

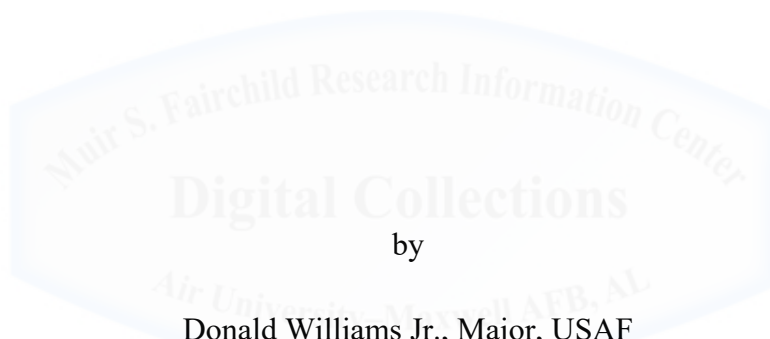
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AIR FORCE FELLOWS

AIR UNIVERSITY (AU)

# NATURAL DISASTERS AND NATIONAL SECURITY

## REVIEW AND RECOMMENDATIONS



by

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A Research Report Submitted to the Air Force Fellows  
in Partial Fulfillment of the Graduation Requirements

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## **Preface**

This paper addresses a research gap in natural disasters and national security. The researcher spent a year in the White House Fellows Program, placed at the Department of Housing and Urban Development. During this year, the researcher worked on issues of national security, affordable housing, homelessness, and disaster recovery. Originally, there was an opportunity to conduct field research to provide extensive empirical knowledge on an emerging national security issue. However, changes in available funding limited the scope of the research for this report. Therefore, the report is a review that utilized existing published information instead of a controlled study. Among other crises, the COVID-19 pandemic exposed significant national security risks. The researcher had the opportunity to learn from local and state officials, federal government officials, and public and private sector experts in order to conduct research on how to mitigate those risks. The researcher would like to thank his colleagues across the federal government, the Air Force Fellows Office and his fellow classmates in the 2019-20 White House Fellows Program.

## *Abstract*

This research report covers a review of natural disasters and national security. Specifically, it provides a comprehensive review of the many agencies involved with natural disasters and provides recommendations for innovative restructuring and coordination between government and non-government organizations as well as other stakeholders in public health matters. The paper provides a brief review of predictive modeling techniques as a precursor to the tangible solution that exists to provide natural disaster response to ensure national security. The paper reviews the existing structure of organizations in the United States in order to provide an understanding of how a solution exists that does not require extensive financial requirements, extensive policy changes, or the creation of a material resource. The paper advocates for a realignment of existing organizations and resources to ensure a synchronized response to natural disasters in order to guarantee domestic and international actions that continue to deter aggression from American adversaries.

# Chapter 1

## Introduction

National security is integral to freedom and stability in America. National security is the combination of domestic and international efforts to defend and uphold the Constitution of the United States, and the sovereign independence of the United States and its allies. To fulfill this responsibility, the United States takes an interagency approach to the capabilities, personnel, and readiness required to respond to global threats.

This interagency approach includes multiple roles in air, space, maritime, land, and cyberspace domains. This research paper will address the impact of natural disasters on national security in those domains, and review recommendations for ensuring and bolstering national security, particularly with predictive modeling tools. This paper serves as a comprehensive review of national security, natural disasters, American vulnerabilities, and possible solutions to optimize the existing national military and non-military assets.

National security is a broad issue. The National Security Act of 1947 outlines the constant act of protecting American citizens from domestic or international adversary aggression. National security is the effort of securing America's sovereignty through domestic and international actions (Holmes, 2015; Landau, 1988). National security involves public and private partnerships as well as willing participation from the American public. In 2020, the United States of America is facing dynamic, emerging threats in an era of great power/peer competition. Global threats pose a challenge to the joint military force, Department of Defense, and national security at large. The current view of national security

is narrow, often minimalizing the importance of the joint and interagency approach to national security, and overemphasizing the present challenges of aging equipment, fewer personnel, and other resources. Additionally, the current approach to national security is centered on military actions, and too often, neglects the influence of a growing number of resources that assist in national security matters, such as natural disasters.

Globally, multi-national, multi-axis, and multi-domain threats created a need for a paradigm shift in the government approach to national security, specifically concerning natural disasters. The nation's readiness should match the way it continues to deter global aggression, with deliberate assessment of the nation's information, preparedness, interagency coordination, disaster response, and strategic partnerships.

The 2018 National Defense Strategy states that "failure to meet our defense objectives will result in decreasing U.S. global influence, eroding cohesion among allies and partners, and reduced access to markets that will contribute to a decline in our prosperity and standard of living". Additionally, it says that we will "deepen interoperability" (NDS, 2018). Our return to peer competition is unlike the past. Natural disasters present a window of opportunity for adversaries who seek to cause mass destruction or disruption because of the vulnerability of the American public. Natural disasters may have similar effects as kinetic weapons, terrorism, and other malicious acts because there is mass panic and devastating impact to the economy and the American way of life (Dilley et al., 2005). Threats such as Iran, China, and Russia, among others, have proven that the next conflict will combine traditional war-fighting methods with asymmetric tactics or opportunities caused by natural disasters.

Because of the dangers associated with natural disasters, a need exists to understand preparedness and response must account for the many resources available in the joint force, international partnerships, and the commercial sector.

The United States must remain prepared for natural disasters, but it must also understand the significantly underestimated opportunities in the public and private sector. Specifically, volunteer organizations and public health agencies should supplement America's strong government structure. A sense of philanthropy occurs after natural disasters (Anderson, 1970; Kallman & Clark, 2016), and government officials can benefit from that philanthropy for national security end states. However, an urgent need exists to understand the tools available for national security matters in natural disasters.

Each year, there is a natural disaster of some form that occurs across the world. Wildfires, tornadoes, hurricanes, floods, and earthquakes occur every year. The Insurance Information Institute found that in 2019, natural disasters caused over \$24 billion in damage. In 2018, the U.S. had natural disasters that totaled \$52 billion in damage. In 2017, natural disasters caused \$78 billion in damage (Insurance Information Institute, 2020). Natural disasters have costs associated with them that could devastate an economy. At the same time, a combination of government, non-government, and public and private partnership solutions exist to reduce the strain of natural disasters while ensuring national security objectives can be met. The combination of resources across the world presents a response capability, but the unknown risks of natural disasters need to be accounted for in preparedness and coordination to maximize the U.S. capability to ensure national security objectives.

## Chapter 2

### Natural Disasters

Natural disasters pose a present, underestimated wide-reaching threat. While many understand natural disasters to be unpredictable or containable, America is past that line of thinking. America is now in the age that requires an advanced, proactive, strategic approach to natural disaster preparedness and response, domestically and abroad. Now that information is readily available, organizations are abundant, and collaborative opportunities exist, leaders must be aware of the need to maximize the full spectrum of capability. The United States must ensure national security with a whole-of-America approach to disaster preparedness and response. The end state should be clear that the United States is a synchronized, ready, vital component in global natural disaster response, trained to lead the world in any catastrophe. Collaboration between government and private organizations serves not just the purpose of minimizing risks to natural security (NDS, 2018), but also reinforcing the contribution America makes to the world at large.

The resilience and resources of the American military should be a concern. America's heritage and tradition are centered on resilience, but there are new challenges that test America's capacity. Across America, the impact of nonprofit organizations has increased in disaster response (Hochban, 1981; Manetti et al., 2015) but these organizations have not been uniformly organized to address the negative impacts of natural disasters. These organizations complete national and global missions impacting millions of people (Manetti et al., 2015), but these organizations could also be used across the spectrum of national security operations that include preparedness and response. For example, in countries across the world, America has a presence with outreach missions through

volunteer organizations. As we study the many threats to national security and the increasingly damaging impacts of natural disasters, America is neglecting a conspicuous threat, which will impact the daily lives of Americans, like the way traditional and symmetric threats are viewed. The threat of natural disasters and the subsequent natural disaster response is important to understand as we see how many years it took us to understand traditional national security threats.

In strategic planning in the early 2000s, we faced an unfamiliar threat, and much of America's planning was based on belief-driven ideals (Singer, 2011), and a lack of understanding of the long-term or unknown threat. America lacked understanding in how to forge strategic partnerships in regions with asymmetric threats, in communicating a long-term strategic message, and how to prevent the weariness associated with that type of conflict. Natural disasters pose a similar threat because there are many unknown variables. It is possible that America faces the same risks in natural disaster response as in the early stages of asymmetric threats if there is not a better understanding of social, political, and economic impacts (Singer, 2011) of natural disasters as they affect the general population in the event of a natural disaster.

Natural disasters occur in many forms, and on average, kill 60,000 people per year, globally. Environmental disasters, such as floods, tornadoes, hurricanes, earthquakes, snow, and wildfires may be predictable (Ritchie & Roser, 2014), but are typically predictable in short-term (in season) form. On another hand, epidemic/pandemic disasters occur as well, and have shown to be as widespread as environmental disasters.

Epidemic and pandemic occurrences include Spanish Flu, H1N1, Ebola, Zika, and Coronavirus. Natural disasters are important to understand because they have potential impact on

loss or preservation of life, national security, and global relationships. The impact of natural disasters needs more research because the correlation between national security, government and non-government structure, and potential solutions for preparedness has yet to be explored, even as it is widely known that natural disasters are occurring in greater frequency and larger impact (Ritchie & Roser, 2014).



## Chapter 3

### Response and Relief Organizations

Response agencies are critical to national security because they provide extended capability of a wide scope. Response agencies also provide additional resources and personnel that are used to prepare for and respond to a national emergency. Response agency missions include public health, government and non-government, and international relief. These missions are necessary in maintaining global national security interests, so a need exists to understand the agencies, their roles, and their contributions to national security.

Public health agencies contribute to national security by protecting the public from health emergencies. Public health agencies augment and supplement military capability because they enlist knowledge from modern medical advances and community engagement to deliver an organized response to public health emergencies. Public health agencies provide additional trained professionals that mirror some inherent military capabilities.

In the United States alone, public health organizations include the Centers for Disease Control and Prevention (CDC), the U.S Department of Health and Human Services, the National Institutes of Health, the Food and Drug Administration, the Agency for Toxic Substances, the Association of State and Territorial Health Officials, the Public Health Laboratory, the Indian Health Service, and the U.S. Public Health Service (USPHS), among others. These agencies provide a consolidated body of professionals knowledgeable in public health topics. Like the military's information and Intelligence capabilities, these organizations may have a similar impact. Specifically, these organizations have wide-reaching influence with officials and the American public through multiple venues. Their unique missions make them an asset for national security. For example, the CDC lists their mission as protecting America from health, safety, and

security threats (CDC, 2020). They are the nation's health protection agency and are entrusted with critical information that shapes public health in the country. The CDC has a role in emergency preparedness missions that includes personal health precautions, natural disasters and severe weather, public outbreaks and public health incidents, pandemic preparedness, bioterrorism, chemical emergencies, radiation emergencies, and caring for children in a disaster.

These missions demonstrate a national capability to provide services that influence the outcome of national emergencies and highlight their importance to the very pertinent information capability. Mawson (2005) found that information dissemination is important in controlling panic in a disaster because the lack of information can negatively affect public actions and collective response. An example is the mass panic that can occur from public misperception of emergencies or safety.

People need information in an emergency. Government officials may need people to shelter in place, wear protective equipment, identify certain persons of interest or prioritize their emergency requests so as not to strain public response systems (Mawson, 2005). Public health agencies provide information capability that provides stability in a national emergency. In addition to these government agencies, non-governmental organizations provide the additional capability of utilizing volunteer activities and philanthropy to augment government efforts in national emergencies.

### **Non-governmental Organizations**

Non-governmental organizations utilize the influence and contribution of volunteer activities and outreach to positively impact national security efforts, particularly in natural disasters. These organizations appeal to countries around the world and are internationally recognized for their role in unconditional aid to human beings. Non-governmental organizations

have the power to influence public opinion and ease the negative effects of an emergency through outreach efforts (Hall-Jones, 2006). Because non-governmental organizations operate separately from the government, they have unique influence and global reach to drive national security outcomes. The United States has thousands of non-governmental organizations (Hall-Jones, 2006), all with various organizational missions and volunteer composition. Some major organizations to explore include the American Red Cross, Peace Corps, AmeriCorps, and Medical Reserve Corps.

### **American Red Cross**

The American Red Cross serves the public in emergencies. Red Cross volunteers respond to an emergency every eight minutes, with an average of more than 60,000 disaster responses each year (American Red Cross, 2020). Red Cross volunteers are non-partisan, non-governmental personnel trained in life-saving skills, public communication, and large-scale safety practices. The Red Cross depends upon volunteers, with 95% of their disaster relief workforce being volunteers. This composition is important because it serves as a model for non-government organizations to enlist volunteer support for national security efforts. The Red Cross provides training across its organization and utilizes its financial resources to ensure the services are equivalent to those in for-profit organizations.

The Red Cross is a recognizable name that has an international presence, meaning it could lead international partnerships with the public and private sector in order to meet national security demands. It is well-known that our country's next threat will most likely affect multiple domains (NDS, 2018), and may possibly be associated with mass secondary and tertiary casualties that exceed the capacity of the military. A nongovernmental organization with trained volunteers could decrease those negative effects. Because a multifaceted approach is necessary,

the Peace Corps is another organization that shows how non-governmental organizations have a role in national security.

### **Peace Corps**

The Peace Corps mission is to transform communities through service. It is a unique organization because of its global nature, with presence in over 141 countries. (Peace Corps, 2020) It has a 50-year history of undertaking community-building and outreach missions. The Peace Corps' mission is relevant to national security because of the social engagement its members perform. The organization is relevant to maintaining peaceful interaction, both domestically and abroad. The Peace Corps is an example of how America leads with instruments of power outside of the traditional military role and presence.

The Peace Corps places volunteers from across the world in missions across the world (Peace Corps, 2020). A tangible benefit exists of specific efforts that strengthen infrastructure, and the intangible benefits of relationship-building, organizational partnerships, and global presence with this organization. The relationships between Americans and volunteers in other countries can be leveraged for national security interests. Volunteers train in skills and missions to contribute to global peace and prosperity. Their efforts are applicable in multiple ways because of their wide-ranging impact. AmeriCorps is a similar organization with similar reach.

### **AmeriCorps**

AmeriCorps is unique because it is an exemplary model of how the federal government supports private efforts. Although AmeriCorps is a voluntary civil society program, it is supported by the U.S. federal government, who partner with foundations, corporations, and private donors (AmeriCorps, 2020). This partnership yields a collaborative approach to public service missions that inherently overlap with national security issues.

National security issues concern the American public and society at large (Holmes, 2015). Because they extend beyond warfighting functions, civil unrest can be viewed as a national security issue. AmeriCorps is an example of how a volunteer group can influence the capability to deter and manage the negative effects of a disaster or decrease the negative impact on stability and national security. The federal government's involvement in volunteer missions like this show the power of the collaborative approach to government and national security. The Medical Reserve Corps' has a similar capability.

The Medical Reserve Corps is a national asset for emergency preparedness and response. They list their role as "a national network of volunteers, organized locally to improve the health and safety of their communities. The MRC network comprises approximately 175,000 volunteers in roughly 850 community-based units located throughout the United States and its territories" (Medical Reserve Corps, 2020). This massive effort provides a unique capability to the federal government to assist in disaster preparedness and response.

Medical Reserve Corps volunteers are highly trained in many of the overlapping areas concerning the civilian population in a crisis. These areas include emergency preparedness and response, emergency sheltering, medical support, medical facility surge capacity, logistical and administrative support, veterinary support, mass dispensing efforts, vaccination clinics, health screenings, health education and promotion, and outreach to underserved community members and community event support.

The Medical Reserve Corps provides capacity and capability similar to military capability. If a natural disaster or other emergency occurs, there would be an urgent need to stabilize the public and ensure the safety of civilians. Civilian first responders' systems may be over capacity,

so Medical Reserve Corps services assist in calming the public, avoiding mass panic, and sustaining public health.

Non-governmental public health organizations are very important to national security because these organizations provide a unique capability and volunteers to perform work at an organized level. The training for volunteers in these organizations provide sustainable services immediately after a natural disaster. The federal government may directly support non-government organizations or engage in collaborative efforts with them.

In either situation, non-governmental organizations provide emergency response that augments and supplements government organizations, potentially saving lives and preventing mass casualties. There is a proven track record of these organizations to positively influence public safety, so they are worth utilizing to ensure national security whenever possible. These agencies augment the military, but do not replace the capability military forces provide. Optimally, U.S. government leaders should ensure a combined approach of the military and other national capabilities to endure national security.

### **Government Organizations**

The Department of Defense and Department of Homeland Security have the responsibility of providing American assets and organizations to defend and reinforce national security. The American military engages in domestic and international missions with various national security implications, and the Department of Homeland Security has the unique role as the central authority for counterterrorism and homeland defense efforts. These two departments compose U.S. capability to deter aggression globally.

The sub-organization in the Department of Defense that ensures national security is the military. Military branches are the arm of government that enforces national security strategy and

forges international partnerships to deter aggression. The military is the means to achieve dominance in air, land, space, cyber, and maritime domains. While the military is well-trained in traditional missions, an opportunity exists to adopt practices to ensure national security through appropriate disaster preparedness and response. An opportunity exists in military capability to merge training, systems, personnel, and capabilities around the impacts of a natural disaster. Department of Defense officials can leverage their international presence, global partnerships, and legacy training to merge with other organizations who may serve as assets and partners in ensuring national security.

In the U.S., the Department of Defense utilizes an active and Reserve component for military forces. The active component has a global mission for 24/7, year-round operations. On the other hand, the Reserve or Guard components are useful when there is a need for domestic reinforcement of military force. Traditionally, the Reserve and Guard components have flexible roles and are called upon in the event of a global need for military presence or force. The integration of Guard and Reserve components are critical to national security because these components provide the full range of joint, all-domain power. In addition to military capability, the Department of Defense may also partner with international agencies that may provide supplementary services and personnel, such as health concerns for the global population. The World Health Organization is the primary organization for such partnership.

### **World Health Organization**

The World Health Organization is the world's institution on health coordination, medical advancement, and advocacy. The World Health Organization has a 72-year history and involvement of 150 countries (World Health Organization, 2020). The World Health Organization has exceptional strategic reach because of its World Health Assembly and guidance

regarding diseases, viruses, pandemics, and public health concerns. Additionally, the organization serves as a healthcare development body for low-income and developing countries.

Developing countries traditionally do not have access to the medical advancements in developed countries, and public health concerns can be more devastating, with a higher number of deaths than developed countries, a negative impact on their economy, and a traditionally longer time to recover than developed countries. Involvement in the World Health Organization is a national security matter because participation in the organization may yield influence around the world in not just medical issues, but citizen issues in general. This organization is a convening body of countries, meaning that it may be indicative of the strength of American partnerships across the world, and the opportunity to influence mass civilizations across the world.

The World Health Organization is involved in disaster responses of all types, and the actions of this organization influence national security because their information is relevant to Americans domestically and abroad. Travel patterns show that Americans benefit by having world knowledge of public health and safety (World Health Organization, 2020), and the World Health Organization provides that benefit.

The public health, volunteer and outreach organizations across the world all contribute to national security because they leverage the goodwill of the American public. Through philanthropic efforts and partnerships, government and nongovernment organizations offer low cost, creative solutions with global impact. These organizations decrease the negative effects of natural disasters and increase the likelihood of positive outcomes following a natural disaster. These impacts matter because domestic and international vulnerabilities exist in national security as it relates to natural disasters.

## Chapter 4

### National Security

Domestically, America faces economic and social threats to national security. The American economy is the strongest in the world (Conerly, 2019) and at the center of the economy's strength is stability. In 2019, the American unemployment rate fell to a 50-year low (White House, 2020). America's gross domestic product (GDP) ranks first in the world, and the world uses the performance of the American economy to measure global stability (Conerly, 2019). Because of this global relationship, any event impacting the American economy should be viewed as a national security issue.

#### Economic Impact of Natural Disasters

Natural disasters significantly impact national security because they have widespread effects and are often unpredictable. For instance, in 2017, Hurricane Maria caused over \$94 billion in damage in Puerto Rico alone. Hurricane Katrina is another example of impact of natural disasters. Around the world, the problem exists as well. Japan has struggled with the economic impact of typhoons, earthquakes, and floods (Japan International Cooperation Agency, 2017). The European Environment Agency reported that annual economic losses in European countries varied between \$7.4 billion euro Parts of Europe have seen billions of dollars in loss from earthquakes. The impact of natural disasters shows a need for understanding natural disaster response and mitigation.

Moreover, countries in Africa have dealt with pandemic and public health problems (Smith, 2020), and there are many more around the world. As Bronfman et al. (2019) wrote, natural disasters impact millions of people, have significant sociodemographic characteristics, and specifically cited the grave lack of preparedness of the public for flood response. Because

natural disasters have economic impact, government leaders should dedicate resources to disaster preparedness and response in order to minimize the prolonged and secondary effects to national security. Predictive Modeling is a method to understand and respond to natural disasters.

### **Predictive Modeling**

Predictive modeling is a way to estimate the effects of an occurrence. Advances in technology, such as artificial intelligence has created an opportunity to increase the capability to forecast emergencies and prepare mitigation actions. Predictive modeling is utilized privately by many organizations (Aulov & Halem, 2012), but there is not a unique predictive modeling strategy for natural disasters that includes American government and non-government organizations. Such a strategy would be beneficial because predictive modeling would increase collaborative efforts domestically, optimize the use of resources outside of the federal system, and decrease the likelihood of a mass civil breakdown because of the response efforts.

Predictive modeling types include the classification model, clustering model, forecast model, outliers' model, and time series model (Kalechofsky, 2016). The classification model is used to categorize data based on historical input. The clustering model is used to sort data based on similarities. The forecast model is used to estimate or predict future data based on historical input. The outliers' model is used to find non-conforming data within a dataset. The time series model uses a specific time-based subset of data to predict the future.

These models are used from various interfaces, but the premise of forecasting is common to all of them. Predictive modeling is not just used for weather, but also for traffic patterns, mass movement predications, and many other purposes that affect the public (Kalechofsky, 2016). However, there are many different systems and no uniform regulatory authority or standard national security product accessible by stakeholders in a natural disaster.

Predictive modeling increases the ability to rapidly coordinate between entities. America's current weather forecasting system is an example. One agency manages the forecasts, and other agencies and organizations utilize that data to provide an appropriate response posture. The significant aspect of this structure is coordination, which is the recommendation focus of this paper.



## Chapter 5

### Government Coordination Recommendations

America needs a new approach to an underestimated, rapidly evolving threat. This threat is unpredictable, uncontrollable, and not geographically confined to one location. Natural disasters have shifted the lives of humans around the world, but these disasters significantly impact national security. America should take an approach to disaster preparedness and response that emphasizes collaboration and coordination between federal, state, local, non-government, and private organizations.

These partnerships should combine the use of predictive modeling to best tailor preparedness and response efforts (Landau, 2019). Organizations who respond to natural disasters or prepare for them all use predictive modeling for their individual purposes. However, a need exists to combine these predictive modeling tools and the subsequent response. Predictive modeling uses statistics to predict outcomes with a model of forecasted conditions. For weather, the NOAA uses extensive predictive modeling to predict major weather patterns. Together, predictive modeling and collaboration could enhance national security.

The 2018 National Defense Strategy states that the security environment is affected by technological advancements, and “homeland is no longer a sanctuary” (NDS, 2018). Because of potential mass disruption, access to public domains, and increased global reliance on common domains for military operations, a lack of interagency coordination and unpredictable natural disasters present a significant security risk to national security because of adversary nation-states and purposeful non-state actors to take advantage of American vulnerability domestically or internationally, to include its allies.

One of the components of an improved government coordination model is the revision of the Natural Disaster Framework. The Natural Disaster Framework defines eight core recovery principles, roles and responsibilities of recovery coordinators and stakeholders, a coordinating structure that facilitates communication and collaboration among all stakeholders, guidance for pre and post disaster recovery planning, and the overall process for rebuilding (NDRF, 2018). However, the framework neglects the specific process by which public and private partnerships may be leveraged to respond in the event of a natural disaster. The framework mentions a unity of effort but needs a designated methodology to mobilize volunteers to supplement government and non-government organizations.

This methodology should include a timeline of notification, an information system (public and private), and a contingency operations plan for joint coordination efforts. The Department of Homeland Security should prescribe approved public predictive modeling tools that can estimate natural disasters, their effects, and how the joint coordination effort will be affected by recovery efforts. The Department of Homeland Security will lead the country in monitoring these predictive modeling products. Predictive modeling will be used in conjunction with a national public relief asset list, the second recommendation to improve government coordination.

The second necessary change to government coordination to improve natural disaster preparedness is the establishment of a public relief asset list. In any disaster, a need exists to account for every asset that can assist in disaster relief. Some of these assets include technology products, basic human needs items (shelter, food, water, etc.) and/or specific disaster recovery items. A public relief asset list would be beneficial in the event of a natural emergency because it allows for continuous tracking of supplies so that there is not a lapse in coordination at the onset

of a disaster. In this public relief asset list, non-government agencies would register with detailed information on supplies that have readily available to donate in the event of a disaster.

There would be categories of natural disasters so that organizations could register to assist in a specific natural disaster or provide general assistance based on their organizational capacity. This database would be updated at a frequency that drives near real-time updates of available supplies and assistance. An example of use would be at the onset of wildfires. Government officials, local, state, or Federal, would be able to log into the database, select the category “wildfires”, and see all organizations who have registered to assist in the event of a wildfire. These organizations will have listed available personnel and will have other details such as pallets of water, medical items, and other necessary items. These items will all have a specific count.

This database would act as a supply chain tool to dispatch those assets based on their location and proximity to the emergency. Items in the database will be categorized based on the organization and their relevance to the natural disaster. If a product impacts civility/governance, protection of life, or infrastructure protection, government officials will decide the allocation. A government maintains ownership of the database and will monitor items as they are entered into the database.

## Chapter 6

### Conclusion

In conclusion, a need exists to examine the way America approaches natural disasters in relation to national security. Natural disasters have proven to be an underestimated threat around the world, not just because of the massive impact they can have, but the risk of adversaries using times of opportunity to exploit natural disasters and their effects. There are many government, non-government, public and private entities around the world who have an ability to provide disaster recovery. These entities span a wide range of capability, but an adequate coordination and predictive modeling framework does not exist in America.

Organizations may have specific capabilities that go unutilized if America does not revise its approach to natural disasters. Revisions include greater collaboration, early and shared predictive modeling, and a national public relief asset list. These changes provide direction for a unified, adequate approach to an emerging national security threat by organizing and synchronizing disaster response. These recommendations do not deter from current efforts, frameworks, or existing systems; it prevents mass disruption and/or destruction from natural disasters because of a lack of coordination. Like the joint approach to military operations, a necessity exists to ensure effective coordination in the event of a natural disaster.

Natural disasters and their negative effects have caused a need for an innovative approach to national security objectives. Around the world, there are examples of natural disasters destroying economies, causing loss of life, and providing vulnerabilities that pose a risk to national security. Joint planners are trained to assess centers of gravity and collateral damage estimates as a traditional warfighting function. However, this skill and process is overlooked when considering

the unpredictable nature of natural disasters. A new approach to natural disaster coordination would be beneficial to national security and America's global interest

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