, at times, by ardent proponents of a statist framework. These individuals contended that the rationalist drive of states to maximize their relative gains within an anarchic international system was not exclusively driven by military concerns. Within this model, the state is certainly primary, but the emphasis on the military was a function of the principle source of insecurity during the Cold War, the threat of nuclear annihilation. One prominent example is structural realist Kenneth Waltz, who wrote: “in anarchy, security is the highest end. Only if survival is assured can states seek such other goals as tranquility, profit, and power” (1979: 126). Waltz, unlike Walt, makes no distinction between continued existence as a result of different sources of threat, and appears willing to securitize anything which endangers the survival of the state.

He recognizes that survival is the precondition for the satisfaction of all other needs and the pursuit of all other wants, and that threats to survival are of equivalent validity regardless of their sector of origin.

A more expansive version of this understanding can be found in the work of Arnold Wolfers, who posited that “security, in an objective sense, measures the absence of threats to acquired values” (1952: 485). These values can be ideational, as in the sense of ideology, norms, or political ethos, or material, as in the sense of core national interests. While clearly subjective in their determination, Wolfers’ emphasis upon the continued survival of acquired values also clearly broadens the scope of security away from the mere use of military force. Indeed, he asserts that, for most states, “[physical] survival has only exceptionally been at stake . . . If nations were not concerned with the protection of values other than their survival as independent states, most of them, most of the time, would not have to be seriously worried about their security” (Wolfers 1952: 488). His understanding of acquired values suggests not only that environmental threats can be included within an analysis of security, but if they threaten state values, that they must be. Neither of these two rationalist understandings of security precludes the inclusion of environmental threats, nor threats in any other sector which threaten the existence of the state or of its national interests. Their thinking greatly informed Cold War era security studies, but gradually became co-opted by the supposed primacy of the military as a threat to state security, simply because *at that time* the greatest threat to states was seen to originate from the military sector. In theoretical terms, this amounts to asserting a figurative divine right of kings relative to military force within security studies. The monarch was sovereign therefore it was the will of God that the monarch remain so; military force was the primary threat therefore it is conceptually inconceivable that it should ever not be.

It is understandable why prior to the development of the current level of scientific understanding of the threats associated with global climate change that the environment would not have been viewed as a serious source of security hazard to states. Over the past several decades, however, developments in human understanding of the likely impacts of climate change, including the direct threat posed to the physical integrity of states and the indirect threat posed by environmental catalysis of threats in other sectors, render past assertions of scientific uncertainty untenable. The modern scientific consensus surrounding current environmental trends is that “environmental degradation imperils nations’ most fundamental aspects of security by undermining the natural support systems on which all of human activity depends” (Renner 1989: 29). As such, it is insufficient to maintain the intellectual ostracization of environmental security for no better reason than the satisfaction of antiquated misconceptions of the realist theoretical framework. For many scholars, a persistent emphasis upon the military sector is, given the nature of many pressing security hazards, grossly misguided: “we cannot launch fighter planes into the sky to resist global warming, we cannot dispatch tanks to counter the advancing desert, we cannot fire the smartest missiles against the rising sea” (Myers 1993: 24). Not only is the military-centric variant of security studies conceptually flawed, it will ultimately fail in its attempt to assess the security of its state referents. As called for two decades ago:

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: 34)

Security issues in the non-military sectors have become dominant for many, if not most, states in the international system since the end of the Cold War, such that “defining national security

merely (or even primary) in military terms conveys a profoundly false image of reality” (Ullman 1983: 15).

Direct Environmental Threats to State Security

This section will show how environmental security can threaten the state in two different ways: direct threats, such as natural disasters or changes to the local or regional biospheres, and indirect threats, as in scarcity-driven violence, ecological change resulting from climate change, or as a contributor to global wealth and power inequalities. The scale of these threats can vary greatly, but in both cases they have the potential to pose a threat to the continued survival of a state referent. In the case of direct threats, the danger arises in the form of environmentally caused peril either to the physical survival of the state, or to its essential national values, as identified by Arnold Wolfers. In the case of indirect threats, the hazard comes in one of two ways, the first in the form of the environment either causing or catalyzing threats within other sectors, such as the constitutive relationship between the environment and the economy. The second way that environmental security can indirectly threaten a state is in the form of environmental change threatening the stability of the international system. International instability is intrinsically connected to state security, with the maintenance of the former necessary for the security of the latter. In particular, the fact that developing states are more vulnerable to environmental insecurity can no longer be viewed as insulating the developed world from the negative impacts of the environmental sector. The interrelated and interdependent nature of the global system is now such that “the weakness of the periphery increases the exposure of the centre, making the entire configuration, including the centre, more unstable” (Nef 1999: 13). One example of this

complex interdependence which will be examined is the linkage between environmentally-driven migration and state and interstate insecurity.

Environmental threats pose a variety of direct challenges to states and their essential national interests. An example is natural disasters, which, though they exist independent of the changing climate, often have both their frequency and severity increased by alterations to established weather patterns. Scientists assert that regional climate changes will include a “very likely increase in frequency of hot extremes, heat waves, and heavy precipitation . . . [resulting in a] likely increase in tropical cyclone intensity” (IPCC 2007: 8). Incidents of extreme weather have direct impacts upon the security and internal stability of vulnerable states, a category which transcends traditional divisions of states into the developed and developing worlds. Developing states are certainly *more* vulnerable to extreme weather conditions, and for many insufficient mitigation or protective measures can result in direct existential threats to the continued existence of the state. For instance, following the Indian Ocean tsunami of 2004, 10 of the 23 of the Maldives’ islands were rendered uninhabitable, and “similar devastation will almost certainly imperil low-lying coastal zones and island states as sea levels rise and . . . [Climate change] continues to drive extreme weather events” (Kimble 2005: 104-105). However, the vulnerability of states within the developed world is becoming increasingly apparent. Incidents such as the massive wildfires which swept through California in October 2007; severe flooding in the south of England in the summer of 2007; unprecedented drought in Australia earlier the same year; and the destruction and social chaos wrought by Hurricane Katrina along the U.S. Gulf Coast in 2005 all demonstrate the vulnerability of wealthy states to these types of natural catastrophe. The magnitude of these weather-related disasters is such that they “have the potential to disrupt our way of life and to

force changes in the way we keep ourselves safe and secure” (CNA 2007: 6). Given an understanding of *national* security as related to the preservation of acquired values, extreme weather threats on a sufficient scale to threaten the established way of life within a state would clearly constitute a threat to that state’s security.

At its most extreme, however, climate change has the potential to directly threaten state security through the potential implications for the maintenance of homeostasis within the regional or global biosphere. Given that “a complete collapse of the biosphere would surely destroy ‘nations’ as well as everything else,” (Deudney 1990: 464) it is difficult to conceive of widespread environmental collapse as anything but a security threat. For most of its history, humanity has had the unappreciated luxury of a physical environment supportive of human endeavours. Only recently has awareness emerged that it is those very endeavours, particularly enterprise within the economic sector, which threaten to destabilize the underlying condition of biospheric homeostasis that is unalterably requisite for *all* human agency. As such, it is now clear that “environmental homeostasis . . . is not automatic, but is mediated by human intervention” (Nef 1999: 44). The potential mutability of the physical environment has become increasingly apparent given the greater level of aberration in previously established patterns of weather and natural disaster. Whereas “the environmental system, in particular the earth’s climate, used to be regarded as relatively resilient and stable in the face of human insults . . . now it is widely believed to have multiple local equilibria that are not highly stable” (Homer-Dixon 1991: 79). These equilibria form part of the exceedingly complex, interrelated environmental system of causal variables which comprises the fundamental structure underpinning all aspects of global socio-economic-political relations. Threats to the

healthy maintenance of that environmental system must, by definition, imperil the functioning of all actors dependent upon it, including, but certainly not limited to, states.

Indirect Environmental Threats to State Security

Similarly, indirect environmental threats to state referents span all sectors of security analysis and constitute a vast panoply of potential insecurity. No sector of security analysis exists independently of the natural environment; environmental stability is a precondition for security in all other sectors. As a result, environmental insecurity, particularly the meta-threat of climate change, has the potential to catalyze security threats in all other sectors, each of which is independently capable of posing direct threats to the security of states. The first category of potential indirect threats exists in the form of scarcity-driven interstate violence. Examples appear in multiple, often cross-sectoral, forms, such as the so-called ‘resource wars’ which pose a clear threat within the military and political sectors as a threat to state security and established political regimes. These resource-based conflicts intersect and reinforce geopolitical cleavages and other aspects of global iniquity such that, ultimately, a threat emerges in the prospect that “as global environmental damage increases the disparity between the North and the South, poor nations may militarily confront the rich for a greater share of the world’s wealth” (Homer-Dixon 1991: 77). Moreover, as the scale of global environmental change and anthropogenic environmental degradation increase, it is increasingly likely that ‘the world’s wealth’ will come to include the basic resources necessary for human subsistence. Given the finite or contaminable nature of many of the most valuable resources upon the planet, it is reasonable to consider “environmental scarcity – renewable resource scarcity – the

ultimate source, though never the sole cause, of conflict and instability,” (Foster 2001: 390) and as a result, a direct or proximate source of state insecurity.

A major component of indirect threats to state security from within the environmental sector is the interrelated and interdependent nature of the international state system. States no longer, if they ever did, exist in isolation of each other, and the emergence of threats to one state almost always have the potential to overflow territorial boundaries and impact upon the security of neighbours, rivals, or allies. As a result, ‘state security’ has become something of a misnomer, at the very least a flawed construct to understand the nature of security threats. The oft-analysed globalization of international political, economic, and societal processes has in security studies its reflection in a condition of ‘mutual vulnerability’ shared by all states. Clearly this vulnerability is not shared evenly, but it is nevertheless the case that “all of the states of the [international] system are enmeshed in a global web of security interdependence (Buzan et al 1998: 11). In particular, a relationship exists between the ongoing security of states in the developed and developing worlds. Although they have long thought their security to be independent from the relative insecurity of poor nations, “the seemingly secure societies of the North are increasingly vulnerable to events in the less secure and underdeveloped regions of the globe in a manner that conventional . . . theory [has] failed to take account of” (Nef 1999: 13).

Oceans, wealth, and power have long insulated Northern societies from the instability which can overflow the borders of poor, vulnerable societies in the developing world. Military might and the limitations of transport over vast geography inhibited the transit of large numbers of displaced, suffering, or resentful peoples from impoverished states to wealthy ones. In some ways, this remains the same, since “the greatest influx of refugees goes

to neighbouring territories, usually already troubled regions in poor countries, not to the developed nations of the West” (Nef 1999: 65). However, tensions stemming from migration are increasingly occurring not at the interstices of sovereign states, but along the geographic divisions which separate segments of the globe also divided by cleavages of language, income, religion, and ethnicity. Caused or catalyzed by environmental degradation in the often ecologically vulnerable states of the developing world, today “this migration is most visible at the interfaces between rich and poor regions – along the Rio Grande between the United States and Latin America, across the Timor and Arafura Seas between Australia and Southeast Asia, and along the boundaries between Europe, North Africa, and West Asia” (Homer-Dixon 2006: 65). Even if the most pressing insecurity of migration still affects vulnerable populations within the developing world, the ‘ripple effect’ caused by mass migration “generates potentially expanding zones of social vulnerability” (Nef 1999: 65) capable of destabilizing entire regions and negatively impacting the security of even distant, and developed, states.

An instructive example of the dual role of the environment as direct and catalytic source of threat to state security, and the potential security implications of mass environmental migration, is found in the case of Bangladesh. In this case, climate change in the form of raised sea levels and increasingly powerful and erratic extreme weather patterns threatens the physical integrity of the country as well as its essential infrastructure. Its particular spatial vulnerabilities mean that “sea level rise, an increase in cyclone intensity, and consequent increases in storm surge heights will have disastrous effect on a deltaic country like Bangladesh, which is not much above the mean sea level” (Ali 1996: 171). A sea level rise of only 20 centimetres in the Bay of Bengal would displace more than 10 million people, a number which nevertheless comprises only 1/15 of Bangladesh’s total population (Kaplan

2008: 62). Such an enormous volume of internally displaced people would place insurmountable strain upon the Bangladeshi government's ability to provide basic services, particularly given the attendant economic cost of the environmental destruction. The resulting privation would likely result in scarcity-driven violence as displaced peoples encroached upon the limited subsistence-providing capacities of established communities. Indeed, given that approximately 20-60% of Bangladesh is estimated to flood annually, it is possible that the permanent displacement of 10 million people would prove to be beyond the physical carrying capacity of the spatial parameters of the country. In such a situation, the most plausible scenario is a massive exodus of environmental refugees across the only terrestrial border that Bangladesh possesses, that shared with India. Faced with the prospect of a major influx of refugees into the states of Assam and West Bengal – regions which have already strained under the socio-economic pressures of Bangladeshi immigration – it is likely that India would attempt to seal the border using military force, an action equally likely to provoke a comparable response from Bangladesh. At such a juncture further speculation is superfluous, but this example is a clear illustration of the potential instability which can be wrought, in the words of noted environmental scientist Norman Myers, by “whole waves of destitute humanity washing around the world” (1993: 27).

Given the above example, what emerges on the Indian subcontinent is a situation in which the environment poses a direct threat to the state of Bangladesh, causes additional threats in the societal and economic spheres, and catalyses a further threat to the territorial integrity of neighbouring India in the form of 10 million environmental refugees. Given that the Intergovernmental Panel on Climate Change indicates a likely rise in global sea-level of 18-59 centimetres by 2100 (IPCC 2007: 45), it is entirely possible that the disaster outlined

above is a best-case scenario. This example clearly illustrates the multi-sectoral nature of environmental threats, and supports the premise that “if a nation’s environmental foundations are depleted, its economy will steadily decline, its social fabric deteriorate, and its political structure become destabilized” (Myers 1986: 251). The security of the state, long assumed to exist separate from the physical environment, must clearly be understood as rooted in, and potentially threatened by, the natural world. Given that traditional security has opened to broad understandings of security threats originating in multiple sectors of analysis, and that security within those sectors is equally dependent upon the maintenance of a stable environment, directly and indirectly the security of states is indissolubly linked to the maintenance of security within the environmental sphere.

Alternative Security and Environmental Threats

Framing the Alternative

‘Alternative’ security in this paper refers to the results of the dual intellectual processes of ‘widening’ and ‘deepening’ the security field which have occurred since the late 1980s. Alternative security accepts not only the potential for security threats to arise from a broad array of sources within all five security sectors, but also the need to examine the implications of security threats for non-state units of analysis. As such, alternative security overlaps substantially, but not exclusively, with the human security subfield, given the latter’s emphasis upon individuals and human collectivities as appropriate referent objects of security analysis. Although specific definitions remain disputed, one distinguished body emphasizes the “vital core” of human existence, and defines human security as “protecting fundamental freedoms – freedoms that are the essence of life. It means protecting people from critical (severe) and

pervasive (widespread) threats and situations” (Commission on Human Security 2003: 4). This definition of human security is useful because it provides a flexible and dynamic context for understanding multi-sectoral hazards to the survival of scale-dependent referent objects. The scope and nature of environmental threats vary tremendously both across and within societies; accordingly, an appropriate definition of alternative security must encompass all prospective issues and all likely referents. In keeping with an emphasis upon security as survival, such a definition might be framed simply by stating that alternative security “means the absence of threats” (Booth 1991: 319) to a designated referent object.

The alternative security framework is not, however, limited to an examination of human security. It is possible, using the same analytic lens, to examine security hazards facing virtually any referent object. Indeed, the definition of national security developed by Arnold Wolfers, used earlier in relation to traditional security, is also relevant to an alternative security framework in that it securitizes a series of non-material, non-anthropocentric ideational constructs in the form of the essential values, norms, beliefs, and ethos of a political community. Similar referential status is often, and often unconsciously, given in Western policy circles with respect to the economic free market. In the earliest discussions of environmental security itself, the focus of much scholarship took as the referent object of security analysis the biosphere itself rather than the individuals and state constructs dependent upon it, viewing “mankind itself as the ultimate threat to the ecosystem” (Liotta 2005: 59). There is, however, a raft of theoretical obstacles and inconsistencies which can arise following the securitization of non-state and non-anthropocentric referent objects. With respect to the free market, there is an inherent conflict in assuring its survival given that it is merely a *type* of market, and that the total *market’s* survival is not threatened. Markets are by their very nature

evolutionary, as the past five centuries' transition from mercantilist to free markets demonstrates. Indeed, whereas the Depression era led to an emphasis upon reconstituting national markets, today "the liberal ideal is ultimately to dissolve national economies . . . into a global economy with relatively few restraints on the movement of goods, capital, services, and people" (Buzan et al 1998: 96). In this way, it is possible to conceive of economic markets as emanant, determined to exist in some form wherever there is economic activity. Conceptualizing the economic market and certain other ideational construct as being the objects of security obscures the line between threats to survival and processes of change, and risks the calcification of naturally mutable concepts into rigid socio-political constants. As a result, the primary focus of alternative security in this paper will remain upon individuals and their aggregates in communities and societies.

Individuals and human collectivities can have their security threatened by elements in the environmental sector in a variety of different ways, both similar and divergent from the ways in which state security can be threatened by the same source. Non-state referents can have their security threatened directly from within the environmental sector, indirectly by environmental factors catalyzing threats in another sector, or indirectly because of the negative impact of the environmental sector upon the human security provisions capacities of the state. Direct threats in the environmental sector pose a readily understandable threat to alternative, especially human, security, and are a well-established part of the literature on the subject (Homer-Dixon 2006; Commission on Human Security 2003; UNDP 1994). Indeed, "most of the definitions of human security are rooted in the broad school of thought" (Owen 2004: 18) which emphasizes the interrelations between complex security threats in all five sectors of analysis, of which the environment is one. If an environmental threat is sufficiently severe to

threaten a state, the same clearly threatens to extinguish the lives of the state's inhabitants as well. In most ways, environmental threats are a more readily accepted proposition within the alternative security paradigm; whether directly or indirectly, it is difficult to argue that human well-being is independent of the environment when "the environment, modified by human interference, sets the conditions for socio-political-economic life. When these conditions are poor, life is poor" (Buzan et al 1998: 84). The vast array of threats to individual and collective human security usually cited within the literature – such as famine, disease, access to fresh water, scarcity-related violence, mass migration, global wealth inequity – are almost universally causally related to factors arising from environmental degradation and global and localized climate changes.

In addition to direct and indirect threats towards individuals and human collectivities, environmental factors are capable of posing a threat to alternative security by weakening the capacities of the state to provide security for its citizens. Seen this way, threats which endanger the security of a state usually also threaten the inhabitants of that state, since effective state institutions are central to the delivery of essential services which comprise a major protection, or mitigation of vulnerability, against insecurity. This understanding of the state as security-provider recognizes that "as long as the state remains the primary political community and actor, it will also be the primary agent and provider of [security]" (Alagappa 1998: 30). As the usual guarantor of the essential conditions for human life and livelihood, the importance of the state to the maintenance of *human security* cannot be overlooked. Environmental insecurity, then, arising from the "multiple effect of environmental scarcity . . . can weaken the government's capacity to address the demands of its citizens" (Goodman 1996). An example of this logic applies in situations of weak statehood, where the inability of

the state to provide essential services or guarantee security is caused or exacerbated by environmental issues. In such situations, human security is doubly threatened, both directly by the environmental threat itself, and indirectly by the addition insecurity wrought by weak, ineffectual, or failed statehood. The damage done to the *state* by environmental threats can thus compound the damage already done to *human security* by the same threat.

The Essential Condition

First Among Equals

The central element of environmental security is that it must be understood as more than just one of five equivalent sectors of security analysis. The existential potential of global climate change, the possibility for climate change to threaten the continued existence of humanity and all its endeavours, demands a privileged understanding of climate change as a meta-threat to security at *all* levels of analysis and across *all* other sectors. The source of this threat is endogenous, arising from the fact that “we’re now a physical force on the scale of nature itself, disrupting the deepest processes of natural systems like Earth’s climate” (Homer-Dixon 2006: 13). The existential nature of climate change is a property which it shares with the threat posed by nuclear weapons and other weapons of mass destruction within the military sector of analysis. Accordingly, rather than the implicit equivalence afforded to all five sectors of security analysis in Figure 1, a more accurate understanding of security would accommodate the environmental and military sectors as the base sectors of security who satisfaction is required to achieve security in the other three sectors. Such a model is provided in Figure 3, which underscores the foundational nature of the two privileged sectors of security analysis.

Figure 3: The Foundations of Security



The idea of privileging a particular sector of security analysis is by no means a novel idea. Military threats have historically been privileged in the statist understanding of security because they were the means by which the survival of a state could be threatened – through conquest, annexation, genocide, et cetera. The potential for climate change to eliminate the physical existence of entire states makes it as great a source of threat to statist conceptions of security as threats arising in the military sector. Nuclear-focused strategic studies dominated the security discourse during the Cold War because of the unimpeachable threat that nuclear weapons posed to continued global survival. No other threat to security approached the level of potential nuclear exchange, and “because the use of [nuclear] force can wreak major undesired changes very swiftly, military threats are traditionally accorded the highest priority in national security concerns. Military action can wreck the work of centuries in *all other sectors*” (Buzan 1991: 117). Prior to the advent, or at least a greater scientific understanding, of climate change, there was no other threat which imperilled the continued survival of statist

referent objects or undermined security in the political, economic, societal, and environmental realms. Nuclear security was a global concern because it endangered even states which did not themselves possess nuclear weapons, was not substantially affected by the geographic proximity of states to others which did have nuclear arms, and was inconsiderate of distinctions between the developed and developing worlds. As a result, the military sector and the strategic focus upon nuclear security rightly became the primary occupation of security analysis.

Precisely the same existential rationale can be applied today to the global environmental threat of climate change. The world-altering potential of global climate change today elevates the threat it poses within the environmental sector to the same level as that occupied by the specific military threat of nuclear arms and other weapons of mass destruction. The emphasis of security is upon survival, and any threat capable of the erasure of all referent objects clearly poses a threat to survival on a higher plane than threats which may only imperil a particular referent object within a single sector. The quality and viability of the natural environment is an essential element for human life and livelihood, and for the continued existence of both humanity and its enterprises. The nature of the threat posed to these by climate change was aptly summarized by former UN Secretary-General Kofi Annan as “an all-encompassing threat” (Annan 2006). Environmental threats should be conceived not as conventional dangers to traditional security such as exist in other sectors of analysis, but as a potential source of existential threat to states themselves resulting from “catastrophic [environmental] effects on a scale hard to envision” (Nef 1999: 43).

Similarly, within alternative conceptions of security, non-state referent objects, especially individuals and human collectivities within the human security paradigm, are

fundamentally threatened by the prospect that the natural environment may reach a point at which it is no longer capable of sustaining life. This understanding of the duality of climate change and nuclear weapons has been long acknowledged within certain academic and policy circles. As described in 1987 by the World Commission on Environment and Development:

Humankind faces two great threats. The first is that of a nuclear exchange. Let us hope it remains no more than a diminishing prospect for the future. The second is that of environmental ruin worldwide – and far from being a prospect for the future, it is a fact right now. (in Myers 1993: 6)

It is clear that no matter the level or object of analysis, a sustainable and functioning environment is the essential condition for security.

There is, however, one conceptual hurdle which must be overcome in order to accurately identify climate change as an existential and privileged threat to the security of scale dependent referent objects. Consistent with the definition provided earlier, a security threat must be identifiable, usually immediate, and require an understandable response. The scientific understanding of climate change certainly makes it identifiable, and, while there is disagreement, within the anthropogenic understanding of the causes of climate change there is also an understandable response, namely a reduction in the emission of greenhouse gases into the atmosphere. However, there is a temporal obstacle to the identification of climate change as a threat: the changes which are occurring now are the result of past actions, and the emissions being produced today will likely not result in changes for several more decades. Given this, it is possible to argue that climate change cannot be deemed a ‘threat’ because even if action were to be taken attempting to mitigate it, it would in fact only be relevant to future changes rather than current ones which comprise the hazard to state and human security.

There are two responses to this conceptual difficulty: the first points back to the similarity between global climate change and nuclear weapons as existential threats to security. According to the above definitions, nuclear weapons never constituted a threat to security either. To accord with the necessary criteria, the weapons would have needed to be in the air in order to satisfy the demand of ‘immediacy’ necessary to constitute a threat. According to the parameters of the security pyramid identified in Figure 1, the Cold War was actually a period of *pervasive vulnerability* to nuclear weapons, or vulnerability of which there could be no mitigation. Rather than threats, bipolarity was marked by incidents of heightened risk of nuclear exchange, notably the Cuban Missile Crisis of 1962. While logically sound, the argument that nuclear weapons are not, and never have been, a ‘threat’ by virtue of the fact that they were never launched stretches credulity given the overwhelming emphasis placed upon them as the definitive security threat for over forty years.

However, a similar model can be applied to global climate change. States and human populations are vulnerable to environmental disasters and changes in the climate by virtue of their geographic distribution along coastal areas or in regions of environmental vulnerability. The accelerated pace of climate change experienced over the past several decades, and expected to continue for the indefinite future, increases the *risk* posed to those referent objects from the environmental sector. However, despite the apparent logic of the security pyramid in these examples, one defining feature makes the ‘risks’ of nuclear exchange and climate change different from convention threats, and allows them to be treated as ‘threats’ despite their lack of immediacy. Neither of these threats is linear, meaning that in both cases once they manifest themselves as a threat it is effectively too late to avoid disaster, namely the extinction of the referent object. Consider the Cold War: had nuclear weapons ever been launched, there would

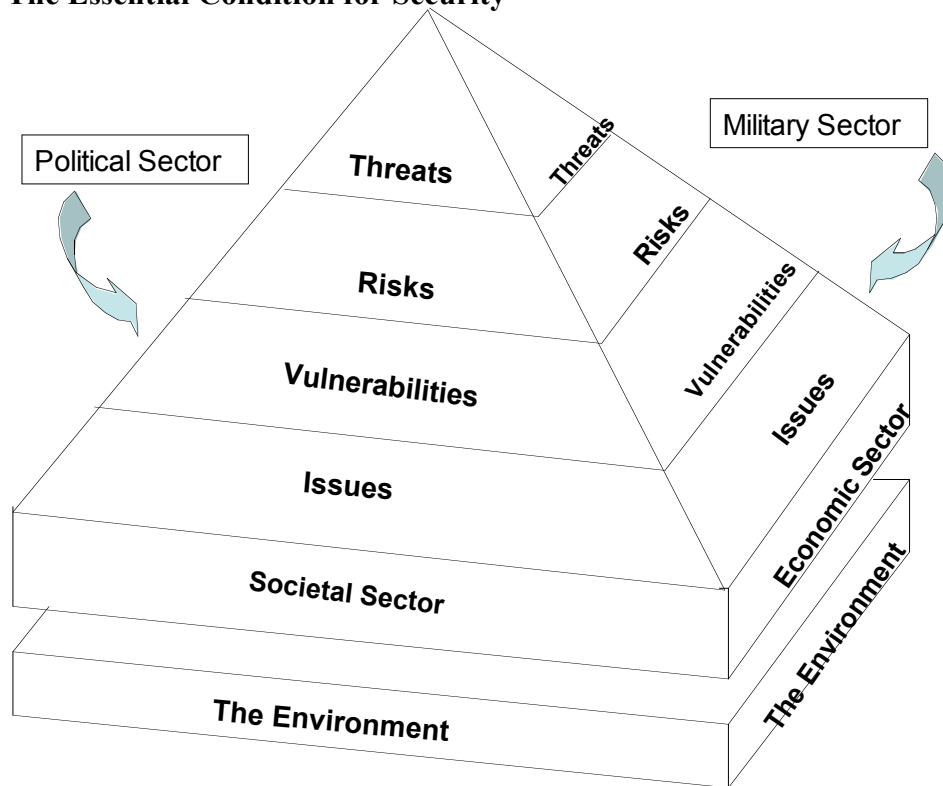
have been no effective means of responding to the threat. The threat exists in the fact that once survival is threatened it is effectively ended – non-linear threats experience a threshold that, once crossed, renders any further analysis largely meaningless and any mitigative action futile. Specific to the environment, “problems like global warming develop incrementally over long periods of time; they can become critical in an instant when the underlying stress crosses an unknowable threshold” (Homer-Dixon 2006: 215). In such exceptional cases, security analyses actually requires that these existential *risks* be treated as *threats*; given that their immediacy is a largely unknowable value, it is not treated as central to the analysis.

Back to Bases

The underpinning nature of the environment to all other sectors of security analysis requires a further rethinking of the nature of security and the relationship between its different sectors. Security is multi-sectoral, and threats within its five sectors are locked into a mutually constitutive and auto-reinforcing relationship with each other, in which hazards transcend the division between sectors and threaten units of analysis at various levels. This is especially relevant to the most serious threats, which not only transcend sectors of analysis, but also the many socio-political borders and boundaries existent in the world. Put another way, “the various global ‘crises’ . . . are not separate crises: an environmental crisis, a development crisis, an energy crisis. They are all one” (WCED 1987: 20). However, the gravity of potential threats within all five sectors is not equivalent; security in the military and environmental sectors undergirds security in the other three. While Figure 3 suggests that the military and environmental sectors are equivalent in their relations to the security pyramid, in fact the environment is requisite for security even within the military sector. In effect, this

understands that “the ecosystem itself is perhaps the ultimate weapon of mass destruction” (Liotta 2005: 59).

Figure 4: The Essential Condition for Security



It is possible to achieve security in the environmental sector yet still have sources of threat arising within the military sector; military security is not a prerequisite for an absence of environmental threats. However, if the environmental sector is insecure, especially with respect to an existential threat such as climate change, then it is impossible to have security in the military sector given that acute climate change is almost certain to “ratchet up” the level of stress within national and international society, thus increasing the likelihood of many different kinds of conflict” (Homer-Dixon 1991: 78). Given the understanding that a functional environment is the essential condition for the satisfaction of security in all other sectors, a more comprehensive understanding of security than the ones previously offered in

Figures 1 or 3 is that of Figure 4 above. It demonstrates clearly the multi-sectoral nature of security/insecurity, and illustrates that “more than ever before in human history we live in a world of mutual vulnerability – a multi-faceted systemic echo of the premise of mutually assured destruction in the era of nuclear stalemate” (Nef 1999: 13). It shows the natural environment to be the central underpinning of security for all referent objects, and a major causal determinant in the formulation of insecurity in other sectors of analysis.

Conclusion

The environment has long been an overlooked sector of security analysis. It is only as the level of scientific knowledge surrounding the potential impact of climate change has increased that security studies has sought to broaden its understanding of the scope and scale of potential environmental security threats posed within the environmental sector. This paper has illustrated three major points relative to the emergent understanding of the central place of the environment to our conception of security. First, environmental threats are a relevant and appropriate component of contemporary security studies. Indeed, without an appreciation of the environment both as a source of direct threat and as a causal or catalytic agent in the formulation of other threats, security studies cannot be complete. Second, an examination of environmental threats and their inclusion within the security studies field is compatible with both traditional and alternative conceptions of security. Environmental threats have been a longstanding part of alternative understandings of security, and have increasingly emerged as a legitimate element in the study of state, or ‘national’, security concerns, as well. Indeed, though some have attempted to artificially narrow the scope of the field to traditional referent objects and military threats, it is clear that the environment cannot be effectively ignored, any

more than it should be relegated to a particular ideological or theoretical security framework. Third, the environmental sector constitutes more than just one of five equal sectors of security analysis. The existential nature of climate change requires that it be considered on par with the threat posed in the military sector by nuclear weapons or other weapons of mass destruction. But while the military and the environmental sectors both have the potential to imperil the continued survival of all traditional and alternative referent objects, environmental *insecurity* can render void states of security in all other sectors of analysis, including the military sector. The maintenance of a natural environment capable of maintaining homeostasis is the essential condition for security in *all* other sectors and for *all* other referent objects.

Previous conceptions of security have become increasingly challenged as the multi-sectoral, non-linear threats of climate change become better understood and begin to manifest themselves around the globe. In particular, the interdependent nature of the global system is such that no state, no society, no individual is immune to the potential insecurity which may arise. Although pressing security issues exist in other sectors of analysis, some more immediate than those of the environment, there are none which are a greater threat, and none which can threaten the survival of humanity as a single meta-referent object.

We are all in the same environmental boat, and we shall all get wet as it springs leak after leak. Not even the most advanced nation can insulate itself from the environmental impacts, no matter how strong it may be economically or how advanced technologically or how powerful militarily. (Myers 1993: 12)

For humanity, there is only one environment to secure, a common biosphere whose instability also poses a threat to the ongoing well-being of the entire human species.

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