

Advances in Military Geosciences

Francis Galgano *Editor*

# The Environment- Conflict Nexus

Climate Change and the Emergent  
National Security Landscape

 Springer

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Editor

# The Environment-Conflict Nexus

Climate Change and the Emergent National  
Security Landscape

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*Editor*

Francis Galgano  
Department of Geography and the Environment  
Villanova University  
Villanova, PA, USA

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# Preface

The evolution of the global strategic situation following the Cold War suggests the need to expand the definition of national security to include environmental threats to stability. During the past two decades, there has been a dramatic shift in how we perceive the contemporary national security landscape. Leaders of governmental organizations and nongovernmental agencies have progressively come to accept that the harmful effects of climate change and other environmental factors are exposing vulnerable societies to instability and potentially, violent conflict. This altered perception of the linkages among global environmental problems and related economic and demographic challenges has now emerged as one basis for interpreting conflict and security. Certainly, the Intergovernmental Panel on Climate Change (IPCC) has dedicated a great deal of effort to assessing the vulnerability of human populations resulting from exposure to the adverse effects of climate change. The Fourth Assessment Report of the IPCC, which examines the issue of exposure, adaptation, and vulnerability, suggests that countries and societies, especially in the developing world, will have difficulty adapting to the strain of climate change in the not too distant future. Adaptation and resilience will be hindered by a lack of capacity, and the people hardest hit will be those living in poverty and within failed states.

This book is about the link between the environment and conflict. Environmental security refers to a range of security issues triggered or intensified by environmental factors such as climate change, resources, demographic factors, natural disasters, environmental change, and nonsustainable practices. Environmental stress has the potential to destabilize states, especially in the developing world because they are characteristically more dependent on the environment for economic productivity and they lack the resiliency to overcome these challenges. This perspective has considerably refocused the lens by which we view the environment as a variable in the national security calculus. As population and economic demands escalate, and the adverse effects of climate change become more apparent, collectively these problems may disrupt vulnerable populations to the extent that they erode governmental legitimacy, thus making them more vulnerable to instability and conflict.

Some dispute the relationship between the environment and conflict and suggest that violent conflict results only from political and military factors. Clearly, it is

difficult to identify conflicts in which environmental conditions are the causative factors. However, while the details of a potential conflict triggered by environmental factors cannot be predicted, the historical record provides useful guidelines because the evidence is clear that this linkage exists. The environmental security perspective given in this book does not assert that the nature of conflict is new; rather, it suggests that because environmental stress is growing worse, we can expect an increase in the frequency of conflicts with an environmental component. Additionally, the effects of climate change are not restricted by state boundaries. Indeed, research presented in this book demonstrates that developed and developing states are vulnerable to instability. However, data clearly suggest that the problem is spatially concentrated and greatly magnified in the developing world. These states are more vulnerable because they suffer from several persistent environmental and human variables such as environmental degradation, reduced agricultural production, economic decline, poor governance, population growth and displacement, and civil disruption.

Clearly, identifying states at risk to instability and violence from environmental causes involves an extensive and complex array of security issues, particularly if we define it very broadly. This book, however, narrows considerably the scope of environmental security by focusing exclusively on how the environment affects conflict: i.e., the environment–conflict nexus. In so doing, the book offers a series of case studies that examine this nexus from a variety of perspectives (e.g., water, climate change, urban areas) and from different scales (i.e., local to global).

This book begins with three chapters that set the stage for the case studies that follow. In the first chapter, Francis Galgano establishes the importance of environmental factors on the emergent national security landscape, and in the second, he presents a quantitative index to identify states vulnerable to violent conflict resulting from exposure to the adverse effects of the environment. In the third chapter, Adam Kalkstein defines the scope of climate change and its influence on the environmental security model. The three opening chapters are followed by case studies that examine the environment–conflict nexus from a variety of perspectives and scales. The first such case study is presented in the fourth chapter in which Francis Galgano examines the global environmental disaster that may be precipitated by an abrupt climate change. This is a global-scale projection, based on plausible evidence supported by actual abrupt events that have occurred in the Holocene climate record. In the fifth chapter, Francis Galgano examines the global problem of renewable water resources and transboundary watersheds with a regional focus on the problem of water in the Middle East. This region has the world's fastest growing population and its renewable freshwater resources are strained beyond sustainable levels. In the next chapter, Dr. Amy Richmond examines environmental security from the perspective of problematical and nearly uncontrolled urban growth in sub-Saharan Africa. In the seventh chapter, Wiley Thompson examines the problem of Chinese expansion into the South China Sea through their practice of developing coral reefs into military bases, and expanding territorial claims. In the eighth chapter, Andrew Lohman presents an historical vignette from the First World War. In this case study, he describes the military campaign in East Africa, which was part of the larger imperialist roots of the war. In the ninth chapter, Francis Galgano presents a

case study of the Ogaden War of 1977, which illustrates a conflict that was triggered by exposure to a climate shock, in this case a decade-long drought. In the final chapter, Amy Richmond and Francis Galgano assess the root causes of the conflict and resultant genocide in Rwanda from an environmental security perspective. In the final chapter, Mark Read examines linkages between climate change, drought, migration, and the civil war in Syria.

The environment–conflict nexus has been propelled in large measure by globalization, which has eliminated much of the friction of distance and created expectations in the developing world of economic growth and affluence. It has also accelerated economic demands, leading to unsustainable economic activity and environmental damage, which combined with population pressure and climate change has stressed many ecosystems beyond their capacity. The dynamics of globalization have contributed to the number of failing and failed states incapable of keeping pace with the demands of environmental change, thus creating ungoverned spaces ripe for instability and conflict. As global population grows, economic demands may exceed the natural resource and economic base of many states, erode governmental legitimacy, and promote intrastate conflict over increasingly scarce resources. This topic is of considerable importance because the geopolitical implications of environmental security for US foreign policy are significant. With conflicts and recent environmental disasters in Rwanda, East Timor, Haiti, Darfur, and Syria as the precedent, the use of Western and United Nations (UN) military forces to address humanitarian dimensions of regional conflict has been now well established. However, UN and Western leadership has approached these commitments with acute reluctance. Nonetheless, conflicts with an environmental component coupled with divisive ethnic dimensions have increased pressure on the West and UN to commit resources to stability efforts.

The scenarios presented in this book clearly indicate that the future is not bright given our profound alteration of the natural environment and the weakening of government control in many states. Fortunately, however, this bleak prognosis is only a forecast based on contemporary trends. Like all predictions, it is rooted in contemporary trends and recent past history, and they do not, however, necessarily reflect a viable image of the future. Human society is not predestined to enter into an agonizing decline into environmental chaos, and clearly, there are scientific, technical, and economical solutions that can reduce the level of environmental stress and diminish potential conflict—and there are important social institutions that promote stability over chaos. However, these opportunities are opposed by considerable social, political, and institutional barriers. In order to prevail and lower the threshold of environment threats, the global community must deal with the roots of environmental instability.



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## About the Editor

**Francis A. Galgano** received a B.S. from the Virginia Military Institute in 1980. He later earned his master's and doctoral degree from the University of Maryland at College Park in 1989 and 1998, respectively. He retired from the Army as a Lieutenant Colonel after 27 years in 2007—at that time, he was serving on the faculty of the United States Military Academy. He is presently the Chair of the Department of Geography and the Environment at Villanova University. Dr. Galgano has coedited three military geography books and has authored a number of publications on various geographical subjects.

# Contributors

**Francis A. Galgano** Department of Geography and the Environment, Villanova University, Villanova, PA, USA

**Adam J. Kalkstein** Department of Geography and Environmental Engineering, Center for Languages, Cultures, and Regional Studies, United States Military Academy, West Point, NY, USA

**Andrew J. Lohman** Department of Geography and Environmental Engineering, United States Military Academy, West Point, NY, USA

**Mark R. Read** Department of Geography and Environmental Engineering, United States Military Academy, West Point, NY, USA

**Amy K. Richmond** Department of Geography and Environmental Engineering, United States Military Academy, West Point, NY, USA

**Wiley C. Thompson** Oregon State University Extension Service, Eugene, OR, USA

# The Environment–Conflict Nexus



Francis A. Galgano

**Abstract** The evolution of the global strategic situation following the Cold War suggests the need to expand the definition of national security to include environmental threats to stability. Environmental security refers to a range of security issues triggered or intensified by environmental factors such as climate change, resources, demographic factors, natural disasters, environmental change, and non-sustainable practices. Environmental stress has the potential to destabilize states, but especially in the developing world because they are characteristically more dependent on the environment for economic productivity and they lack the resiliency to overcome these challenges. This chapter does not suggest that environmental stress—alone—causes warfare. To be more precise, it can potentially trigger violent conflict in unique situations of extreme civil instability and within failing states. The problem that we face today is that the number of failing states is growing, and they are more vulnerable to instability caused by environmental stress because they suffer from four causally related effects: (1) reduced agricultural production; (2) economic decline; (3) population displacement; and (4) civil disruption. These effects determine the vulnerability and adaptability of a society.

**Keywords** Climate change · Cold War · Conflict · Demographics · Desertification · Drought · Environmental Change · Environmental Determinism · Environmental Security · Environment–Conflict Nexus · Failed States · Globalization · Governance · Internecine Conflict · Malthus · National security · NATO · Population · Poverty · Regional Warfare · Soil Erosion · Warsaw Pact · Water

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F. A. Galgano (✉)

Department of Geography and the Environment, Villanova University, Villanova, PA, USA  
e-mail: [francis.galgano@villanova.edu](mailto:francis.galgano@villanova.edu)

## 1 Introduction

Since the end of the Cold War, the perception of the national security landscape has evolved and linkages between the environment, political instability, and violent conflict—that is, environmental security—have become an increasingly accepted paradigm in security affairs. Environmental security refers to a broad range of security issues triggered or exacerbated by demographic and environmental factors such as competition for resources, population growth and displacement, disease, natural disasters, climate and environmental change, resource shortages, and non-sustainable practices (Harnish 2009). During the past two decades, there has been a shift in governmental circles and well as the academic community's perception of global environmental problems and their link to destabilizing societies (Solow 2011; Femina and Werrell 2012). Indeed, the Intergovernmental Panel on Climate Change has dedicated a great deal of effort to assessing the vulnerability of human populations resulting from exposure to the adverse effects of climate change (IPCC 2007, 2012, 2014). Thus, the environment has emerged as one basis for interpreting conflict and security. This is made more complicated because the environmental security paradigm encompasses an extensive and complex array of security issues, particularly if we define security very broadly to include societal, environmental, social, and economic wellbeing. Consequently, this book and the chapters herein, focus on the environment–conflict nexus, which is defined as political instability and violent conflict enabled by the exposure of a vulnerable population to the adverse effects of the environment.

Hence, this book examines linkages between environmental stress, political instability, and conflict; and the analysis provided in its chapters suggests that developing states are more vulnerable because they suffer from several persistent and causally-related factors, such as environmental degradation; reduced agricultural production; economic decline; weakening governance; population growth and displacement; and pervasive civil disruption. These problems are magnified because of the persistent and problematical adverse effects of global climate change (IPCC 2014). Furthermore, the dynamics of globalization has eliminated the friction of distance and created expectations in the developing world of economic growth, thus intensifying the gap between developed and developing states (Butts 2011). Although, the IPCC (2012) indicates that all countries are vulnerable to climate change, developing states are consistently more vulnerable. This sharpens the lens by which we view the environment as a variable in the national security calculus. As populations grow and economic demands increase, and the adverse effects of climate change manifest themselves within states already struggling with governance issues, the combined effects of these problems may exceed the natural resource and economic base of the state and erode governmental legitimacy, thus making them more vulnerable to conflict (Smith and Vivekananda 2009).

The prevalence of the environment–climate nexus also suggests that continued peaceful resolution of environmentally triggered conflict is inconsistent with the realities of the emerging national security landscape. Given these circumstances, it

is plausible that we will witness a surge in three modes of conflict related to the environment–conflict nexus: internecine conflict driven by environmental stress and demographic trends; civil war prompted by governmental collapse and/or economic failure; and limited–scale interstate conflicts. This assessment is related to three persistent realities. First, climate change is magnifying extant demographic and environmental factors beyond the adaptive capacity of many states. Second, the proliferation of failing states has singularly reduced resilience and the potential for diplomatic resolution in many regions. Finally, competition for essential resources has been exacerbated by population growth and globalization in many regions (Yohe et al. 2006). Thus, I argue that environmental factors will likely provide a tipping point that advances violent conflict in regions that may already be on the brink of instability.

The environment–conflict nexus has engendered particular concern in U.S. government circles. In the 2014 Quadrennial Defense Review, the Department of Defense indicated that,

... pressures caused by climate change will influence resource competition while placing additional burdens on economies, societies, and governance institutions around the world. These effects are threat multipliers that will aggravate stressors abroad such as poverty, environmental degradation, political instability, and social tensions – conditions that can enable terrorist activity and other forms of violence (DoD 2014, p. 30).

Thus, with environmentally related conflicts and humanitarian disasters in Somalia, Rwanda, East Timor, Haiti, Banda Ache, Syria, and Darfur as the precedent, the use of Western and United Nations (U.N.) resources and military force to address humanitarian dimensions of regional conflict has been now well established, and it appears that environmental change and resource scarcity may already be contributing to instability and violence (Solow 2011). A word of caution however, the environmental security perspective does not assert that the nature of conflict is new and I do not hypothesize that the causal links between environmental variables and conflict are deterministic. Rather, I propose that potential conflict related to environmental factors cannot be predicted accurately—I do, however, suggest that we can determine which states are most vulnerable given a set of variables.

The environment–conflict nexus encompasses a broad set of factors that endanger human security; and many anthropogenic processes combine with natural processes environmental conditions to enable instability resulting from ignorance, accident, mismanagement, or design (Hsiang et al. 2011). Yet, the problem is that delineating factors that contribute to environmental instability is an inexact method involving environmental risk analysis based on complicated linkages between human and natural processes. Therefore, it is helpful to establish a framework—or model—to delineate the various factors that are operating in a region and from which cogent analyses can be made.

## 2 The Environment–Conflict Nexus

Few threats to peace and survival of the human community are greater than those posed by the prospects of cumulative and irreversible degradation of the biosphere on which human life depends. . . . Our survival depends not only on military balance, but on global cooperation to ensure a sustainable environment. Brundtland Commission Report, U.N. (1987)

This book is focused on the environment–conflict nexus because contemporary events suggest that there is a link between the environment and conflict. States are susceptible to this nexus because exposure to the adverse effects of environmental change can destabilize governments and societies, thus making them increasingly vulnerable (Wagner 2005). However, the link between the environment and conflict is a matter of some polemic and continues to inspire debate in academic and professional circles. Nevertheless, contemporary research suggests that climate and environmental factors are already contributing to political instability and violence (Bennett 1991; Shah and Landay 2010; Burke et al. 2009; Solow 2011). At the crux of the matter are three critical and interrelated factors. First, the adverse effects of climate and environmental change are having a more pervasive and debilitating effect on people and governments, thus eroding their ability to adapt (IPCC 2012). The second is governance, the number of failing states is growing and adaptive capacity and stability is tied strongly to governance (Smith and Vivekananda 2009). Failing states are problematical because they have large areas that are outside of effective government control and are thus affected severely by humanitarian disasters, environmental stress, and internecine conflict (Galgano 2007). The third factor is economic. Poverty at national and household levels intensifies vulnerability to environmental stress and degrades resilience (Hendrix and Salehyan 2012). This dilemma is expected to grow worse during the coming decades given that global population will exceed 9.0 billion and to keep pace, economic output will have to quintuple (Homer–Dixon 1991).

Environmental stress is having a fundamental effect on stability because the economic welfare of more than 3.5 billion people—about half of the world’s population—is tied to the land. Therefore, factors such as agricultural productivity, water, fuel, and deforestation are crucial environmental indicators; especially given the dual problems of population growth and climate change (IPCC 2007). Drought, desertification, deforestation, soil erosion, and exhaustion are major problems in many regions, but especially in the developing world; where exposure to the adverse effects of environmental change is of great consequence because almost 75% of the world’s most impoverished inhabitants are subsistence farmers facing declining productivity (Mutunga et al. 2012). These dynamics have important security consequences and represent the potential to undermine states that lack the resource base, institutional strength, and resiliency to meet these challenges.

Nevertheless, it is typical for linkages between the environment and conflict to be directly and absolutely causative. Although, in many examples environmental phenomena contribute to conflicts, they are seldom the sole causes. Ongoing research, and indeed the chapters in this book, indicate that there are too many other

variables to consider, such as social stratification, weak economies, and repressive governments by way of example. Each of these variables could destabilize a society, but in developing countries where absolute poverty, ineffective governance, the absence of reliable shelter, and pervasive health issues afflicts about 1.3 billion people, the adverse effects of environmental degradation and climate change can clearly serve as the trigger to violent conflict. History has demonstrated that impoverished people become desperate and all too ready to resort to force to overthrow governments or secure the resources they see as being necessary to their survival. Furthermore, especially in failing states, the environment–conflict nexus can stimulate the use of force by the government to repress disaffection among those who suffer the consequences of environmental decline.

Hence, environmental deficiencies and the effects of climate change create circumstances within which conflict is more likely: they can affect the character of conflict; they can determine the source of conflict; and they can act as multipliers that aggravate core causes of conflict. However, to reiterate a fundamental point—there are usually a number of factors that undermine security. They include faulty economic policies, inflexible political structures, oligarchical regimes, oppressive governments and other adverse factors that have nothing directly to do with environment. Nevertheless, these deficiencies typically exacerbate environmental conditions, and are aggravated, in turn, by environmental problems.

This is important because, the U.N. and Western leadership have approached these challenges with acute reluctance; nonetheless, conflicts with an environmental component have increased pressure on the West and U.N. to commit resources to stability efforts (Dulian 2004; Drapeau and Mignone 2007). Thus the seminal question, especially given the anticipated effects of climate change, is can the adverse effects of the environment destabilize a state and enable violent conflict; and effectively change the national security calculus?

## 2.1 *The Evolving Security Landscape*

The environment–conflict nexus has generated increased interest in professional and academic circles since the mid–1980s. The broader contemporary national security debate suggests that the potential for violent conflict triggered by environmental stress looms over society, which is much different from the traditional Cold War concept of security (Femina and Werrell 2012). Thus, a shift has taken place: during the Cold War, conflict and alliances formed almost exclusively along political lines; but now we have begun to pay greater attention to problems evolving from intensified competition over essential resources and environmental degradation (Floyd 2014). Environmental security first emerged as a potential variable on the security landscape during the mid–1980s; but it did not become firmly established until 1987, notably through the publication of the so-called *Brundtland Report*, which stated that. “... *environmental stress is both a cause and an effect of political tension and military conflict*,” (U.N. 1987, p. 290). This was followed by a hiatus in



professional and academic studies; however, it attracted renewed interest during the mid–1990s in governmental security documents, but especially following the fall of the Soviet Union because environmental security represented a fundamental change in the interpretation of national security affairs (Galgano 2013).

The environment first became an element in the U.S. National Security Strategy in 1988 when President Reagan’s National Security Strategy identified threats to the U.S. from the Soviet Union’s nuclear arsenal, but also from the environmental perspective “*the dangerous depletion or contamination of natural endowments of some nation’s soil, forest, water, and air*” ... which, “*create potential threats to the peace and prosperity that are in our national interests as well as the interests of the affected nations*” (White House 1988, p. 6). Later National Security Strategies followed suit by suggesting that the environment was a potential trigger for violent conflict (White House 1991, 1997). For example, the National Security Council (NSC) pointed out that, “*... stress from environmental challenges is already contributing to political conflict,*” (NSC 1991, p. 2). The 1991 National Security Strategy further indicated that it was a primary U.S. objective to “*... achieve cooperative international solutions to key environmental challenges,*” (NSC 1991, 21).

By 2005, the U.S. Department of Defense (DoD) identified environmentally related instability as a fundamental strategic concern, and that environmentally-triggered conflict typically manifests itself in failing states, thus making its international management and intervention difficult (DoD 2005). In his 2010 National Security Strategy, former President Obama reinforced the link between the environment and conflict when he listed environmental factors and resource scarcity as important features of the security landscape. He indicated that conflicts driven by ideology might give way to conflict triggered by demographic and environmental factors, “*Wars may no longer simply be about armies and weapons ... rather, it increasingly correlates to environmental factors and dynamics that have been rarely considered by national leaders*” (Obama 2010, p. 4). Therefore, national security affairs may no longer only be about traditional politico–military dynamics; rather, climate, resources, and demographics may now be viewed as being equally important as traditional elements of national power. In the 2014 Quadrennial Defense Review, the DoD clearly indicated that it viewed the environment as a contributor to regional instability and violence, “*Competition for resources, including energy and water, will worsen tensions in the coming years and could escalate regional confrontations into broader conflicts – particularly in fragile states*” (DoD 2014, p 14).

The environment–conflict nexus has been increasingly recognized in academic circles as well. Homer–Dixon (1991) proposed a conflict causality model that linked the environment to conflict and suggested that failing states are more vulnerable to environmental stress and suffer from four fundamental causally related effects: 1) reduced agricultural production; 2) economic decline; 3) population displacement; and 4) civil disruption (Homer–Dixon 1991). Kaplan (2000) suggested that environmental factors represent the core foreign policy challenge in this century, and

indeed, the ongoing discourse regarding the potential security and political implications of climate change has promoted environmental security to the forefront of the global security agenda (Maas et al. 2014). Klare (2001) suggested a national security geography to explain the evolving spatial dynamics of conflict following the Cold War—this one driven by competition over vital resources. Smith and Vivekananda (2007) examined the nexus of environmental stress and failing states and their analysis suggests that there are 46 developing states (2.7 billion people) within which the effects of climate change coupled with weak governance will create a high risk of violent conflict by the end of this century. Burke et al. (2009) conducted a comprehensive examination of global climate change and its potential linkages to armed conflict in sub-Saharan Africa, and suggest that there will be a 54% increase in the incidence of armed conflict by 2030. Hsiang et al. (2011) developed a quantitative model using ENSO data from 1950–2004 and demonstrated that the probability of conflict doubles in the tropics during El Niño years. Hendrix and Salehyan (2012) examined deviations from normal rainfall patterns in Africa and their results indicate that extreme variations in precipitation are associated positively with political and civil conflict.

Thus, it appears that environmental change and resource scarcity is already contributing to instability and violence, but especially in the developing world (Solow 2011). The environment–conflict nexus is a phenomenon that is correlated to low levels of economic development and high levels of agricultural dependence (Hendrix and Salehyan 2012). Links between environmental effects and conflict appears to be strongest in less developed states because the inability to adapt fosters grievances among disenfranchised groups and encourages heightened competition for natural resources. Hence, conflict is enabled in these scenarios because factors related to social stratification, which includes poverty and poor governance, make them more vulnerable (Solow 2011). Although there is growing evidence of the potentially disruptive effects of environmental change, the critical problem is defining the tipping point between societies that can adapt and those with highly stressed environments that cannot (Burke et al. 2009).

The problem facing the West is that, in the developing world, the capacity to adapt is declining as governments continue to fail and are simultaneously stressed by climate change (Galvano 2007; IPCC 2012). Consequently, the concept of environmental security has emerged as one basis for understanding conflict and security, and two broad doctrines have materialized. Traditionalist desire to confine the subject of conflict to politico–military dynamics, while others desire to broaden the discipline to embrace the environment and its potential effect on conflict (Foster 2001). The latter group certainly does not maintain that the character of modern conflict is somehow fundamentally different or unique. Rather, they suggest that because environmental stress is worsening and the number of failing states is growing; we can expect a surge in the frequency of conflicts such as, insurgency, ethnic clashes, civil war, and revolt with an environmental component (Bennett 1991; Klare 2001; Knickerbocker 2007; Sappenfield 2007; Butts 2011; Krakowka 2011).

## 2.2 *A Malthusian Link?*

Detractors of the environment–conflict perspective argue that conflicts result exclusively from politico–military factors, and are rarely induced by the adverse effects of environmental change, and hint at environmental determinism and the weakness of the Malthusian argument (Foster 2001). However, the environment may play a variety of roles in triggering conflict and environmental security doctrine is only one plausible explanation, not a deterministic model. Environmental stress and resource scarcity result from the combined influence of anthropogenic effects on the environment in conjunction with natural processes, and the sensitivity of the ecosystem. Consequently, environmental factors contribute to conflict only under particular conditions—there is no deterministic link between these variables (Percival and Homer-Dixon 1995). Clearly, not all conflicts are identical and the potential influence of environmental stress on instability and warfare will vary in magnitude from situation to situation (Krakowka 2011). Though the environment–security paradigm suggests that environmental change can enable violent conflict, studies have not been able to establish a clear causal link between the two. A great deal of evidence appears to be anecdotal and links are speculative, which is a fair criticism of the paradigm; and it also underscores the principal weakness of the environmental security model, which is a lack of predictive capacity (Solow 2011). That is, we have no overarching appreciation of which environmental scenarios will lead to conflict. While we do not have a complete picture of the causal links within the environment–conflict nexus, the old maxim that, “... *the absence of evidence is not an evidence of absence*,” is a suitable reminder that we can at least accept the plausibility of the paradigm; and that violent conflicts could ensue for a variety of causes that become more probable when environmental conditions deteriorate (Femina and Werrell 2014, p. 2).

Dynamics between population, governance, resources, economic base, environmental stress, and conflict are very complex and not a simple deterministic recipe. The outcome of a potential environmental security scenario is influenced strongly by government policy, social structure, strength of governance, technology, and infrastructure. The relationships between food, population growth, and environmental stress are evident in many developing states; nonetheless, this Malthusian paradigm generates much disagreement among researchers. However, regardless of the perspective, there appears to be one irrefutable outcome: that is, environmental stress superimposed over underlying societal–political divisions will be resolved—one way or another. Historical events indicate, unfortunately, that their resolution sometimes can be violent. The challenge is the ability to develop an analytical framework to detect the tipping point between a society’s resiliency and adaptability, and chaos and violence.