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SECURITY AND ENVIRONMENT: HOW TO CONNECT THEM?

Summary

Global degradation processes now occupy a prominent position in international affairs and are recognized as a legitimate concern of security studies. Numerous scholars, policy-makers, and activists alike have suggested broadening of the security concept beyond its traditional geo-political and military forms in such a way that it should also consider environmental threats that seriously jeopardize human well-being.

This article analyzes conceptual and theoretical arguments that have been made for the incorporation of environmental issues in traditional concepts – such as the notion of national security, non-traditional concepts of security, and the notion of human security. Strategies for incorporation of environmental issues in various security concepts are distinguished on the basis of whether they are: (1) a threat to a state or non-state referent such as society, groups, and individuals, or, (2) related or to the military sector or not.

Based on a critical analysis of the current security conceptions, a pluralistic theoretical approach is proposed as the most appropriate strategy for research in the area of international environmental security.

Key Words: Environmental Issue, Security, State-Centristic Approach, Non-state Centristic Approach

Introduction

In the post-Cold Ware Era, debates over security have broadened beyond the realm of traditional military concerns. Resurgent nationalism, mass migrations, religious radicalism, economic globalization, and envi-

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ronmental degradation have become increasingly the focus of debate in the field of security studies. International relations (IR) theorists in particular have tended to escape the intellectual hegemony of the realist tradition in favor of a more normative approach to understanding the world in which we live. Also, present state structures and institutions have tried to adopt and to accommodate themselves to the diversity of security threats (Malešević, 2002).

The purpose of this article is to analyze the literature on the interface among environment, security, and IR. The relative "novelty" and "ubiquity" of environmental degradation processes make them, as Dyer has rightly noted, worth looking at the recent literature that has specifically connected this area of world affairs with the concepts of security (Dyer, 2001, 441).

Attempts to include the environment in security concerns began to develop before the end of the Cold War, simultaneously with calls for a re-definition (or re-thinking) of security. After the environmentalist Lester Brown made the first initiative to connect environmet and security,[1] it was the highly cited Ullman's definition of national security that set up the stage for its extension (Brown, 1977; Ullman, 1983, 133):

> A threat to national security is an action or sequence of events that (1) threatens drastically and over a relatively brief period of time to degrade the quality of life for the inhabitants of state; or, (2) threatens significantly to narrow the range of policy choices available to a state or to private, non-governmental entities (persons, groups, corporation) within the state.

This notion of security implies both *types* and *sources* of threats that are wide-ranging.

However, this is not the first "extension of security". In the early 1970s, the concept of national security was expanded to include international economics as it became clear, after the oil crisis, that the USA economy was no longer the independent force it had once been. Similarly, international developments at the end of the Cold War Era suggested the need for another analogous, broader definition of national security to include resource, environmental, and demographic issues (Matthews, 1989, 162). Rosenau also includes environmental concerns (environmental pollution) in his set of six new "interdependence issues" (1995, 197).[2]

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[1] Non-state centric approaches, to connect environment and security are *humanist* (human security concept) and *ecologist*. Ecologists tend to see *homo sapiens* as one of millions of species that make up nature (Matthew, 2000, 36).

[2] Rosenau's other "interdependence issues" are: currency crises, the drug trade, terrorism, AIDS, and the flow of refugees.

Scholars who adopt the Kantian notion of "world society" have put an emphasis on the environment in analyzing future security threats. For instance, Beck in his book *World Risk Society* identifies these types of global threats: (1) wealth-caused environmental degradation (for instance, the ozone problem) and technologically-induced dangers; (2) poverty-driven environmental degradation (for instance, the disappearance of rain-forests); and, (3) weapons of mass destruction. The main problem is an explosion of new knowledge and information in the second stage of modernity – not post-modernity – which Beck describes as a "phase of development of modern society in which social, political, ecological, and individual risks, created by the momentum of innovation, inreasingly elude the control and protection institutions of industrial society" (1992, 2). The "world society" concept, following Beck, assumes expert knowledge as a central role in the definition of risks and, therefore, it calls for a so-called "cosmopolitan diplomacy" and "reflexive security". Reflexivity is "the ability of *all* [emphasis added] rational beings to take themselves an object of knowledge, thus modifying their identity and/or behavior" (2002, 151).

Nonetheless, some scholars have not explicitly included the environment in their re-defined concepts of security. For instance, among Waltz's "six major security debates" of the past decade, one can find: (1) the nature of the post-Cold War world; (2) the character, causes, and strenght of the democratic peace; (3) the potential contribution of security institutions; (4) the causes of ethnic conflict; (5) the future role of nuclear weapons; and, (6) the impacts of ideas and cultures on strategy and conflicts (1999, 47). Yet, in his *Theory of International Politics* (1979, 209), Waltz acknowledges the enivonmental issues: "poverty, population, [and] pollution, will never be solved by one nation unaided … on one will deny that collective efforts are needed if common problems are to be solved or somehow managed". In contrast to Waltz, some scholars are explicit in exclusion of the environment from the security study agenda.

For Price (1998, 615), the growing role of transnational non-state actors in contemporary international politics is attributed to the rise of "non-security issues" on the international agenda. He puts it: "Scholars who have shown emirically the role of non-state actors in grounding international norms and defining state interests have typically focused on *non-security* [emphasis added], or new-issues areas such as human rights and the environment". This notion of security implies its static condition without the posibility of its extension due to new kinds of threats such as terrorism, environmental degradation, and so forth. Instead of this static view, it seems more appropriate to regard security, in Weiners's words, as a "social construct with different meaning in different societies" (1992/93, 103).

Deudney's criticism of linking environment and security rests on traditional concept of national security that focuses on military threats:

> The extension of the concept on other non-military threats, risks crating a conceptual muddle rather than a paradigm or world view shift – a *de-definition* rather than a *re-definition* of security... If we begin to speak about all the forces and events that threaten life, population and well-being (on a large scale) as threats to our national security, we shall soon drain the term of any meaning. All large-scale evils will become threats to national security (1999, 465).

Elsewhere, Deudney makes a reversal causation, saying: "Not ecological degradation is a threat to national security, but the environmentalism is a threat for national security. When environmentalists dress their programs in the blood-soaked garments of the war system, they betray their core values and create confusion about the real task at hand" (1991, 28). Deudney's call for removing environment from the security research agenda can be largely disregarded. Few people reading his papers now accept his depiction of the relationship between environment and security.

In fact, with the "broadening"[3] and "deepening"[4] of security studies in the post-Cold War Era, it is no longer reasonable to define the field in dualistic terms: with the "realist", state-centric approach at the core and a "disorderly set of alternative approaches" (either anthropo-centric or ecological-centric) in the periphery (Paris 2001).[5] Thus Paris suggests a

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[3] Paris's term "broadening" means the consideration of non-military security threats, such as environmental scarcity and degradation, the spread of disease, overpopulation, mass refugee movements, nationalism, terrorism, and nuclear catastrophe (2001, 97).

[4] By the term "deepening", Paris means that the field is now more willing to consider the security of individuals and groups, rather than focusing narrowly on external threats to states.

Emma Rothschild (1995, 55), on the other hand, identifies four forms of extensions of security: (1) "downwards" (the concept of security is extended from the security of nations to the security of groups and individuals); (2) "upwards" (it is extended from the security of nations to the security of the international system); (3) "horizontally" (it is extended from military to political, economic, social, environmental, or human security); and, (4) the political responsibility for ensuring security is itself extended: it is diffused in all directions from national states, including upwards to international institutions, downwards to regional or local government, and sideways to non-governmental organizations, to public opinion an the press, and to the abstract forces of nature and the market.

Simon Dalby (2002, 9), on the basis of this multiplicity of extensions, rightly observes that any conceptual analysis will be hard-pressed to accommodate, and that have provoked sometimes intense responses as to the analytical utility of political desirability of such formulations. This observation is important in an attempt to evaluate various environmental security concepts as well.

[5] Porter (1994, 218) even claims that the term national security has never had a precise definition, even during the Cold War. In the post-Cold War world, according to Porter, suggested divergent concepts of security can be categorized on the basis of

useful matrix of the security studies field, whose slight modification is shown in Table 1. This matrix consists of four cells, each representing a different claster of literature in the filed. As it can be seen, the top half of the table includes studies that focus on security threats to states; the bottom half reffers to studies that consider security threats to societies, groups, and individuals. The left side of the Table 1 shows literature that focuses on military threats and the right side that focuses on non-military threats or both.

Table 1. Security Studies; Adapted from Paris.2001.p.98.

Referents of Security	*The Sources of the Security Threat*	
	Military	Military, Non-military, or Both
State	1. *National Security* (traditional realist approach to security studies)	2. *Extended Security* (e.g., environmental and economic security, terrorism, cyber security)
Non-state	3. *Intra-state Security* (e.g., civil war, ethnic conflict)	4. *Human Security* (e.g., environmental and economic threats to the survival of societies, groups, and individuals)

Paris's four-fold typology – which also includes human security as one brunch – helps to differentiate the principal non-military or non-convencional appraches to security from one another. It is important to note that the boundaries of these four areas are not absolute. For instance, environmental degradation may simultaneously pose a threat to the survival of states and sub-state actors – society, groups, or individuals – and could, thus, belong to either left or right area (See Table 1.). However, the permeability of these boundaries, as Paris contends, should not be a "significant problem for scholars because each area represents a broad category of research – or a cluster of issues and questions, rather than a distinct causal hypothesis or theory – which would need to be more clearly specified" (2001, 98).

In this article, I focus primarily on the state-centric approaches in reviewing the existing literature on the relations within the environment – security – international relations triangle. The literature dealing with environmental security addresses these three research topics (Lowi and Shaw, 2000, 2):

I. *Defining the concept of environmental security*: The ways to incorporate environmental security into the concept of security.

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three major dimensions: (1) *whether they assume that security is based primarily on* (1) *conflict or cooperation* [emphasis added], (2) the unit of analysis (individual, national, or global), and, (3) the threats with which they are concerned.

II. *Empirical studies on environmental degradation and conflict*: Is there a relationship between environmental factors and violence? Do states go to war because of environmental threats?

III. *Environmental conflict prevention through cooperation*: Could conditions of or changes to the environment encourage cooperation, rather than conflict, between states? What are the most effective venues for addresing environmental security issues?

These three groups of environment and security research issues correspond to what Levy (1995/96, 46) and Ronnefeld (1997, 473) name as "three waves" or "three generations", respectively. I prefer the notion of "subject areas" because it does not refer to chronologically separate periods of environment and security research. In fact, the subject areas should be regarded as parallel avenues for research.

This article analizes the questions I and II. I deal briefly with the non-state concept of human security and I continue with consideration of environmental problems within the framework of state-centric concepts of security. Finally, I present my ratonale for the adoption of a pluralistic theoretical approach in studying environmental security issues.

Although the case for connecting environment and security may be based on four possible types of argument such as "conceptual, theoretical, political, and normative" (Sooros, 1994, 317), I shall focus my analysis on the first two arguments. Yet as important as environment and security may be, they must be conceptualized into a particular analytical form, be it a "human security", a "national security", an "extended security", or an "inter-state (homeland) security".

Recently, Barnett also pointed out this problem, distinguishing seven major areas within the discourse of environmental security: (1) effors to redefine security; (2) theories about environmental factors in violent conflict; (3) the environmental security of the nation; (4) the linkages between the military and environmental issues; (5) the ecological security agenda; (6) the environmental security of people; and, (7) the issue of securitization (2001, 8). The most salient point of his heuristic guide is the way in which re-defining security and securization can lead to a focus on either national security or ecological security. (The idea of ecological security adopt a "deep green perspective" by considering the biosphere as the "penultimate" referent of security) Both national security and ecological security are closely associated within a concern for conflict and a concern for human security. Barnett's heuristic guide, however, suggests no link between national and human security (2001, 10).

Linking Security and the Environment

The recent tendency to broaden the concept of national security is rooted in the years immediately following the Second World War. The

concept of "preventive defense", as the former U.S. Secretary of Defense William J. Perry calls the extension of military security (1996, 1), was first introduced by the U.S. Secretary of State George Marshall. General Marshall was convinced that the Soviet Union was deliberately trying to prevent the recovery of European countries in order to achieve its own political goals – primarily, the spread of Communism. That situation required a quick response. Marshall's brief address at Harvard University on June 5, 1947, was: "The truth of the matter is that Europe's requirements for the next three or four years of foreign food and other products – principally from America – are so much greater than her present ability to pay that she must have substantial help or face *economic*, *social*, and *political deterioration* of a very grave character" (quoted in Evans et al, 2000, 13).

However, because of the increasing pressure of the Cold War, the "enlighted" concept of American national security, as Evans and others describe it, became more narrowly focused on anti-Communism, containment, confrontation, and intervention. Thus, the Cold War had to deal primarily with the symptoms rather than the causes of conflict.

The fall of the Sovet Union changed the international security agenda dramatically. Instead of the two main themes of the Cold War Era (military and ideology), the non-military elements of security – "political, economic, cultural, demographic and environmental fators" – have become much more important (Evans et al, 2000, 14). Therefore, these new concerns, including the environment, are neither "new" as Price (1998) and other scholars assert nor incidental to the definition of security; but, rather they are integral. Yet, the biggest challenge in this "risky business" (Tennberg, 1995) is to understand how these key variables affect security on both national and international levels and how to address them in order to improve security (Elliot, 1996; Noorduyn and deGroot, 1999).

In the remining part of this article, I analyze various approaches that link environment and security in ways that can serve as a more practical guide to both research and policy. As I said earlier, I emphasize the state-centric concept of security – an approach that can be the most relevant to official security institutions, and, especially, to IR theorists. I argue that environmental factors can and should be incorporated into various state-centric concepts of security, such as national security, extended national security, and intra-state (homeland) security. Intra-state security is included because some consequences[6] of intra-state conflicts, in which

[6] According to Myers, some of environmental problems in the Third World, such as tropical deforestation and the spread of deserts, can affect the United States directly or indirectly (1989, 23). For example, as cropland soil erodes, water supplies fail, and forests and grasslands are depleted, Third World economies start to falter or stagnate, even to decline. This process can have serious adverse consequences for the United States, at first place, a loss of markets and investments.

environmental factors can play an underlying role, may have a significant impact on international relations. The international environmental refugees is only one example of such impacts of intra-state conflicts.

Choosing Between Various Concepts

The recent global wave of environmental consciousness has presented scholars with the challenge of dealing conceptually with a great diversity of environmental issues – including security concepts that contain an environmental component. These concepts, for instance, include the negative impacts of war and peace-time military operations, the impacts of industrial activities and technology, and the strategies for a sustanable development. This analysis shows that scholars respond to this challenge by pursuing two goals that are potentially methodological contradictory. On the one hand, researchers attempt to increase analytic differentiation in order to capture the diverse forms of environmental security that have emerged; and, on the other, scholars are concerned with conceptual validity. In other words, they tend to avoid the problem of "conceptual stretching" (Sartori, 1970) that arises when the concept of environmental security is applied to cases for which, by relevant scholar standards, it is not appropriate.

According to Sartori, conceptual differentiation can be improved by "moving down" the ladder of abstraction (or "generality"[7]) to concepts that have more defining characteristics and match a narrower range of cases. This move down the ladder is often accomplished through the creation of what I will call sub-types of security such as national security, extended national security of which a part is also environmental security, intra-state security, and human security. Researchers, therefore, seek concepts that make a distinction between different degrees of environmental threats, in addition, to distinguishing among different types of environmental degradation.

Another aforementioned problem – conceptual stretching – can, according to Sartori, be avoided by "moving up" the ladder of generality to concepts that have fewer defining attributes and, correspondingly, can be applied to a broader range of cases (1970, 1041). But, Sartori's strategy, as Collier and Levitsky observe, has an importand drownback: It leads to a loss of conceptual differentation (1997, 437). And, as Collier and Levitsky state, "taken together, Sartori's two strategies can advance one or the other of these goals but not both at once" (1997, 437).

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[7] Collier and Levitsky use the term "ladder of generality", because, as they say, "the term *abstract* is often understood in contrast to *concrete*, and this label can be confusing" (1997, 434). Therefore, "ladder of generality" expresses the intended meaning more clearly.

My analysis of existing environmental security concepts shows that scholars have put a more expressed emphasis on the issue of conceptual differentiation that on that of conceptual validity. This, as the paper will demonstrate, brings a variety of methodological shortcomings.

Human Security and the Environment

Human security, as the United Nations Development Programme (UNDP)[8] defines it (1994), is an "integrative" concept that includes: (1) economic security (assured basic income); (2) food security (physical and economic access to food); (3) health security; (4) environmental security (access to sanitary water supply, clean air and a non-degraded land systems); (5) personal security (security from physical violence and threats); (6) community security (security from ethnic cleansing); and, (7) political security (protection of basic human rights and freedoms). This description implies that the traditional concepts of state security are a necessary but not sufficient condition of human welfare (Marković, 2002).

Human security matters obviously to humans rather than States. This implies the notion of security as a "complex cultural politics of defining danger" (Dalby, 2002a, 72). Human security, therefore, may be viewed differently, depending on the cultural context of the researcher.

The UNDP, for instance, warns: "For most people today, a feeling of insecurity arises more from worries about daily life than from the dread of a cataclysmic world event. Job security, income security, health, *environmental security* [emphasis added], security from crime – these are emerging concerns of human security all over the world" (1994, 3). Or, in a slightly different way, Newman observes: "The citizens of states that are 'secure' according to the traditional concept of security can be perilously insecure to a degree that demands a reappraisal of the concept" (2001, 240). Accordingly, the objective of human security is to redress this asymetry of attention, or, to point out the "freedom from want" instead of "freedom from fear" (Newman, 2001, 240).

Addressing the "poverty" and "inequity" issues is essential for considering environmental problems within a broader perspective since they contribute to tension and insecurity throughout the world. However, connecting poverty and inequity within the human security concept might confuse us with a related concept of sustainable development (Andevski,

[8] The UNDP's definition of human security remains the most widely cited formulation of the term, although different members of the "human security coalition" – the term suggested by Paris – have modified the definition to fulfill their own objectives (2001, 90). There are three distinct members of this human security network: the "middle power" states led by Norway and Canada, development agencies, and non-governmental organizations (NGOs) (Paris 2001, 87-89). Also, this list can be extended by the members of scientific community (See: Grundmann, 2001).

2006; Miltojević, 2006). Namely, the early literature on sustainable development explicitly climed the role of poverty as a major cause and effect of global environmental problems. Lonergan, for instance, argues that there is a significant difference between human security and sustainable development, that is, the former is primarily "instrumental and analytical", the latter is primarily "normative" (2000, 74). In short, the focus in environment and conflict research has "root causes"[9] while much sustainable development emphasis has been on "developing guiding principles with which to inform policy" (Lonergan, 2000).

Despite the appeal of human security – it recognizes the inter-linkages of environmental factors and society – some scholars believe that it can hardly become a strong research agenda and even less a policy orientation. Because the basic concept of human security raises a very wide range of issues, it inevitably leads to the problem of conceptual stretching. Thus, the full range of issues threatens to undermine the meaningfulness of the concept of human security.

To illustrate these problems, consider Newman's efforts (2001) to classify a variety of issues under a common umbrela concept – human security. He has made four overlapping typologies that group security issues together: (1) basic human needs; (2) assertive/intervenionist focus; (3) social welfare/development focus; and, (4) "new security" that includes epidemiology (especially AIDS), drugs, terrorism, small arms, inhumane weapons such as anti-personnel landmines, cyber-war, and trafficking in human beings. These groups are not mutually exclusive, and, as Newman notes, some concepts of human security would be better defined as "non-traditional security". However, Newman's attempts to transform national security into non-traditional security, i.e., human security, is even more complicated for analytical purposes. For instance, terrorism has been become part of the national securicy discourse.

Obviously, defined in this way, human security is far from being an analytical tool for scholarly research. As a consequence, there has been no consensus on either focus or methodology. Paris has the same view and correctly points out these methodological problems:

> Given the hodgepodge of principles andobjectives associated with the concept, it is far from clear what academics should even be studying. Human security seems capable of supporting virtually any hypothesis – along with its opposite – depending on the prejudicies and interests of the particular researcher. Further, because

[9] The authors of several recent studies, although investigating the root causes of various environmental degradation processes, such as a loss of global diversity, do not use the label of environmental security but that of sustainable development (See, for instance: Wood et al, 2000).

> the concept of human security encompasses both physical and more general notions of social, economic, cultural, and psychological well-being, it is impractical to talk about certain socioeconomic factors 'causing' an increase or decline in human security, given that these factors are themselves part of the definition of human security. The study of causal relationships requires a degree of analytical separation that the notion of human security lacks (2001, 93).

The disaggregation of comprehensive concepts such as human security may be a remedy to the problem described above (McCormick et al, 1997).

Despite these methodological shortcomings due to the concept's inclusiveness, holism, and incoherency, both the environmental communities and scholars continue to embrace human security. Obviously, the "ambiguity" and "definitional" expansiveness have become powerful characteristics of human security in a sense that they effectively mobilize collective action of the memebers of the "human security network" (Paris, 2001, 102; 2005, 479). Moreover, Pettman seeks to broaden the definition beyond the already expansive UNDP framework (2005).

National Security, Extended National Security, and the Environment

The national security concept tends to consider the implications of environmental change within the framework of conventional (military) security (Matthew, 2000a and 2000b), in which the security referent is a state and a threat comes from some other state(s). There are a number of concepts that offer how to link the environment and national security. Allenby, for instance, sees the environmental security as an "intersection of environmental and national security considerations at a national level" (2000, 5). Yet, for many "environmental security" concepts, a common feature is making a hierarchy of environmental issues. In other words, not all environmental problems deserve to be noted on the security agenda. The storage and disposal of toxic waste products, especially, those related to the problems of weaopns, may be of paramount concern to a state's or region's stability.

Evans et al (2000, 24) claim that environmental degradation processes such as global worming, ozone depletion, over-fishing, or threats to biodiversity clearly make the environmental agenda; but not all of them should be incorporated in the national security agenda; all of them, however, should be involved in, as I call it, "extended national security ". Inclusion of environmental threats in the USA national security agenda, for instance, depends on the "region" and on USA interests (Evans et al, 2000). In terms of the former, problems such as water resource disputes, shipment of toxic wastes between countries, and trans-border air pollution

are closely tied to security (Keller, 1996, 1-4). In respect to the latter, a number of issues deserve attention with emphasis on the after-effects of Soviet industrial and military practices in Central Europe and environmental problems that have stricken sub-Saharian Africa and the Caribbean.

Mohammed (1996, 5) foretells, in line with Kaplan's *Coming Anarchy* (1994), direct military conflict over scarce resources in at least fifteen African countries with a higher than average population density: Benin, Burundi, Egypt, Ethiopia, Gambia, Ghana, Kenya, Lesotho, Malawi, Morocco, Nigeria, Rwanda, Swaziland, Tunisia and Uganda. Due to strong pressure on the natural resources, environmental degradation will cause population migrations and economic crises that will in turn, in Mohammed's opinion, produce violent conflict.

A similar scenario has already been observed in Latin America. The deforestation of Haiti, for example, has led to an inability of this country to provide the national agricultural production at a subsistence level. These deteriorating economic conditions lead to civil unrest and ultimately to illegal immigration to the United States.

The two groups of issues addressed above allow two general ways in which to incorporate environmental factors into national security theory and practice. There are essentially two questions to be answered:

> (1) In what ways might environmental change threaten national interests and hence become relevant to the conventional mandates of military and intelligence institutions?
> (2) How do our national security practices affect the environment, and, can they be modified to do less harm or even some good (Matthew, 2000a, 39)?

Matthew's answer to the first question, from the USA foreign policy perspective, identifies the three areas that deserve the attention of policy-makers and scholars:

(1) using security assets to protect access to environmental goods outside of the USA borders, such as Middle East oil or international fisheries;

(2) using force to respond to humanitarian crises generated, at least in part, by environmental problems, as in Somalia; and,

(3) bringing security assets to bear on situations in which environmental change has triggered, caused, or amlified violent conflict in areas important to USA or its allies (Metthew, 2000a).

This classification implies that there is no distinction between natural and environmental resources. Nonetheless, for analytical purposes, it seems reasonable to distinguish environmental from resource issues.

The main difference between the two is not the finite nature of a resource[10] but criteria of "function" and "manipulation" (Lowi, 2000, 150). Lowi argues that the first criterion – function – has to do with whether the resource is primarily of economic value, as is oil, or is life-sustaining, as is water. The second has to do with whether the resource is utilized through drilling, mining, and extraction or is subject to damage through human activity. Lowi observes that for both criteria, the former characterizes a resource issue, and, the latter, an environmental issue (2000, 150). Accordingly, environmental issues should refer to damage to the soil, water, or air, thus affecting croplands, forests, and marine life.

Matthew's answers to the second question consider the role of military organization in respect to the environment. Here, Metthew sees four ways to incorporate environment into the traditional concept of national security (2000a, 44-45):

(1) greening military training, testing, and war-fighting activities;

(2) using sophisticated devices for gathering and analyzing data relevant to environmental policy initiatives;

(3) mobilizing the security community to support environmental projects, and,

(4) using transnational association of security communities with a goal of promoting dialogue on environmental issues.

Mattew's incorporation of some environmental issues within the traditional, or military concept of national security can serve as a useful analytical tool for scholars and policy-makers. To ignore the role of environmental degradation processes in fostering conflicts would be, he concludes, "fulish, even if it is rarely the primary cause of such problems" (2000a, 47). And, military organizations follow suit. For instance, the North Atlantic Treaty Organization's (NATO's) Committee on the Challenges of Modern Society (CCMS) recognizes that with both global-scale and localized environmental problems "the security dimension is clear" and a "complete definition of security would include these components" (Dyer, 2001, 443). CCMS strsses the following important topics:

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[10] I deliberately add the adjective "environmental" to make clear the need of distinguishing between the resource scarcities that include depletion of non-renewable resources such oil, coals, minerals, and renewable environmental resources.
Furthermore, when there are no limits to access, it is useful to make a distinction between, in Grundmann's terms, so-called "public goods" (such as water, soil, fishery, and biodiversity) and "common pool resources" (such as ozone) (2001, 7). The difference between common pool resources and public goods is: "one actor's use of resources can cause negative consequences for all others. Every inhabitant of the earth profits from an inviolate ozone layer. The ozone layer keeps intact even when the world population increases.… However, it may be harmed if one single actor emits large amounts of ozone depleting substances into the atmosphere. It follows that the protection of common pool resources is much more difficult than the provision of a public good that in principle can be provided by one actor" (Grundmann, 2001, 8).

> Just as environmental stress can lead to conflict, conflict can lead to more environmental stress;
> The socioeconomic and political context surrounding environmental stress is usually the key determinant of the level of conflict that arises; and
> *Public perceptions* [emphasis added] of the potential damage from environmental stress are a critical aspect of environmental security (McNelis and Schweitzer, 2001, 111A).

A NATO-sponsored pilot study on *Environment and Security in an International Context* indicates that early indicators of a potential environmental conflict are often associated with political sensitivities as well as with contextual factors that may magnify the projected impacts of such problems. Thus, the risks of global environmental degradation processes may be perceived in the light of particular cultural values of life-styles. The same may be said for the perceptions of traditional national security (Jarvis, 1976).

Nonetheless, the potential of environmental degradation to contribute to violent conflict is, im many instances, a leading criterion in shaping the environmental security concept (Libiszewski, 1992). It can provide a bacground for rich and in-depth case studies. Thus, Horsman claims that fresh water resources in Central Asia (the Amu Darya and Syr Darya Rivers), especially when linked with irrigated land, may be the "only regional environmental issue[11] that demonstrates a probable linkage between environmental degradation and the outbreak of violent civil or interstate conflict" (2001, 69). However, this aspect of environmental security (environment as a cause of conflict) is only one in Sarty's framework (1995).

Sarty's concept of environmental security usually applies to at least one of five spheres. These are: (1) The environment as a cause and/or object of conflict; (2) the environment used as an instrument of war; (3) environmental degradation resulting from military action; (4) the indirect influence of environmental degradation on security via development and welfare issues; and, (5) environmental degradation and protection, distinct from its political and security implications. This seemingly "narrow" definition of environmental security tends, therefore, to consider a wide range of issues of relevance to both the national security and the extended national security. The last two categories significantly increase the range of issues, thus entering the human security area. If de-

[11] The other major environmental concerns in the region (Kazakhstan, Uzbekistan, Turkmenistan, Kyrgyzstan, and Tajikistan) include the desiccation of the Aral Sea and the consequences of Soviet and Chinese nuclear weapon testing at Semipalatinsk (now known as Semey, Kazakhstan) and Lop Nor (China) (Horsman 2001, 69).

fined so broadly, this concept of environmental security risks the same destiny as the concept of sustainable development.

In line with this, Graeger forcefully argues that if we remove the words "sustainable" from sustainable development and "environmental" from environmental security we end up with two different research agendas fixed by different disciplines and interpreted by different policy-making institutions (1996, 113). On the other hand, an approach focusing on the relationship between the environment and conflict rather than security can overcome some methodological difficulties. This perspective is, as Graeger notes, "less ambitious but also more precise", and it could be, in many instances, analyzed within the inter-state security concept. Even if we narrow this research on how environmental change affects conflict, rather than security, the topic is still too vast.

Homer-Dixon shares the same opinion, introducing the concepts of environmental change, conflict, and scarcity (1991, 1993, 1994, 1996, 1999). According to this author, environmental change may contribute to conflicts as diverse as "war, terrorism, or diplomatic and trade disputes" (1991, 77). The term "environmental change", although an imperfect one, may refer to any of the following phenomena: Resource depletion, resource degradation, and resource "capture" – or altered and inequitable distribution of the resource (Lowi, 2000, 152-153). Homer-Dixon proposes that developing countries will, in general, be more vulnerable to environmental change than developed ones:

> therefore, environmentally induced conflicts are likely to arise first in the developing world. In these countries, a range of atmospheric, terrestial, and aquatic environmental pressures will in time probably produce, either singly or in combination, four main, causally interrelated social effects: reduced agricultural production, economic decline, population displacement, and disruption of regular and legitimized social relations. These social effects, in turn, may cause several specific types of acute conflict, including scarcity disputes among countries [emphasis added], clashes between ethnic groups, and civil strife and insurgency, each with potentially serious repercussions for the security interests of the developed world (1991, 78).

Put in a slightly different way, Homer-Dixon's classification recognizes three distinct types of conflicts originating from environmental change: (1) simple scarcity, (2) group identity, and, (3) relative deprivation conflict. The first conflict is of international scale, the second can be both international and domestic, and the third type of conflict is domestic but with international repercussions (1991, 112). Scarcity disputes among countries Homer-Dixon denotes as a "simple scarcity conflict" since the actors of the game (states) rationally calculate their costs and benefits

having clearly defined "preferences and perfect information" (Downs 1957). The simple conflict over environmental resources[12] is most often either a zero-sum or negative-sum game. Thus, this type of conflict is stripped of its psychological and social components. Apparently, Homer-Dixon's 1991 article from International Security that is reiterated here briefly, had a profound effect on both academic scholarship and policy-makers. Kaplan goes so far as to state that the article "On the Threshold: Environmental Changes as Causes of Acute Conflict" may turn out to be the framework for future policy (noted by Dalby, 2002b, 29).

More recently, Homer-Dixon in his newest book The Upside of Down argues that converging stresses could cause a catastrophic breakdown of national and global order. He identifies five "tectonic stresses": energy stress, economic sress, demographic stress, climate stress, and environmental stress (2006). He contends that these stresses greatly increase the risk of a cascading collapse of systems vital to our well-being – a phenomenon he calls "synchronous failure". This outcome, as Homer-Dixon adds, is not inevitable. People may be able to exploit less extreme forms of breakdown, if they achieve deep reform and renewal of institutions, social relations, technologies, and entrenched habits of behavior.

Although environmental change can be perceived as a serious threat, it is not necessarily a national security concern. Lowi argues that the prominence of these environmental factors as conflict-provoking factors varies in "time, place, and intensity", and, they are never more than one of several components or contextual features of conflict (2000, 164). In fact, she adds, "inter-state violence tends rather to result from fundamental and, seemingly, insurmountable disagreement over core values such as sovereignty, identity, the survival of communities, and the distribution of power" (2000, 164). Also, the extent to which the state is prepared to respond to the environmental change coming from outside relative to other national concerns is a matter of perception and of degree of responsiveness.

In respect to this, the theory of interdependence (Keohane and Nye, 1977), particularly its terms of "sensitivity" and "vulnerability", could be analytically very useful. The first term refers to "degree of responsiveness within a policy framework – how quickly do changes in one country bring costly changes in another, and how great are the costly effects" (Keohane and Nye, 1977, 12). Thus, sensitivity assumes that the policy framework remains unchanged. On the other hand, the vulnerabil-

[12] Homer-Dixon proposes that simply scarcity conflicts may arise over three types of resource in particular: river water, fish, and agriculturally productive land (1991, 107). He adds: "These renewable resources seem particularly likely to spark conflict because their scarcity is increasingly rapidly in some regions, they are often essential for human survival, and they can physically seized and controlled".

ity category of interdependence means the "relative availability and costliness of the alternatives that various actors face" (Keohane and Nye, 1977, 13). Wheras sensitivity remains constant over time, vulnerability can decrease, which makes it practically more important than sensitivity.

Intra-Sate Security and the Environment

As I stressed above, the concept of environmental conflict call for more restricted use. An environmental conflict is a conflict caused by a human-made disturbance[13] of the normal regeneration rate of a renewable resource (Libiszewski, 1992, 6). Thus, a conflict over water is an environmental conflict if the water becomes an object of contention as a result of soil erosion, pollution, and so on, but not in the case of an ordinary territiorial or colonial conflict or an anti-regime civil war aiming at the redistribution of water. Libiszewski therefore makes a distinction between those conflicts which result from environmental degradation and those which result from simple environmental resource scarcity.

Homer-Dixon and his research team ("the Toronto Group") made also a significant effort in conceptualizing environmental scarcity. Their Project on Environment, Population and Security analyzed "cases that exhibited both environmental scarcity and violence – cases with a prima facie link between these two factors" (Percival and Homer-Dixon, 1998, 279). However, for this group, environmental change is only one of three main sources of scarcity of environmental resources.

In short, their concept of environmental scarcity includes: (1) environmental change, which means a human-induced decline in the quantity and quality of a renewable resources that occurs faster than it is renewed by natural processes; (2) population growth, which reduces a resource's per-capita availability by dividing it among more and more people; and, (3) unequal resource distribution, which means concentration of a resource in the hands of a few people while subjecting the rest to greater scarcity. They call these sources of scarcity, respectively: (1) supply-induced, (2) demand-induced, and, (3) structurally-induced. It is obvious that the Toronto Group's definition of environmental scarcity, except demographic growth, contains all sources of environmental conflicts listed by Lowi (2000, 152) and Libiszevski (1992, 6). Yet, this concept of environmental scarcity, with an emphasis of demographic and other domestic factors, provides a more useful framework in terms of intra-state security concerns.

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[13] According to Libiszewski, a natural resource is "characterized by a fixed stock steadily depleted over time, or systems in which the feedbacks are strictly economic and not ecological, [and] ought not to be considered" (1995, 6). On the other hand, environmental resources refer to phenomena in which there are ecological feedbacks and equilibria.

Homer-Dixon also offers a more refined insight in the interaction of the three sources of environmental scarcity, introducing the terms: "resource capture" and "resource marginalization" (1994, 10-11). The former refers to a process in which a fall in the quality and quantity of an environmental resource along with population growth can encourage powerful groups within a society to shift resource distribution in their favor. The latter refers to a situation in which unequal access to a resource combined with population growth can cause migrations to regions that are ecologically fragile.

Conclusion

Various perspectives (state-centtric, humanistic, and ecological) on linking environment and security reflect different values and aspirations. State-centric concepts, explained in detail here – national security, extended national security, and intra-state security – consider the implications of environmental change within the framework that implies a dominant role of a state in security.

However, it does not mean that the other approaches (for instance, ecological or humanistic) should be discarded. Taken all together, they express the full complexity of the relationship between environment and security.

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БЕЗБЕДНОСТ И ЖИВОТНА СРЕДИНА: КАКО ИХ ПОВЕЗАТИ?

Резиме

Глобални деградациони процеси у животној средини заузимају истакнуто место у међународним пословима, односно, еколошка питања се препознају као легитимни предмет разматрања у безбедоносним студијама. Бројни стручњаци, креатори политике и активисти предлажу проширење традиционалног концепта безбеднсти који се, иначе, темељи на геополитичким и војним анализама. Проширени концепт безбедности обухвата и разматрање еколошких претњи које могу исто тако да угрозе егзистенцију човечанства.

У овом чланку су критички анализирани концептуални и теоријски аргументи који иду у прилог укључивању проблема заштите животне средине у традиционални концепт безбедности, нетрадиционални концепт безбедности, као и унутар концепта хумане безбедности. Стратегија од које се полази приликом разматрања неког проблема у области заштите животне средине унутар одређеног концепта требало би да одговори на питања: (1) Да ли се ради о претњи за државу или недржавне референте безбедности (друштво, групе, појединци)? (2) Да ли претња има или не додирне тачке са војним сектором?

На основу критичке анализе постојећих концепата безбедности долази се до плуралистичког теоријског приступа који се чини најприкладнијим за истраживање на пољу међународне еколошке безбедности.

Кључне речи: питање зашите животне средине, безбедност, државно-центристички приступ, недржавно-центристички приступ