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Environmental Security Revisited

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Abstract

The concept "environmental security" grew out of the environmental movement of the 1970s, gaining significant attention in the academic and policy communities at the end of the Cold War in the early 1990s. Early writings focused mainly on how security-related activities, including armed conflict, affect the environment, and how environmental issues might influence or drive national or international security. By the early 2000s, numerous perspectives and definitions of environmental security had evolved, and were being debated in scholarly literature, including more subtle ways by which environmental change might influence security. Some scholars contested the very concept of environmental security. By the 2010s, research and writing focused on environmental security diminished, to some extent being replaced by discussions and debates in both academic and policy settings about the relationship between climate change and security (later referred to by some as "climate security"). In recent years, conversations about environmental security are re-emerging, driven in part by an acknowledgment that the overriding focus on climate change security might be too narrow, missing other ways that environmental change influences security, and vice versa. The study on which this article reports, briefly traced the history of environmental security in both academic and policy literature. Next, the article summarises climate change security perspectives, discussing the climate–conflict nexus, and including examples of climate security strategy and policy. The article then explains aspects of environmental security that are excluded or neglected from the climate security discourse, making a case for a return to a more expansive approach to environmental security. Finally, an updated definition of and framework for environmental security are proposed. Environmental security is seen as the ability of individuals, groups, or states to adapt to, mitigate, or avoid environmental change without critical adverse effects, which significantly degrade the integrity, values, or well-being of states, communities, or individuals. The definition incorporates elements of the original, state-focused definition of environmental security, but also includes important elements of human security (that affect community or state security).

Keywords: Environmental Security, Climate Change, Climate Security, Human Security, Ecological Security

Introduction

Although the relationship between the environment and security has captured the attention of strategic thinkers for millennia (e.g. Tzu, 1971), the contemporary academic and policy literature on environmental security spans only the past few decades. Links between climate change and security represent an important, more recent subset of the environmental security literature. In this article, I begin by defining key terms important to any discussion of the environment and security. I present a review of the environmental security literature, noting the four phases of environmental security research that span the past three decades. Then, I focus attention on an important subset of environmental security – the recent, increasing interest by government and academia in the relationship between climate change and conflict, as well as climate change and security (sometimes referred to as "climate security") (United Nations Development Programme [UNDP], 2023) more broadly. Given the significant international attention on climate change, the emphasis and focus on climate security is not surprising, but in the final section of the article, I propose that this emphasis has drawn attention away from other very important environmental security issues that may not be related to climate change. The article concludes by arguing for a new fifth phase of environmental security that draws on the best elements of previous phases, and proposing an updated framework for environmental security thinking.

Defining Environmental Security

Both "environment" and "security" can take on a wide range of meanings. The first official use of the term "environmental security" appeared in a publication by the Brundtland Commission, *Our common future* (World Commission on Environment and Development [WCED], 1987), but the term was not defined clearly. One of the early, practical definitions was proposed by Levy (1995). The term "environment" was used 'for issues involving biological or physical systems characterized either by significant ecological feedbacks or by their importance to the sustenance of human life' (Levy, 1995:39). Security, used in the context of environmental security, relates primarily to *national* security, and is best defined in terms of threat, or something that might disrupt security. Levy proposes, '[a] threat to national security is a situation in which some of the nation's most important values are drastically degraded by external action' (Levy, 1995:40). Such external action is not limited to foreign military force, as was often the case in more traditional security studies prior to and during the Cold War. Levy concedes that such a definition of security will no doubt have blurry edges, and what constitutes "important values" as well as "drastic degradation" will continue to be contested themes in security studies. Although the state remains the primary level of analysis for most security studies, it is important to consider security above and below national level, especially in environmental security studies. Barnett (2007) adds depth to Levy's (1995) definition, arguing that, in order to understand environmental security, one must first understand what is meant by environmental *in*security, which Barnett (2007:5) defines as 'the vulnerability of individuals and groups to critical adverse effects caused directly or indirectly by environmental change'. Barnett (2007:5) then defines environmental security as 'the ability of individuals to avoid or adapt to environmental change so that things that are important to their well-being are

not substantially negatively affected'. While Levy's definition focuses primarily at the state level, fitting better within the spatial focus of traditional security studies, Barnett's definition broadens the scope of environmental security beyond state level, incorporating a spatial level as fine as the individual. Floyd (2010), on the other hand, focuses on the state level, critically examining United States (US) environmental security policy through the lens of securitisation theory. Much of the ongoing debate surrounding environmental security results from the lack of a widely accepted definition of environmental security, including the appropriate spatial level of focus (Briggs, 2010). This tension between an individual or local level of focus and a state or international level of focus is discussed in detail in the next section. Barnett's definition of environmental security leads us to another term important to note before proceeding – "human security".

Human security has emerged in several fields (e.g. development, security studies, geography, etc.) as a concept closely related to environmental security, and deserves brief attention here. The concept "human security" was defined in 1994 by the United Nations Development Program (UNDP) (1994). Arguing that, for too long, a narrow definition of security had focused at the nation-state level, ignoring or diminishing security for individuals, the above UN report defines human security as –

> [F]irst, safety from such chronic threats as hunger, disease and repression. And second, it means protection from sudden and hurtful disruptions in the patterns of daily life – whether in homes, in jobs, or in communities. Such threats can exist at all levels of national income and development (UNDP, 1994:23).

While this definition is valid, in many ways it has proved to be too broad to help prioritise effective human security policy, especially at a strategic level, or to focus academic research. The report however did, for the first time, make an explicit link within the UN between human security and the environment, and continues to influence the development community, as well as later phases of the environmental security research (Dalby, 2009). These are discussed below. The Fifth Assessment Report (AR5) of the Intergovernmental Panel on Climate Change (IPCC) dedicates a chapter to human security. In this report, it concedes that definitions of human security vary across disciplines, but posits the following definition in the context of climate change: 'a condition that exists when the vital core of human lives is protected, and when people have the freedom and capacity to live with dignity' (Adger & Pulhin, 2014:3). The IPCC assessment reports continue to drive international policy, goals, agreements, and treaties on a wide range of topics, including environmental security.

Finally, a key focus of security studies has been on conflict (Briggs & Weissbecker, 2011). Much of the existing environmental security research has focused on the relationship between environmental degradation, environmental change, or resource scarcity and violent or armed conflict (e.g. Briggs & Weissbecker, 2011; Matthew & McDonald, 2009). More recently, however, as discussed below, environmental security research has broadened to focus on non-violent conflict and even co-operation. It is important to note that the absence of conflict does not necessarily equate to security. Conflict, especially

violent conflict, is more easily quantifiable than an absence of conflict. Similarly, security tends to be more subjective and difficult to quantify than conflict. This difference has contributed to many attempts to link environmental change, especially climate change, and violent conflict, particularly in the political science community, whose methods favour very narrowly focused regression analysis that attempts to establish causal relationships among dependent and independent variables (e.g. Adger & Pulhin, 2014). I argue that the difficulty in defining "security" has contributed, in part, to a relative dearth of rigorous scholarly research on climate change–security issues, and an over emphasis on climate change–conflict (especially violent conflict) research.

For the past twenty-five years, environmental security research has included natural resource scarcity and violence linkages; natural resource abundance and violence; resource scarcity and co-operation; environmental degradation resulting from war or conflict; and issues relating to human security (Dalby, Brauch & Spring, 2009; Spring, Brauch & Dalby, 2009). Environmental security has been addressed in popular literature and media, scientific research, and in policy at many levels of governance. In the next section, I review the evolution of environmental security through its first three phases, as delineated by Dalby, Brauch and Spring (2009), discuss the fourth phase of environmental security research (see Spring, Brauch & Dalby, 2009), and then transition to focus on recent climate change–conflict–security research and policy. Echoing much of the environmental security debate is a growing body of critical environmental security studies (e.g. Detraz & Betsill, 2009; Peluso & Watts, 2001), which will not be discussed here.

The Four Phases of Environmental Security Research

An overview of the environmental security literature reveals four general phases of research. These phases provide a useful framework for reviewing the evolution of environmental security research.

The **first phase** emerged during the final years of the Cold War in the late 1970s and 1980s. A handful of scholars made a case for including the environment as a component of national security in the United States (Dalby *et al*., 2009). The Brundtland Report is often cited as the genesis of environmental security concepts (WCED, 1987). This broadening or redefining of traditional security studies, beyond strict defence or military concerns, represents the first attempt to establish links between environmental change or degradation, and security. While the concept of environmental security expanded the traditional Cold War era definitions of security, the state remained the primary actor to be secured.

By the early 1990s, the **second phase** of environmental security research saw both the introduction of theory and an increase in quantitative research and case studies. The most well-known and most widely cited research was published by the Toronto Group (see Homer-Dixon, 1994), who attempted to identify more rigorous empirical, causal connections between environmental degradation and conflict, especially violent conflict. At the same time, Kaplan (1994) presented a similar (and even less nuanced) message in the popular media about the likely rapid unravelling of security in Africa (and eventually the rest of the developing world) as a result of population increase and competition over

scarce resources. Kaplan's essay was widely read and cited in the policy community, including the US State Department and the White House (Matthew & McDonald, 2009). As in the first phase, the state remained the primary level of focus, and most of the research was based on "realist" theories of political science thinking. Much of the research by the Toronto Group has since been criticised for overstating direct, causal connections among scarcity, poverty, and violence, ignoring or downplaying other more complex paths or linkages between the environment and security, diminishing the role of governance in conflict, and focusing almost entirely on environment–security connections in the global South (Briggs, 2010). Also during this second phase, Deudney (1990) provided the most frequently cited argument against linking environmental degradation and national security, offering three claims:

> First, it is analytically misleading to think of environmental degradation as a national security threat, because the traditional focus of national security – interstate violence – has little in common with either environmental problems or solutions. Second, the effort to harness the emotive power of nationalism to help mobilize environmental awareness and action may prove counterproductive by undermining globalist political sensibility. And third, environmental degradation is not very likely to cause interstate wars (Deudney, 1990:461).

Of Deudney's three claims, only the third remained widely unchallenged through the ensuing environmental security research and discourse. The first claim has broken down as most states have broadened their definition and focus of "national security", especially in the post-Cold War (and post 9-11) eras. Some scholars, especially those from a critical perspective, continue to uphold Deudney's second claim, but there is little definitive evidence to support it to date (though the emergence of "Green Parties" in some states could provide an example).

By the late 1990s, a surge in interest in environmental security by intergovernmental organisations (IGOs), non-governmental organisations (NGOs), and national governments led to a third phase of environmental security research. This **third phase** broadened the scope of environmental security research beyond resource scarcity and violence.[3] It included a series of government-sponsored studies on the complex relationship between environmental change and security (International Human Dimensions Programme [IHDP], 1999; Schubert, Schellnhuber & Buchmann, 2008), and environmental security opportunities for co-operation and peacemaking (Conca & Dabelko, 2002; Priscoli & Wolf, 2009). Methodologies continued to evolve as disciplines other than political science became increasingly involved in environmental security research (including geography, anthropology, water resources and hydrology, and sustainability). There was growing consensus that environmental scarcity (e.g. a lack of water or food) alone was unlikely

[3] Concurrently, beginning in January 1990, the United Nations declared the 1990s to be an International Decade for Natural Disaster Reduction, intended to reduce loss of life, property damage, and social and economic disruption caused by natural disasters, especially in developing countries. See https://www.undrr.org/our-work/history.

to lead to interstate conflict. Although many researchers continued to acknowledge the importance of national security (see Matthew & McDonald, 2009), others began to explore the consequences of global change (including climate change) for local security, including human security, and the possible emergent effect local insecurity or instability may have on national or regional security. During this third phase of environmental security research, growing interest within the US government, especially the security community, had several consequences. The intelligence community explored the security implications of environmental change, including extreme weather and climate change (Blair, 2009; National Intelligence Council, 2008; 2012). The US Department of Defense (DoD) incorporated environmental security concepts in its key strategy documents (Gates, 2008; 2010; Hagel, 2014), and funded environmental security research. For the first time, environmental security issues were integrated into the president's National Security Strategy (Obama, 2010). Congress held hearings on related environmental security issues (Blair, 2009; Burke, Miguel, Satyanath, Dykema & Lobell, 2009), and incorporated climate change into legislation (110th Congress, 2008). Although the US intelligence community, the DoD, and the Department of State have all addressed environmental security issues and concerns, no US government agency offered a concise definition of environmental security. Several Washington-based NGOs created sections or teams to integrate research and policy on environmental security in the United States.[4] Many of these actions will be discussed in greater detail in the following section on climate change and security. Distilling the work of the first three phases, Matthew and McDonald (2009) identify eight environmental 'threats' to US national security, including the following that continue to be a focus for research and/or policy:

- Conflict (not necessarily violent conflict) affecting US interests that is caused or amplified by environmental problems, including migration;
- Activities affecting US access to environmental goods abroad;
- Greening the military;
- Using military and intelligence assets to support environmental (and energy) initiatives;
- Promoting dialogue abroad; and
- Providing humanitarian assistance and disaster relief.

In summary, the third phase of environmental security research extended the scope of environmental security research, and has seen a direct link between this expanded research and environmental security policy.

Although the third phase of environmental security research significantly expanded the research and policy agenda, especially in the United States, Dalby et al. (2009) identify several notable gaps, including 'a lack of research on hazards and disasters, […], social

[4] Notable examples are the Environmental Change and Security Program at the Woodrow Wilson International Center for Scholars, the Center for a New American Security (CNAS), the Center for Strategic and International Studies (CSIS), the Center for Naval Analysis (CNA), and the Center for Climate and Energy Solutions (C2ES; formerly the Pew Center on Global Climate Change).

vulnerability, bottom-up resilience as well as peace building' (Dalby et al., 2009:790). Additionally, most of the research during the first three phases was conducted by North American or European researchers, with few contributions from scholars in the global South or Asia. With the increasing availability of satellite-based data of the environment of the earth, and more countries and private entities launching earth-observing satellites, the number of methods employed increased during the third phase. Examples include qualitative case studies, quantitative analyses of conflict to determine environmental drivers, quantitative analyses of transboundary water agreements and disputes, and a range of simulations and games to explore problems and identify possible policy solutions.

> [Nonetheless], while quantitative methods may contribute to the recognition of complex linkages among structural determinants, and thus to an advance in our knowledge (by way of a *heuristic* function), they remain insufficient because they exclude the complexity of the interactions between nature and humans that can be neither modeled nor predicted (Dalby et al., 2009:789, original emphasis).

Where traditional quantitative methods are insufficient, and socio-environmental problems are too complex to be modelled, more integrative, non-traditional approaches may offer solutions.

> Both reactive and pro-active or anticipatory learning for launching adaptive and mitigating responses requires knowledge and an understanding of these interactions that go beyond the competence of any discipline and can probably only be achieved by inter- and multidisciplinary research teams (Dalby et al., 2009:790).

Scenario planning methods offer one approach for ongoing environmental security research. Such planning can help understand and plan for complex problems, where uncertainty is high, controllability is low, and solutions require interdisciplinary thinking and planning. Additionally, high-performance computing enabled more complex modelling, with increased resolution and faster run times at lower cost and greater access. By the early 2010s, as the research (and policy) adjusted to fill the gaps in environmental security knowledge, Dalby et al. (2009) suggested we had entered a new, fourth phase of environmental security research.

Dalby et al. (2009) and Spring et al. (2009) challenged scholars in different fields conducting environmental security research to be even more comprehensive than during the previous phases:

> It [research] needs to integrate physical and human sciences in ways that do neither focus simply on states on the one hand or environmental causes as a simple variable on the other. Dynamic change is crucial for understanding both human and ecological systems and how they are coupled in contemporary security thinking which is simultaneously sensitive to the specific context in which human insecurity occurs. Ecological thinking with its focus on evolution, adaptability, resilience, and interconnection now incorporates

> security in contrast to earlier formulations assuming central control and violence as the essence of security (Spring et al., 2009:1294).[5]

I propose that ongoing and future environmental research should, therefore, analyse risk and vulnerability, and anticipate environmental change that could lead to instability in order to facilitate timely preventative capacity building and policies of adaptation. Such focus does not neglect state-level security issues; rather, it necessarily includes elements of human security, leading to a more comprehensive, multilevel approach to environmental security studies.

Environmental security research in the fourth phase showed signs of more comprehensive approaches than the previous three phases, including the application of a risk framework to environmental security (Mabey, Gulledge, Finel & Silverthorne, 2011), emphasis on human security (Beebe & Kaldor, 2010; Smith & Vivekananda, 2009), and peacebuilding (Dabelko, 2008). Halden (2011) identifies areas to support the theoretical underpinnings of environmental security research, including incorporating broader areas of social theory, risk society, and conflict (e.g. Rasmussen, 2006), or environmental sociology. Finally, during the first three phases, most of the debate surrounding environmental security focused on the past while discussions of the future of environmental security were neglected. An important part of the most recent phase of environmental security studies, in both the academic and policy communities, was a renewed focus on the relationships among climate change, conflict, and security.

Climate Change, Conflict, and Security

Related to ongoing research and debate about environmental security is the study of the connections between climate change and conflict (Barnett, 2003). Once thought to be changing too slowly to serve as a security concern, climate change did not enter as a driver in the environmental security debate until well into the third phase of research (the early to mid-2000s). Barnett (2003) provides one of the first comprehensive discussions of climate change as a security issue, cautiously suggesting that framing climate change as a security issue (at least in part) may help bridge science and policy. A number of more recent studies examined possible correlations between changes in climate and violent conflict in particular (see, for instance, Barnett & Adger, 2007; Tol & Wagner, 2009). Most of this research grew out of the political science community, and employed traditional empirical methods. Historians expanded research in this area as well. For example, Parker (2008) demonstrates a connection between climate change in the mid-seventeenth century (a period of environmental cooling) and state failure. The Fourth Assessment Report (AR4) of the Intergovernmental Panel on Climate Change of 2007 (see Parry, Canziani, Palutikof, Van der Linden & Hanson, 2007) briefly mentions links between climate change and conflict, but does not provide supporting research. Nonetheless, causal connections between climate change and conflict are the subject of ongoing debate among scholars. In the end, most of the existing research attempting to link climate change with conflict

[5] Although not specifically focused on security, the concept of coupled human and natural systems (CHANS) was explored by Liu *et al*. (2007).

does little to address the uncertainty surrounding future climate change and security, and has been generally insufficient to meet the demands of the policy community. Hsiang, Burke and Miguel (2013) however conducted a meta-analysis of the 60 most rigorous quantitative climate change–conflict studies, and identified causal evidence linking climate change and conflict across a range of temporal and spatial levels. Dalby (2013) argues that climate change provides a renewed urgency for environmental security, and focuses specifically on urban vulnerabilities to extreme climate-related events, unforeseen social and political consequences of adaptation and/or mitigation efforts, and geo-engineering.

A much larger body of grey literature on the topic includes white papers, studies, and other publications by several government institutions, IGOs, and NGOs. Additionally, recent US national strategic policy documents address the (national) security implications of climate change, including the –

- 2022 National Security Strategy;
- 2022 National Defense Strategy;
- 2021 National Intelligence Estimate on Climate Change Impacts to National Security;
- 2021 DoD Climate Risk Analysis; and
- 2021 DoD Climate Adaptation Plan.

Some scholars have expressed concern about the "securitisation" of climate change (e.g. Warner & Boas 2019), adopting a cautionary tone during this most recent phase of research, and attempting to steer the focus of environmental security away from the more traditional state level of focus. Dabelko (2009:16) cautions against this:

> Dismissing climate-security links because of ambiguous evidence on climate change's contribution to violent conflict ignores a vast array of areas where climate change's expected direct and indirect effects, as well as actions to mitigate or adapt to climate change, constitute issues of concern to a national government and the actors charged with securing its national interests.

In the United States, the foreign and domestic policy communities remain engaged on issues related to climate change and security. Within the executive branch, the national security community has conducted or funded several studies to understand the national security implications of climate change better. In 2008, the DoD reshaped the Minerva Initiative to fund social science research on topics important to DoD on security and stability. The Minerva Initiative[6] identified seven priority research topics, including the

[6] In 2009, the Minerva Initiative awarded a 5-year, $7,6 million to the Strauss Center for International Security and Law at the University of Texas, one of seven Minerva-funded, university-led research projects, which resulted in the establishment of the Climate Change and African Political Stability (CCAPS) programme. Results of CCAPS research have been very limited. Their methods follow a pattern of well-established, although narrowly focused use of an array of physical and some social variables to predict conflict patterns in Africa that may be related to certain climate drivers. http://minerva.defense.gov

national security implications of energy and environmental stress. In 2009, the US Navy created Task Force Climate Change to coordinate research and operational planning related to climate change impacts on maritime operations, especially in the Arctic. More recently, the DoD published its *Defense climate risk analysis* (DoD, 2021a) and the *Defense Climate Adaptation Plan* (DoD, 2021b), and the US Army released the first-ever *Army Climate Strategy* (Department of the Army, 2022) and follow-on *Army Climate Strategy Implementation Plan* (see Jacobson & Klippstein, 2022).

The US Congress has been less engaged, although both the House of Representatives and the Senate have held hearings on the security implications of climate change, and the several recent National Defense Authorization Acts include bipartisan efforts that directed the executive branch (and specifically the Intelligence Community and the DoD) to conduct periodic assessments of climate change consequences on national security, and adjust security policy and strategy accordingly.

Several NGOs in Washington, DC, remain engaged on climate change–security issues, including the –

- Center for a New American Security;
- Center for Naval Analysis;
- Center for Strategic and International Studies;
- Brookings Institute;
- American Security Project;
- Center for Climate and Energy Solutions; and
- Center for Climate and Security.

The 2007 report by the CNA Military Advisory Board (MAB) (a panel of retired generals and admirals), which articulated the security implications of climate change, is considered by many to be a landmark event in the US climate change conversation (Catarious, Filadelfo, Gaffney, Maybee & Morehouse, 2007). The MAB released an updated report in 2014, refining their findings from the 2007 report, emphasising the security implications of climate change, and urging action on the part of the US government (Goodman, 2014). The absence of legislative action on climate change, and the subsequent lack of funding for climate change–security research led to diminished think-tank activity in this area between 2007 and 2013, but the 2014 release of AR5, the second MAB report, and action within the executive branch generated renewed activity among NGOs focusing on climate change–security challenges. Within the United States, the federal government has placed significant, renewed focus on policy regarding climate change and security. In the past several years, areas that have received more comprehensive assessment include:

- Climate change–security implications for the Arctic'
- Better assessment of climate change consequences (such as sea level rise and severe meteorological events) on critical infrastructure;
- The emergent effects of human insecurity on national security interests (including migration); and
- More effective methods for bridging the science–policy divide on complex issues like climate change–security.

Although environmental security studies have evolved and broadened over the past three decades, significant gaps remain. There has been very little debate on theory underpinning environmental security research, especially since disciplines other than political science have entered the field. To date, much of the scholarly climate change–security research has been narrowly focused on establishing empirical, causal connections between environmental drivers and conflict, which, while important, has done little to answer more broad questions about security. Discussion can be found in scholarly literature and numerous reports by intergovernmental organisations. Very little research has been done on exploring the possible emergent effects of human insecurity or ecological degradation on national, regional, or international security. Significant gaps remain in understanding effective methods to bridge science and policy on the complex issues of climate change and security.

Environmental Security Revisited: Time for a Fifth Phase?

There is little doubt that climate change poses the most significant global scale environmental security challenge of our age. That said, it is worth considering whether we have become too focused on the security implications of climate change at the expense of other environmental security risks, challenges, and opportunities. I suggest we would do well to expand our aperture, and revive and update many of the earlier concepts of environmental security. The past decade has seen a significant decline in the theoretical discourse surrounding environmental security, and the concept seems to have faded among strategic planners, analysts, and other practitioners, some of whom have shifted their attention almost exclusively to climate security. Another, more recent shift among some in the environmental security discourse is the discussion of ecological security, which is more concerned about the resilience of ecosystems themselves in the face of broader environmental change, although it can also include ecosystem consequences due to intentional degradation or destruction (McDonald, 2018; 2021). Ecological security seems to be an effort to emphasise focus on the natural environment, with less emphasis on more traditional security implications of environmental change.

At its most expansive definition, environmental security encompasses security (for people, societies, and the environment) ranging from the individual (or ecosystem) level to the state and international (or global system) level. Being too expansive with a definition of environmental security could lead to confusion or diluted efforts, which could lead to the very concept itself being heavily scrutinised or even becoming irrelevant. Given an appropriate framework, such an expansive definition, with a proper understanding and definition of what is meant by both environmental and security, could therefore provide a useful categorisation and foundation for both the academic and policy as well as practitioner communities. And, although research, discussion, and debate about environmental security has faded from the academic community over the past decade (in favour of climate security), it has not entirely disappeared from the policy and security communities. For example, the UN Environment Programme maintains an active focus on what they call "environment security," which is nearly synonymous with

traditional environmental security concepts.[7] Within the US Federal Government, at least two informal collaborative networks focused on environmental security have emerged: the Environmental Security Working Group, and the Federal Environmental Security Consortium. With this renewed emphasis, we may be on the cusp of a **fifth phase** of environmental security.

As we enter a new phase of environmental security research, debate, and practice, a clear definition of environmental security is important. One possibility is to draw on the roots of environmental security from previous phases. By combining elements of Levy (1995) and Barnett (2007), I propose that environmental security is the ability of individuals, groups, or states to adapt to, mitigate, or avoid environmental change without critical adverse effects – effects that significantly degrade the integrity, values, or well-being of the states, communities, or individuals. Such a definition incorporates elements of the original, state-focused definition of environmental security, but also includes important elements of human security (that affect community or state security). In addition to an updated definition of environmental security, I propose a framework for environmental security that captures key elements or categories of environmental security. Environmental security includes:

- **Adaptation** (by humans and societies) to environmental changes that adversely affect security;
- **Stewardship** of the natural environment, to include natural resources and energy resources;
- **Mitigation or prevention** of adverse effects on the environment due to defence or security activities or operations, and weaponisation of the environment;
- **Response** to environmental hazards or disasters; and
- **Peacebuilding and co-operation** (including conflict resolution) around issues related to the environment.

Underpinning such a framework is the need for robust data collection and analysis at all scales (from local to global), using qualitative, quantitative, and mixed methods, as well as sufficient policy, strategy, and planning at all levels of governance within the security sector. While certainly not a comprehensive framework, the above list captures most relevant elements of the aforementioned updated definition of environmental security. Future research and debate related to this definition and framework could include qualitative or quantitative data collection and analysis of past or ongoing environmental security issues, modelling of future environmental security scenarios, and case studies.

Conclusion

In summary, environmental security discourse and practice spans a period of nearly three decades, but in the past decade, has faded in favour of a more narrow focus on climate security, at both a regional and global scale. Climate security, while an important, even dominant subcategory of environmental security, misses other aspects of environmental

[7] See www.unep.ort/topics/disasters-and-conflicts/environment-security.

change that might relate to security. A renewed emphasis on environmental security, in the academic, policy, and security communities, is overdue. Such a renewed emphasis will facilitate a more comprehensive understanding of the relationship between the environment (including, but certainly not limited to, climate and climate change), and ideally lead to more holistic security policy and practice. By drawing on the lessons of the first four phases of environmental security research, as well as the extensive work over the past decade in the area of climate security, a new fifth phase of environmental security offers opportunities for influential research across many academic disciplines. Such research will inform better policy and security strategy, planning, and action.

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ENDNOTES

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