

GLOBAL WARMING CHALLENGES AND TACTICAL RAMIFICATIONS: ADDRESSING ECOLOGICAL SECURITY CONCERNS

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Abstract

Humanity has been facing frequent trials in the contemporary era. One seriously emerging challenge is global warming. It has a record of disastrous impacts on earth that are severe and cataclysmic. The Intergovernmental Panel on Climate Change attributes mega-disasters to global warming. These environmental calamities have raised serious concerns for leaders, scientists, environmentalists as well as public. The defence experts warn about gradually changing weather tendencies and emerging of new security challenges. Global warming is causing continuous fluctuations in our fragile ecosystem, and any persistent malfunctioning in the ecosystem would affect the politico-economic, strategic, and even very existence of humanity. It would require rational choices and new strategic approaches for saving humanity and numerous organism species under global warming impacts. Strategists, in the future, will inevitably explore looming tactical security concerns to safeguard defence capabilities. Against this backdrop, this paper argues that global warming will create severe strategic complications. In the coming decades, traditional national defence systems will have to undergo a new transformation supportive to cope with emerging cataclysmic security issues due to global warming. Therefore, innovative lines of tactical ecological rationale will become an essential part of national defence.

Keywords: Global Warming, Environment, Climate Change, Weather Security, Climate Governance.

Introduction

Since the dawn of the 21st century, frequent environmental disasters have been trooping on a global scale. Developed or developing, almost all states are facing these mega-catastrophes one after another. The cataclysmic nature of these calamities appeared to be a by-product of global warming metamorphosing into ecological security issues. The Intergovernmental Panel on Climate Change (IPCC) endorses greenhouse gases as an elementary cause of global warming. IPCC sequential scientific assessment reports mark a distinct need for mitigating hazardous emissions of greenhouse gases in our shared atmosphere.¹ Today, climatic disasters of wavering

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magnitudes are continuously hitting the planet earth and threatening its fragile ecosystem in countless ways. Resultantly, global warming has become a hot topic in media, and its impacts proved severe in every expression that human vocabulary can spell or articulate.

Nature maintains countless life cycles on earth. Biotic as well as abiotic components have a delicate balance within its ecosystem. Any minute-level temperature variation changing the earth's natural ecosystem may present a cataclysmic scenario. That would be a disturbing vulnerability. The extinction of biotic species like plants, animals, and even humans due to unbearable temperatures may be a nauseating scene. The absence of natural air moisture due to heatwaves would cause dryness of air-pipe to lungs with the shrinking of body fluids. In medical terms, this grave condition may lead to death at a painfully slow pace. These all issues make it clear that global warming has an intrinsic capacity of threat-multiplication. Earlier sophisticated cultures disappeared from the pages of history with sudden cataclysmic activity. Historians strongly believe that ecological security problems would be the main reason for their extinction. The harmful activities of people of that era might have received strange retort.²

Similarly, the contemporary catastrophic trends in global warming are posing several tactical ramifications. It is evident from the gradual stepping up of climate change. The march of cataclysmic activities is lingering on but steadily causing weather-based security issues across the globe. At present, the whole world population is equally facing disastrous impacts of global warming.³ Political leadership is alarmingly engaged to deal with environment-based governance challenges, whereas policymakers, defence analysts, and scientists are deeply concerned about continuously increasing global warming threats. This paper, therefore, argues that global warming has become the biggest threat to today's modern world and sets to transform the traditional approaches towards national security. Global warming is assuming a threat-multiplier tendency without any prevention. Thereby, states need to prepare themselves for the ecological security and survival of their people.

Ecological Collapse of Civilizations and Global Warming

History is replete with the rise and fall of civilizations. Ecological security and scarcity of natural resources many times in history had posed a direct threat to survival. The collapse of societies and wiping out of their cultures had occurred suddenly and unexpectedly. Mohenjo-Daro (Pakistan) flourished as a glorious cultural society. Some historians believed that the first-ever wheel was invented there. That area had a very exuberant culture as large-scale excavations have indicated numerous innovative artefacts in ruins. These ruins show a well-built housing plan, paved streets, and public places. The advancements made by the people of Mohenjo-Daro were state-of-the-art and matchless. However, the sudden vanishing of the whole society attributes to some unusual mega-disaster. Several ideas mark that change in

temperature, heatwaves, or super flood might have been responsible for the annihilation of this ancient civilization.

Global warming in all its forms has been the gravest security threat for survival. Previously, extreme weather changes stimulated gradual destruction. Countless nations and leading societies became the victim of ecological security issues.⁴ In Asia, Chinese, Persian, and Indus civilizations prospered with well-established dynasties. Chinese dynasty in the Tang era exhibited exceptional economic activities and flourished as a hub of world trade. However, heavy travails due to the sudden temperature changes caused civil unrest. The severe environmental impacts led to an arid situation that triggered widespread food scarcity (famine) and the eventual decline of society. They were swayed by lowered agricultural produce and reduced economic activities. With ecological severities, there was a collapse of the whole social setup.⁵

Environmental experts consider earlier catastrophes stretched for a shorter duration and limited to certain geographical margins. However, calamities today are showing adverse trends as more than seven billion global population would incur their impacts. Most of the population may be at the mercy of abnormal weather behaviours. Environment degradation, rising sea level, and pollution in the air, soil, and water would be detrimental for the human population up to their survival.⁶ Therefore, hazardous pollution and carbon emissions essentially need immediate global attention and sustainable solutions at every level. Moreover, widely spread populations beyond geographical limits and vast continents need strategic security to deal with global warming impacts. The extensive range of calamities needs all-inclusive cooperation, joint efforts, and strategically essential corrective measures before it is too late.

Global warming has alarmed all stakeholders the world over. States are concentrating on novel strategies to cope with catastrophic impacts within their geographical limits. The Paris Agreement (2015) proved to be a milestone in addressing the emerging ecological issues. It has sensitized the public and marked the need for universal cooperative efforts. Such efforts would offer a better environment and climate justice irrespective of geographical and national orientation.⁷ The impacts of global warming on today's world are terrible trepidations. No single nation or state can withstand the severity of impacts. Therefore, interdependence on domestic, regional, and global allies is necessary for weather security, climate adaptation skills, and rehabilitation purposes.

IPCC sequential reports pointed out rising greenhouse gases emissions as the main reason for climate change. The critical global warming potential (GWP) would get affected by more emissions in the atmosphere.⁸ Therefore, there would be more vulnerability levels on a global scale. The Kyoto Protocol (1997), which extended the 1992-UN Framework Convention on Climate Change (UNFCCC), emphasized the need for reducing greenhouse gases emissions. It highlighted that human-made CO₂ emissions are driving global warming. Kyoto Protocol was the first global move towards committing the industrialized countries to reduce greenhouse gases omitting

through their economic activities.⁹ Certainly, committing developed states to adopt policies and measures on mitigation draw public attention. UNFCCC treaty is optimistic for healthy atmospheric conditions while combating dangerous human interference with the natural climate system.

Non-Traditional Security Concerns

Global warming is altering security concepts altogether. Earlier, the focus of state defence was mainly on border regions, but today, global warming is influencing strategic thinking. Melting of glaciers, altering atmospheric precipitation, and dwindling rainfall patterns are also affecting the defence sector. The defence forces personnel find it critical to face atrocious impacts of rising average temperature as physical undertakings, field exercises, and military operations are being affected in somewhat diverse ways. Similarly, global warming is transforming the concepts of strategic defence and national security.

Due to cataclysmic events regarding the natural environment, water security, food security, energy security, and non-traditional defence tendencies are getting more attention. The scarcity of basic needs jeopardizes peace and leads to national crises and security shockwaves. Moreover, global warming causes health security issues as pathogens become active due to warming weather. A minute change in weather conditions may fetch Malaria back once eradicated. It can accompany plague (known as Black Death) and other warm area diseases. The whole biodiversity system is now facing severe threats posed by climatic fluctuations.¹⁰ These security issues remained infrequent for the defence experts; however, imminent ecological security worries have engulfed global leadership, military strategists, policymakers, and global organizations like the UN.

Global warming is continuously affecting the world with horrible impacts every passing day. It is shaping up new non-traditional survival concerns regarding scarcity of basic human needs, including agriculture products. In many parts of the world, heat waves have caused the sudden demise of farming seeds due to unfavourable conditions and led to famine, especially in the Asian and African regions. The safety and survival of nations are now linked to accessing basic human necessities. States are looking at global warming through the prism of non-traditional security shocks.¹¹ The recent decade replete with wide-scale earthquakes and flooding resulted in losses worth billions of dollars and the precious lives of innocent people. These threats have been of mega magnitude with extraordinary devastation. The vulnerable nations are exposed to the severity of global warming impacts while having no proper defence capabilities against these.

Pakistan – A Case of Climatic Vulnerabilities

Pakistan has emerged as a typical case of weather vulnerabilities in the 21st century. Due to the devastating impacts of global warming, it ranked among the most

vulnerable countries. Pakistan is a developing economy with more focus on agricultural produce. It has enormous prospects to prosper in all fields of the economy.¹² Pakistan possesses one of the best professionally trained defence forces. The regional and global realities around Pakistan imperatively demand to deter any threat to its national sovereignty. Pakistan has performed and being admired for peacekeeping assignments under the UN. Its defence forces are well trained to undertake any traditional defence. However, global warming requires a new kind of expertise and corresponding policy. With changing scenarios at the national horizon, climate issues would demand additional capacity and unconventional training to deal with.¹³

As taking the case of the fateful day of October 10, 2005, Pakistan encountered heavy jolts of a mega-earthquake. That caused loss of thousands of precious lives, destruction of infrastructure, and paralysis of civil administration. It wiped out hundreds of villages from the scene. There were signs of complete devastation that occurred in the Azad Jammu and Kashmir (AJ&K) region. Schools, colleges, universities, hospitals, public places, roads, and bridges all were wrecked. The Government of Pakistan called its trained troops to help the complex rescue operations. Responding to the emergency call, defence forces (army, air force, navy) readily responded and diligently helped in rehabilitation activities carried out in AJ&K. They set up emergency control centres and started one of the largest rescue operations in the history of Pakistan.

Being a developing country with limited resources in hand, it was a huge task for Pakistan. Globally, ambassadorial missions were alerted to communicate and coordinate with respective friendly countries regarding the on-ground situation of huge losses. They were shocked by the catastrophic impacts of the mega-earthquake. Medical teams with hundreds of tons of emergency aid flew to Pakistan. Many countries offered rehabilitation assistance for the victims. A large-scale emergency manoeuvring took place, especially by medical teams to rescue and rehabilitate the sufferers. Pakistan established Earthquake Reconstruction and Rehabilitation Authority (ERRA) and National Disaster Management Authority (NDMA) while foreseeing the future possibilities of mega-disasters. These initiatives and proactive measures improved upon the overall national resilience.¹⁴

Similarly, the super-flood in the year 2010 was beyond any human imagination. That created unique cataclysmic scenes all over Pakistan. More than 20 million people were directly affected by its devastation. Thousands of innocent people died in the ravaging flood. The national infrastructure worth billions of dollars washed away. There were also losses of millions of acres of standing crops that damaged the rural economy and national GDP. The super-flood impacts were beyond the understanding of the common mind and primed Pakistan to consider global warming in new realities. Due to these strange weather events, Pakistan ranked among the most vulnerable countries on the climate risk index.¹⁵

The devastating climatic mayhems in the series also affected nationwide development. For Pakistan, global warming slowly but steadily turned to be the new non-traditional threat with multiplier effects. Alike Pakistan, many other states also realized the non-traditional security vulnerabilities forced by global warming. In real terms, the world must deal with mega-disasters as a matter of extraordinary manoeuvres. These climatic vulnerabilities would compel an indispensable role of ecological security in future defence operations and manoeuvring.

Tactical Assessment of Global Warming

IPCC is repeatedly alarming about the dangers of rising average global temperature as it would cost precious lives and damage infrastructure besides raising new kinds of existential threats.¹⁶ While facing the devastating shockwaves of global warming, leading world forums must follow a proactive approach to mitigate their effects. The UN being the global forum must adopt a rational approach for amicable settlements of climate issues. Although the UNSC has perceived global warming trends as disturbing, it must emphasize non-traditional climate aspects from the prism of global security. Many member states and observers usually describe global warming trends as minor problems, and they think such ecological issues are the concerns of environmentalists only. Therefore, the UNSC is mainly focusing on issues like global terrorism and continued old regional conflicts.¹⁷ The UNSC, besides other global issues, must deliberate upon security aspects of global warming as its topmost agenda.

At regional and domestic levels, public representatives must play an important role in convincing the masses about global warming threats because the series of climatic disasters have made the situation even worse for the future. Experts believe global warming is an existential threat. A British Adviser on climate change, John Houghton, equated global warming with some innovative weapon of mass destruction. Houghton is of the view that it might be more treacherous than heavily funded forms of global terrorism.¹⁸ Sophistically rooted global terrorism has ravaged and shook the poor countries in Asia and Africa. However, countries would have to seek proper strategic prevention against the destructive nature of global warming, as mentioned by British Advisor. Global warming appears a new strategic risk for the developing world, where disasters generally cause more problems for the already weakened governance system. The issues of poverty and underdevelopment often get aggravated due to sudden mega-disasters and environmental experts are in persistent exertions to highlight their global warming concerns.

Defence analysts worldwide have been finding ways to cope with climate issues. It is because of serious and non-traditional security concerns stemming out from global warming. EU leaders pointed to global warming as a staple part of their foreign policy. German Foreign Minister expressed climate change as a strategic issue and threat to global peace as it is creating problems for the stability and security of states. He cautioned about the occurrence of steady disasters in climate-vulnerable regions and may lead to a new kind of civil war and resource claiming.¹⁹ International

leadership has endorsed the devastations and threat-multiplying tendencies of global warming gradually emerging as unparalleled and beyond human imagination. The planet with its entire forms of life may have to undergo mitigation and adaptation strategies to cope with the climatic anguishes.

In 2003, a critical and analytical report was published on the abrupt climate change scenario and its implications for national security.²⁰ It recognizes global warming as one of the main security issues for the US as well as transnational security while discussing security concepts, global operational capacity, and present to future risks attached with global warming. The US strategists seem much concerned about the non-traditional aspects of weather changes; however, the scientific community views that no matter what steps to be taken, the mitigation would be inadequate. Therefore, to mitigate the emissions, they need to curb the concentration of greenhouse gases to pre-industrial levels.²¹ Another report titled “National Security and the Threat of Climate Change,” published by the CAN Corporation in 2007 declared global warming as a threat multiplier.²² Seasoned military analysts in their assessment marked global warming trends as one of the main threats to national security due to hazardous and proliferating effects. Global warming has now been perceived as a novel security concern for the world due to its mass destructive nature and taking place on the worldwide agenda.

Since recorded history, every state has had an upfront aim of survival. The phenomenon of survival of the fittest gave rise to national defence philosophy. Nevertheless, centuries’ old concepts of defence are now facing direct challenges imposed by global warming. It is slowly changing the traditional defence orientation susceptible to new security lines, and rapidly changing weather patterns call for a corresponding angle of state defence. The defence community has a set pattern of operational mechanisms, and they are interested in clear-cut answers to emerging threats. However, climate changes with unexpected variations and sudden exposures may be difficult to predict. Therefore, the previous systems of defence would need reorientation as emerging challenges for national security is critical for the survival of a state.

Defence experts have detected imminent dangers of global warming. Brzoska (2012), in his article titled “Climate Change as a Driver of Security Policy”, identifies new dimensions of security that a state having the ability to adapt to climate changes would be able to defend its population.²³ The latest climatic data and proactive operational plans have become a necessity for security forces to tackle sudden cataclysmic events. In this regard, precise identification of non-traditional security aspects of global warming and timely dissemination of relevant information to troops would enhance their alertness, quick response, and manoeuvring capability. That would also curtail the state’s vulnerability level to a certain degree.

Innovative adaptation to ecological security would prove winning strategic moves. That would help ensure state survival, resource management, and long-term gains while safeguarding national interests. An overhaul from the deep-rooted old

security concepts to a well-established strategic victory would be the imminent need. A comprehensive national defence would help friendly states to reciprocate adaptive features and enhance their survival capacities. For this purpose, climate diplomacy would be critically vital to boost alliances on emerging lines of defence. Adapting national defence to new realities of global warming would fruitfully enhance ecological security. It can also save national reserves from losses.

The CAN Corporation, in its 2007-report, strategically marks climate change adaptation as a necessity and emphasizes appropriate capacity building and proactive response strategy.²⁴ For some analysts, climate change adaptation looks surprisingly original reinforcement to national defence. It demands high-end skills according to the new lines of non-traditional security management. Survival in the climate change era has become a new reality. Climate resilience would decide the prospects of the well-being of nations. A state that develops skilful adaptation to global warming would surpass its neighbours who lack the ability to anticipate, prepare for, and respond to disturbances related to climate change. It is of no surprise when renowned security forums debate vulnerabilities in successive meetings and policy briefs. Similarly, world leaders need to put serious efforts into mitigating global warming and building capacity to meet the demands of emerging security scenarios.

Global Warming and Future Strategic Ramifications

Both developed and developing states have remained victims of global warming. Once, climate threats were limited to certain parts of the world, but today these issues have become global security concerns. IPCC 2018-report has indicated that greenhouse gases levels in the earth's atmosphere are continuously increasing,²⁵ and disturbance in the ecosystem has led to harmful problems for human life and vegetation. Human existence is very much interlinked to the cycles within the ecosystem. However, rapid climate changes have raised questions about the future of biotic as well as abiotic components. What would be the trends after continuously rising average temperature, what would be the emerging non-traditional security environment, how defence-personnel are going to conduct field operations, and how the future generations would cope with the global scarcity of water, food, energy, and associated essential security needs, are serious questions that reflect challenges of our times.

The melting mass of Antarctica and glaciers around the globe would lead to flooding, sea-level rising besides triggering issues of water, food, and energy scarcity. A large-scale spread of bacterial and viral diseases would also be a possibility. The activation of strange pathogens and outbreaks of infectious diseases are no doubt detrimental for human society and there would be a question mark on the survival of the population especially in Africa, Asia, and even developed parts of the world.²⁶ Continuous heatwaves have marked dangerous health-related susceptibilities and in the future, such vulnerabilities may reach beyond manageable levels. In the past, widespread diseases had been a cause of the extermination of human societies.

Therefore, the swiftness and rate of recurrence of ecological disasters have seriously challenged the defence experts with new realities and demand new lines of proactive ecological security.²⁷ They may initiate serious analysis of horrific impacts associated with global warming because human existence is at stake, and ecological issues have remained common to humanity. A collective response through an honest and trusted global mechanism is the need of time.

Indeed, the UN and developed world have the moral reasonability to support vulnerable developing states as they lack the capacity to deal with the hazardous changes of climate. Although UNFCCC has provided a mechanism of green climate fund to cope with financial losses and budgetary deficit due to ecological havocs, there is a dire need for an effective global defence mechanism to deal with the security ramifications of global warming. Through climate security initiatives, developing nations would achieve sustainable development. Besides UNFCCC and IPCC, UNSC should put effort and extensive deliberations on climate security issues and their tactical ramifications. The global forums having adequate knowledge and capacity must play an effective role in securing world peace and security. Their pragmatic contributions will allow climate alliances, joint-roles, and bringing together member states for critical scenarios of defending and facing the global warming havocs.²⁸

Conclusion

Global warming as a threat multiplier is continuously causing extraordinary mega-disasters and remains destructive beyond human ingenuity. With its catastrophic complexities, it has become a direct threat to the human survival and security of the nations. It is reflected in the scarcity of basic human needs at the global level besides metamorphosing non-traditional security threats. It has made world leaders think and devise such policies that create global resilience to cope with unusual security challenges. Numerous emerging fields of mitigation and adaptation drives can transform green growth. Experts are trying innovative ways for tactical adaptation of climate changes and these would be achievable if all stakeholders cooperate and work together. Mutual pacification of inter-regional problems and transboundary issues would contribute to global peace and development and help tackle the issues of global warming. Therefore, settling regional disputes and concentrating on emerging security challenges may serve the people, nations, and in the end the fragile ecosystem better. In this way, a win-win rational set of circumstances would prevail.

World peace would be the rational strategic move. By the principle of peaceful coexistence, all stakeholders need to address the vulnerabilities of an imminent mass destruction phenomenon, i.e., global warming. The common atmosphere and common ecosystem naturally would need common strategic goals. The survival of humanity is interlinked with mutual strategic cooperation centred on new ecological realities. The strategic ramifications of global warming, therefore, undoubtedly demand a vision of all-inclusive sustainable development. The proactive

green strategy would be adequate in serving and pragmatically solving ecological issues. Naturally, the planet earth is a shared home for all humanity. So, to save the planet, efforts should be selfless and for a noble cause. In this manner, the terrible impacts of global warming will lessen to a certain degree. All states need to address the imminent ecological security concerns together and unanimously. It is our common responsibility to minimize the threat-multiplying capacity of global warming by mutual green growth initiatives. As wisdom eloquently maintains that God helps those who help themselves. By addressing global warming challenges, states can add sustainable development scope for their stability and global village safety.

References

- ¹ IPCC. 2018. "IPCC Chapter 3: Impacts of 1.5°C Global Warming on Natural and Human Systems." *Global Warming of 1.5°C*. Special Report of the Intergovernmental Panel on Climate Change. (Bonn: 2018).
- ² T. Steinberg. 2001. "The Secret History of Natural Disaster." *Environmental Hazards* 3: 31-35.
- ³ World Bank. 2014. "Country Partnership Strategy for the Period FY 2015-2019." Washington, DC.
- ⁴ Jared Diamond. 2005. "Collapse: How Societies Choose to Fail or Survive." London, Allen Lane. 266-7.
- ⁵ D. Jamieson. 2014. "Reason in a Dark Time: Why the Struggle Against Climate Change Failed, and What It Means for Our Future." Oxford: Oxford University Press.
- ⁶ UN Department of Economic and Social Affairs, Population Division, World Population Prospects: The 2006 Revision Highlights, NY: UN, 2007, p. 1.
- ⁷ UNFCCC. 2015. *Adoption of the Paris Agreement Proposal by the President*. The draft decision, -/CP.21. Paris. Accessed December 14, 2020 at unfccc.int/files/meetings/paris_2015/application/pdf/paris_agreement_english.pdf.
- ⁸ IPCC. 2014. *Global Warming Potentials. Climate Change 2014: The Scientific Basis*. Contribution of Working Group to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Germany.
- ⁹ UNFCCC. 1998. *Kyoto Protocol to the United Nations Framework Convention on Climate Change*. Accessed December 14, 2020 at <http://unfccc.int/resource/docs/convkp/kpeng.pdf>
- ¹⁰ Richard A Matthew, ed. 2010. "Global Environmental Change and Human Security: An Introduction." *Global Environmental Change and Human Security*. London: MIT Press.
- ¹¹ Defense Science Board. 2011. "Trends and Implications of Climate Change for National and International Security." Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics. 151. Accessed January 14, 2021 at <http://www.acq.osd.mil/dsb/reports/ADA552760.pdf>.
- ¹² Ashfaq H. Khan. 2015. *Pakistan's Economy and National Security*. Islamabad: PIDE.
- ¹³ GoP. 2012. *National Climate Change Policy*. Islamabad: Ministry of Climate Change.
- ¹⁴ S. Kreft and D. Eckstein. 2013. *Pakistan Floods 2010: Preliminary Damages and Needs Assessment Report*.
- ¹⁵ Global Climate Risk Index 2014: Who Suffers Most from Extreme Weather Events? Weather Related Loss Events in 2012 and 1993 to 2012. Briefing Paper. Bonn: German Watch. Accessed January 14, 2021 at <https://germanwatch.org/en/download/8551.pdf>.
- ¹⁶ IPCC. 2018.
- ¹⁷ "UN Council Hits Impasse over Debate on Warming." *New York Times*, April 18, 2007. Accessed January 14, 2021 at <http://www.nytimes.com/2007/04/18/world/18nations.html>.
- ¹⁸ John Houghton. 2003. "Global Warming is Now a Weapon of Mass Destruction." *Guardian*, July 28. Accessed December 14, 2020 at <http://www.guardian.co.uk/com-ment/story/0,3604,1007042,00.html>.
- ¹⁹ Chris Buckley. 2007. "EU makes Climate Change Centre of Foreign Policy." *Reuters*, January 18. Accessed January 14, 2021 at <http://www.reuters.com/article/latestCrisis/idUSPEK343678>.
- ²⁰ Peter Schwartz and Doug Randall. 2003. "An Abrupt Climate Change Scenario and Its Implications for United States National Security." Accessed December 14, 2020 at http://www.ems.org/climate/penta-gon_climatechange.pdf.
- ²¹ IPCC. 2007. *Climate Change 2007: Mitigation of Climate Change, Contribution of Working Group III to the Fourth Assessment Report of the IPCC*. Cambridge: Cambridge University Press. Accessed January 14, 2021 at <http://www.ipcc.ch>.
- ²² Center for Naval Analysis, National Security and the Threat of Climate Change. Alexandria, VA: CNA Corporation. 2007. Accessed January 14, 2021 at <http://www.SecurityAndClimate.cna.org>.
- ²³ Michael Brzoska. 2012. "Climate Change as a Driver of Security Policy." In *Climate Change, Human Security and Violent Conflict*, ed. Jürgen Scheffran, Michael Brzoska, Hans Günter Brauch, Peter Michael Link, and Janpeter Schilling. Heidelberg: Springer.
- ²⁴ CAN, 2007.
- ²⁵ IPCC, 2018.
- ²⁶ WHO. 2002. *The World Health Report 2002: Reducing Risks, Promoting Healthy Life*. Geneva: WHO.
- ²⁷ USGCRP. 2014. "United States Global Change Research Program." In *Third National Climate Assessment, Overview and Report Findings*. NY: USGCRP.
- ²⁸ Jennifer Hadden. 2014. *Networks in Contention: The Divisive Politics of Climate Change*. Cambridge: Cambridge University Press.