



# **NAVAL POSTGRADUATE SCHOOL**

**MONTEREY, CALIFORNIA**

## **THESIS**

**DUAL DISRUPTIONS: OVERCOMING THE  
EFFECTS OF DISASTERS AND MIS-, DIS-, AND  
MAL-INFORMATION ON DEMOCRACIES**

by

Lauren McLane

March 2021

Co-Advisors:

Cristiana Matei

Christopher Bellavita (contractor)

**Approved for public release. Distribution is unlimited.**

THIS PAGE INTENTIONALLY LEFT BLANK

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                 |                                                                |                                                            |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|----------------------------------------------------------------|------------------------------------------------------------|--|
| <b>REPORT DOCUMENTATION PAGE</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                 |                                                                | <i>Form Approved OMB<br/>No. 0704-0188</i>                 |  |
| Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instruction, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188) Washington, DC 20503.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                 |                                                                |                                                            |  |
| <b>1. AGENCY USE ONLY<br/>(Leave blank)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                 | <b>2. REPORT DATE</b><br>March 2021                            | <b>3. REPORT TYPE AND DATES COVERED</b><br>Master's thesis |  |
| <b>4. TITLE AND SUBTITLE</b><br>DUAL DISRUPTIONS: OVERCOMING THE EFFECTS OF DISASTERS AND MIS-, DIS-, AND MAL-INFORMATION ON DEMOCRACIES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                 |                                                                | <b>5. FUNDING NUMBERS</b>                                  |  |
| <b>6. AUTHOR(S)</b> Lauren McLane                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                 |                                                                |                                                            |  |
| <b>7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)</b><br>Naval Postgraduate School<br>Monterey, CA 93943-5000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                 |                                                                | <b>8. PERFORMING ORGANIZATION REPORT NUMBER</b>            |  |
| <b>9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)</b><br>N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                 |                                                                | <b>10. SPONSORING / MONITORING AGENCY REPORT NUMBER</b>    |  |
| <b>11. SUPPLEMENTARY NOTES</b> The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                 |                                                                |                                                            |  |
| <b>12a. DISTRIBUTION / AVAILABILITY STATEMENT</b><br>Approved for public release. Distribution is unlimited.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                 |                                                                | <b>12b. DISTRIBUTION CODE</b><br>A                         |  |
| <b>13. ABSTRACT (maximum 200 words)</b><br><br>Democracy stands at a critical juncture in the current environment of mis-, dis-, and mal-information spreading in the media ecosystem and intensifying disaster challenges. This thesis examines how democratic governments can maintain legitimacy after a catastrophic disaster in the age of false information. It uses the comparative case study method to evaluate three international catastrophic disaster responses—the 2011 Tōhoku earthquake, tsunami, and nuclear power plant disaster in Japan; the Australian wildfires of 2019–2020; and the COVID-19 response in the United States beginning in 2020—within the frameworks for democratic principles, crisis leadership, sensemaking, and the social production of disasters. This thesis finds that the combination of ineffective disaster response, poor leadership, and false information can undermine socially constructed legitimacy, amplify and intensify existing social divides, and create instability and distrust of the government. This thesis proposes a model of social response to disasters that recommends networked responder actions to uphold democratic institutions and legitimacy when citizens have been affected by chaos and uncertainty in the operational and information environments. It recommends building trust and resilient communities through sensemaking, meaning-making, adaptation, community stabilization, and ethics and equity. |                                                                 |                                                                |                                                            |  |
| <b>14. SUBJECT TERMS</b><br>disaster, crisis, misinformation, disinformation, legitimacy, ethics, democracy, international, social media, resilience, vulnerability, equity, sensemaking, meaning-making, community, adaptation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                 |                                                                | <b>15. NUMBER OF PAGES</b><br>145                          |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                 |                                                                | <b>16. PRICE CODE</b>                                      |  |
| <b>17. SECURITY CLASSIFICATION OF REPORT</b><br>Unclassified                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <b>18. SECURITY CLASSIFICATION OF THIS PAGE</b><br>Unclassified | <b>19. SECURITY CLASSIFICATION OF ABSTRACT</b><br>Unclassified | <b>20. LIMITATION OF ABSTRACT</b><br>UU                    |  |

THIS PAGE INTENTIONALLY LEFT BLANK

**Approved for public release. Distribution is unlimited.**

**DUAL DISRUPTIONS: OVERCOMING THE EFFECTS OF DISASTERS  
AND MIS-, DIS-, AND MAL-INFORMATION ON DEMOCRACIES**

Lauren McLane  
Planning Branch Chief - FEMA Region I, Department of Homeland Security  
BS, University of Massachusetts, 2000

Submitted in partial fulfillment of the  
requirements for the degree of

**MASTER OF ARTS IN SECURITY STUDIES  
(HOMELAND SECURITY AND DEFENSE)**

from the

**NAVAL POSTGRADUATE SCHOOL  
March 2021**

Approved by: Cristiana Matei  
Co-Advisor

Christopher Bellavita  
Co-Advisor

Erik J. Dahl  
Associate Professor, Department of National Security Affairs

THIS PAGE INTENTIONALLY LEFT BLANK

## **ABSTRACT**

Democracy stands at a critical juncture in the current environment of mis-, dis-, and mal-information spreading in the media ecosystem and intensifying disaster challenges. This thesis examines how democratic governments can maintain legitimacy after a catastrophic disaster in the age of false information. It uses the comparative case study method to evaluate three international catastrophic disaster responses—the 2011 Tōhoku earthquake, tsunami, and nuclear power plant disaster in Japan; the Australian wildfires of 2019–2020; and the COVID-19 response in the United States beginning in 2020—within the analysis frameworks for democratic principles, crisis leadership, sensemaking, and the social production of disasters. This thesis finds that the combination of ineffective disaster response, poor leadership, and false information can undermine socially constructed legitimacy, amplify and intensify existing social divides, and create instability and distrust of the government. This thesis proposes a model of social response to disasters that recommends networked responder actions to uphold democratic institutions and legitimacy when citizens have been affected by chaos and uncertainty in the operational and information environments. It recommends building trust and resilient communities through sensemaking, meaning-making, adaptation, community stabilization, and ethics and equity.

THIS PAGE INTENTIONALLY LEFT BLANK

## TABLE OF CONTENTS

|             |                                                                                      |           |
|-------------|--------------------------------------------------------------------------------------|-----------|
| <b>I.</b>   | <b>INTRODUCTION.....</b>                                                             | <b>1</b>  |
| <b>A.</b>   | <b>PROBLEM STATEMENT .....</b>                                                       | <b>1</b>  |
| <b>B.</b>   | <b>RESEARCH QUESTION .....</b>                                                       | <b>4</b>  |
| <b>C.</b>   | <b>RESEARCH DESIGN .....</b>                                                         | <b>4</b>  |
| <b>D.</b>   | <b>CHAPTER OUTLINE.....</b>                                                          | <b>6</b>  |
| <br>        |                                                                                      |           |
| <b>II.</b>  | <b>LITERATURE REVIEW .....</b>                                                       | <b>7</b>  |
| <b>A.</b>   | <b>LEGITIMACY .....</b>                                                              | <b>7</b>  |
| 1.          | Definition .....                                                                     | 7         |
| 2.          | Legitimacy and Crisis Communication Online.....                                      | 10        |
| 3.          | Disaster Challenges to Legitimacy .....                                              | 14        |
| <b>B.</b>   | <b>RESILIENCE CAPACITY .....</b>                                                     | <b>17</b> |
| <b>C.</b>   | <b>EFFECTIVE DISASTER RESPONSE .....</b>                                             | <b>19</b> |
| 1.          | Disaster Definition .....                                                            | 19        |
| 2.          | Ethical Application of Resources.....                                                | 22        |
| 3.          | Resilience and Vulnerability .....                                                   | 25        |
| <b>D.</b>   | <b>MISINFORMATION, DISINFORMATION, AND<br/>MALINFORMATION .....</b>                  | <b>27</b> |
| 1.          | False or Harmful Information .....                                                   | 27        |
| 2.          | Purpose and Spread of Disinformation and<br>Malinformation .....                     | 32        |
| 3.          | Countering Misinformation, Disinformation, and<br>Malinformation .....               | 40        |
| <br>        |                                                                                      |           |
| <b>III.</b> | <b>CASE STUDIES OF DISASTERS AND FALSE INFORMATION<br/>EFFECTS ON DEMOCRACY.....</b> | <b>45</b> |
| <b>A.</b>   | <b>JAPAN: EARTHQUAKE, TSUNAMI, AND NUCLEAR<br/>POWER PLANT DISASTER.....</b>         | <b>45</b> |
| 1.          | Disinformation, Misinformation, and Malinformation<br>Effects.....                   | 48        |
| 2.          | Social, Economic, and Political Effects on Democracy.....                            | 50        |
| 3.          | Conclusions .....                                                                    | 54        |
| <b>B.</b>   | <b>AUSTRALIA: 2019–2020 WILDFIRES.....</b>                                           | <b>55</b> |
| 1.          | Disinformation, Misinformation, and Malinformation<br>Effects.....                   | 59        |
| 2.          | Social, Economic, and Political Effects on Democracy.....                            | 61        |
| 3.          | Conclusions .....                                                                    | 63        |
| <b>C.</b>   | <b>UNITED STATES: COVID-19 RESPONSE.....</b>                                         | <b>64</b> |

|     |                                                                         |     |
|-----|-------------------------------------------------------------------------|-----|
| 1.  | Disinformation, Misinformation, and Malinformation Effects.....         | 70  |
| 2.  | Social, Economic, and Political Effects on Democracy.....               | 72  |
| 3.  | Conclusions.....                                                        | 76  |
| D.  | CASE STUDY ANALYSIS.....                                                | 78  |
| 1.  | Disaster Effects.....                                                   | 79  |
| 2.  | Disinformation, Misinformation, and Malinformation Effects.....         | 81  |
| 3.  | Social, Economic, and Political Effects on Democracy.....               | 83  |
| IV. | FINDINGS, RECOMMENDATIONS, AND FUTURE RESEARCH.....                     | 87  |
| A.  | FINDINGS.....                                                           | 87  |
| 1.  | Trust.....                                                              | 89  |
| 2.  | Crisis Leadership .....                                                 | 90  |
| 3.  | Communities.....                                                        | 92  |
| 4.  | Social Capital, Social Responsibility, and Human Rights or Equity ..... | 93  |
| B.  | RECOMMENDATIONS.....                                                    | 94  |
| 1.  | Social Response to Disasters Model.....                                 | 95  |
| 2.  | Model Implementation by Responder Networks .....                        | 100 |
| 3.  | Implementation Strategies .....                                         | 101 |
| C.  | FUTURE RESEARCH.....                                                    | 103 |
|     | LIST OF REFERENCES .....                                                | 105 |
|     | INITIAL DISTRIBUTION LIST .....                                         | 123 |

## LIST OF FIGURES

|           |                                         |    |
|-----------|-----------------------------------------|----|
| Figure 1. | Social Response to Disasters Model..... | 96 |
|-----------|-----------------------------------------|----|

THIS PAGE INTENTIONALLY LEFT BLANK

## LIST OF TABLES

|          |                                      |    |
|----------|--------------------------------------|----|
| Table 1. | Comparative Case Study Summary ..... | 79 |
| Table 2. | Primary Findings.....                | 88 |

THIS PAGE INTENTIONALLY LEFT BLANK

## **LIST OF ACRONYMS AND ABBREVIATIONS**

|          |                                                        |
|----------|--------------------------------------------------------|
| COVID-19 | coronavirus disease 2019                               |
| FEMA     | Federal Emergency Management Agency                    |
| GDP      | gross domestic product                                 |
| HHS      | Department of Health and Human Services                |
| OECD     | Organisation for Economic Co-operation and Development |
| PPE      | personal protective equipment                          |
| TEPCO    | Tokyo Electric Power Company                           |
| WHO      | World Health Organization                              |

THIS PAGE INTENTIONALLY LEFT BLANK

## EXECUTIVE SUMMARY

Trust in governments worldwide is declining, thus undermining the social, economic, and political institutions of democracies and, therefore, the legitimacy of governments.<sup>1</sup> Income inequality is also widening around the world, leading to increased individual and societal vulnerability, decreased resilience, and mass protests.<sup>2</sup> Simultaneously, catastrophic disasters are increasing in frequency and challenging disaster response agencies to align resources with ethical and equitable principles. Additionally, false information—known as mis-, dis-, and mal-information—is spreading rapidly through social media and other platforms, potentially damaging legitimacy by further eroding trust. Challenges to the legitimacy of democratic states are more likely to occur—or increase—when strategic response efforts are ineffective in the immediate aftermath of a disaster or when individual or governmental resilience is low.<sup>3</sup> As such, democracy stands at a critical juncture in the current environment where mis-, dis-, and mal-information throughout the media ecosystem intensifies or exacerbates disaster challenges. Fortunately, however, crises also expose underlying vulnerabilities in the social, economic, and political institutions of a democracy and provide an opportunity for reforms.

The complex ecosystems of disaster response and recovery, media and social media, and individual and community vulnerability and resilience in a crisis interact to challenge democratic governments. The scholarly literature reviewed for this thesis first focuses on governmental legitimacy in a democracy and the effect and role of communications via social media in a crisis and other online platforms, as well as disaster challenges to legitimacy and resilience. It next explores disaster response, including the ethical application of response resources, as well as individual resilience and vulnerability to disasters. Finally, it tackles the evolving topics of misinformation, disinformation, and

---

<sup>1</sup> “Trust in Government,” Organisation for Economic Co-operation and Development, accessed January 13, 2021, <http://www.oecd.org/gov/trust-in-government.htm>.

<sup>2</sup> “Rising Inequality Affecting More Than Two-Thirds of the Globe, but It’s Not Inevitable: New UN Report,” United Nations, January 21, 2020, <https://news.un.org/en/story/2020/01/1055681>.

<sup>3</sup> Arjen Boin et al., *The Politics of Crisis Management: Public Leadership under Pressure* (Cambridge: Cambridge University Press, 2016), 3.

malinformation, including definitions, the purpose and means of spreading these types of false information, and methods to counter them. This review consistently examines the common themes of social and political structures and leadership, as well as individual and governmental vulnerability, resilience, trust, sensemaking, and narratives.

This thesis uses the comparative case study method to evaluate three international catastrophic disaster responses.<sup>4</sup> Each of these cases were selected because the countries possessed stable democratic governments that experienced a significant disaster event in which false information was spread over social media. It examines the following cases: the 2011 Tōhoku earthquake, tsunami, and nuclear power plant disaster in Japan; the Australian wildfires of 2019–2020; and the ongoing coronavirus disease 2019 (COVID-19) response in the United States that began in 2020.

This thesis employs four frameworks to analyze these case studies, including democratic principles, crisis leadership, sensemaking, and the social production of disasters. First, Linz and Stepan's framework describes social, economic, and political institutions that contribute to the legitimacy of a state, along with other conditions such as bureaucracy and rule of law.<sup>5</sup> The second is crisis leadership—which Boin et al. describe as sensemaking, decision-making and coordinating, meaning-making, accounting, and learning.<sup>6</sup> The third framework illustrates how individuals inside and outside the disaster-affected area perform sensemaking through communication platforms such as social media.<sup>7</sup> Fourth, Tierney's social production of disaster is used to emphasize the social impacts and aspects of a disaster—rather than its physical effects—to evaluate the

---

<sup>4</sup> Robert K. Yin, *Case Study Research: Design and Methods*, 4th ed., Applied Social Research Methods Series, vol. 5 (Thousand Oaks, CA: SAGE Publications, 2009).

<sup>5</sup> Juan J. Linz and Alfred Stepan, *Problems of Democratic Transition and Consolidation: Southern Europe, South America, and Post-Communist Europe* (Baltimore: Johns Hopkins University Press, 1996), 40.

<sup>6</sup> Boin et al., *The Politics of Crisis Management*, 14–15.

<sup>7</sup> Andrew D. Brown, Ian Colville, and Annie Pye, "Making Sense of Sensemaking in *Organization Studies*," *Organization Studies* 36, no. 2 (February 2015): 266, <https://doi.org/10.1177/0170840614559259>.

influences of vulnerability and resilience on individuals and communities after a disaster.<sup>8</sup> These frameworks enable the comparative analysis of these case studies.

This case study analysis finds that false information and complex disasters compound vulnerabilities, disrupt societal structures, and exceed the national capacity to provide for the basic needs of citizens. This comparative case study analysis reveals a weakened democracy in the United States yet stable democracies in Australia and Japan. Each of these disasters triggered significant disruptions to the national social, economic, and political systems required to support a fully functioning democracy. Although all three governments maintained legitimacy following the disasters examined, national leaders and governments lost credibility and trust. In addition, these disasters and the effects of mis-, dis-, and mal-information disrupted the social and economic institutions of democracy through wide-ranging effects on citizens—societal disruptions, degraded social structures, and economic losses, combined with significant disaster-related expenses—especially among vulnerable populations.

This research concludes that socially constructed legitimacy can be undermined by forces that amplify and intensify existing social divides and create instability, including false information and disasters that alter the environment and social structures. However, governments and individuals can support democratic legitimacy by countering disruptions caused by false information and disasters. Counteracting such disruptions involves sensemaking and constructive meaning-making, building social relationships and cohesion, enhancing community involvement in disaster response, and taking actions to stabilize the situation that provide for the basic needs of survivors and societal recovery.

In order to combat these effects on citizens and democracy, responders should deliver an effective disaster response by enacting an equitable, ethical distribution of resources that meets the basic needs of citizens and by rapidly adapting to the situation and clearly communicating. These actions result in the delivery of resources, through funding and direct support, that build citizen trust and support of their governments. Additionally, responders must consider the needs of the community including individual vulnerabilities,

---

<sup>8</sup> Kathleen Tierney, *Disasters: A Sociological Approach* (Cambridge: Polity Press, 2019), 66.

resilience, and equity in the disaster response. These actions enhance governmental resilience, enabling democratic states to maintain legitimacy and trust when affected by a crisis such as a disaster or attacks that leverage false information. There is no single method for ensuring resilience or legitimacy; governments must tailor their approaches and be prepared to adapt to new or emerging situations to enhance and support affected communities.

This thesis proposes a model for individual, community, and government networks to evaluate the effects of disaster and false information on democratic institutions and to strengthen and uphold the integrity of their democracies in times of crisis. This model describes disaster responder actions and networks that will effectively sustain democracy when citizens are harmed by the combined forces of severe or catastrophic disasters and mis-, dis-, and mal-information. Kathleen Tierney describes the severity of disasters in terms of the “social production of disasters” in which the emphasis is on “social structures and social processes” rather than the physical effects of a disaster.<sup>9</sup> This model builds on Tierney’s principles and the other primary frameworks to propose a *social response to disasters*, which describes responder actions that enable networks to uphold democratic institutions when challenged by disasters and false information.

Each of the model’s components contributes to the culminating goal of maintaining state legitimacy by building trust and resilient communities. These components include the relationship of responder actions—including sensemaking, meaning-making, adaptation, community stabilization, and ethics and equity—to the social, political, and economic institutions of a democracy. Similarly, the model describes the relationship of the components of responder networks—volunteers and community responders, online and in-person communities, and governments—to these same institutions. Implementing the social response to disasters model requires collaboration among responder networks, which contribute to the successful implementation of the responder actions described in this model, to uphold the integrity of their democracies in times of crisis.

---

<sup>9</sup> Tierney, 66.

## ACKNOWLEDGMENTS

What an adventure it was to complete this program while also spending a year responding to the COVID-19 disaster. Throughout the last year, I've seen this great team of educators and staff experiment, adapt, and pivot while reinventing our program during this global pandemic. I am eternally grateful for the effort that went into making this virtual education happen for all of us, even if it wasn't quite what we would have preferred.

A big thank you to my advisors, Dr. Chris Bellavita and Dr. Cris Matei. You both bring a world of academic and other interesting experiences, and it was a pleasure to get to know both of you! Also, a thank you to our editors, who attempted to keep my lengthy sentences down to under five lines, and who worked on my love of the passive voice.

1905/1906, you guys are the best! I said this after our first session and will say it again whenever I describe this program: I got to meet the best people that I never would have otherwise had the opportunity to meet. You broadened my idea of what comprises homeland security, let me in on jokes that flew right over this emergency manager's head, and made me think differently about public safety. Thank you. And especially thank you to my little corner of 1905 who made me laugh and kept me going when it was hard to push through. Lissy, Jess, and Kate, our daily morning check-ins and your solidarity kept me sane, especially in the final stages of this program. It wasn't the same having our "IRs" over Zoom, but I look forward to some in-person visits in the coming years with this entire amazing group of individuals.

My FEMA colleagues and leadership made this adventure possible and inspired (and sometimes nudged) me into embarking on it. From Paul Regan, who introduced me to ethical constructs long before I learned about them at CHDS and who mentored me for many years, to everyone who helped me grow and stretch my brain while I jumped willingly down rabbit holes and in long conversation on walks and over coffee and lunch. My teams and supervisors—both steady state and COVID-19—covered for me and kept me focused and will continue to hear about what I learned at school, whether they like it or not. Thank you.

Most of all, of course, I owe a huge debt of gratitude to my family and friends, who listened to me and cheered me on every step of the way. From the day that my acceptance to the program arrived, you have celebrated with me, picked me up when my own resilience was low and I was feeling like I couldn't keep going, and made this all possible with your love and support. Thank you for reminding me that I could do this—along with a lot of other things at the same time—and for making this a priority. I thought many times that I couldn't keep going, but you reminded me that I am “the McLane” who is capable of anything and that I would finish. Turns out you were right.

# I. INTRODUCTION

The legitimacy of a government is severely tested in the aftermath of a catastrophic disaster that significantly disrupts infrastructure, impacts the lives of survivors, and results in long-term disruptions to the economy. Democracy is at a critical juncture in the current environment when disaster challenges are combined with mis-, dis-, and mal-information spreading throughout the media ecosystem, eroding trust. Fortunately, however, crises also provide an opportunity for reforms and exposure of underlying vulnerabilities in the social, economic, and political institutions of a democracy. False information spread via social media platforms, the effectiveness of disaster response and recovery, and individual and community vulnerability and resilience in a crisis challenge democratic legitimacy.

## A. PROBLEM STATEMENT

Challenges to legitimacy are more likely to occur when strategic response efforts are ineffective in the immediate aftermath of a disaster or when individual or governmental resilience is low. Additionally, the frequency and impact of catastrophic disasters on individuals and communities are intensifying, in part due to the changing climate and associated risks and vulnerabilities, thereby increasing the likelihood of legitimacy challenges to governments.<sup>1</sup> For example, 2020 was an unprecedented year for disasters, with \$95 billion in damages from 22 incidents across the country.<sup>2</sup> Earlier, in Louisiana after Hurricane Katrina in 2005, the response was widely deemed ineffective and inefficient across all levels of government, leading to conclusions that the government had failed to take the proper initiative to provide needed support for survivors and had been slow to respond and adapt to this significant disaster.<sup>3</sup> Similarly, the media and the public

---

<sup>1</sup> Adam B. Smith, “2020 U.S. Billion-Dollar Weather and Climate Disasters in Historical Context,” National Oceanic and Atmospheric Administration, January 8, 2021, <https://www.climate.gov/news-features/blogs/beyond-data/2020-us-billion-dollar-weather-and-climate-disasters-historical>.

<sup>2</sup> Smith.

<sup>3</sup> U.S. Congress, House of Representatives, *A Failure of Initiative: Final Report of the Select Bipartisan Committee to Investigate the Preparation for and Response to Hurricane Katrina*, Report No. 109-377 (Washington, DC: House of Representatives, 2007), <https://www.congress.gov/congressional-report/109th-congress/house-report/377/1>.

deemed the governmental and international response ineffective following the Indian Ocean tsunami in 2004, Chile's 2010 earthquake and tsunami, and Haiti's 2010 earthquake.<sup>4</sup> Moreover, Carlin, Love, and Zechmeister found that the 2010 earthquake in Chile created instability through public criticism of democratic structures and individual politicians, which undermined public support of democratic norms and, by extension, the democratic government itself.<sup>5</sup> Following Hurricane Maria in 2017, the government response received similar widespread criticism in the face of preparedness challenges that influenced response capacity in Puerto Rico and the U.S. Virgin Islands.<sup>6</sup> International state or domestic non-state adversaries might capitalize on the hectic environments of such catastrophic disasters and the resulting unstable environments to destabilize governments to achieve their own strategic goals. Such nefarious actors might weaken powerful governments, foment regime change, destabilize a region, or undermine alliances, using such global threats as cyber capabilities, online influence operations, counterintelligence from foreign state actors, or kinetic attacks.<sup>7</sup> Increasing disasters combined with responses that are viewed as ineffective and adversarial attacks that leverage the destabilizing effects of disasters have the potential to challenge democratic legitimacy or even destabilize states.

Indeed, following a catastrophic disaster, the right capabilities—including life-saving resources such as health and medical teams and equipment and life-sustaining resources such as food, water, and shelter—must be applied at the right time and location to support a return to normalcy and encourage economic recovery. Without the capabilities to support these goals, the national response will be ineffective. Often, when capabilities

---

<sup>4</sup> Ryan E. Carlin, Gregory J. Love, and Elizabeth J. Zechmeister, "Natural Disaster and Democratic Legitimacy: The Public Opinion Consequences of Chile's 2010 Earthquake and Tsunami," *Political Research Quarterly* 67 (2013): 5, <https://doi.org/10.1177/1065912913495592>; Saptarishi Bandopadhyay, "After the Storm," Aeon, February 5, 2019, <https://aeon.co/essays/disaster-relief-as-a-threat-to-state-sovereignty>.

<sup>5</sup> Carlin, Love, and Zechmeister, "Natural Disaster and Democratic Legitimacy," 3.

<sup>6</sup> Federal Emergency Management Agency, *2017 Hurricane Season: FEMA After-Action Report* (Washington, DC: Federal Emergency Management Agency, 2018), [https://www.fema.gov/sites/default/files/2020-08/fema\\_hurricane-season-after-action-report\\_2017.pdf](https://www.fema.gov/sites/default/files/2020-08/fema_hurricane-season-after-action-report_2017.pdf).

<sup>7</sup> Daniel R. Coats, *Worldwide Threat Assessment of the U.S. Intelligence Committee* (Washington, DC: Senate Select Committee on Intelligence, 2019), <https://www.dni.gov/files/ODNI/documents/2019-ATA-SFR---SSCI.pdf>.

are not applied correctly, it is because governments initially lack sufficient resources or misunderstand disaster impacts. When resource shortfalls and poor situational awareness combine with disinformation campaigns and cyber or kinetic attacks, the government's capability to respond effectively and maintain legitimacy falters. Similarly, the resilience levels of a government and the people affected by the disaster may either increase or decrease challenges to the government's legitimacy. Greater resilience, for example, would buffer the governmental structure against the impacts of adversarial campaigns.<sup>8</sup>

Recent disasters illustrate that mis-, dis-, and mal-information influence the public's perception of disaster conditions. Following the Ebola outbreak in 2018–2019, researchers found that low trust in local authorities combined with misinformation had influenced individual behaviors such as vaccination rates and requests for medical interventions.<sup>9</sup> Similarly, during the 2020 Australian wildfires, disinformation on social media spread theories that arson or government-controlled burns had spawned the conflagrations or that climate change played no role in their severity and spread.<sup>10</sup> Additionally, low trust in the government and an email originating from outside the country to spread disinformation led to civil unrest in Ukraine at the outset of the coronavirus disease 2019 (COVID-19) outbreak, demonstrating adversaries' ability to combine

---

<sup>8</sup> Resilience is defined, for the purposes of this thesis, as the intersection of vulnerability that exists before an event, the incident's impacts, and the capacity for adapting to the post-event environment. Legitimacy is defined by Max Weber and other modern political theorists, as well as the Department of Defense, which links legitimacy to compliance with peace agreements and other arrangements. See Joint Chiefs of Staff, *Joint Planning*, JP 5-0 (Washington, DC: Joint Chiefs of Staff, 2017), [https://www.jcs.mil/Portals/36/Documents/Doctrine/pubs/jp5\\_0.pdf?ver=ztDG06paGvpQRrLxThNZUw%3d%3d](https://www.jcs.mil/Portals/36/Documents/Doctrine/pubs/jp5_0.pdf?ver=ztDG06paGvpQRrLxThNZUw%3d%3d); Fran H. Norris et al., "Community Resilience as a Metaphor, Theory, Set of Capacities, and Strategy for Disaster Readiness," *American Journal of Community Psychology* 41, no. 1–2 (March 2008): 127–50, <https://doi.org/10.1007/s10464-007-9156-6>.

<sup>9</sup> Patrick Vinck et al., "Institutional Trust and Misinformation in the Response to the 2018–19 Ebola Outbreak in North Kivu, DR Congo: A Population-Based Survey," *Lancet Infectious Diseases* 19, no. 5 (May 2019): 529–36, [https://doi.org/10.1016/S1473-3099\(19\)30063-5](https://doi.org/10.1016/S1473-3099(19)30063-5).

<sup>10</sup> Derek Weber et al., "#ArsonEmergency and Australia's 'Black Summer': Polarisation and Misinformation on Social Media," in *Disinformation in Open Online Media: Proceedings of the Multidisciplinary International Symposium on Disinformation in Open Online Media*, ed. M. van Duijn et al., *Lecture Notes in Computer Science*, vol. 12259 (Cham: Springer, 2020), [https://doi.org/10.1007/978-3-030-61841-4\\_11](https://doi.org/10.1007/978-3-030-61841-4_11).

disinformation with a natural disaster incident to incite turmoil.<sup>11</sup> Adversarial governments have the capability to conduct cyber-attacks and use social media for disinformation campaigns, information warfare, and the weaponizing of personal information. These examples demonstrate that adversaries can leverage disasters to launch a secondary attack to achieve strategic goals.

This research seeks to establish novel solutions or emerging practices and factors for governments to maintain legitimacy following a catastrophic disaster in an era of increased mis-, dis-, and mal-information and other adversarial actions. It provides recommendations to governments for how to establish and encourage resilience and ultimately strengthen legitimacy after a calamity. These recommendations for maintaining legitimacy build on previous research about community resilience and ethical decision-making in disaster response for effective response operations. Although each of these factors—legitimacy, catastrophic disasters, and mis-, dis-, and mal-information—has been studied separately, these topics have not been examined together. This thesis fills a gap in the existing research by examining these relationships to reveal whether actions can be taken to strengthen democracies before, during, or after disasters.

## **B. RESEARCH QUESTION**

How can democratic governments maintain legitimacy after a catastrophic disaster in the age of mis-, dis-, and mal-information?

## **C. RESEARCH DESIGN**

This thesis uses the comparative case study method to evaluate three international catastrophic disaster responses.<sup>12</sup> Each of the cases in this thesis appears here because the country possessed a stable democratic government that experienced a significant disaster event in which false information was spread over social media. These democratic

---

<sup>11</sup> Patrick Reeve, "Hysteria over Coronavirus Sparks Violent Protests in Ukraine," ABC News, February 21, 2020, <https://abcnews.go.com/International/hysteria-coronavirus-sparks-violent-protests-ukraine/story?id=69124337>.

<sup>12</sup> Robert K. Yin, *Case Study Research: Design and Methods*, 4th ed., *Applied Social Research Methods Series*, vol. 5 (Thousand Oaks, CA: SAGE Publications, 2009).

governments had at least moderate stability prior to the disaster and displayed a historic ability to withstand challenges to citizen confidence. Each government experienced a major or catastrophic disaster that strained government and private sector resources and had the potential to affect or disrupt its democracy—as opposed to a less-significant disaster with only a minor impact on local or regional governments. Last, each case involved social media in the sensemaking and meaning-making processes for the state, which experienced effects from mis-, dis-, or mal-information spread on these platforms. Drawing on media sources and government reports as well as research literature, this thesis evaluates the significance of disaster consequences and response for each case, including the effects of the disaster, the vulnerability of the population, and the quality of the whole-of-community response. It then reviews the effects of the disaster on the social, economic, and political institutions of democracy, further evaluating the political institutions by examining leadership and trust as well as government functions. Finally, it reviews the prevalence of mis-, dis-, and mal-information in each disaster. The following cases appear in this thesis: the 2011 Tōhoku earthquake, tsunami, and nuclear power plant disaster in Japan; the Australian wildfires of 2019–2020; and the ongoing COVID-19 response in the United States that began in 2020.

This thesis employs four frameworks to analyze these case studies, including democratic principles, crisis leadership, sensemaking, and the social production of disasters. First, Linz and Stepan’s framework describes social, economic, and political institutions that contribute to the legitimacy of a state, along with other conditions such as bureaucracy and rule of law.<sup>13</sup> This framework, combined with an evaluation of trust in the governments, forms the analytical foundation of the effects of these disasters on legitimacy. The second framework is crisis leadership—which Boin et al. describe as sensemaking, decision-making and coordinating, meaning-making, accounting, and learning.<sup>14</sup> Disaster coordinating agencies and others perform these actions and enable the

---

<sup>13</sup> Juan J. Linz and Alfred Stepan, *Problems of Democratic Transition and Consolidation: Southern Europe, South America, and Post-Communist Europe* (Baltimore: Johns Hopkins University Press, 1996), 40.

<sup>14</sup> Arjen Boin et al., *The Politics of Crisis Management: Public Leadership under Pressure* (Cambridge: Cambridge University Press, 2016), 14–15.

governments' disaster response and recovery in these cases. The third framework illustrates how individuals inside and outside the disaster-affected area perform sensemaking through communication platforms such as social media, enabling the evaluation of the effects of mis-, dis-, and mal-information on these democratic governments.<sup>15</sup> Fourth, Tierney's social production of disaster is used to emphasize the social impacts and aspects of a disaster—rather than its physical outcomes—to evaluate the effects of vulnerability and resilience on individuals and communities after a disaster.<sup>16</sup>

This thesis begins by seeking to understand the operational environment of a major disaster and the potential impact on governments based on previous research into the effect of disasters on government legitimacy and by examining the impacts of effectiveness and efficiency on the outcome of the disaster response. Because this is an emerging field, the academic literature about the long-term effects of false information on a disaster is scarce. This thesis examines how mis-, dis-, and mal-information could undermine democracies following a disaster and makes policy recommendations for protecting against these effects. The intended audience for these recommendations includes democratic states such as the United States and foreign governments.

#### **D. CHAPTER OUTLINE**

The following chapters explore the intersecting forces of disasters and false information on democratic legitimacy. Chapter II explores scholarly research on these themes, including the evolving topics of governmental legitimacy; social media; disaster response, including individual and community resilience and vulnerability; and mis-, dis-, and mal-information. Chapter III describes the nature and extent of the three case studies and analyzes the effects of the disaster, response efforts, and false information on democratic institutions. Finally, Chapter IV discusses the findings drawn from previous chapters, summarizes the conclusions drawn from this research, proposes a model, and proposes recommendations and opportunities for future research.

---

<sup>15</sup> Andrew D. Brown, Ian Colville, and Annie Pye, "Making Sense of Sensemaking in *Organization Studies*," *Organization Studies* 36, no. 2 (February 2015): 266, <https://doi.org/10.1177/0170840614559259>.

<sup>16</sup> Kathleen Tierney, *Disasters: A Sociological Approach* (Cambridge: Polity Press, 2019), 66.

## II. LITERATURE REVIEW

This review of the scholarly literature focuses first on the topics of governmental legitimacy in a democracy and the effect and role of communications in a crisis via social media and other online platforms, as well as disaster challenges to legitimacy and resilience. It next explores disaster response, including the ethical application of response resources as well as individual resilience and vulnerability to disasters. Finally, it tackles the evolving topics of misinformation, disinformation, and malinformation, including definitions, the purpose and means of spreading these types of false information, and methods to counter them. This review consistently examines the common themes of social and political structures and leadership, as well as individual and governmental vulnerability, resilience, trust, sensemaking, and narratives.

### A. LEGITIMACY

This section provides an analysis of the scholarly debates on the definition of legitimacy, the role of social media in influencing legitimacy, and the factors that affect governmental legitimacy before, during, and after a crisis. It focuses on the effect of disasters on governmental legitimacy; additional debates surrounding governmental failures resulting from other types of crises are not included here.

#### 1. Definition

March and Olsen establish their definition of a political institution, such as a nation-state, as the adherence of the populace to structures and rules, a commonality of culture based on values and views, a common purpose established between citizens, or a combination thereof.<sup>17</sup> They further describe these institutions as “socially constructed.”<sup>18</sup> Max Weber, one of the originators of this concept, agrees that legitimacy is socially constructed when he writes that only citizens can grant legitimacy to a state. He describes

---

<sup>17</sup> James G. March and Johan P. Olsen, “Elaborating the ‘New Institutionalism,’” in *The Oxford Handbook of Political Institutions*, ed. Sarah A. Binder, R. A. W. Rhodes, and Bert A. Rockman (Oxford: Oxford University Press, 2008), <https://doi.org/10.1093/oxfordhb/9780199548460.003.0001>.

<sup>18</sup> March and Olsen.

three ways that citizens grant legitimacy: habit, confidence in a leader, and belief in the system and its rules.<sup>19</sup> Scholars have since challenged Weber's typology of authority and recommended additions to his list. Sebastián G. Guzmán recommends that a fourth type of authority be added to account for authoritative leaders and other trusted figures such as medical doctors, who he describes as "substantive-rational," or deriving authority from charisma and the ability to navigate rules or norms and abstract values.<sup>20</sup> Juan J. Linz elaborates on the contributions of social, economic, and political institutions to legitimacy—which is granted by citizens—and their impact on the stability of governments vis-à-vis regime changes.<sup>21</sup> Linz and Stepan tailor this description of legitimacy to describe the five components of democracy: "a lively civil society, a relatively autonomous political society, a rule of law, a usable state, and an economic society."<sup>22</sup> The social and political science literature defines how individuals maintain the legitimacy of political institutions through support and attentiveness.

Practical definitions, however, also shed light on the implications of legitimacy for political institutions such as governments. For example, the Department of Defense links legitimacy to compliance with peace agreements and other arrangements.<sup>23</sup> According to Christensen and Laegreid, the legitimacy of political institutions is closely interrelated with trust, which manifests in citizens' level of satisfaction with government support, such as social services, and engagement with political systems and demographics.<sup>24</sup> Francesca Granelli further expands on the relationship between individuals and institutions, defining the process of individual trust-building in institutions as both a rational and a "social

---

<sup>19</sup> H. H. Gerth and C. Wright Mills, *From Max Weber: Essays in Sociology* (London: Taylor & Francis, 1948), 78–79, <https://doi.org/10.4324/9780203759240>.

<sup>20</sup> Sebastián G. Guzmán, "Substantive-Rational Authority: The Missing Fourth Pure Type in Weber's Typology of Legitimate Domination," *Journal of Classical Sociology* 15, no. 1 (February 2015): 73–95, <https://doi.org/10.1177/1468795X14531695>.

<sup>21</sup> Juan J. Linz, *The Breakdown of Democratic Regimes: Crisis, Breakdown and Reequilibration—An Introduction* (Baltimore: Johns Hopkins University Press, 1978), 12.

<sup>22</sup> Linz and Stepan, *Problems of Democratic Transition and Consolidation*, 17.

<sup>23</sup> Joint Chiefs of Staff, *Joint Planning*.

<sup>24</sup> Tom Christensen and Per Laegreid, "Trust in Government: The Relative Importance of Service Satisfaction, Political Factors, and Demography," *Public Performance & Management Review* 28, no. 4 (June 2005): 487–511.

practice that requires creation, development, and maintenance.”<sup>25</sup> Furthermore, a decline in trust can lead directly to a decline in legitimacy whereby citizens no longer comply with rules, citizen support of policy-making and efforts to enhance social structures weaken, and economic support of individual and business actions through innovation and technology dwindles.<sup>26</sup> As Newton states, “Trust makes it possible to maintain peaceful and stable social relations that are the basis for collective behaviour and productive cooperation.”<sup>27</sup> Similarly, Fathali M. Moghaddam points out, “Trust is integral to the social capital that enables dense social interconnections to develop and a healthy democracy to function.”<sup>28</sup> Charles Tilly takes this further, saying “a significant decline in trust threatens democracy.”<sup>29</sup>

Trust in the system of government is particularly important when the government faces a crisis, such as a disaster. The Organisation for Economic Co-operation and Development (OECD) highlights that trust is especially important in a crisis situation because a lack of trust can hamper response and recovery efforts and diminish the capacity of the government to respond to the crisis.<sup>30</sup> Similarly, Boin et al. reference this connection in stating that after a crisis, the political system “must regain the necessary legitimacy to perform its usual functions.”<sup>31</sup>

Although researchers describe different components and descriptions of legitimacy, they agree that the concept of legitimacy is socially constructed and that trust in political institutions is an important component. Trust, however, is not easily defined, and

---

<sup>25</sup> Francesca Granelli, “What Does It Mean for a Communication to Be Trusted?,” *Defence Strategic Communications* 5, no. 1 (Autumn 2018): 201, <https://doi.org/10.30966/2018.RIGA.5>.

<sup>26</sup> Organisation for Economic Co-operation and Development, *Government at a Glance 2013* (Paris: OECD Publishing, 2013), 20, [https://doi.org/10.1787/gov\\_glance-2013-en](https://doi.org/10.1787/gov_glance-2013-en).

<sup>27</sup> Kenneth Newton, “Trust, Social Capital, Civil Society, and Democracy,” *International Political Science Review* 22, no. 2 (2001): 202, <https://doi.org/10.1177/0192512101222004>.

<sup>28</sup> Fathali M. Moghaddam, *The Psychology of Democracy* (Washington, DC: American Psychological Association, 2015), loc. 3721 of 5083, Kindle.

<sup>29</sup> Charles Tilly, *Democracy* (Cambridge: Cambridge University Press, 2007), 92–93, <https://doi.org/10.1017/CBO9780511804922>.

<sup>30</sup> Organisation for Economic Co-operation and Development, *Government at a Glance*, 22.

<sup>31</sup> Boin et al., *The Politics of Crisis Management*, 19.

interpretations of this concept vary greatly. As Granelli states, “Trust is a deeply nuanced concept that underpins our daily interactions and communications. It influences how information is exchanged and absorbed, and in doing so, trust shapes our understanding of the world around us.”<sup>32</sup> Further complicating the concept of trust, or trustworthiness, is the current environment of information spread over social media.

## **2. Legitimacy and Crisis Communication Online**

Social media is increasingly a tool used by citizens and responders before, during, and after a crisis to understand the situation. The use of social media to understand the operational environment of a crisis is rooted in sensemaking or, as described by Brown, Colville, and Pye, the process by which “people seek plausibly to understand ambiguous, equivocal or confusing issues or events.”<sup>33</sup> Boin et al. apply the sensemaking process to emergency management organizations as a way for individuals to assess crisis situations, making it possible to understand the interactions and dynamics of a disaster.<sup>34</sup> Similarly, Starbird, Arif, and Wilson describe the role of social structures in guiding online communities and their conversations through the construction of social norms.<sup>35</sup> Social media platforms, technology, and online communities influence and in turn are influenced by individuals throughout the sensemaking process.

Because legitimacy is socially constructed, the prevalence and reach of information online means that it can quickly influence large numbers of citizens during a crisis. Huang et al. find that social media is an accessible and expedient way to share information between users, creating a valuable platform for sharing information during a crisis.<sup>36</sup> Boin et al.

---

<sup>32</sup> Granelli, “What Does It Mean for a Communication to Be Trusted?,” 201.

<sup>33</sup> Brown, Colville, and Pye, “Making Sense of Sensemaking,” 266.

<sup>34</sup> Boin et al., *The Politics of Crisis Management*, 24.

<sup>35</sup> Kate Starbird, Ahmer Arif, and Tom Wilson, “Disinformation as Collaborative Work: Surfacing the Participatory Nature of Strategic Information Operations,” *Proceedings of the ACM on Human-Computer Interaction* 3, no. CSCW (2019): 5, 109, <https://doi.org/10.1145/3359229>.

<sup>36</sup> Y. Linlin Huang et al., “Connected through Crisis: Emotional Proximity and the Spread of Misinformation Online,” in *Proceedings of the 18th ACM Conference on Computer Supported Cooperative Work & Social Computing* (Vancouver, BC: Association for Computing Machinery, 2015), 969, <https://doi.org/10.1145/2675133.2675202>.

agree, highlighting the role of coordinating community support during a response, crowdsourcing and situational awareness, and preparedness messaging with the goal of a secure society.<sup>37</sup> Starbird emphasizes the role of the community in collaborating and solving problems after a crisis, in a way similar to emergent responders arriving on the scene of an emergency through digital volunteerism, individuals support of crowdsourcing and collective intelligence, and human computation to solve complex problems.<sup>38</sup>

Additionally, social media is increasingly the primary platform for individuals to access information during a crisis and crisis managers to share official information, as reported by Huang et al.<sup>39</sup> Specifically, Arif et al. find that individuals use social media to “to share information about their own circumstances, to seek actionable information for their own response actions and about impacts to the people and places they care about, to request and offer assistance, and to seek and provide emotional support to others.”<sup>40</sup> Additionally, as Cho, Jung, and Park find, peer-to-peer communication replaces traditional government or top-down messaging, especially when infrastructure damages or communication network limitations make traditional channels unavailable.<sup>41</sup>

Although social media is an important means for crisis communication, it can be used to undermine legitimacy by eroding trust through the spread of false or harmful information. For example, individuals who use social media during the initial collective sensemaking process of a crisis but have incomplete or ambiguous information may spread misinformation or rumors.<sup>42</sup> Bratu finds that in addition to spreading rumors through social

---

<sup>37</sup> Boin et al., *The Politics of Crisis Management*, 84.

<sup>38</sup> Kate Starbird, “What ‘Crowdsourcing’ Obscures: Exposing the Dynamics of Connected Crowd Work during Disaster,” in *Proceedings of Collective Intelligence* (New York: Special Interest Group on Computer–Human Interaction, 2012), 1–2, <http://arxiv.org/abs/1204.3342>.

<sup>39</sup> Huang et al., “Connected through Crisis,” 970.

<sup>40</sup> Ahmer Arif et al., “A Closer Look at the Self-Correcting Crowd: Examining Corrections in Online Rumors,” in *Proceedings of the 2017 ACM Conference on Computer Supported Cooperative Work and Social Computing* (Portland: Association for Computing Machinery, 2017), 156, <https://doi.org/10.1145/2998181.2998294>.

<sup>41</sup> Seong Eun Cho, Kyujin Jung, and Han Woo Park, “Social Media Use during Japan’s 2011 Earthquake: How Twitter Transforms the Locus of Crisis Communication,” *Media International Australia* 149, no. 1 (November 2013): 28, <https://doi.org/10.1177/1329878X1314900105>.

<sup>42</sup> Huang et al., “Connected through Crisis,” 970.

media, individuals are constrained by the information available within their networks, which can make it more difficult for official information to be synchronized and disseminated.<sup>43</sup> Similar to Huang et al., Bratu finds that misinformation on social media can be corrected, either by the crowd or by dissemination of official information, but such corrections lag the spread of the incorrect information, allowing misinformation to spread rampantly.<sup>44</sup> For these reasons, responders worry that social media provides the opportunity for the spread of misinformation that can lead to individuals' taking unnecessary risks or complicating the response, as described by Starbird et al.<sup>45</sup>

Additionally, the spread of harmful information by adversaries is recognized as a growing threat, especially to democratic governments. The 2019 *Worldwide Threat Assessment* of the U.S. Intelligence Committee recognizes it as a threat to the United States:

In the last decade, our adversaries and strategic competitors have developed and experimented with a growing capability to shape and alter the information and systems on which we rely. For years, they have conducted cyber espionage to collect intelligence and targeted our critical infrastructure to hold it at risk. They are now becoming more adept at using social media to alter how we think, behave, and decide.<sup>46</sup>

Scholars particularly recognize Russia for leveraging online platforms for the purpose of “weakening trust and legitimacy in the U.S. democratic process and . . . deepen [ing] existing divisions within society.”<sup>47</sup> Bayer et al. highlight a similar threat in European democracies, especially in the form of interference in referenda and elections.<sup>48</sup> They further describe the aim to influence politics by state, non-state, domestic, and foreign

---

<sup>43</sup> Sofia Bratu, “The Critical Role of Social Media in Crisis Communication,” *Linguistic and Philosophical Investigations* 15 (2016): 233.

<sup>44</sup> Huang et al., “Connected through Crisis,” 970; Bratu, “The Critical Role of Social Media,” 233.

<sup>45</sup> Kate Starbird et al., “Could This Be True? I Think So! Expressed Uncertainty in Online Rumoring,” in *Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems* (New York: Association for Computing Machinery, 2016), 361, <https://doi.org/10.1145/2858036.2858551>.

<sup>46</sup> Coats, *Worldwide Threat Assessment*, 5.

<sup>47</sup> Elizabeth Bodine-Baron et al., *Countering Russian Social Media Influence* (Santa Monica, CA: RAND Corporation, 2018), ix, [https://www.rand.org/pubs/research\\_reports/RR2740.html](https://www.rand.org/pubs/research_reports/RR2740.html).

<sup>48</sup> Judit Bayer et al., *Disinformation and Propaganda—Impact on the Functioning of the Rule of Law in the EU and Its Member States* (Brussels: European Parliament, 2019), 9, 29.

actors as having the “intention of generating insecurity, tearing cohesion or inciting hostility, or directly . . . disrupt [ing] democratic processes.”<sup>49</sup> Additionally, political groups leveraging disinformation or other manipulation to gain power may use their political power to undermine democracy.<sup>50</sup> However, Colley, Granelli, and Althuis point out that although evidence suggests that disinformation spreads, little has shown the actual or specific impacts on democracies.<sup>51</sup>

Scholars assume that disinformation reduces trust between citizens and governments, or institutional trust, and that it amplifies and intensifies existing societal divides.<sup>52</sup> The complexity of social cohesion developed through online and offline relationships and community trust poses challenges to measuring the impact of disinformation.<sup>53</sup> Tucker et al. also highlight the role of online communities in political participation within a democracy, asserting that social media along with polarization and disinformation can reduce political engagement, harming democracies.<sup>54</sup> Colley, Granelli, and Althuis also assert that media literacy may actually serve to undermine democracy by making individuals less trusting of government-provided information and, thus, the government, especially as current trust in government is low.<sup>55</sup>

Social media can aid or harm the legitimacy of an institution during a crisis. The sensemaking process during a crisis is increasingly moving online including the social media environment, allowing information to spread quickly and providing an opportunity for multiple sources to be consulted. However, social media also enables the rapid

---

<sup>49</sup> Bayer et al., 18.

<sup>50</sup> Bayer et al., 11.

<sup>51</sup> Thomas Colley, Francesca Granelli, and Jente Althuis, “Disinformation’s Societal Impact: Britain, COVID, and Beyond,” *Defence Strategic Communications* 8 (Spring 2020): 89, <https://doi.org/10.30966/2018.RIGA.8>.

<sup>52</sup> Colley, Granelli, and Althuis, 92, 118.

<sup>53</sup> Bayer et al., *Disinformation and Propaganda*, 125.

<sup>54</sup> Joshua A. Tucker et al., *Social Media, Political Polarization, and Political Disinformation: A Review of the Scientific Literature* (Menlo Park, CA: Hewlett Foundation, 2018), 4, <https://hewlett.org/library/social-media-political-polarization-political-disinformation-review-scientific-literature/>.

<sup>55</sup> Colley, Granelli, and Althuis, “Disinformation’s Societal Impact,” 115.

dissemination of false information, potentially damaging legitimacy by further eroding trust.

### 3. Disaster Challenges to Legitimacy

Several factors contribute to the political impacts, including legitimacy challenges, of a crisis such as a disaster. The primary factor is the severity of a disaster, but researchers have identified other contributors. A comprehensive dissertation by Zahidul Arefin Choudhury focuses on legitimacy applied to the aftermath of a disaster.<sup>56</sup> Choudhury identifies three factors in legitimacy crises after a major disaster: “frequency of disaster occurrence, the quality of the government response to disasters, and the type of regime within which the government operates.”<sup>57</sup> Choudhury examines several case studies of historic major disasters, measuring political stability with the public’s reaction to the government’s disaster response.<sup>58</sup> His research found that a disaster exposes the issues within government systems, illustrated through support for the government, the incumbent, or oppositional political parties.<sup>59</sup>

Drury and Olson agree with a basic premise of Choudhury’s research—to focus only on legitimacy following major disasters. This research sought to establish that political unrest was linked to disaster severity. In examining six historic disaster cases, their model showed a direct link—with statistical significance—between the severity of disaster impacts and levels of political unrest as a result of the disaster.<sup>60</sup> Their research found that political and social unrest comes from a combination of the severity of the disaster, pre-existing vulnerability within the government, and the capacity of the government as measured in level of development, freedom of the citizens, and assistance from the

---

<sup>56</sup> Zahidul Arefin Choudhury, “Politics of Natural Disaster: How Governments Maintain Legitimacy in the Wake of Major Disasters, 1990–2010” (PhD diss., University of Iowa, 2013), <https://doi.org/10.17077/etd.wau3elgf>.

<sup>57</sup> Choudhury, 1.

<sup>58</sup> Choudhury, 121.

<sup>59</sup> Choudhury, 322–25.

<sup>60</sup> A. Cooper Drury and Richard Stuart Olson, “Disasters and Political Unrest: An Empirical Investigation,” *Journal of Contingencies and Crisis Management* 6, no. 3 (1998): 153–61, <https://doi.org/10.1111/1468-5973.00084>.

international community.<sup>61</sup> Drury and Olson's study primarily examined the impact of major disasters on less-developed nations between 1966 and 1980, and the authors acknowledge the difficulty in generalizing their findings to well-developed countries.<sup>62</sup> Despite this limitation, their research supports the assumption that disaster severity is a major contributing factor to political and social unrest following a disaster. In contrast, Robin Hanson examined social collapse after a disaster or other event based on severity and resilience on a power curve. His research expanded beyond severity to view the linkages between disaster severity and societal capital, which may be natural, physical, human, or social.<sup>63</sup> He asserts that disasters can unbalance this capital, but social systems can be designed to resist damage.<sup>64</sup> An online essay from AEON also asserts that developing nations may be unwilling to accept foreign aid because of the resulting power competition, citing India's 2004 Indian Ocean tsunami and Haiti's 2010 earthquake response.<sup>65</sup> If this assumption is correct, developing nations affected by a major disaster may have additional challenges in maintaining legitimacy because of scarce internal resources and reluctance to accept international resources. The dynamics examined by these researchers illustrate that no single element or approach ensures legitimacy; governments must tailor their approaches.

Another body of literature analyzes how the nature of political regimes affects the government's legitimacy during and after disaster response. For example, Choudhury found that democracy is not necessarily the most effective government structure for disaster response.<sup>66</sup> For example, citizens in democratic governments are more likely than those in centralized or other government types to openly criticize response efforts. This research found that autocracies and some democracies, particularly well-established

---

<sup>61</sup> Drury and Olson, 155.

<sup>62</sup> Drury and Olson, 156.

<sup>63</sup> Robin Hanson, "Catastrophe, Social Collapse, and Human Extinction" (Fairfax, VA: George Mason University, 2007), 1–2.

<sup>64</sup> Hanson, 5, 10.

<sup>65</sup> Bandopadhyay, "After the Storm."

<sup>66</sup> Choudhury, 325–30.

democracies, are most likely to respond effectively, but no single government type is more resilient than others.<sup>67</sup> Carlin, Love, and Zechmeister also examined the role of democracy in maintaining legitimacy after a major disaster, this time looking at the case study of the 2010 Chilean earthquake and tsunami.<sup>68</sup> They found that in emerging democracies, the government loses legitimacy and citizens become less politically tolerant after the disaster. By contrast, Drury et al. did not examine the type of government but reviewed cases that might not be easily generalized to developed countries. Some may assume that democracies are the most effective form of government and most likely to maintain legitimacy following a major natural disaster, primarily through effective leadership by elected officials. However, this assumption may not be supported, at least as demonstrated by public opinion. Linz also points out that support for individual leaders or parties fluctuates even as citizen support for the democratic system remains, further complicating the implications of using public opinion to gauge legitimacy.<sup>69</sup> The type of government system may impact legitimacy, but research on this characteristic is complicated by restrictions on freedom of speech.

Another group of scholars debates the role of leadership in maintaining legitimacy. These academics argue that independent of the system of government, leaders play a significant role in maintaining legitimacy for governments. Boin et al. describe the role of a leader in a democratic society in response to crises through the process of meaning-making, or providing citizens with information delivered convincingly, which enhances credibility.<sup>70</sup> They assert that leaders can actively shape the opinion of citizens and maintain political power as well as legitimacy, thereby avoiding the fates described by Carlin, Love, and Zechmeister.<sup>71</sup> A study of the public's opinion of official responses to Hurricane Katrina showed how individuals apportioned blame, which provided indicators

---

<sup>67</sup> Choudhury, 325–30.

<sup>68</sup> Carlin, Love, and Zechmeister, “Natural Disaster and Democratic Legitimacy,” 3–15.

<sup>69</sup> Linz, *The Breakdown of Democratic Regimes*, 17.

<sup>70</sup> Boin et al., *The Politics of Crisis Management*, 17.

<sup>71</sup> Boin et al., 9.

of how individual leaders were viewed after this major disaster.<sup>72</sup> The effectiveness of leaders is an important component in examining the causes of lost legitimacy after a crisis.

In summary, research has explored how disasters affect legitimacy through the governmental crisis response, resilience of the government, and other characteristics such as the role of social media. Research on the adversarial effects on governmental legitimacy is not readily available; rather, the literature focuses primarily on the mistakes and missteps of leaders following a crisis. Some scholars have examined the effectiveness of disaster response differentiated by authoritarian regimes and democracies, and further divided into established vis-à-vis newly formed democracies. However, these distinguishing characteristics are not fixed or widely accepted, which may complicate further research into how democratic governments react to major disasters and adversarial attacks.

## **B. RESILIENCE CAPACITY**

Governments enable maintenance of legitimacy against the impacts of crises, such as disasters, by maintaining resilience. Institutions such as governments are socially constructed, so their capacity for resilience is viewed through the lens of individuals or communities. March and Olsen establish two frameworks for understanding the social construction of political institutions: the *rational actor perspective*, in which individuals create the political system, and the *cultural community perspective*, in which the political system is established through “shared values and world-views” based on “common culture, experience, and vision.”<sup>73</sup> Christensen and Laegreid further refined the rational actor perspective, naming their concepts *diffuse support*, or trust in the institutions, and *specific support*, or trust in the individuals responsible for these institutions.<sup>74</sup> These constructs share a similar baseline understanding that government must provide support to its citizens, which in turn leads to citizens support of these institutions. Christensen and Laegreid describe this understanding as the belief that governments should be providing services

---

<sup>72</sup> Neil Malhotra and Alexander G. Kuo, “Attributing Blame: The Public’s Response to Hurricane Katrina,” *Journal of Politics* 70, no. 1 (2008): 120–35, <https://doi.org/10.1017/s0022381607080097>.

<sup>73</sup> March and Olsen, “Elaborating the ‘New Institutionalism,’” 2.

<sup>74</sup> Christensen and Laegreid, “Trust in Government,” 490–91.

and a belief in advancing common interests and goals for the community.<sup>75</sup> Through this statement, they also reference the cultural community perspective in which common goals underpin the political system.

Resilience of political institutions or systems is the subject of scholarly research with trust as a core component. March and Olsen state that government is at its highest level of resilience when trust in both political individuals and institutions is high, and when these serve to reinforce each other.<sup>76</sup> Newton further investigates trust relationships through the lens of social and political capital, and relationships between these concepts and support for political institutions.<sup>77</sup> His research finds that political trust is important—especially for democracies in which untrustworthy politicians suffer penalties—and effective political systems require social capital to build and sustain them, but high levels of social capital do not guarantee political capital or support for institutions.<sup>78</sup> Linz takes a nuanced view, linking legitimacy to democratic political institutions, socioeconomic systems, and a fair and adaptable social order.<sup>79</sup>

Newton’s examination of social capital, or civic engagement and cooperation within a society, resembles March and Olsen’s cultural community and Linz’s social order. However, these views differ from descriptions of trust by Christensen and Laegreid and the OECD in terms of the rational actor, including the impacts or outcomes for individuals. Christensen and Laegreid highlight the benefits that individuals receive from services, political and party affiliation, levels of education, and demographics as contributors to trust in political institutions.<sup>80</sup> The OECD describes trust in the more general terms of individual experiences with services and the efficiency and effectiveness of governments.<sup>81</sup> They specify the main contributors of trust in government as “1) culture; 2) institutional setting;

---

<sup>75</sup> Christensen and Laegreid, 489.

<sup>76</sup> Christensen and Laegreid, 490.

<sup>77</sup> Newton, “Trust, Social Capital, Civil Society, and Democracy,” 211.

<sup>78</sup> Newton, 212.

<sup>79</sup> Linz, *The Breakdown of Democratic Regimes*, 12.

<sup>80</sup> Christensen and Laegreid, “Trust in Government,” 493–95.

<sup>81</sup> Organisation for Economic Co-operation and Development, *Government at a Glance*, 21.

3) economic and social outcomes; and 4) performance of institutions.”<sup>82</sup> Common among these two definitions are the outcomes that affect the individual, particularly in economic benefits and social services. Christensen and Laegreid, however, focus on individual characteristics, such as demographics, whereas the OECD focuses on governmental process components. Specifically, the OECD describes the processes that citizens expect from government: reliability, responsiveness, openness and inclusiveness, integrity, and fairness.<sup>83</sup>

For this thesis, resilience of political institutions is defined as the intersection of vulnerability that exists before an event, the incident’s impacts, and the capacity for adapting to the post-event environment. Although the literature outlines the lack of a common formula for ensuring the resilience of political institutions, it reveals several common themes of trust, culture or community values, and individual benefits as primary contributors. The social construct of institutions confirms that citizens, and their views of government, are central to the understanding of how governments prepare to endure crises.

## **C. EFFECTIVE DISASTER RESPONSE**

This section analyzes the scholarly debates on factors that contribute to effective governmental response to disasters or crises. It focuses on the consequences and definition of significant incidents and effective application of resources in response to the impacts of these events.

### **1. Disaster Definition**

With the exception of some homeland security or emergency management–focused publications, much of the scholarly research focuses on the concept of a crisis rather than a disaster. Boin et al. describe a crisis as follows:

A social system—a community, an organization, a policy sector, a country, or an entire region—experiences an urgent threat to its basic structures or fundamental values, which harbors many “unknowns” and appears to require a far-reaching response. This definition has three key components

---

<sup>82</sup> Organisation for Economic Co-operation and Development, 28.

<sup>83</sup> Organisation for Economic Co-operation and Development, 29.

which can be illustrated by examining social impacts: threat, urgency, and uncertainty.<sup>84</sup>

Similarly, a disaster affects the structure and functionality of systems that support citizens and directly impacts the health and wellbeing of the population. Perry describes the effect of disasters on communities as impacting social interactions and order, causing societal functions to depart from the norm.<sup>85</sup> Boin et al. agree, describing core and shared societal values—such as “safety and security, justice and rule of law, welfare and health, integrity and civil liberties”—that, when threatened, influence the perception of the situation.<sup>86</sup> They write, “The more important the value(s) or structures under threat, the deeper the sense of crisis.”<sup>87</sup>

With the exception of some classical concepts of a disaster as a natural or technological hazard, most researchers consider disasters to be socially constructed crises caused by nature, people, or technologies. This broad definition is narrowed by further agreement that disasters are rapid or sudden-onset events.<sup>88</sup> This distinction separates a disaster from other types of humanitarian incidents or conflicts such as war. Carr was perhaps the earliest scholar to describe crisis impacts as socially constructed, publishing a paper in 1932 that described catastrophic changes as a sequence along a continuum rather than a single discrete event.<sup>89</sup> With his description of a crisis sequence came a new way of describing disaster as social impacts to the community or individual. He categorized this change in four ways: “(1) *population changes*; (2) *cultural changes*; (3) *relational changes*; and (4) *catastrophic changes*” (original emphasis).<sup>90</sup> In more recent research, Knowles agrees: “Behavior in disaster scenarios was socially constructed, contextual, and variable

---

<sup>84</sup> Boin et al., *The Politics of Crisis Management*, 5.

<sup>85</sup> Ronald W. Perry, “What Is a Disaster?,” in *Handbook of Disaster Research*, ed. Havidán Rodríguez, Enrico L. Quarantelli, and Russell R. Dynes (New York: Springer, 2007), 6, [https://doi.org/10.1007/978-0-387-32353-4\\_1](https://doi.org/10.1007/978-0-387-32353-4_1).

<sup>86</sup> Boin et al., *The Politics of Crisis Management*, 5.

<sup>87</sup> Boin et al., 5.

<sup>88</sup> Perry, “What Is a Disaster?,” 6.

<sup>89</sup> Lowell Juilliard Carr, “Disaster and the Sequence-Pattern Concept of Social Change,” *American Journal of Sociology* 38, no. 2 (1932): 207.

<sup>90</sup> Carr, 207.

from community to community, while still conforming to discernable and predictable patterns.”<sup>91</sup> Kathleen Tierney distinguishes between socially *constructed* hazards and disasters and socially *produced* disasters:

A focus on *social constructionism* emphasizes how ideas and assumptions about hazards and disasters—and our own understandings—are shaped by narratives, discourses, institutional practices, and other factors. By contrast, the analysis of the *social production of disasters* centers on how social structures and social processes operate to create the conditions that make geological, meteorological, and other physical events disastrous.<sup>92</sup>

Despite general agreement among scholars on what constitutes a disaster, no consensus emerges on what distinguishes a catastrophic disaster. The Federal Emergency Management Agency describes a catastrophic incident from the perspective of the response requirements for stabilization, stating that in such an incident, critical resource shortfalls will require innovation and the use of atypical capabilities.<sup>93</sup> Perry describes a disaster magnitude as “measured not in lives or property lost, but by the extent of the failures of the normative or cultural system”—further reinforcing the concept of disasters as socially constructed and, therefore, difficult to measure through their impact to the environment.<sup>94</sup> Boin et al. view difficult disasters through the lens of uncertainty in the operational environment, categorizing these incidents as “unknown unknowns” and highlighting the rapid pace of the effects and the general sense of confusion and distrust among the citizens.<sup>95</sup> In his comprehensive definition, Quarantelli uses both a description of the operational environment, or impacts of the disaster, and the response resources required when describing the difference between a disaster and a catastrophe. He asserts that catastrophic disasters exhibit characteristics that are distinct from widespread or extensive disasters, including significant and widespread impacts on structures and emergency

---

<sup>91</sup> Scott Gabriel Knowles, *The Disaster Experts: Mastering Risk in Modern America* (Philadelphia: University of Pennsylvania Press, 2013), 213.

<sup>92</sup> Tierney, *Disasters*, 66.

<sup>93</sup> Federal Emergency Management Agency, *FEMA Incident Management and Support Keystone* (Washington, DC: Federal Emergency Management Agency, 2011), 27–28, [https://www.fema.gov/sites/default/files/2020-07/fema\\_incident\\_management\\_and\\_support\\_keystone-Jan2011.pdf](https://www.fema.gov/sites/default/files/2020-07/fema_incident_management_and_support_keystone-Jan2011.pdf).

<sup>94</sup> Perry, “What Is a Disaster?,” 13.

<sup>95</sup> Boin et al., *The Politics of Crisis Management*, 8.

response organizations, local responders who are unavailable for typical assistance, and challenges to the normal convergence of response resources and other support.<sup>96</sup> The final characteristics of a catastrophic disaster, according to Quarantelli, involve severely hampered social and infrastructural components of the community, increased media attention, and the importance of organizational and governmental politics in the response and outcomes of the disaster.<sup>97</sup> Similarly, Tierney describes the distinctions between disasters and catastrophes in terms of “spatial scope, the severity of their impacts, which entities respond and how, the degree of public participation in providing assistance, and recovery challenges.”<sup>98</sup>

A disaster environment is unpredictable, but researchers agree that the impacts on the stability and functionality of community or social systems and populations are socially constructed and that vulnerability exacerbates the disaster’s impacts on citizens.

## **2. Ethical Application of Resources**

Because the residents, history, and vulnerabilities of each community are unique, how vulnerabilities will manifest and impact the disaster response—as well as which options should be leveraged to alleviate the impact on the community—remains uncertain. Additionally, in a catastrophic disaster, the magnitude of the disaster and scarcity of resources change the standard of care provided to individuals. Quarantelli describes the response to catastrophic disasters, such as Hurricane Katrina:

Different performance standards are applied. For example, the normal speed of response and individualized care given to treating the injured is superseded by a need to curtail the level of care given to victims as well as spending time, efforts and resources on more equitably distributing the many victims in the available medical facilities.<sup>99</sup>

---

<sup>96</sup> E. L. Quarantelli, “Catastrophes Are Different from Disasters: Some Implications for Crisis Planning and Managing Drawn from Katrina,” *Items* (blog), June 11, 2006, <https://items.ssrc.org/understanding-katrina/catastrophes-are-different-from-disasters-some-implications-for-crisis-planning-and-managing-drawn-from-katrina/>.

<sup>97</sup> Quarantelli.

<sup>98</sup> Tierney, *Disasters*, 5–6.

<sup>99</sup> Quarantelli, “Catastrophes Are Different from Disasters.”

Just as patients are triaged and treated using crisis standards of care when the medical system is strained under patient loads, catastrophic disasters require the application of crisis standards to the shelter, feeding, hydration, and other operations in a disaster response. Researchers at the Disaster Research Center developed a demand-capability model that describes the need for adaptation to the stressors of a disaster because the demands outstrip the response capacity.<sup>100</sup> Similarly, Tierney emphasizes preparing for the unexpected but also relying on a knowledge base, saying that responders should “know that they can and should improvise and adapt when the situation calls for it” and that responders “see improvisation as arising from previously acquired knowledge.”<sup>101</sup> Adaptation and innovation are essential for responding to unknown disasters or when resources are constrained.

Naomi Zach describes the ethical principles underpinning Western democratic concepts as social contract theory, which describes the rights of citizens and their relationship to the government.<sup>102</sup> She asserts that disasters can cause governmental dysfunction but are unlikely to cause the “total and permanent failure of government as we know it.”<sup>103</sup> Specific to disasters, Zach explores traditional ethical frameworks for disaster preparedness, response planning, and the execution of response, concluding that different frameworks may be required to support decision-making as response has an element of the unknown.<sup>104</sup> Foundationally, however, the broad moral principle of doing no harm should be applied to both preparedness and response, if possible.<sup>105</sup> Exceptions to moral principles should be made in advance, not during the disaster response.<sup>106</sup> Zach emphasizes disaster preparation using ethical precepts and recommends several

---

<sup>100</sup> Kathleen J. Tierney and Ronald W. Perry, *Facing the Unexpected: Disaster Preparedness and Response in the United States* (Washington, DC: Joseph Henry Press, 2001), 9, ProQuest.

<sup>101</sup> Tierney, *Disasters*, 202.

<sup>102</sup> Naomi Zack, *Ethics for Disaster* (Lanham, MD: Rowman & Littlefield, 2010), loc. 1159–61 of 2158, Kindle.

<sup>103</sup> Zack, loc. 1190.

<sup>104</sup> Zack, loc. 284.

<sup>105</sup> Zack, loc. 327.

<sup>106</sup> Zack, loc. 710.

frameworks for disaster response based on moral traditions to enable the most just decisions and outcomes possible during a disaster. Michel Prieur, in writing for the Council of Europe, details ethical principles for disasters grounded in the concept of human rights. This document asserts that ethics must be considered in decision-making before, during, and after a disaster and that ethical decisions may vary based on the time of the disaster or on the function being performed.<sup>107</sup>

The medical community has established ethical guidelines through crisis standards of care, a system built to engender the trust of the community by providing better care to more patients, equitably distributing resources, and “maximizing the care delivered to the population as a whole under austere circumstances.”<sup>108</sup> In this system, the ethical allocation of medical resources is linked to the “universal ethical values of fairness, transparency, consistency, proportionality, and accountability.”<sup>109</sup> Fairness in this context does not mean that everyone is treated equally but that the differences in treatment are based on relevant factors.<sup>110</sup> This system centers on the needs of the community as well as equitable allocation of resources, with much left to the discretion of the providers based on the circumstances encountered.

Despite these guiding documents for disaster response, individual ethics complicate the application of these principles. Aung et al. caution that survivors of a disaster can be guided by ethical principles that differ from those responding to the disaster, especially in international disaster response.<sup>111</sup> He further states that codes and norms inform all professionals, yet all professionals are first humans and follow their own moral

---

<sup>107</sup> Michel Prieur, *Ethical Principles on Disaster Risk Reduction and People's Resilience* (Strasbourg Cedex, France: Executive Secretariat of the European and Mediterranean Major Hazards Agreement, 2009), 7.

<sup>108</sup> Institute of Medicine, *Crisis Standards of Care: A Systems Framework for Catastrophic Disaster Response*, vol. 1, *Introduction and CSC Framework* (Washington, DC: National Academies Press, 2012), 1.33, <https://doi.org/10.17226/13351>.

<sup>109</sup> Institute of Medicine, 1.33.

<sup>110</sup> Institute of Medicine, 1.6.

<sup>111</sup> KhinThandar Aung et al., “Ethical Disaster or Natural Disaster? Importance of Ethical Issue in Disaster Management,” *IOSR Journal of Nursing and Health Science* 6, no. 2 (March–April 2017): 90, <https://doi.org/10.9790/1959-0602079093>.

standards.<sup>112</sup> Paula Gordon establishes three types of individual ethical standards for public service: 1) “value-based ethics,” in which individuals serve the greater public good; 2) “value neutral or relative ethics,” in which individuals rely on process and structure for ethical guidance; and 3) “no values,” in which individuals fail to prepare for or address crises or other concerns.<sup>113</sup> These scholars agree that individual ethics must be considered when evaluating the ethics of disaster response organizations.

The ethical allocation of disaster resources is vital in a catastrophic disaster to ensure that capabilities are provided to people in need. Communities are stabilized when survivor needs, including those of vulnerable populations, are fulfilled in an equitable manner based on just principles.

### **3. Resilience and Vulnerability**

Scholars recognize that vulnerable individuals in communities are disproportionately impacted by disasters and require additional or concentrated support from responding agencies in order to recover. The factors that encompass vulnerability, however, vary among the scholars. Most also recognize that resilience and vulnerability are closely linked.

A disaster disrupts normal social processes and functions of a community and is influenced or impacted by the social culture, politics, and circumstances of those impacted. Knowles recognizes that the effects of disasters are influenced by the “human-shaped environment and political culture” of the impact area.<sup>114</sup> He goes on to say that stress events, such as disasters, amplify and highlight vulnerabilities such as political and economic vulnerabilities as well as demographics and social structures.<sup>115</sup> Quarantelli agrees, referencing Hurricane Katrina in stating that disasters, especially catastrophes, bring to the surface “racial, class and ethnic differences that are papered over during routine

---

<sup>112</sup> Aung et al., 91.

<sup>113</sup> Paula Gordon and James Heichelbech, “The Ethics Map: An Interview with Paula Gordon,” Paula Gordon’s Homeland Security website, accessed July 12, 2020, <http://users.rcn.com/pgordon/homeland/EthicsMapInterview.html>.

<sup>114</sup> Knowles, *The Disaster Experts*, 5.

<sup>115</sup> Knowles, 247.

times.”<sup>116</sup> These vulnerabilities, including low socioeconomic status, expose such survivors to greater risk than experienced by other groups, as well as challenges in obtaining support before, during, and after disasters.<sup>117</sup>

Tierney describes vulnerability as “a potential for loss.”<sup>118</sup> Scholars relate this potential to factors such as income and power, though their descriptions of these concepts differ. Perry takes a broad view of vulnerability, defining it as the cause of disruption in the social structure, which is closely related to the definition of disasters as impacting social functions.<sup>119</sup> Tierney and Perry assert that vulnerability to the impacts of disasters is linked to income, minority status, and power status.<sup>120</sup> For example, higher-income individuals have access to safer housing, reducing their risk to disasters.<sup>121</sup> Fothergill and Peek focus on income and power relationships in examining threat perception, response to disaster warnings, and psychological effects following a disaster.<sup>122</sup> They find that “poor individuals perceive threats as more serious,” linked perhaps to a lack of power over their circumstances because of marginalization based on poverty, education, or gender.<sup>123</sup> Although they understand the threats, poor individuals are often less prepared to respond, either because of a lack of savings for unexpected expenses or because of language or cultural impediments to heeding disaster warnings.<sup>124</sup> Additionally, “some groups will be less able than others to navigate the recovery process successfully” after a disaster.<sup>125</sup>

---

<sup>116</sup> Quarantelli, “Catastrophes Are Different from Disasters.”

<sup>117</sup> Substance Abuse and Mental Health Services Administration, *Greater Impact: How Disasters Affect People of Low Socioeconomic Status* (Rockville, MD: Substance Abuse and Mental Health Services Administration, 2017), 3, [https://www.samhsa.gov/sites/default/files/dtac/srb-low-ses\\_2.pdf](https://www.samhsa.gov/sites/default/files/dtac/srb-low-ses_2.pdf).

<sup>118</sup> Tierney, *Disasters*, 143.

<sup>119</sup> Perry, “What Is a Disaster?,” 13.

<sup>120</sup> Tierney and Perry, *Facing the Unexpected*, 178.

<sup>121</sup> Tierney and Perry, 177.

<sup>122</sup> Alice Fothergill and Lori A. Peek, “Poverty and Disasters in the United States: A Review of Recent Sociological Findings,” *Natural Hazards* 32, no. 1 (May 2004): 91–95, <https://doi.org/10.1023/B:NHAZ.0000026792.76181.d9>.

<sup>123</sup> Fothergill and Peek, 91.

<sup>124</sup> Fothergill and Peek, 92–93.

<sup>125</sup> Tierney, *Disasters*, 72.

However, not all individuals in these groups are vulnerable to disasters, and vulnerability varies depending on circumstances. As Tierney points out, “Social vulnerability has temporal, spatial, and situational dimensions.”<sup>126</sup>

Just as vulnerability is differentiated along the lines of income and power, resilience, too, is linked to these statuses and varies from one group to another. Tierney and Perry assert that individuals with greater access to resources tend to be more resilient in the face of a disaster.<sup>127</sup> Moreover, Fothergill and Peek assert that individuals with higher incomes can often secure financial and other support after a disaster by navigating bureaucratic systems to obtain aid, increasing their post-disaster resilience.<sup>128</sup> Generally, Tierney states, “resilience involves the ability to *cope and adapt* when disasters strike and to move on to recover” by leveraging adaptive strategies.<sup>129</sup>

Vulnerability is not equal among survivors of a disaster, with a greater burden shouldered by the poor and disadvantaged. As a result of these systemic issues, enhanced support for building pre- and post-disaster resilience within these populations is required.

#### **D. MISINFORMATION, DISINFORMATION, AND MALINFORMATION**

This section provides an analysis of the emerging scholarship surrounding the definition of false information spread over platforms, including traditional media and social media; its purpose or intended result; how it is created and disseminated, and how to counter and prevent false information from affecting citizens, democracy, and governmental or institutional legitimacy.

##### **1. False or Harmful Information**

Scholars agree that the purpose of spreading false or harmful information is to influence and deceive, and its roots stretch beyond the modern environment. Historical examples of these concepts include Edward Bernays’s definition of propaganda in his 1928

---

<sup>126</sup> Tierney, 125.

<sup>127</sup> Tierney and Perry, *Facing the Unexpected*, 177.

<sup>128</sup> Fothergill and Peek, “Poverty and Disasters in the United States,” 98.

<sup>129</sup> Tierney, *Disasters*, 171.

book as influence over the public and private habits of individuals and, therefore, societies.<sup>130</sup> The manipulators of the public in Bernays's time were advertisers, but perhaps they planted the seeds of today's social media influencers. Other historical examples include the Soviet Union's active measures, which also aimed to influence public opinions on politics through information targeted at the public, as well as other influential means such as the media.<sup>131</sup> The hearings on this topic distinguished active measures, which are covert activities, from "overt policy tools, such as propaganda and diplomacy."<sup>132</sup> In this way, propaganda and advertising are set apart from covert activities aimed to deceive. Within the military, both overt and covert means are used for deception of the enemy. Michael Handel describes the roots of military deception in Sun Tzu and Clausewitz, arguing that military deception is necessary for military surprise and in magnifying the strength of the powers involved.<sup>133</sup> Barton Whaley connects these themes in his general theory of deception, in which he identifies types of deception, or the "distortion of perceived reality" to influence the individual by causing confusion of the senses.<sup>134</sup>

Recent scholars have further refined the differences between purposeful influence and persuasion with consent, although many highlight the manipulative nature of advertising and other similar activities. Cybenko, Giani, and Thompson argue that education, propaganda, and advertising are all meant to persuade individuals, but individuals know they are being targeted for influence.<sup>135</sup> However, Caroline Jack concedes in *Lexicon of Lies* that "in practice, the lines separating advertising, public relations, and public diplomacy (terms often regarded as neutral) from the pejorative term

---

<sup>130</sup> Edward Bernays, *Propaganda* (Brooklyn: Ig Publishing, 2004), 37.

<sup>131</sup> *Soviet Active Measures: Hearings before the Subcommittee on European Affairs of the Committee on Foreign Relations*, Senate, 99th Cong., 1st sess., September 12–13, 1985, 2.

<sup>132</sup> *Soviet Active Measures*, 2.

<sup>133</sup> Michael I. Handel, "Intelligence and Deception," *Journal of Strategic Studies* 5, no. 1 (1982): 122, 124, <https://doi.org/10.1080/01402398208437104>.

<sup>134</sup> Barton Whaley, "Toward a General Theory of Deception," *Journal of Strategic Studies* 5, no. 1 (1982): 182, <https://doi.org/10.1080/01402398208437106>.

<sup>135</sup> G. Cybenko, A. Giani, and P. Thompson, "Cognitive Hacking: A Battle for the Mind," *Computer* 35, no. 8 (August 2002): 51, <https://doi.org/10.1109/MC.2002.1023788>.

propaganda (which usually implies deliberate intent to manipulate or deceive) can be hard to discern.”<sup>136</sup> These scholars distinguish between persuasion and manipulation but recognize there is overlap in these areas.

Within the broad definition of false information, scholars use several terms to describe purposeful manipulation. In their general definition, Starbird, Arif, and Wilson define *strategic information operations* as “efforts by individuals and groups, including state and non-state actors, to manipulate public opinion and change how people perceive events in the world by intentionally altering the information environment.”<sup>137</sup> Similarly, the Homeland Security Advisory Council focuses on foreign *information activities*, which it defines as a manipulation of public opinion that serves those who seek to “undermine trust in the authenticity of information.”<sup>138</sup> Allenby and Garreau’s *weaponized narrative* concept is similar to information operations.<sup>139</sup> Manipulation of the narrative is expanded on by Wilson, Zhou, and Starbird, who introduce types of narratives used in the sensemaking process.<sup>140</sup> Cybenko, Giani, and Thompson further expand on the ways in which individuals are influenced in the sensemaking process, describing their concept of *cognitive hacking*, which is either “covert, which includes the subtle manipulation of perceptions and the blatant use of misleading information, or overt, which includes defacing or spoofing legitimate forms of communication to influence the user.”<sup>141</sup> Although there is no consensus yet on the terminology to describe the practice of purposeful manipulation of public opinion, these definitions commonly refer to

---

<sup>136</sup> Caroline Jack, *Lexicon of Lies: Terms for Problematic Information* (New York: Data & Society Research Institute, 2017), 6.

<sup>137</sup> Starbird, Arif, and Wilson, “Disinformation as Collaborative Work,” 2.

<sup>138</sup> Homeland Security Advisory Council, Countering Foreign Influence Subcommittee, *Homeland Security Advisory Council Interim Report of the Countering Foreign Influence Subcommittee* (Washington, DC: Homeland Security Advisory Council, 2019), 11, [https://www.dhs.gov/sites/default/files/publications/ope/hsac/19\\_0521\\_final-interim-report-of-countering-foreign-influence-subcommittee.pdf](https://www.dhs.gov/sites/default/files/publications/ope/hsac/19_0521_final-interim-report-of-countering-foreign-influence-subcommittee.pdf).

<sup>139</sup> Brad Allenby and Joel Garreau, “Weaponized Narrative Is the New Battlespace,” *Defense One*, January 3, 2017, <https://www.defenseone.com/ideas/2017/01/weaponized-narrative-new-battlespace/134284/>.

<sup>140</sup> Tom Wilson, Kaitlyn Zhou, and Kate Starbird, “Assembling Strategic Narratives: Information Operations as Collaborative Work within an Online Community,” *Proceedings of the ACM on Human-Computer Interaction* 2, no. CSCW (November 2018): 4, 183, <https://doi.org/10.1145/3274452>.

<sup>141</sup> Cybenko, Giani, and Thompson, “Cognitive Hacking,” 51.

information that is purposefully altered to affect individuals' perception and societal narratives through the sensemaking process, with some specifying goals such as impacting trust.

Two additional definitions focus on the spread of manipulative information over electronic systems as a further differentiator. Donovan and Friedberg describe *source hacking* as “a set of techniques for hiding the sources of problematic information in order to permit its circulation in mainstream media.”<sup>142</sup> In contrast, Oxford focuses on social media in its definition of the term *computational propaganda*, or the use of “algorithms, automation, and human curation to purposefully distribute misleading information over social media networks.”<sup>143</sup> The term *dezinformatsiya* has been used to describe the Soviet Union's active measures, spreading false or misleading information through traditional media.<sup>144</sup> Recently, the Chinese term *xuanchuan* has been used to describe a social media strategy in which “coordinated posts don't spread false information, but instead flood conversational spaces with positive messages or attempts to change the subject.”<sup>145</sup> These terms draw from the language of computer science and online systems as well as from international cultures to describe the purposeful manipulation of public opinions.

Within the academic literature, some consensus is emerging around specific terms for the spread of misleading information on traditional or social media. Despite such convergence, Caroline Jack points out that definitions overlap, are used inconsistently, and are subjective.<sup>146</sup> Scholars generally agree that the term “fake news,” although commonly used, has political and cultural meanings that are problematic.<sup>147</sup> The definition that seems

---

<sup>142</sup> Joan Donovan and Brian Friedberg, *Source Hacking: Media Manipulation in Practice* (New York: Data & Society Research Institute, 2019), 2, <https://datasociety.net/library/source-hacking-media-manipulation-in-practice/>.

<sup>143</sup> Samuel C. Wolley and Philip N. Howard, “Computational Propaganda Worldwide: Executive Summary” (working paper, Project on Computational Propaganda, 2017), 3, <https://comprop.oii.ox.ac.uk/wp-content/uploads/sites/89/2017/06/Casestudies-ExecutiveSummary.pdf>.

<sup>144</sup> Jack, *Lexicon of Lies*, 9.

<sup>145</sup> Jack, 9.

<sup>146</sup> Jack, 1.

<sup>147</sup> Jack, 1.

most comprehensive and often used is that of Wardle and Derakhshan, which encompasses three types of information disorder:

Mis-information is when false information is shared, but no harm is meant. Dis-information is when false information is knowingly shared to cause harm. Mal-information is when genuine information is shared to cause harm, often by moving information designed to stay private into the public sphere.<sup>148</sup>

These definitions are used in this thesis, and hereafter, the terms may be grouped together as mis-, dis- and mal-information.

The intent of the deceiver to cause harm is a common trait identified by scholars as the differentiating characteristic between disinformation and other types of deception. Jack agrees with Wardle and Derakhshan's use of intent as a distinguishing characteristic that separates "information that is inaccurate, incorrect, or misleading" into categories of disinformation and misinformation.<sup>149</sup> She goes on to describe misinformation as the potential result of a mistake or failure to verify information, sometimes in an attempt to be first to report a story.<sup>150</sup> Rumors can be described as misinformation as they are often spread without intent during the initial sensemaking process. Starbird et al. clarify that rumors, though potentially harmful, are developed when authoritative information is not available and in "situations characterized by high levels of uncertainty and anxiety."<sup>151</sup> Rumors are an "attempt to make sense of uncertain situations" and, therefore, are not usually spread with intent to cause harm.<sup>152</sup> However, their presence in the narrative can in fact be damaging. Jack describes disinformation, on the other hand, as "information that is deliberately false or misleading."<sup>153</sup> Colley, Granelli, and Althuis agree that although the terms disinformation and misinformation both describe false or misleading

---

<sup>148</sup> Claire Wardle and Hossein Derakhshan, *Information Disorder: Toward an Interdisciplinary Framework for Research and Policymaking* (Strasbourg Cedex, France: Council of Europe, 2019), 5, <https://rm.coe.int/information-disorder-toward-an-interdisciplinary-framework-for-research/168076277c>.

<sup>149</sup> Jack, *Lexicon of Lies*, 2.

<sup>150</sup> Jack, 2.

<sup>151</sup> Starbird et al., "Could This Be True?," 360.

<sup>152</sup> Starbird et al., 360.

<sup>153</sup> Jack, *Lexicon of Lies*, 3.

information, disinformation is spread “*intentionally* to deceive” while misinformation is spread “*without* the intention to deceive.”<sup>154</sup> Jack, along with Colley, Granelli, and Althuis, points out that intent is often very difficult to prove.<sup>155</sup> Finally, Gabriel and de Cock Buning add that disinformation is intentionally produced to “cause public harm or for profit.”<sup>156</sup> Other researchers also highlight the monetary or profit-making aspects of disinformation.

False information can be delivered with the goal of manipulating and influencing individuals or groups through the sensemaking process. Delivery of false information can be accomplished overtly or covertly, with or without the intent to deceive. Additionally, the projected outcome of information manipulation with intent to deceive can vary from manipulating public opinion and perceptions to undermining trust or gaining profit. Although there are a number of terms that have been developed to label the modern tactics of covert and deliberate manipulation, for this thesis, the term *information operations* is used.

## **2. Purpose and Spread of Disinformation and Malinformation**

Disinformation and malinformation are political tools used to achieve strategic aims by individuals and nation states. Although the purposes served with these tools vary from achieving power to undermining an opponent, these tools should be viewed through the lens of strategic goals. They comprise three elements: the creation of content, dissemination, and receipt by the individual. Combined, these components allow the tool to be effective.

These tools satisfy the aim of intentionally deceiving individuals in order to achieve a strategic objective. They are powerful weapons in the hands of a nation-state or group with the capability to target individuals, groups, or even societies to create instability or

---

<sup>154</sup> Colley, Granelli, and Althuis, “Disinformation’s Societal Impact,” 93.

<sup>155</sup> Jack, *Lexicon of Lies*, 15; Colley, Granelli, and Althuis, “Disinformation’s Societal Impact,” 93.

<sup>156</sup> Mariya Gabriel and Madeleine de Cock Buning, *A Multi-Dimensional Approach to Disinformation* (Brussels: European Commission, 2018), 5, <https://ec.europa.eu/digital-single-market/en/news/final-report-high-level-expert-group-fake-news-and-online-disinformation>.

alter their course. Individuals in an open society are more likely to be vulnerable to this manipulation.<sup>157</sup> This fact was historically recognized by Lenin and others who saw the liberal ideals of freedom of speech and of the press as an opportunity for spreading propaganda.<sup>158</sup> In current times, Pomerantsev and Weiss describe how Russia exploits the modern Western weaknesses of societal divides, systemic weak spots, waning faith in the media, fear of harm to one's self or reputation, and difficulty distinguishing between legitimate and state-sponsored activities in current campaigns of disinformation.<sup>159</sup> Additionally, as Handel points out, cognitive biases can reinforce existing ideas, especially when they fit preconceptions, or create ambiguity and doubt.<sup>160</sup> Biases such as these contribute to the effectiveness of these weapons.

Individual and societal weaknesses are compounded by the rise of social media in which platforms coningle different content such as news and entertainment, creating ambiguity and opportunity for exploitation of this environment.<sup>161</sup> Researchers Bradshaw and Howard at Oxford's Project on Computational Propaganda report evidence of propaganda campaigns through social media in 70 countries, an increase from 28 in 2017 and 48 in 2018.<sup>162</sup> These growing numbers could be the result of increased activity or the result of better recognition of these campaigns over time.<sup>163</sup> The project has found that political activity on social media platforms varies between authoritarian regimes and democracies, with messaging focused on spreading pro-government or party propaganda or attacking opponents, districting people from important issues, suppressing participation

---

<sup>157</sup> *Soviet Active Measures*, 4.

<sup>158</sup> Starbird, Arif, and Wilson, "Disinformation as Collaborative Work," 3.

<sup>159</sup> Peter Pomerantsev and Michael Weiss, *How the Kremlin Weaponizes Information, Culture and Money* (New York: Institute of Modern Russia, 2014), 6, [https://imrussia.org/media/pdf/Research/Michael\\_Weiss\\_and\\_Peter\\_Pomerantsev\\_The\\_Menace\\_of\\_Unreality.pdf](https://imrussia.org/media/pdf/Research/Michael_Weiss_and_Peter_Pomerantsev_The_Menace_of_Unreality.pdf).

<sup>160</sup> Handel, "Intelligence and Deception," 144.

<sup>161</sup> Starbird, Arif, and Wilson, "Disinformation as Collaborative Work," 3.

<sup>162</sup> Samantha Bradshaw and Philip N. Howard, *The Global Disinformation Order: 2019 Global Inventory of Organised Social Media Manipulation* (Oxford: Computational Propaganda Project, 2019), 2.

<sup>163</sup> Bradshaw and Howard, 2.

through personal attacks, and driving division and polarization.<sup>164</sup> Disinformation and malinformation are political tools that are widely used to achieve strategic objectives.

There are many ways in which harmful information is created, some of which are based on historical tools developed by the military or propagandists. Whaley described techniques of disinformation well before social media was even on the horizon, using military deception and psychology to describe the process for planning and gaining acceptance of the deception. He describes *dazzling*, which aims to confuse individuals and make them question the truth or reality of a thing or event.<sup>165</sup> He also describes *decoying*, which creates an alternate version of an event to distract individuals from the real one.<sup>166</sup> In the same era of pre-social media research, Daniel and Herbig also described the technique of using plausible information to confuse an individual and provide convincing evidence that an alternate narrative is correct.<sup>167</sup>

In the current information environment dominated by social media, these deception techniques are similar to those described by Wilson, Zhou, and Starbird in their examination of groups advocating for their narrative or attempting to undermine and confuse the competing narrative.<sup>168</sup> They discovered that groups aim to manipulate narratives by “introducing uncertainty into the information space and discrediting information providers.”<sup>169</sup> These measures, similar to Whaley’s *dazzling* concept, seek to confuse and undermine the public’s ability to make decisions by introducing uncertainty.<sup>170</sup> They have also learned that groups target information providers through personal attacks, often relying on emotional reactions, to target the “credibility of the

---

<sup>164</sup> Christopher Paul and Miriam Matthews, *The Russian “Firehose of Falsehood” Propaganda Model: Why It Might Work and Options to Counter It*, Report No. PE-198-OSD (Santa Monica, CA: RAND Corporation, 2016), 13, <https://www.rand.org/pubs/perspectives/PE198.html>.

<sup>165</sup> Whaley, “Toward a General Theory of Deception,” 184.

<sup>166</sup> Whaley, 185.

<sup>167</sup> Donald C. Daniel and Katherine L. Herbig, “Propositions on Military Deception,” *Journal of Strategic Studies* 5, no. 1 (1982): 157–58, <https://doi.org/10.1080/01402398208437105>.

<sup>168</sup> Wilson, Zhou, and Starbird, “Assembling Strategic Narratives,” 3.

<sup>169</sup> Wilson, Zhou, and Starbird, 3.

<sup>170</sup> Wilson, Zhou, and Starbird, 3.

provider with the aim of diminishing trust and introducing further uncertainty.”<sup>171</sup> Finally, they have discerned that groups seek to undermine the narrative, also known as creating an anti-narrative, or replace it with a counter-narrative.<sup>172</sup> Such a motive is similar to the techniques described by Whaley as well as Daniel and Herbig.

The research converges on methods for perpetrating information operations, though specific techniques vary greatly. Some examples include “astroturfing,” “viral sloganeering,” and “keyword squatting.” According to Bradshaw and Howard, although the naming conventions vary, the techniques fall into common categories of activities—“(1) the creation of disinformation or manipulated media; (2) mass-reporting of content or accounts; (3) data-driven strategies; (4) trolling, doxing or harassment; (5) amplifying content and media online”—with disinformation being the most widely used tool.<sup>173</sup> Caroline Jack adds another, describing the tactics of flooding conversational spaces as a means to “steer public discourse as effectively as confrontation or debate or, conversely, lead dissenting members of the public to retreat from a discussion that they perceive to have become an echo chamber.”<sup>174</sup>

Once created, content must be spread widely to be effective at achieving strategic goals. Several researchers highlight the role of storytelling in the spread of information, arguing that stories are an important part of how humans communicate and create a shared narrative. Walter Fisher, referring to the use of narrative in his research, suggests that humans convey and understand ideas and values through storytelling.<sup>175</sup> Wardle and Derakhshan point out that news consumption, once a collective or community experience, is now an individual process but one that is visible to the community through social

---

<sup>171</sup> Wilson, Zhou, and Starbird, 18, 21.

<sup>172</sup> Wilson, Zhou, and Starbird, 22.

<sup>173</sup> Bradshaw and Howard, *The Global Disinformation Order*, 15.

<sup>174</sup> Jack, *Lexicon of Lies*, 9.

<sup>175</sup> Walter R. Fisher, *Human Communication as Narration: Toward a Philosophy of Reason, Value and Action* (Columbia: University of South Carolina Press, 1989).

media.<sup>176</sup> In this way, the individual is simultaneously both part of and separate from the collective sensemaking process.

Content is also spread through systems that can be either organized or decentralized. Starbird, Arif, and Wilson describe the systems by which information is organized and spread after a crisis through the sensemaking process. Information operations online comprise individuals who are either organized or decentralized but create the same effect of sharing false information online.<sup>177</sup> The researchers separated the participatory actions of individuals online into three categories: an orchestrated or centralized approach, a coordinated approach in which a community may have some coordination, and an emergency or organic community that organizes around users that share a similar narrative.<sup>178</sup> These communities organize and spread information, including disinformation, online after a crisis. Bradshaw and Howard focus only on the orchestrated or centralized organization, describing the motivations and professions of individuals in these networks. They include paid government employees, usually in the military or government administrations; political parties or candidates; temporary private contractors; volunteers collaborating with governments, who may be rewarded for their work; or paid influencers or others who can reach citizens on social media.<sup>179</sup>

Researchers have uncovered a number of specific tools and methods used to distribute and disseminate disinformation through social media systems. Within the last few years, the conversation has focused at times on social media bots—or software designed to communicate realistically with users and other social bots in a network—and tools to detect and combat social bots that are reducing their effectiveness.<sup>180</sup> Recently, researchers have identified the increased role of humans in communication manipulation

---

<sup>176</sup> Wardle and Derakhshan, *Information Disorder*, 43.

<sup>177</sup> Starbird, Arif, and Wilson, “Disinformation as Collaborative Work,” 18.

<sup>178</sup> Starbird, Arif, and Wilson, 2.

<sup>179</sup> Samantha Bradshaw and Philip N. Howard, “Troops, Trolls and Troublemakers: A Global Inventory of Organized Social Media Manipulation” (working paper, Computational Propaganda Project, 2017), 15–16.

<sup>180</sup> Emilio Ferrara et al., “The Rise of Social Bots,” *Communications of the ACM* 59, no. 7 (June 2016): 96, <https://doi.org/10.1145/2818717>.

on social media. Bradshaw and Howard's research showed that most of the countries studied are using humans to spread disinformation, with some using bots or a blend of the two in a "cyborg."<sup>181</sup> Some nations that spread disinformation hack accounts or use real accounts; the use of real accounts may become more common as social media companies root out bots and other fake accounts.<sup>182</sup> Bayer et al. also describe methods to amplify messages on social media through artificial intelligence and paid human "trolls."<sup>183</sup>

Last, traditional media and social media platforms play an important role in the dissemination of information. Although Facebook is currently the largest social media platform for political communication, Instagram, YouTube, and WhatsApp may grow in the future.<sup>184</sup> Researchers seem to focus on Twitter, perhaps because it is easy to study, but Bayer et al. point out that Snapchat is more popular than Facebook among younger users.<sup>185</sup> Wardle and Derakhshan also assert that the distribution of disinformation may be changing to platforms such as WhatsApp or WeChat, which are hidden from the view of regulators and researchers.<sup>186</sup> They also point out that the information ecosystem is larger than just social media; modes such as "partisan radio, television and social media; exaggerated emotional articulations of the world; [and] quick delivery via algorithmically derived feeds on smartphones and audiences that skim headlines to cope with the floods of information" must also be considered in the context of understanding misinformation and disinformation.<sup>187</sup> Taken together, the spread of information by social media and other methods can reinforce individual beliefs, promoting confirmation bias, and distract from truthful content.

As a result of the 2016 U.S. elections and other recent events, Russian tactics for creating and disseminating disinformation and malinformation are now recognized

---

<sup>181</sup> Bradshaw and Howard, *The Global Disinformation Order*, 10.

<sup>182</sup> Bradshaw and Howard, 10.

<sup>183</sup> Bayer et al., *Disinformation and Propaganda*, 6.

<sup>184</sup> Bradshaw and Howard, *The Global Disinformation Order*, 2.

<sup>185</sup> Bayer et al., *Disinformation and Propaganda*, 58.

<sup>186</sup> Wardle and Derakhshan, *Information Disorder*, 75.

<sup>187</sup> Wardle and Derakhshan, 14.

internationally. Russia manipulates the narrative by leveraging the free flow of information in societies as well as on social media. Pomerantsev and Weiss describe Russia's efforts to exacerbate societal divides by supporting extreme groups—regardless of whether their philosophies align with Russia's—through state-sponsored and well-funded media operations.<sup>188</sup> Paul and Matthews, researchers at RAND, agree, describing Russian techniques for sowing confusion, such as spreading propaganda through a deluge of messages, tools, and channels, and its willingness to spread lies or partial truths through a lack of integrity, inconsistency, and “rapid, continuous, and repetitive” messages.<sup>189</sup> They go on to describe Russia's success through direct influence by adding confusion to the information environment and preventing truthful information from reaching individuals.<sup>190</sup>

In order for disinformation to be effective, it must be received by individuals or groups and influence their beliefs or behavior. In addition to well-developed tools for spreading deceptive information, Russia also leverages psychology to achieve its strategic objectives. This includes the tendency of individuals to believe information endorsed by others, which Russia leverages to lend credibility to its disruptive information through a high number of endorsements in social media or existing networks or credible sources to spread information.<sup>191</sup> Using another tool from psychology, Russia is quick to interpret events—which might be rooted in truth or entirely fiction—that support its narrative or goals because individuals tend to believe the first information they receive on a topic.<sup>192</sup> Repetition is then used to reinforce this information, leading to acceptance.<sup>193</sup> Paul and Matthews assert that Russia is able to dominate the narrative and succeed in spreading disinformation through the combined forces of individual information overload, the tendency of individuals to forget the source of information and not to fact-check, individual

---

<sup>188</sup> Pomerantsev and Weiss, *How the Kremlin Weaponizes Information*, 6.

<sup>189</sup> Paul and Matthews, *The Russian “Firehose of Falsehood” Propaganda Model*, 1.

<sup>190</sup> Paul and Matthews, 2.

<sup>191</sup> Paul and Matthews, 2–3.

<sup>192</sup> Paul and Matthews, 2–5.

<sup>193</sup> Paul and Matthews, 4.

confirmation bias, and the agility of Russian propagandists to disseminate information quickly through multiple channels.<sup>194</sup> They also describe how narratives are spread through “stories or accounts that create emotional arousal in the recipient (e.g., disgust, fear, happiness).”<sup>195</sup> Russia has been successful in perpetrating information operations by leveraging psychology and quickly and repeatedly providing a disinformation narrative to individuals.

Other researchers, not focusing on Russia, have found that similar factors have been observed in the reception and processing of information. In examining the use of social media as part of the social process of collective sensemaking after an emergency, Arif et al. found that three factors influenced the spread of rumors or misinformation: volume, or how prevalent the information was in social media; initial potential exposure or follower count of those sharing the information; and derivative content, or close but not exact copies of the original information.<sup>196</sup> Arif et al. built this theory on previous works by Starbird et al. and Spiro et al. on understanding rumor dynamics, focused mainly on the volume of information shared to understand its influence.<sup>197</sup>

Scholars have debated the role of “echo chambers” in media and social media in the reception process that shapes individual beliefs. Bayer et al. describe the role of artificial intelligence and micro-targeting in driving confirmation bias and creating “bubbles” and “echo chambers” in social networks.<sup>198</sup> Wardle and Derakhshan, however, find that the effect of echo chambers is inconclusive.<sup>199</sup> Tucker et al. agree, saying that there is “no scholarly consensus about whether ‘echo chambers’ lead to polarization.”<sup>200</sup>

---

<sup>194</sup> Paul and Matthews, 4–6.

<sup>195</sup> Paul and Matthews, 6.

<sup>196</sup> Ahmer Arif et al., “How Information Snowballs: Exploring the Role of Exposure in Online Rumor Propagation,” in *Proceedings of the 19th ACM Conference on Computer-Supported Cooperative Work & Social Computing* (San Francisco: Association for Computing Machinery, 2016), 474, <https://doi.org/10.1145/2818048.2819964>.

<sup>197</sup> Arif et al., 466.

<sup>198</sup> Bayer et al., *Disinformation and Propaganda*, 58.

<sup>199</sup> Wardle and Derakhshan, *Information Disorder*, 53.

<sup>200</sup> Tucker et al., *Social Media, Political Polarization, and Political Disinformation*, 16.

The more commonly agreed-upon factor in shaping beliefs is emotion. Wardle and Derakhshan suggest that both the use of feelings, such as fear or anger, and the emotional response to offenses by trolls affect the way that individuals engage with the conversations online.<sup>201</sup> Similarly, Tucker et al. define trolls as those who seek an emotional response, stating that anxiety and anger are tools for spreading disinformation on platforms.<sup>202</sup>

False information spreads both because of technology and because of the social structures and emotional reactions to content. Starbird, Arif, and Wilson describe this dynamic as the “mutual shaping of the technological platforms, social structures, and human behavior.”<sup>203</sup> Social structures and the norms that guide online communities, including the process of receiving false information, must be accounted for in the conversation on how this information is created and spread online and, in turn, on how to counter it.

### **3. Countering Misinformation, Disinformation, and Malinformation**

Scholars have focused recommendations for countering harmful online information on the dissemination and reception processes. Countering false narratives is typically described as a function of changing the type of information available online or changing individuals’ behaviors when they view information. Both of these strategies present significant challenges in effecting behavioral modifications and as a consequence of the value of freedoms of speech in democratic societies.

The first solution identified by many scholars is to detect and limit disinformation spread on media and social media platforms. Cybenko, Giani, and Thompson describe this method as “preventing unauthorized access to information assets (to counter defacements or spoofing) or detecting posted misinformation before it affects user behavior (possibly after dissemination).”<sup>204</sup> Paul and Matthews refine this approach by prioritizing counter-

---

<sup>201</sup> Wardle and Derakhshan, *Information Disorder*, 7, 31.

<sup>202</sup> Tucker et al., *Social Media, Political Polarization, and Political Disinformation*, 22, 44–45.

<sup>203</sup> Starbird, Arif, and Wilson, “Disinformation as Collaborative Work,” 2.

<sup>204</sup> Cybenko, Giani, and Thompson, “Cognitive Hacking,” 52.

propaganda efforts based on the objective.<sup>205</sup> Starbird, Arif, and Wilson point out that social media companies are reluctant to become censors and distinguish truth from fiction on their platforms, so they are more focused on the task of identifying fake accounts.<sup>206</sup> As stated previously, because fake accounts are less prevalent, targeting them is a less-effective preventative measure. Starbird, Arif, and Wilson suggest that an alternative option is for social media platforms to review the sincerity of the posts or information shared rather than judging whether they are true.<sup>207</sup> Such a focus might have potential negative side effects, however, as it may conflict with values of freedom of speech and the goal of the platform to serve as an online community space.<sup>208</sup> Additionally, Fredheim and Bay have found that social media platforms, despite commitments to prevent abuse, are unable to counter malicious use.<sup>209</sup> They claim, “Self-regulation is not working. The manipulation industry is growing year by year. We see no sign that it is becoming substantially more expensive or more difficult to conduct widespread social media manipulation.”<sup>210</sup>

Hunt, Agarwal, and Zhuang suggest that machine learning can be used to identify false information, yet Ferrara et al. maintain that crowdsourcing is a more accurate option.<sup>211</sup> Pomerantsev and Weiss recommend the development of an international system that analyzes and rates disinformation, an international standard of acceptable and unacceptable behavior, individuals who focus on disinformation as “counter propaganda editors,” and a way to hold state-sponsored supporters of disinformation accountable.<sup>212</sup> Paul and Matthews take these ideas a step further, suggesting that Russian propaganda

---

<sup>205</sup> Paul and Matthews, *The Russian “Firehose of Falsehood” Propaganda Model*, 10.

<sup>206</sup> Starbird, Arif, and Wilson, “Disinformation as Collaborative Work,” 18.

<sup>207</sup> Starbird, Arif, and Wilson, 19.

<sup>208</sup> Starbird, Arif, and Wilson, 19.

<sup>209</sup> Rolf Fredheim and Sebastian Bay, *Falling Behind: How Social Media Companies Are Failing to Combat Inauthentic Behaviour Online* (Riga, Latvia: NATO Strategic Communications Centre of Excellence, 2019), 4.

<sup>210</sup> Fredheim and Bay, 4.

<sup>211</sup> Kyle Hunt, Puneet Agarwal, and Jun Zhuang, “Tracking Storms of Misinformation Spread amid Disasters,” *ISE Magazine* 51, no. 9 (September 2019): 30–31; Ferrara et al., “The Rise of Social Bots.”

<sup>212</sup> Pomerantsev and Weiss, *How the Kremlin Weaponizes Information*, 7.

sources and goals be publicized and that regulators sanction media, such as Russia Today, that disseminates disinformation in an effort to slow its spread.<sup>213</sup> Donovan and Friedberg agree, suggesting that social media platforms should label disinformation and provide metadata for accounts.<sup>214</sup> However, Paul West of the Brookings Institute disagrees, fearing that media or individuals will self-censor posts if platforms are made liable for presenting misinformation.<sup>215</sup> He suggests instead that a combination of strong news media, tools to identify false information, reduced financial incentives for disinformation, and customers who are exposed to a variety of facts and opinions and who question the news sources and content can stop the flow of misinformation and disinformation.<sup>216</sup> Focusing on the COVID-19 pandemic, Eliška Pírková agrees with West, suggesting that transparency, protection of journalistic integrity, and safeguarding of those who speak up are more effective ways to counter misinformation and ensure public access to freedom of information than criminal penalties or actions by online platforms.<sup>217</sup>

The second solution is to help consumers of information—with a focus on key sectors of the public—discern between disinformation and truth, understand the harm of disinformation, and reduce the flow of false information. Bayer et al. argue for educating citizens in civics and increasing their media literacy.<sup>218</sup> Jack argues that media literacy is needed but insufficient to counteract the confusion.<sup>219</sup> She joins Bayer et al. in advocating for fact-checking sites as another helpful resource.<sup>220</sup> Bayer et al. also suggest increased transparency efforts, from clearly marking advertisements, sources, and influencers on

---

<sup>213</sup> Paul and Matthews, *The Russian “Firehose of Falsehood” Propaganda Model*, 10.

<sup>214</sup> Donovan and Friedberg, *Source Hacking*, 3.

<sup>215</sup> Darrell M. West, *How to Combat Fake News and Disinformation* (Washington, DC: Brookings Institution, 2017), 11, <https://www.brookings.edu/research/how-to-combat-fake-news-and-disinformation/>.

<sup>216</sup> West, 1.

<sup>217</sup> Eliška Pírková, *Fighting Misinformation and Defending Free Expression during COVID-19: Recommendations for States* (Brussels: Access Now, 2020), 10–19, <https://www.accessnow.org/cms/assets/uploads/2020/04/Fighting-misinformation-and-defending-free-expression-during-COVID-19-recommendations-for-states-1.pdf>.

<sup>218</sup> Bayer et al., *Disinformation and Propaganda*, 14.

<sup>219</sup> Jack, *Lexicon of Lies*, 10.

<sup>220</sup> Jack, *Lexicon of Lies*, 10; Bayer et al., *Disinformation and Propaganda*, 14.

social media to requiring platforms to promote diverse content and ideas.<sup>221</sup> Paul and Matthews suggest increasing the flow of information to counter disinformation, saying, “Compete! If Russian propaganda aims to achieve certain effects, it can be countered by preventing or diminishing those effects.”<sup>222</sup> Colley, Granelli, and Althuis go further with this idea, advocating a sociological approach to a specific event or issue that includes all forms of information flow throughout social networks, both online and off.<sup>223</sup> Such an approach requires an understanding of the issues, social networks, trusted information sources within networks, and tensions to grasp how disinformation or misinformation affects the social networks and exacerbates tensions and how to apply countermeasures.<sup>224</sup> The Department of Homeland Security’s Social Media Working Group for Emergency Services and Disaster Management advocates quickly releasing information, countering rumors online, and using crowdsourcing to obtain situational awareness and monitor and dispel rumors.<sup>225</sup> Pomerantsev and Weiss, in their focus on Russia, also suggest providing additional support to vulnerable populations such as those in the Baltics.<sup>226</sup>

In addition to the specific solutions identified, Bodine-Baron et al. argue for collaboration and cooperation between public and private groups for research and policy development, as well as between government, social media, and media platforms, with support from academia.<sup>227</sup> Similarly, Robinson et al. recommend collaboration between civilian and military representatives at home and abroad through an exchange of personnel (including planners), plans, information and intelligence, and knowledge to defend against

---

<sup>221</sup> Bayer et al., *Disinformation and Propaganda*, 12–13.

<sup>222</sup> Paul and Matthews, *The Russian “Firehose of Falsehood” Propaganda Model*, 10.

<sup>223</sup> Colley, Granelli, and Althuis, “Disinformation’s Societal Impact,” 89.

<sup>224</sup> Colley, Granelli, and Althuis, 145–46.

<sup>225</sup> Department of Homeland Security, *Countering False Information on Social Media in Disasters and Emergencies* (Washington, DC: Department of Homeland Security, 2018), 2, [https://www.dhs.gov/sites/default/files/publications/SMWG\\_Countering-False-Info-Social-Media-Disasters-Emergencies\\_Mar2018-508.pdf](https://www.dhs.gov/sites/default/files/publications/SMWG_Countering-False-Info-Social-Media-Disasters-Emergencies_Mar2018-508.pdf).

<sup>226</sup> Pomerantsev and Weiss, *How the Kremlin Weaponizes Information*, 7.

<sup>227</sup> Bodine-Baron et al., *Countering Russian Social Media Influence*, xiii.

what they term *political warfare*, which includes disinformation as a tactic.<sup>228</sup> They also argue for sanctions against the Russian government to limit its ability to support disinformation campaigns directly or through proxies.<sup>229</sup>

Counter-disinformation campaigns focus on disrupting either the dissemination or reception components. Such disruption can be accomplished by preventing access to information that could become harmful, increasing transparency, developing a standard, international rating system for information sincerity or other objectives, and increasing media literacy and the understanding of civics. Additionally, scholars assert that cooperation of the government, private sector, and academia is important for countering harmful information using these or other techniques.

---

<sup>228</sup> Linda Robinson et al., *Modern Political Warfare: Current Practices and Possible Responses*, Report No. RR-1772-A (Santa Monica, CA: RAND Corporation, 2018), xxiii–xxiv, [https://www.rand.org/pubs/research\\_reports/RR1772.html](https://www.rand.org/pubs/research_reports/RR1772.html).

<sup>229</sup> Bodine-Baron et al., *Countering Russian Social Media Influence*, xii.

### **III. CASE STUDIES OF DISASTERS AND FALSE INFORMATION EFFECTS ON DEMOCRACY**

Democratic institutions are affected by complex disasters, the vulnerability and resilience of the population, and the quality of the response, as well as the influences of false information on these elements. Vulnerability is defined as the “potential for loss” and resilience the “ability to cope and adapt.”<sup>230</sup> While catastrophic disasters have historically disrupted the ecosystems of civil society and the government, the recent rise and spread of false information within the media ecosystem after such disasters has threatened to undermine trust in democratic social, economic, and political institutions. These forces—disasters and mis-, dis-, and mal-information—encompass emotions, social constructs, the imbalance of power among vulnerable populations, and uneven individual and community resilience to expose the weaknesses in social values and the principles of democratic governments.

This chapter presents a comparative examination of the effects of several disasters—the 2011 Tōhoku earthquake, tsunami, and nuclear power plant disaster in Japan; the Australian wildfires of 2019–2020; and the ongoing COVID-19 response in the United States that began in 2020—and false information on the citizens and societies of these nations. It also analyzes the effects of these disasters and mis-, dis-, and mal-information on the legitimacy of the social, economic, and political institutions of a democracy.

#### **A. JAPAN: EARTHQUAKE, TSUNAMI, AND NUCLEAR POWER PLANT DISASTER**

On March 11, 2011, a magnitude 9.0 earthquake occurred in the ocean near the Tōhoku region of Japan; it was one of the most powerful earthquakes recorded and the most significant in Japanese records.<sup>231</sup> A massive tsunami followed the earthquake,

---

<sup>230</sup> Tierney, *Disasters*, 143, 171.

<sup>231</sup> Jeff Kingston, introduction to *Natural Disaster and Nuclear Crisis in Japan: Response and Recovery after Japan's 3/11*, ed. Jeff Kingston (Abingdon, UK: Routledge, 2012), 1, ProQuest.

wiping clean an area as far inland as 5 km.<sup>232</sup> Three reactors at the Fukushima Daiichi nuclear power plant experienced meltdowns and spread radioactive contamination.<sup>233</sup> This disaster complex is also known simply as 3/11.

This disaster affected all aspects of Japanese society. An enormous number of people were killed; 15,760 people died, 5,927 were injured, and 4,282 people were still missing as of August 2011.<sup>234</sup> The country also absorbed 580,000 displaced people from communities destroyed by the earthquake and tsunami.<sup>235</sup> Following the nuclear disaster, an additional 80,000 people were displaced from within the 20 km radius of the Fukushima Daiichi plant; over three months later, 90,000 people remained living in evacuation centers.<sup>236</sup>

The disaster also affected a wide variety of infrastructure, which hampered response efforts and led to cascading effects on supply chains. For example, 4.4 million households lost electricity, and 1.5 million lost access to water from damaged infrastructure.<sup>237</sup> In total, Japan saw 120,000 buildings destroyed and 220,000 damaged, and transportation damages interrupted travel from ports, railways, and airports. As a result, disaster services and supplies could not move into the affected area, slowing critical response to those affected by the disaster.<sup>238</sup> Disaster response requirements, infrastructure damages, and business interruptions contributed to the cost of the disaster, “estimated between \$210–300 billion, making it the most expensive natural disaster on record.”<sup>239</sup>

In Japan, some citizens had been vulnerable before the disaster because of their age and socioeconomic status. For example, a high proportion of elderly individuals lived in

---

<sup>232</sup> Kingston, 1.

<sup>233</sup> Kingston, 1.

<sup>234</sup> Kingston, 1.

<sup>235</sup> Kingston, 1.

<sup>236</sup> Kingston, Introduction, 1; Gerald L. Curtis, “Tōhoku Diary: Reportage on the Tōhoku Disaster,” in *Natural Disaster and Nuclear Crisis in Japan: Response and Recovery after Japan’s 3/11*, ed. Jeff Kingston (Abingdon, UK: Routledge, 2012), 20, ProQuest.

<sup>237</sup> Kingston, Introduction, 1.

<sup>238</sup> Kingston, 1.

<sup>239</sup> Kingston, 2.

coastal villages, so 30 percent of those in the tsunami's impact area and two-thirds of the recovered deceased were 65 or older.<sup>240</sup> Additionally, the socioeconomics of the tsunami-impacted area was mostly rural and agricultural and largely poor, ranking in the bottom quarter of per capita gross domestic product (GDP) in Japan.<sup>241</sup>

Despite having an identified lead agency for crisis management in Japan, several aspects of an effective emergency management system were missing from the response, such as a national disaster response plan and limited resources, including coordinating staff.<sup>242</sup> Prime Minister Kam also instituted political, rather than civil servant, leadership for managing the disaster response.<sup>243</sup> Immediately after the disaster, a Crisis Management Center and Disaster Countermeasures Headquarters were established to coordinate the disaster response.<sup>244</sup> However, critics point out that while additional groups and task forces were established, roles and responsibilities were not clarified, leading to confusion.<sup>245</sup>

Volunteers and civic groups as well as the private sector supported the government's emergency response. For example, neighborhood associations—volunteer civil society organizations—helped to build critical communication pathways between residents and local governments and supported the vulnerable until government assistance was available.<sup>246</sup> Volunteers, community groups, and civil society organizations were well organized and effective in supporting disaster survivors by accessing funding and cooperating with each other and governmental and quasi-governmental organizations.<sup>247</sup>

---

<sup>240</sup> Kingston, Introduction, 5; Curtis, "Tōhoku Diary," 21.

<sup>241</sup> Curtis, "Tōhoku Diary," 21.

<sup>242</sup> Richard J. Samuels, *3.11: Disaster and Change in Japan* (Ithaca, NY: Cornell University Press, 2013), 9.

<sup>243</sup> Samuels, 10.

<sup>244</sup> Samuels, 9.

<sup>245</sup> Samuels, 11.

<sup>246</sup> Kawato Yūko, Robert Pekkanen, and Tsujinaka Yutaka, "Civil Society and the Triple Disasters: Revealed Strengths and Weaknesses," in *Natural Disaster and Nuclear Crisis in Japan: Response and Recovery after Japan's 3/11*, ed. Jeff Kingston (Abingdon, UK: Routledge, 2012), 83–84, ProQuest.

<sup>247</sup> Kingston, Introduction, 5; Simon Avenell, "From Kobe to Tōhoku: The Potential and the Peril of a Volunteer Infrastructure," in *Natural Disaster and Nuclear Crisis in Japan: Response and Recovery after Japan's 3/11*, ed. Jeff Kingston (Abingdon, UK: Routledge, 2012), 54, ProQuest.

These well-structured organizations leveraged professional non-governmental and other organizations, minimizing the emergence effect of unaffiliated volunteers who often hamper disaster responses.<sup>248</sup> Responding volunteers and organizations used social networks to identify requirements and mobilize support in the aftermath of the disaster.<sup>249</sup> Finally, the private sector also helped to augment the government response by providing significant disaster relief.<sup>250</sup>

Despite the devastating effects of this disaster, the government and community response was as effective as possible. Kingston asserts,

Tsunami disaster relief was reasonably fast and effective under difficult circumstances and the evacuees received basic needs. Certainly they had reasons to be frustrated with the pace of relief and recovery, but it is hard to imagine any government performing better given the devastation of ports and other infrastructure and the sheer scale of the disaster.<sup>251</sup>

However, the Japanese government did not effectively provision all disaster resources. For example, the government's evacuee lottery system appeared to be fair but had the undesirable effect of separating close neighbors and friends, which was detrimental to mental health, especially for elderly individuals.<sup>252</sup>

### **1. Disinformation, Misinformation, and Malinformation Effects**

This disaster was one of the first in which communication over social media was significant, both for the survivors and for those outside the impacted area seeking to understand the consequences.<sup>253</sup> For example, responders used social media to locate

---

<sup>248</sup> Yūko, Pekkanen, and Yutaka, "Civil Society and the Triple Disasters," 83.

<sup>249</sup> Kingston, Introduction, 6.

<sup>250</sup> Kingston, 7.

<sup>251</sup> Jeff Kingston, "The Politics of Disaster, Nuclear Crisis and Recovery," in *Natural Disaster and Nuclear Crisis in Japan: Response and Recovery after Japan's 3/11*, ed. Jeff Kingston (Abingdon, UK: Routledge, 2012), 192, ProQuest.

<sup>252</sup> Curtis, "Tōhoku Diary," 21.

<sup>253</sup> Larissa Hjorth and Olivia Khoo, eds., *Routledge Handbook of New Media in Asia* (Abingdon, UK: Routledge, 2016), 54.

individuals and connect donations and volunteers with those in need.<sup>254</sup> The public also recognized this form of communication as a more expedient method of understanding the situation and finding support than traditional media or the government, and individuals also used social media to communicate with many people simultaneously.<sup>255</sup> Disaster survivors and others also conveyed emotions through social media; the majority of these posts on Twitter referenced the disaster at Fukushima.<sup>256</sup> Furthermore, individuals on social media were 10 times more likely to use words that evoked a negative response than a positive one.<sup>257</sup>

Despite the benefits of social media to response efforts, it also helped to spread disinformation during the disaster response. The utility responsible for the Fukushima Daiichi power plant, the Tokyo Electric Power Company (TEPCO), spread disinformation about Prime Minister Kan, saying that he was responsible for delays in the response to the Fukushima reactors that resulted in the hydrogen explosions.<sup>258</sup> Ultimately, researchers asserted that TEPCO, not the prime minister, bore the primary responsibility for the disaster at the Fukushima Daiichi plant.<sup>259</sup>

Moreover, rumors or misinformation spread on social media following the disaster. Initially, TEPCO failed to reveal the severity of the crisis at Fukushima Daiichi and the meltdown there until May 24, more than two and a half months later.<sup>260</sup> This failure to relay the circumstances about the nuclear crisis led to public anger at the company and the government, with three-quarters of survey respondents saying that communication was

---

<sup>254</sup> Hjorth and Khoo, 56.

<sup>255</sup> Hjorth and Khoo, 55.

<sup>256</sup> Naohiro Matsumura et al., "Media and Sentiments in the Great East Japan Earthquake Related Tweets—Social Media as 'Meta Media,'" in *IEEE Tenth International Conference on Semantic Computing* (Laguna Hills, CA: IEEE, 2016), 469, <https://doi.org/10.1109/ICSC.2016.84>.

<sup>257</sup> Naohiro Matsumura et al., "Media Mediate Sentiments: Exploratory Analysis of Tweets Posted Before, During, and After the Great East Japan Earthquake," *International Journal of Knowledge Society Research* 7, no. 2 (2016): 60, <https://doi.org/10.4018/IJKSR.2016040104>.

<sup>258</sup> Kingston, "The Politics of Disaster, Nuclear Crisis and Recovery," 190.

<sup>259</sup> Kingston, 191.

<sup>260</sup> Kingston, 200.

“unsatisfactory.”<sup>261</sup> An additional example of misinformation included that of “cosmo oil,” a false rumor that toxic substances would spread via rainfall after the earthquake caused an oil refinery to catch fire.<sup>262</sup> These instances of misinformation exacerbated public concerns and fear caused by the spread of nuclear contamination from the nuclear power plant meltdown.

The spread of misinformation and of disinformation in this disaster decreased the credibility of TEPCO and national political leadership. It also caused confusion and anger within the public and resulted in citizens’ sharing negative sentiments much more frequently than positive sentiments on social media platforms. These effects of false information erode trust in political structures and undermine civil society, which are both essential components of democratic stability.

## **2. Social, Economic, and Political Effects on Democracy**

Social networks were critical in providing disaster support; however, survivor displacement and relocation undermined the success of long-term recovery and these networks. For example, social cohesion and capital built before the disaster helped to save lives immediately after the disaster and aided communities in recovering from the disaster.<sup>263</sup> The survivors of the disaster were admired for their patience, perseverance, and commitment to rebuilding their communities, leveraging their underlying social connections.<sup>264</sup> Despite this initial cohesion, indicators show that survivors have experienced diminished social cohesion following the disaster vis-à-vis other parts of Japan.<sup>265</sup> As described by Tilly, changes in the strength of processes such as connections between citizens through trust networks can affect the stability of democracies, and the

---

<sup>261</sup> Kingston, “The Politics of Disaster, Nuclear Crisis and Recovery,” 200; Richard J. Samuels, “Japan’s Rhetoric of Crisis: Prospects for Change after 3.11,” *Journal of Japanese Studies* 39, no. 1 (2013): 103.

<sup>262</sup> Shohei Usui et al., “Why Did False Rumors Diffuse after the 2011 Earthquake off the Pacific Coast of Tohoku? Impact Analysis of the Network Structure,” *Electronics and Communications in Japan* 98, no. 9 (2015): 1, <https://doi.org/10.1002/ecj.11687>.

<sup>263</sup> Kingston, Introduction, 5.

<sup>264</sup> Samuels, “Japan’s Rhetoric of Crisis,” 108.

<sup>265</sup> Kingston, Introduction, 11.

reduced social cohesion and consultation in these affected communities may degrade local or even national democratic functions.<sup>266</sup>

While economic challenges can lead to democratic decline, and this disaster significantly damaged Japan's economy—as it was the most expensive natural disaster on record, global supply chains were disrupted, and businesses experienced economic losses as well as declines in consumer confidence—it did not result in democratic decline.<sup>267</sup> To be sure, Japan's economy shrank following the disaster from a combination of slowed trade, unemployment, and infrastructure damages.<sup>268</sup> However, Japan's GDP rebounded, rising steadily in the years following 2011.<sup>269</sup> While the long-term worsening of economic inequality could portend democratic instability, the rebound of Japan's GDP—despite the expense and economic interruptions of this disaster—is a good indicator that democratic decline may not follow.

Political institutions in Japan maintained legitimacy, as demonstrated through citizen support and attentiveness. However, Kingston asserts that the government and utility (i.e., TEPCO) response to the nuclear disaster was poorly managed, and concerns about the long-term health effects of the meltdown have eroded public trust.<sup>270</sup> As a result, trust in political institutions dropped following the disaster, as did confidence in the national government. Shun et al. surveyed residents on their confidence in government and public officials, resulting in an assessment that confidence was higher in local governments and public officials than in the national government and officials.<sup>271</sup> The survey showed that “one-quarter of the respondents assessed the national government and public officials as reliable or moderately reliable, and half of the respondents assessed the local

---

<sup>266</sup> Tilly, *Democracy*, 73–74, 95–96.

<sup>267</sup> Samuels, *Disaster and Change in Japan*, 6.

<sup>268</sup> Samuels, 7.

<sup>269</sup> “GDP, (Constant 2010 US\$) – Japan,” World Bank, accessed March 14, 2021, <https://data.worldbank.org/indicator/NY.GDP.MKTP.KD?locations=JP>.

<sup>270</sup> Kingston, Introduction, 6.

<sup>271</sup> Shun Ibaragi, Dávid Bohács, and Kazunori Kawamura, “Japanese People's Attitudes toward the Government after the Great East Japan Earthquake: Who Rely on the Government?,” *Bulletin of Yokohama City University Social Science* 68, no. 2 (2017): 149.

governments and public officials similarly.”<sup>272</sup> Edelman’s Trust Barometer shows that following the disaster, trust in government and non-governmental organizations dropped more than 20 points.<sup>273</sup> Trust in political institutions is necessary for a functioning democracy; in Japan, this trust is slowly recovering.

In this connection, following the disaster, trust in and support of national government leadership remained low while local responders were seen favorably. When Shun et al. surveyed residents in the impacted areas, they found that

the evaluation of politicians, such as the prime minister and Diet members, was relatively unfavorable, with only about one quarter of the respondents rating their performance as high or average. In contrast, the evaluation of crisis management entities such as the police, fire authorities, and Self-Defense Forces was extremely high, demonstrating that the actors most closely involved with the residents were viewed very favorably.<sup>274</sup>

Before the disaster, Prime Minister Kan was also polling low in public opinion, and his administration was beset with scandals.<sup>275</sup> Public support for Prime Minister Kan remained low in the months following the disaster, with 70 percent of citizens disapproving of his leadership and seeking his resignation.<sup>276</sup> Samuels describes the critiques of Kan’s leadership as offering inconsistent and sometimes contradictory examples of what should have been done or said.<sup>277</sup> Samuels also asserts, “Within a month, more than three-quarters of the public reported that Kan was ‘not exercising leadership.’”<sup>278</sup> For example, Kingston asserts that the public viewed Kan as displaying “ineffectual leadership skills and inability to formulate coherent policies and means to achieve them.”<sup>279</sup> He also asserts that Kan

---

<sup>272</sup> Shun, Bohács, and Kawamura, 149.

<sup>273</sup> “20 Years of Trust,” Edelman, accessed March 14, 2021, <https://www.edelman.com/20yearsoftrust/>.

<sup>274</sup> Shun, Bohács, and Kawamura, “Japanese People’s Attitudes toward the Government,” 147–48.

<sup>275</sup> Kingston, “The Politics of Disaster, Nuclear Crisis and Recovery,” 188.

<sup>276</sup> Curtis, “Tōhoku Diary,” 25.

<sup>277</sup> Samuels, “Japan’s Rhetoric of Crisis,” 102.

<sup>278</sup> Samuels, *Disaster and Change in Japan*, 34.

<sup>279</sup> Kingston, Introduction, 7.

“failed to articulate a vision that would give the people of Tōhoku hope for the future.”<sup>280</sup> The National Diet—Japan’s bicameral legislature—held a vote of no confidence in June 2011, and although Prime Minister Kan did not leave office at the time, he agreed to leave office in August that year with conditions for reconstruction funding and renewable energy exploration.<sup>281</sup> Citizens of democracies expect that elected political leadership will assess the situation and deliver policies and resources to help those affected by a disaster recover, but Japanese citizens generally viewed Prime Minister Kan as incapable of delivering these essential functions.

This disaster influenced both national and local politics. National political divides existed before the disaster and remained following it, with the two major parties arguing along party lines to undermine each other.<sup>282</sup> Many of those affected by the disaster viewed the central government and politicians as ineffective, overly focused on partisan politics, and slow to respond to the crisis.<sup>283</sup> Local politics, on the other hand, integrated new leadership, the private sector, and individual volunteers following the disaster.<sup>284</sup> Local politicians viewed the national response as ineffective; as a result, they strengthened local response capabilities.<sup>285</sup> However, this increase in local emergency response capacity was complicated by the national government’s consolidation of municipalities nearly a decade before the disaster, which created new local administrations that upended the traditional village dynamics and left citizens reporting distrust of their leaders.<sup>286</sup> Local municipalities, building on mutual support, ultimately enhanced their autonomy in Japan’s political system.<sup>287</sup> Japan’s representative democracy is supported by the authority of the

---

<sup>280</sup> Kingston, 7.

<sup>281</sup> Samuels, *Disaster and Change in Japan*, 17.

<sup>282</sup> Curtis, “Tōhoku Diary,” 28.

<sup>283</sup> Kingston, Introduction, 7.

<sup>284</sup> Curtis, “Tōhoku Diary,” 29.

<sup>285</sup> Samuels, “Japan’s Rhetoric of Crisis,” 101.

<sup>286</sup> Samuels, 109.

<sup>287</sup> Samuels, 116.

state to perform essential functions; following this disaster, the balance of power within the levels of government in Japan shifted toward stronger local authorities.

### **3. Conclusions**

This complex and “cascading disaster,” including the initial earthquake, tsunami, and finally the nuclear power plant disaster at Fukushima Daiichi, affected all aspects of civil society in Japan through the death and displacement of its citizens and fear of health ramifications from the meltdown. Additionally, the loss of electricity and communications following the earthquake slowed the flow of information, delaying the transmission of emergency messaging to the citizens about to be affected by the tsunami and hampering evacuation efforts.<sup>288</sup> Other infrastructure, such as transportation, was also damaged and delayed the response efforts. Although the whole-community response had insufficient resources to support the survivors of Japan’s earthquake and tsunami, the initial relief efforts were well coordinated and as effective as possible given the circumstances. The use of social media, a new capability in this disaster, contributed to the spread of misinformation and disinformation, which caused confusion and damaged political reputations. The 3/11 disaster presented an enormous challenge to the whole community in implementing an effective response and will be remembered as one of the most significant disasters in recent history.

The complexity and magnitude of the disaster, combined with the vulnerable older and lower-socioeconomic populations of the affected region, damaged the social and economic components of Japan’s democracy. Disinformation and misinformation affected the political component of democracy by further undermining support of the prime minister, causing confusion and anger, and destabilizing trust and leadership credibility among the citizens. Trust in Japan’s national government and leaders was low before the disaster and remained low following it, despite a relatively effective whole-of-community response in light of the infrastructure damages and communication challenges. Trust in local governments intensified, and these entities expanded their authority. Despite the

---

<sup>288</sup> Kingston, Introduction, 5.

erosion of trust in the national Japanese government caused by the disaster combined with misinformation and disinformation, the government retained legitimacy.

As such, democracy survived. Both the Freedom House and the *Economist's* Intelligence Unit rate Japan's democracy as high. In its 2020 Freedom in the World report, Freedom House describes Japan as *free* based on its political rights and civil liberties.<sup>289</sup> Similarly, the *Economist* upgraded Japan to a *full democracy* in 2020 based on its electoral process, governmental and political functionality, and civil liberties.<sup>290</sup> These independent analyses demonstrate that Japan's democracy is fully functioning and that it did not sustain significant or lasting damage following the 3/11 disaster.

## **B. AUSTRALIA: 2019–2020 WILDFIRES**

The summer wildfire, or bushfire, season of 2019–2020 in Australia may be a harbinger of future disasters as citizens and property relocate to disaster-prone areas, and those living in these zones are unprepared for and lack a true perception of the risks.<sup>291</sup> This disaster, also known as the “black summer,” was the most significant disaster of its kind in Australia in the last 20 years.<sup>292</sup> It started in July 2019 and continued through early 2020, when rainfall finally extinguished the fires.<sup>293</sup> The season followed the driest and hottest year on record and drought conditions that had lasted for several years.<sup>294</sup>

Although only a few people died in this disaster, the damage to the ecology and communities in the impact area was extensive. These wildfires burned between 24 and 40

---

<sup>289</sup> “Freedom in the World 2020: Japan,” Freedom House, accessed February 15, 2021, <https://freedomhouse.org/country/japan/freedom-world/2020>.

<sup>290</sup> Economist Intelligence Unit, *Democracy Index 2020: In Sickness and in Health?* (London: Economist, 2021), 9, <https://www.eiu.com/n/campaigns/democracy-index-2020/>.

<sup>291</sup> Kubra Koksai, Jim McLennan, and Christopher Bearman, “Living with Bushfires on the Urban-Bush Interface,” *Australian Journal of Emergency Management* 35, no. 1 (January 2020): 21.

<sup>292</sup> Alexander I. Filkov et al., “Impact of Australia’s Catastrophic 2019/20 Bushfire Season on Communities and Environment. Retrospective Analysis and Current Trends,” *Journal of Safety Science and Resilience* 1, no. 1 (September 2020): 54, <https://doi.org/10.1016/j.jnlssr.2020.06.009>.

<sup>293</sup> Royal Commission into National Natural Disaster Arrangements, *Interim Observations* (Canberra: Royal Commission into National Natural Disaster Arrangements, 2020), 5, <https://naturaldisaster.royalcommission.gov.au/publications/interim-observations-1>.

<sup>294</sup> Royal Commission into National Natural Disaster Arrangements, 4.

million hectares of land, displaced hundreds of communities, and destroyed over 3,000 homes along with other buildings.<sup>295</sup> To illustrate, the amount of land destroyed was roughly equal to the size of the country of Japan. The bushfires also killed or displaced an estimated three billion animals, destroying large swaths of ecological habitat and irreparably damaging the populations of threatened and endangered species.<sup>296</sup> Communities in the affected area experienced economic impacts as a result of the disaster, which included losses due to destroyed property, loss of income from tourism and natural resources, and healthcare costs associated with the fire including respiratory illnesses.<sup>297</sup> In addition, local farmers lost livestock and timber, adding to the economic effects.<sup>298</sup> Estimates put the total cost at \$20–\$40 billion including direct and economic losses.<sup>299</sup> Despite the widespread damage, fortunately, only 33 people died.<sup>300</sup> However, smoke inhalation may have contributed to an estimated 417 additional deaths and thousands of hospitalizations.<sup>301</sup>

Communication challenges and widespread degradation of air quality contributed to the complexity of this disaster. For instance, information-sharing systems in Australia are unique to the jurisdiction and seldom compatible, comparable, or interoperable.<sup>302</sup> Additionally, the fires degraded air quality throughout the affected region and into adjacent populated areas, such as Sydney, which experienced “81 days of poor or hazardous air quality in 2019,” and Canberra, which had particulate concentrations “four-times higher than the World Health Organization guidelines.”<sup>303</sup>

---

<sup>295</sup> Royal Commission into National Natural Disaster Arrangements, 5.

<sup>296</sup> Royal Commission into National Natural Disaster Arrangements, 5.

<sup>297</sup> Royal Commission into National Natural Disaster Arrangements, 5.

<sup>298</sup> Filkov et al., “Australia’s Catastrophic 2019/20 Bushfire Season,” 53.

<sup>299</sup> Filkov et al., 54–55.

<sup>300</sup> Royal Commission into National Natural Disaster Arrangements, *Interim Observations*, 5.

<sup>301</sup> Filkov et al., “Australia’s Catastrophic 2019/20 Bushfire Season,” 53.

<sup>302</sup> Royal Commission into National Natural Disaster Arrangements, *Interim Observations*, 12.

<sup>303</sup> Filkov et al., “Australia’s Catastrophic 2019/20 Bushfire Season,” 53.

Indigenous people were particularly vulnerable before the bushfires began. A significant number of indigenous people lived in the area affected by these bushfires; however, they represented a minority of the overall population, or about 5.4 percent of the people living near the fires.<sup>304</sup> In addition, a large proportion of the indigenous people were children, leading to concerns about long-term health effects on these populations.<sup>305</sup> Indigenous populations, including Australian Aboriginal and Torres Strait Islander people, have historically experienced racism, which increased their vulnerability.<sup>306</sup>

The disaster response authorities held by the Commonwealth of Australia during national emergencies are unclear, as are general disaster roles and responsibilities.<sup>307</sup> Additionally, the current Australian disaster management arrangements are challenged in national disasters; as they lack a method to involve the prime minister or others in national leadership positions, the coordination of strategic sharing and placement of resources can be problematic.<sup>308</sup> As a result, the Royal Commission into National Natural Disaster Arrangements recommends that the national government “overhaul” the national arrangements for disaster coordination and management with a focus on decision-making authorities, involvement of elected officials, and a “robust and accountable national coordination mechanism.”<sup>309</sup> In this disaster, the Australian government’s emergency management agency coordinated response and recovery efforts.<sup>310</sup> In addition, the

---

<sup>304</sup> Bhiamie Williamson, Francis Markham, and Jessica Weir, “Aboriginal Peoples and the Response to the 2019–2020 Bushfires,” Working Paper No. 134/2020 (Canberra: Centre for Aboriginal Economic Policy Research, Australian National University, 2020), 11, <https://doi.org/10.25911/5e7882623186c>.

<sup>305</sup> Williamson, Markham, and Weir, 11.

<sup>306</sup> Joan Cunningham and Yin C. Paradies, “Patterns and Correlates of Self-Reported Racial Discrimination among Australian Aboriginal and Torres Strait Islander Adults, 2008–09: Analysis of National Survey Data,” *International Journal for Equity in Health* 12 (2013): 47, <https://doi.org/10.1186/1475-9276-12-47>.

<sup>307</sup> Royal Commission into National Natural Disaster Arrangements, *Interim Observations*, 11.

<sup>308</sup> Royal Commission into National Natural Disaster Arrangements, 9.

<sup>309</sup> Royal Commission into National Natural Disaster Arrangements, *Royal Commission into National Natural Disaster Arrangements Report* (Canberra: Royal Commission into National Natural Disaster Arrangements, 2020), 74, <https://naturaldisaster.royalcommission.gov.au/system/files/2020-11/Royal%20Commission%20into%20National%20Natural%20Disaster%20Arrangements%20-%20Report%20%20%5Baccessible%5D.pdf>.

<sup>310</sup> Royal Commission into National Natural Disaster Arrangements, *Interim Observations*, 7–8.

National Aerial Firefighting Centre, under the Australasian Fire and Emergency Service Authorities Council, coordinated resource-sharing for this wildfire.<sup>311</sup>

The unpredictability of the wildfires and personnel and equipment shortfalls hindered the response to this disaster. Moreover, Australian government reports pointed out that “bushfire behaviour has become more extreme and less predictable.”<sup>312</sup> Many of the emergency responders that supported the response to these fires were volunteers operating under varying standards and levels of training—and not protected by legal immunity or compensated for lost wages.<sup>313</sup> Ultimately, the government provided some pay and support to volunteer firefighters during the disaster, but immunities and employment protections are under consideration.<sup>314</sup> Australian military forces also supported the response; however, the national government did not activate military support until January 2020, well after the catastrophic effects of the disaster were known.<sup>315</sup> In addition, international governments delivered monetary support and deployed firefighters and aircraft to support the Australian response to the wildfires.<sup>316</sup>

The scarce firefighting resources appear to have been distributed equitably. Prime Minister Morrison established the National Bushfire Recovery Agency in January 2020 to support the recovery from this disaster and distribute \$2 billion in funds and other support for planning community engagement.<sup>317</sup> However, the national government provided disparate support across jurisdictions for enabling recovery and returning to normal

---

<sup>311</sup> Royal Commission into National Natural Disaster Arrangements, 8.

<sup>312</sup> Royal Commission into National Natural Disaster Arrangements, 5.

<sup>313</sup> Royal Commission into National Natural Disaster Arrangements, 20.

<sup>314</sup> Royal Commission into National Natural Disaster Arrangements, 20.

<sup>315</sup> Royal Commission into National Natural Disaster Arrangements, *Interim Observations*, 11; Tahnee Burgess et al., *Black Summer: Australian Newspaper Reporting on the Nation’s Worst Bushfire Season* (Melbourne: Monash Climate Change Communication Research Hub, 2020), 20, <https://www.monash.edu/mcccrh/research/black-summer-australian-newspaper-reporting-of-the-nations-worst-bushfire-season>.

<sup>316</sup> “Australia Fires: How the World Has Responded to the Crisis,” BBC News, January 8, 2020, <https://www.bbc.com/news/world-australia-51024904>.

<sup>317</sup> “About,” National Bushfire Recovery Agency, accessed September 1, 2020, <https://www.bushfire.recovery.gov.au/about>.

functions, including “variability in the level of collaboration and coordination in the delivery of recovery programs and services.”<sup>318</sup>

## **1. Disinformation, Misinformation, and Malinformation Effects**

Much of the conversation on media and social media platforms about this disaster related to climate change; 49 percent of media articles about the fires focused on this topic.<sup>319</sup> Additionally, researchers Tahnee Burgess et al. reveal that “in rank order, the most common narratives in the coverage of Black Summer were: triumph of humanity (18%), unstoppable power of nature (17%), loss of biodiversity (12%), health and fires (11%) and failure of planning (10%).”<sup>320</sup>

Both misinformation and disinformation spread on social media platforms following the disaster. For example, a widely shared satellite photo described as depicting this disaster was actually the cumulative effect of bushfires over the course of about a year.<sup>321</sup> Other misinformation photos showed red-tinted clouds that users claimed represented the fires through the cloud cover and an image portraying a family sheltering from the wildfire, which was later attributed to a Tasmanian family in 2013.<sup>322</sup> Additionally, several instances of misinformation included statements that reflected climate denialism, including dismissals of the science demonstrating changes in the earth’s climate or human activities as the source of these changes. Approximately 5 percent of the news that examined climate change reflected denialism statements.<sup>323</sup> Some of these

---

<sup>318</sup> Royal Commission into National Natural Disaster Arrangements, *Interim Observations*, 22.

<sup>319</sup> Burgess et al., *Black Summer*, 2.

<sup>320</sup> Burgess et al., 2.

<sup>321</sup> AFP Australia, “This Virtual Image of the Australian Bushfires Was Created Using NASA Data—It’s Not a Satellite Photo,” AFP Fact Check, January 6, 2020, <https://factcheck.afp.com/virtual-image-australian-bushfires-was-created-using-nasa-data-its-not-satellite-photo>.

<sup>322</sup> AFP Australia, “These Photos Have Circulated in Reports about Sunsets over Hawaii and Australia since at Least 2016,” AFP Fact Check, January 6, 2020, <https://factcheck.afp.com/these-photos-have-circulated-reports-about-sunsets-over-hawaii-and-australia-least-2016>; AFP Australia, “This Photo Shows a Family Taking Refuge after a Wildfire Hit Tasmania, Australia in 2013,” AFP Fact Check, January 2, 2020, <https://factcheck.afp.com/photo-shows-family-taking-refuge-after-wildfire-hit-tasmania-australia-2013>.

<sup>323</sup> Burgess et al., *Black Summer*, 2.

narratives included assertions that climate change is not real or that experts are unreliable, that Australians are not to blame, that the consequences are not significant, or that the future outlook is bleak.<sup>324</sup> Similarly, disinformation examples described climate protesters as out of control. Researchers Tahnee Burgess et al. have described this messaging as follows:

This narrative negatively represents protests and frames climate change as a highly politicised issue predominantly supported by inner-city protestors. This narrative focused on the actions of those in cities and framed their actions as selfish, hysterical, inconsiderate or illegal. The narrative represents the actions of protestors as disproportionate and proposes an agenda for them that is unrelatable to the reader.<sup>325</sup>

Researchers Derek Weber et al. also found the following disinformation circulating via Twitter:

- The bushfires were caused by arson;
- preventative backburning efforts were reduced due to green activism;
- Australia commonly experiences such bushfires; and
- climate change is not related to bushfires.<sup>326</sup>

Other members of the Twitter community countered this disinformation by leveraging social media.<sup>327</sup> Nevertheless, research shows that both social bots and trolls amplified the tag #ArsonEmergency to spread messages of disinformation about arson causing the fires.<sup>328</sup> While the goal of these disinformation campaigns is unclear, presumably, they aimed to cause confusion, conflict, and polarization.<sup>329</sup>

Both misinformation and disinformation ultimately contributed to civil unrest, including demonstrations against the government's policies and actions related to climate change. It further divided the public and political views on the severity of climate change,

---

<sup>324</sup> Burgess et al., 14–15.

<sup>325</sup> Burgess et al., 22.

<sup>326</sup> Weber et al., “#ArsonEmergency and Australia’s ‘Black Summer,’” 2.

<sup>327</sup> Weber et al., 2.

<sup>328</sup> Weber et al., 2.

<sup>329</sup> Weber et al., 3.

a volatile topic, and exacerbated polarization, which could undermine a democratic government.

## **2. Social, Economic, and Political Effects on Democracy**

This disaster negatively affected the social and economic institutions of Australia. Lasting mental health issues resulted from the combination of the drought, followed by bushfires, followed by the COVID-19 pandemic.<sup>330</sup> Evacuations, loss of homes and businesses, and short-notice evacuations caused mental trauma for survivors.<sup>331</sup> The effects of the wildfire smoke have yet to be seen but are anticipated to cause long-term harm, including increased disease and premature death.<sup>332</sup> Moreover, direct economic losses and consequences in sectors such as tourism, hospitality, and agriculture significantly affected the economy of Australia.<sup>333</sup> These direct damages to the economy are estimated at \$5.6 billion and are combined with an estimated \$2 billion in long-term health costs.<sup>334</sup> It is too early to determine whether this disaster will have a long-term effect on Australia's economy, but the long-term health costs are likely to continue to tax the economy in the coming years. Unlike unanticipated or surprising disasters, the effects of the wildfires on Australian citizens and their democracy will be drawn out over time with potential destabilizing ripples into the future due to the long-term nature of mental health challenges and public health issues.

Political institutions in Australia maintained legitimacy, as demonstrated through citizen support and attentiveness. However, citizens blamed the national government for failing to prevent the bushfires by curbing climate change and for offering poor leadership in their time of need.<sup>335</sup> Additionally, Burgess et al. found that “just under 12% of overall articles blamed the Coalition government for exacerbating the fires through lack of climate

---

<sup>330</sup> Royal Commission into National Natural Disaster Arrangements, *Interim Observations*, 24.

<sup>331</sup> “Ten Impacts of the Australian Bushfires,” United Nations Environment Programme, January 22, 2020, <http://www.unenvironment.org/news-and-stories/story/ten-impacts-australian-bushfires>.

<sup>332</sup> United Nations Environment Programme.

<sup>333</sup> Royal Commission into National Natural Disaster Arrangements, *Interim Observations*, 5.

<sup>334</sup> Royal Commission into National Natural Disaster Arrangements, 5.

<sup>335</sup> Burgess et al., *Black Summer*, 12.

action, lack of leadership or lack of funding to the State or Territory Rural Fire Services.”<sup>336</sup> Protesters gathered in the thousands to advocate action about climate change, which has been linked to the fires.<sup>337</sup> Despite these protests, the government has not implemented policies for climate action.<sup>338</sup> In fact, the government has implemented policies to promote natural gas production as a strategy for economic recovery following the effects of COVID-19 in 2020, which will add to national emissions.<sup>339</sup> These protests demonstrate the capacity of civil society to spur changes in national energy policies and strategies; these group movements are a sign of an active civil society, which is an essential component of a functioning democracy. However, the lack of government climate action or policy change indicates that civil society has not successfully influenced the political arena.

Trust in Prime Minister Morrison and the government eroded for some in Australia following the disaster. Critics assert that the prime minister failed to anticipate the crisis and was slow to respond.<sup>340</sup> Following the disaster, many citizens perceived that Morrison was leading poorly, exemplified by his family vacation to Hawaii in the midst of the bushfires.<sup>341</sup> His support in the polls dropped sharply because of the disaster.<sup>342</sup> However, as a result of his response to the subsequent COVID-19 emergency, his approval ratings increased significantly.<sup>343</sup> Additionally, according to Edelman’s analysis, trust in the Australian government fell following the fires among the informed public but remained the

---

<sup>336</sup> Burgess et al., 2.

<sup>337</sup> “Australia Climate Change: Thousands Rally in Sydney amid Bushfires,” BBC News, December 11, 2019, <https://www.bbc.com/news/world-australia-50748419>.

<sup>338</sup> “Australia,” Climate Action Tracker, September 22, 2020, <https://climateactiontracker.org/countries/australia/>.

<sup>339</sup> “What Will Australia’s Gas-Led Recovery Mean for the Country’s Carbon Emissions?,” Australian Broadcasting Company, September 23, 2020, <https://www.abc.net.au/news/2020-09-24/impact-of-gas-led-recovery-australias-carbon-emissions/12688564>.

<sup>340</sup> “Australia Fires: What’s Being Done to Fight the Flames?,” BBC News, January 23, 2020, <https://www.bbc.com/news/world-australia-51008051>.

<sup>341</sup> Burgess et al., *Black Summer*, 8.

<sup>342</sup> Daniel Flitton, “Morrison Struggles amidst His Bushfire Response,” *Asia Unbound* (blog), February 3, 2020, <https://www.cfr.org/blog/morrison-struggles-amidst-his-bushfire-response>.

<sup>343</sup> Frances Mao, “Scott Morrison: How Australia’s PM Rebuilt His Reputation,” BBC News, May 19, 2020, <https://www.bbc.com/news/world-australia-52703265>.

same among the mass population.<sup>344</sup> Prior to the fires, Edelman's Trust Index scored Australia at 68 points among the informed public, an all-time high.<sup>345</sup> However, the survey also reported that citizens viewed the government as the least competent and ethical vis-à-vis other institutions such as media or businesses.<sup>346</sup> Despite conversations that could potentially destabilize Australia's democracy, including critiques of the national government's leadership in the disaster—specifically the prime minister and erosion of trust in the national government—the government generally remained stable, according to surveys.

### **3. Conclusions**

Although the effects on the citizens of Australia were relatively low compared to other recent wildfire disasters, such as wildfires affecting the United States, the number of hectares burned and the destruction of the ecological environment render this disaster one of the most significant in recent times. Complexity components of this disaster stem from the nature of wildfire and confusing roles and responsibilities within Australian disaster management arrangements. Indigenous people were disproportionately affected by the disaster due to preexisting racism and vulnerabilities. Other citizens may suffer long-term health effects because of exposure to wildfire smoke. Additionally, resource shortfalls challenged the response, despite international and military support.

This disaster affected all aspects of civil society in Australia through the widespread environmental and public health impacts. The mental and public health effects of the disaster, lost businesses and agricultural land, and the ongoing threat of further losses due to increased building, drought, and climate change will continue to affect social and economic structures of Australia's democracy in the future. Related misinformation and disinformation highlighted the discourse around climate change—and the purported arsonists who had caused the wildfires—with the aim of sowing confusion and deepening

---

<sup>344</sup> Edelman, *Edelman Trust Barometer 2020: Trust in Australia* (Chicago: Edelman, 2020), <https://www.edelman.com.au/research/edelman-trust-barometer-2020>.

<sup>345</sup> Edelman.

<sup>346</sup> Edelman.

polarization to affect the civil and political components of democracy in Australia. Despite the erosion of trust in the prime minister's leadership combined with misinformation and disinformation, the government retained legitimacy.

As a result, Australian democracy survived. The *Economist's* Intelligence Unit ranks Australia as tied with the Netherlands for ninth in its 2020 Democracy Index, making Australia a *full democracy*.<sup>347</sup> Similarly, Freedom House's 2020 report also ranks Australia as *free*, but dropping one point from the previous year's ranking because of Australian Federal Police raids on the media, which damaged the nation's free and independent media score.<sup>348</sup> Despite the disruptions of the wildfires, Australia's democracy remains strong.

### C. UNITED STATES: COVID-19 RESPONSE

The global coronavirus disease 2019 (COVID-19) pandemic has had far-reaching effects across all nations, ranging from direct health and medical threats to citizens to cascading economic and other consequences of public health measures such as stay-at-home orders. As of January 11, 2021, the United States had over 22 million confirmed cases of COVID-19 and over 360,000 deaths.<sup>349</sup> As of March 17, 2021, the United States has one of the highest confirmed cumulative cases in the world at close to 89,000 cases per million people.<sup>350</sup>

The World Health Organization (WHO) first became aware of an emerging disease involving respiratory effects in Wuhan, China, on December 31, 2019.<sup>351</sup> By early January 2020, Chinese authorities had determined that a novel coronavirus was the source of this viral pneumonia, and by the end of the month, researchers had determined that it could

---

<sup>347</sup> Economist Intelligence Unit, *Democracy Index 2020*, 9.

<sup>348</sup> "Freedom in the World 2020: Australia," Freedom House, accessed February 15, 2021, <https://freedomhouse.org/country/australia/freedom-world/2020>.

<sup>349</sup> "WHO Coronavirus (COVID-19) Dashboard," World Health Organization, accessed March 17, 2021, <https://covid19.who.int>.

<sup>350</sup> "Statistics and Research: Coronavirus (COVID-19) Cases," Our World in Data, accessed October 20, 2020, <https://ourworldindata.org/covid-cases>.

<sup>351</sup> "Timeline: WHO's COVID-19 Response," World Health Organization, accessed September 2, 2020, <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/interactive-timeline>.

potentially spread between individuals.<sup>352</sup> The virus was first detected in the United States in late January 2020.<sup>353</sup> By the end of February, the disease had spread across the country through community transmission.<sup>354</sup> On February 11, the disease known as severe acute respiratory syndrome associated coronavirus, or SARS-CoV-2, gained a new name when the “WHO announced that the disease caused by the novel coronavirus would be named COVID-19.”<sup>355</sup> One month later, on March 11, the WHO characterized the crisis as a pandemic due to its “alarming levels of spread and severity.”<sup>356</sup> It spread quickly across the globe, prompting closures of schools, restriction of movement, and other public health measures aimed at slowing or stopping its spread.

The U.S. strategy for reducing the effects of the pandemic has been to increase testing capabilities, detect new cases, conduct contact tracing, and implement social distancing and quarantine measures.<sup>357</sup> The federal government also implemented international travel restrictions aimed at preventing the disease from entering the United States, and travelers experienced disruptions and quarantines while traveling on cruise ships.<sup>358</sup> As COVID-19 spread, state governors enacted extensive closures of schools, businesses, and other parts of the economy.<sup>359</sup> Most have reopened sectors of the economy, and many school districts have returned to in-person classes, but most have requirements in place to slow the spread such as social distancing and mask mandates.<sup>360</sup> The economic

---

<sup>352</sup> World Health Organization.

<sup>353</sup> Erin K. Stokes et al., “Coronavirus Disease 2019 Case Surveillance—United States, January 22–May 30, 2020,” *Morbidity and Mortality Weekly Report* 69, no. 24 (2020): 759–65, <https://doi.org/10.15585/mmwr.mm6924e2>.

<sup>354</sup> Michelle A. Jorden et al., “Evidence for Limited Early Spread of COVID-19 within the United States, January–February 2020,” *Morbidity and Mortality Weekly Report* 69, no. 22 (2020): 680–84, <https://doi.org/10.15585/mmwr.mm6922e1>.

<sup>355</sup> World Health Organization, “Timeline: WHO’s COVID-19 Response.”

<sup>356</sup> World Health Organization.

<sup>357</sup> Anne Schuchat, “Public Health Response to the Initiation and Spread of Pandemic COVID-19 in the United States, February 24–April 21, 2020,” *Morbidity and Mortality Weekly Report* 69, no. 18 (2020): 551, <https://doi.org/10.15585/mmwr.mm6918e2>.

<sup>358</sup> Schuchat, 553.

<sup>359</sup> “See How All 50 States Are Reopening (and Closing Again),” *New York Times*, accessed June 18, 2020, <https://www.nytimes.com/interactive/2020/us/states-reopen-map-coronavirus.html>.

<sup>360</sup> “See How All 50 States Are Reopening.”

consequences of the disaster have continued to accrue, with job losses skyrocketing and unemployment rates near 15 percent.<sup>361</sup> Government spending on the response combined with loss of tax revenues led to a record deficit of \$3.1 trillion for fiscal year 2020.<sup>362</sup>

Some citizens were vulnerable before the disaster because of their age and medical risk factors, living situations, socioeconomic status, race or ethnicity, and gender. For example, those most vulnerable to severe health effects or death have included “older adults” and “people with medical conditions” such as diabetes, cancer, or lung disease.<sup>363</sup> Additionally, individuals living in congregate settings—such as those experiencing homelessness, living in nursing homes or other long-term care facilities and group homes, or experiencing incarceration—are at an increased risk for infection.<sup>364</sup> Moreover, researchers Patel et al. assert that people of low socioeconomic status are more likely to have unstable incomes or work in positions that are unlikely to allow for social distancing, are more likely to reside in crowded living conditions, and are less likely to obtain healthcare at an early stage of the disease; these circumstances increase the risk of contracting COVID-19 or experiencing severe disease within this demographic.<sup>365</sup> About 34 million people, or about 10.5 percent of the population, in the United States live in poverty.<sup>366</sup> In addition, people from racial and ethnic minority groups in the United States are more likely to experience discrimination, lack healthcare access, or live or work in

---

<sup>361</sup> Anneken Tappe, “Record 20.5 Million American Jobs Lost in April. Unemployment Rate Soars to 14.7%,” CNN, May 8, 2020, <https://www.cnn.com/2020/05/08/economy/april-jobs-report-2020-coronavirus/index.html>.

<sup>362</sup> Jim Zarroli, “\$3.1 Trillion: Pandemic Spending Drives the Federal Budget Deficit to a Record,” NPR, October 16, 2020, <https://www.npr.org/sections/coronavirus-live-updates/2020/10/16/924582156/-3-1-trillion-pandemic-spending-drives-the-federal-budget-deficit-to-a-record>.

<sup>363</sup> “People at Increased Risk,” Centers for Disease Control and Prevention, January 4, 2021, <https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/index.html>.

<sup>364</sup> Centers for Disease Control and Prevention.

<sup>365</sup> J. A. Patel et al., “Poverty, Inequality and COVID-19: The Forgotten Vulnerable,” *Public Health* 183 (June 2020): 110–11, <https://doi.org/10.1016/j.puhe.2020.05.006>.

<sup>366</sup> Jessica Semega et al., *Income and Poverty in the United States: 2019* (Washington, DC: U.S. Census Bureau, 2020), <https://www.census.gov/library/publications/2020/demo/p60-270.html>.

high-risk environments, increasing their risk of getting sick or dying from the virus.<sup>367</sup> The majority of U.S. citizens, around 76.3 percent, identify as white; the largest ethnic group comprises Hispanic or Latino people who represent 18.5 percent of the population.<sup>368</sup> Black, Latino, and other non-white households are more likely to experience hardship in putting food on the table, paying rent, or covering other household expenses during this disaster.<sup>369</sup> Many Americans believe that racial inequality exists in the United States and that racial or ethnic discrimination, less access to high-paying jobs, and less access to a quality education are aspects of racism.<sup>370</sup> Finally, gender discrimination also exists in the United States, with 42 percent of women reporting gender-related discrimination as well as unequal pay in the workplace.<sup>371</sup> Similar to systemic racism or socioeconomic status, discrimination based on gender can increase the risk of contracting the virus or suffering from its effects.

The federal response to this pandemic was marked by confusing roles and responsibilities as well as unclear and varying authorities. On January 29, 2020, President Trump announced that the newly formed President's Coronavirus Task Force would lead the federal government's response to the pandemic.<sup>372</sup> Leadership from within various federal agencies formed this task force, which was charged with providing information to the government and public and leading the executive branch's efforts to stop the spread of

---

<sup>367</sup> "Health Equity Considerations and Racial and Ethnic Minority Groups," Centers for Disease Control and Prevention, February 12, 2021, <https://www.cdc.gov/coronavirus/2019-ncov/community/health-equity/race-ethnicity.html>.

<sup>368</sup> "QuickFacts: United States," U.S. Census Bureau, accessed October 20, 2020, <https://www.census.gov/quickfacts/fact/table/US/IPE120219>.

<sup>369</sup> "Tracking the COVID-19 Recession's Effects on Food, Housing, and Employment Hardships," Center on Budget and Policy Priorities, March 10, 2021, <https://www.cbpp.org/research/poverty-and-inequality/tracking-the-covid-19-recessions-effects-on-food-housing-and>.

<sup>370</sup> Juliana Menasce Horowitz, Anna Brown, and Kiana Cox, "Views on Race in America 2019," Pew Research Center, April 9, 2019, <https://www.pewsocialtrends.org/2019/04/09/race-in-america-2019/>.

<sup>371</sup> Kim Parker and Cary Funk, "Gender Discrimination Comes in Many Forms for Today's Working Women," Pew Research Center, December 14, 2017, <https://www.pewresearch.org/fact-tank/2017/12/14/gender-discrimination-comes-in-many-forms-for-todays-working-women/>.

<sup>372</sup> "Statement from the Press Secretary Regarding the President's Coronavirus Task Force," White House, January 29, 2020, <https://trumpwhitehouse.archives.gov/briefings-statements/statement-press-secretary-regarding-presidents-coronavirus-task-force/>.

the virus and mitigate its effects.<sup>373</sup> In the United States, the Department of Health and Human Services (HHS) is the lead federal agency for a pandemic response, and was the initial lead for responding to this pandemic.<sup>374</sup> The Federal Emergency Management Agency (FEMA) also “plays a central role in coordinating our federal support” as the designated agency to “lead the federal response in combating the Coronavirus.”<sup>375</sup> Additionally, the president authorized emergency financial assistance through a disaster declaration.<sup>376</sup> The HHS secretary declared a public health emergency in late January 2020, authorizing financial and other support to state, local, and tribal health departments.<sup>377</sup> The Stafford Act, administered by FEMA, supplemented HHS authorities in the first ever nationwide emergency disaster declaration for all states, five territories, and the District of Columbia, as well as 32 tribal nations.<sup>378</sup> Last, the Department of the Treasury has administered the Coronavirus Aid, Relief, and Economic Security Act and the Coronavirus Response and Relief Supplemental Appropriations Act of 2021, which provide financial support to individuals, businesses, and governments.<sup>379</sup> The federal government’s response to the disaster was complicated by the multitude of operational coordination structures combined with differing and sometimes overlapping financial and funding authorities.

The U.S. response to COVID-19 has been largely ineffective. The faulty and insufficient national testing capacity prevented the detection of COVID-19 and hampered

---

<sup>373</sup> White House.

<sup>374</sup> “Examining the National Response to the Worsening Coronavirus Pandemic,” Federal Emergency Management Agency, accessed March 7, 2021, <https://www.fema.gov/fact-sheet/examining-national-response-worsening-coronavirus-pandemic>.

<sup>375</sup> “Coordinating the Federal Response,” Department of Homeland Security, March 11, 2021, <https://www.dhs.gov/coronavirus/federal-response>.

<sup>376</sup> Department of Homeland Security.

<sup>377</sup> “Secretary Azar Declares Public Health Emergency for United States for 2019 Novel Coronavirus,” Department of Health and Human Services, January 31, 2020, <https://www.hhs.gov/about/news/2020/01/31/secretary-azar-declares-public-health-emergency-us-2019-novel-coronavirus.html>.

<sup>378</sup> “COVID-19 Disaster Declarations,” Federal Emergency Management Agency, March 12, 2021, <https://www.fema.gov/disasters/coronavirus/disaster-declarations>.

<sup>379</sup> “The Treasury Department Is Delivering COVID-19 Relief for All Americans,” Department of the Treasury, accessed January 11, 2021, <https://home.treasury.gov/policy-issues/cares>.

initial efforts to prevent its spread.<sup>380</sup> Personal protective equipment (PPE) has also been in short supply throughout the response, an outcome of the combination of increased demand and international competition, offshore manufacturing, and an underfunded, understocked Strategic National Stockpile.<sup>381</sup> The National Resource Prioritization Cell was established to help allocate the scarce PPE available, and the federal government implemented strategies such as preserving supplies and expanding available resources.<sup>382</sup> Last, the medical infrastructure has been unable to support the number of seriously ill, and nursing home residents have not been adequately protected.<sup>383</sup> These shortfalls in medical capacity have prompted several states to issue their own medical ethical guidance, called crisis standards of care, each containing different standards for the ethical prioritization and treatment of patients.<sup>384</sup>

The actions of leadership and the disjointed response hampered the government's efforts to support the response to this pandemic. President Trump continuously downplayed the seriousness of the virus, predicting that it would disappear, promoting disinformation, and undermining the wearing of masks.<sup>385</sup> Each state was responsible for developing and implementing decisions on closing and reopening government and economic functions, resulting in a patchwork of decisions about protective actions across the nation.<sup>386</sup> Messaging around the effectiveness of wearing masks to slow or reduce the

---

<sup>380</sup> Michael D. Shear et al., "The Lost Month: How a Failure to Test Blinded the U.S. to Covid-19," *New York Times*, April 1, 2020, <https://www.nytimes.com/2020/03/28/us/testing-coronavirus-pandemic.html>.

<sup>381</sup> Daniel Joseph Finkenstadt, Robert Handfield, and Peter Guinto, "Why the U.S. Still Has a Severe Shortage of Medical Supplies," *Harvard Business Review*, September 17, 2020, <https://hbr.org/2020/09/why-the-u-s-still-has-a-severe-shortage-of-medical-supplies>.

<sup>382</sup> "Coronavirus (COVID-19) Pandemic: Supply Chain Stabilization Task Force," Federal Emergency Management Agency, accessed October 29, 2020, <https://www.fema.gov/fact-sheet/coronavirus-covid-19-pandemic-supply-chain-stabilization-task-force>.

<sup>383</sup> David Leonhardt and Lauren Leatherby, "The Unique U.S. Failure to Control the Virus," *New York Times*, August 8, 2020, <https://www.nytimes.com/2020/08/06/us/coronavirus-us.html>.

<sup>384</sup> Emily C. Cleveland Manchanda, Charles Sanky, and Jacob M. Appel, "Crisis Standards of Care in the USA: A Systematic Review and Implications for Equity amidst COVID-19," *Journal of Racial and Ethnic Health Disparities* (2020): 1–13, <https://doi.org/10.1007/s40615-020-00840-5>.

<sup>385</sup> Leonhardt and Leatherby, "The Unique U.S. Failure to Control the Virus."

<sup>386</sup> Ally J. Levine, "State by State, COVID-19 Grinds U.S. to a Halt," Reuters, March 24, 2020, <https://graphics.reuters.com/HEALTH-CORONAVIRUS-USA/0100B5LQ46H/index.html>.

spread of the disease was inconsistent and confusing and, combined with inconsistent messages from leadership, led to many individuals refusing to wear masks.<sup>387</sup>

This disaster endures, and the United States continues to experience growth of the virus. Some states have successfully reopened schools, daycare centers, and retail outlets to support economic recovery while others have struggled to do so safely and been forced to close again.<sup>388</sup> The government has also invested billions of dollars in vaccine development domestically in the hopes of further reopening the economy and returning to pre-COVID-19 activities.<sup>389</sup>

### **1. Disinformation, Misinformation, and Malinformation Effects**

Social media has been used to share information widely throughout the COVID-19 response. Although the availability of information benefits individuals and helps disseminate public health messages, the United Nations and the WHO have recognized that it can also be problematic, calling the abundance of information as well as spread of disinformation about the virus an “infodemic.”<sup>390</sup> They describe the effects of misinformation and disinformation on the current response as follows:

Misinformation costs lives. Without the appropriate trust and correct information, diagnostic tests go unused, immunization campaigns (or campaigns to promote effective vaccines) will not meet their targets, and the virus will continue to thrive. Furthermore, disinformation is polarizing public debate on topics related to COVID-19; amplifying hate speech; heightening the risk of conflict, violence and human rights violations; and threatening long-term prospects for advancing democracy, human rights and social cohesion.<sup>391</sup>

---

<sup>387</sup> Leonhardt and Leatherby, “The Unique U.S. Failure to Control the Virus.”

<sup>388</sup> “See How All 50 States Are Reopening.”

<sup>389</sup> “Explaining Operation Warp Speed,” Department of Health and Human Services, August 12, 2020, <https://health.mo.gov/living/healthcondiseases/communicable/novel-coronavirus-lpha/pdf/fact-sheet-operation-warp-speed.pdf>.

<sup>390</sup> “Managing the COVID-19 Infodemic: Promoting Healthy Behaviours and Mitigating the Harm from Misinformation and Disinformation,” World Health Organization, September 23, 2020, <https://www.who.int/news/item/23-09-2020-managing-the-covid-19-infodemic-promoting-healthy-behaviours-and-mitigating-the-harm-from-misinformation-and-disinformation>.

<sup>391</sup> World Health Organization.

In a recent study of traditional media, including engagement on social platforms, Evanega et al. identified 11 misinformation topics, including miracle cures, the most common topic, and government conspiracy or “deep state” activities, conspiracies about the origin of the disease as a bioweapon, and connections to individuals like Bill Gates or technologies such as 5G.<sup>392</sup> These researchers also determined that leaders, specifically President Trump, contributed significantly to the spread of misinformation, along with groups and individuals.<sup>393</sup> In an effort to combat misinformation and disinformation, FEMA has developed a webpage to combat specific rumors as well as encourage users to look for trusted sources and think before spreading unverified information.<sup>394</sup>

Messaging that is clear, consistent, and accurate is critical to the success of public health efforts to mitigate and slow the spread of a pandemic like COVID-19. Misinformation and disinformation exacerbate fear and anxiety, confuse the public, and influence individuals to take actions that are damaging to themselves or other citizens.<sup>395</sup> State actors seeking to undermine the United States and other democracies use disinformation to achieve these goals, and non-state actors such as terrorist groups have used these tactics to recruit followers or encourage religious conversion.<sup>396</sup> Misinformation and disinformation in the COVID-19 disaster have deepened national divides and weakened public health measures, as well as sown confusion and distrust, thereby degrading the democratic functions of political and civil society in the United States.

---

<sup>392</sup> Sarah Evanega et al., “Coronavirus Misinformation: Quantifying Sources and Themes in the COVID-19 ‘Infodemic’” (Ithaca, NY: Cornell University, September 2020), 4.

<sup>393</sup> Evanega et al., 7.

<sup>394</sup> “Coronavirus Rumor Control,” Federal Emergency Management Agency, accessed October 29, 2020, <https://www.fema.gov/disasters/coronavirus/rumor-control>.

<sup>395</sup> Zapan Barua et al., “Effects of Misinformation on COVID-19 Individual Responses and Recommendations for Resilience of Disastrous Consequences of Misinformation,” *Progress in Disaster Science* 8 (December 2020): 100119, <https://doi.org/10.1016/j.pdisas.2020.100119>.

<sup>396</sup> “NATO’s Approach to Countering Disinformation: A Focus on COVID-19,” North Atlantic Treaty Organization, July 17, 2020, <http://www.nato.int/cps/en/natohq/177273.htm>.

## 2. Social, Economic, and Political Effects on Democracy

The negative short- and long-term social effects of COVID-19, including mental health and economic concerns, are challenging American democracy. For instance, mental health challenges and related issues, such as addiction and suicide, have risen significantly as a result of the pandemic.<sup>397</sup> Domestic violence and child abuse and neglect are also on the rise, fueled by stress, barriers to reporting, and economic instability.<sup>398</sup> Additionally, burnout among medical workers and other front-line staff is significant, especially for less-experienced staff or those coping with supply shortages.<sup>399</sup> Typical social activities such as group gatherings or parties and dining out have also slowed or stopped, though some visits with close family or friends have continued.<sup>400</sup> In addition to changes in social habits, religious worship has shifted to online or virtual from in-person services.<sup>401</sup> These trends have resulted in social isolation and loneliness for many citizens, especially adolescents and older adults, resulting in widespread consequences for mental health.<sup>402</sup> In some areas of the United States, however, social trust and responsibility have contributed to the effectiveness of public health measures, such as mask wearing.<sup>403</sup> The civil society of an effective democracy requires strong social connections, yet public health measures have required such things as social distancing and curtailed organizations and groups from gathering, thereby exacerbating mental health issues. Nevertheless, in some areas, social trust and responsibility have contributed to an effective response.

---

<sup>397</sup> Nirmita Panchal et al., “The Implications of COVID-19 for Mental Health and Substance Use,” Kaiser Family Foundation, February 10, 2021, <https://www.kff.org/coronavirus-covid-19/issue-brief/the-implications-of-covid-19-for-mental-health-and-substance-use/>.

<sup>398</sup> Megan L. Evans, Margo Lindauer, and Maureen E. Farrell, “A Pandemic within a Pandemic—Intimate Partner Violence during Covid-19,” *New England Journal of Medicine* 383, no. 24 (2020), <https://doi.org/10.1056/NEJMp2024046>.

<sup>399</sup> Panchal et al., “The Implications of COVID-19.”

<sup>400</sup> “Most Americans Say Coronavirus Outbreak Has Impacted Their Lives,” Pew Research Center, March 30, 2020, <https://www.pewsocialtrends.org/2020/03/30/most-americans-say-coronavirus-outbreak-has-impacted-their-lives/>.

<sup>401</sup> Pew Research Center.

<sup>402</sup> Panchal et al., “The Implications of COVID-19.”

<sup>403</sup> Bill McKibben, “What Vermont and Its History Might Teach the Nation about Handling the Coronavirus,” *New Yorker*, July 28, 2020, <https://www.newyorker.com/news/daily-comment/what-vermont-and-its-history-might-teach-the-nation-about-handling-the-coronavirus>.

The economic effects of this disaster on the United States have yet to be fully quantified. Shortages of workers, diminishing demand for goods produced by the agricultural sector, and travel restrictions and social distancing requirements significantly disrupted the hospitality, aviation, and travel industries.<sup>404</sup> Additionally, citizens altered their habits and demands, affecting global supply chains, decreasing the demand for oil, and reducing enrollment in educational institutions.<sup>405</sup> Other aspects of the economy such as sporting and leisure and even healthcare institutions have been altered as well.<sup>406</sup> Lauren Bauer et al. found that those most affected by the disaster include vulnerable populations such as “women, non-white workers, lower-wage earners, and those with less education.”<sup>407</sup> Non-essential small businesses whose employees could not work remotely were acutely affected by the restrictions imposed by the government to slow the spread of the virus.<sup>408</sup> These disruptions have led to steep drops in the nation’s GDP and have resulted in an economic recession.<sup>409</sup> The effects of these economic challenges on individuals were manifest in food insecurity—magnified by panic-buying, strains in the supply chain, the high cost of food, the lack of income, and interruptions to normal safety nets such as school lunches or food deliveries to vulnerable populations.<sup>410</sup> The rates of food insecurity or low food security has doubled from pre-pandemic rates, prompting the implementation of government programs to address these issues, such as increased funding to compensate for school meals lost when the schools closed.<sup>411</sup> Homelessness has been expected to rise due to economic consequences and unemployment, with some estimating

---

<sup>404</sup> Maria Nicola et al., “The Socio-Economic Implications of the Coronavirus Pandemic (COVID-19): A Review,” *International Journal of Surgery* 78 (June 2020): 185–93, <https://doi.org/10.1016/j.ijssu.2020.04.018>.

<sup>405</sup> Nicola et al.

<sup>406</sup> Nicola et al.

<sup>407</sup> Lauren Bauer et al., “Ten Facts about COVID-19 and the U.S. Economy,” Brookings Institute, September 17, 2020, <https://www.brookings.edu/research/ten-facts-about-covid-19-and-the-u-s-economy/>.

<sup>408</sup> Bauer et al.

<sup>409</sup> Bauer et al.

<sup>410</sup> Nicola et al., “The Socio-Economic Implications of the Coronavirus Pandemic.”

<sup>411</sup> Bauer et al., “Ten Facts about COVID-19 and the U.S. Economy.”

that nearly 250,000 people became homeless in 2020 alone.<sup>412</sup> Although the economic effects of this disaster on democracy are not yet known, vulnerable populations have been disproportionately affected based on their race, gender, and socioeconomic status, and national-level economic losses are significant and may serve to disrupt democratic functions in the United States.

Voters were sometimes divided by political party on views of the federal government's response to COVID-19, and trust in government agencies, institutions, and leadership fell, thereby affecting the political institutions of the United States. Public opinion of the nation's response was the lowest of 14 advanced economies surveyed in 2020, with 52 percent of respondents stating that the government had "done a bad job dealing with the coronavirus outbreak."<sup>413</sup> Before the pandemic, the citizens of the United States were slightly distrustful, with the Edelman Trust Barometer reporting an average of 49 percent trust in non-governmental organizations, businesses, government, and the media in 2019.<sup>414</sup> Trust in the United States initially increased during this disaster, with a six-point increase in trust between the Edelman Trust Barometer results from January 2020 and the spring update in May.<sup>415</sup> However, initial reports in 2021 have shown a drop below pre-disaster levels, with this organization reporting an average trust score of 48 percent.<sup>416</sup> Furthermore, trust in government agencies such as the Centers for Disease Control and

---

<sup>412</sup> Joy Moses, "COVID-19 and the State of Homelessness," *National Alliance to End Homelessness* (blog), May 19, 2020, <https://endhomelessness.org/covid-19-and-the-state-of-homelessness/>.

<sup>413</sup> "COVID-19 Response Approved by Most in 14 Nations with Advanced Economies," Pew Research Center, August 27, 2020, <https://www.pewresearch.org/global/2020/08/27/most-approve-of-national-response-to-covid-19-in-14-advanced-economies/>.

<sup>414</sup> Kisha Stokes, *2019 Edelman Trust Barometer: Global Report* (Chicago: Edelman, 2019), [https://www.edelman.com/sites/g/files/aatuss191/files/2019-02/2019\\_Edelman\\_Trust\\_Barometer\\_Global\\_Report.pdf](https://www.edelman.com/sites/g/files/aatuss191/files/2019-02/2019_Edelman_Trust_Barometer_Global_Report.pdf).

<sup>415</sup> Edelman, *2020 Edelman Trust Barometer—Spring Update: Trust and the Covid-19 Pandemic* (Chicago: Edelman, 2020), <https://www.edelman.com/sites/g/files/aatuss191/files/2020-05/2020%20Edelman%20Trust%20Barometer%20Spring%20Update.pdf>.

<sup>416</sup> Edelman, *Edelman Trust Barometer 2021: Global Report* (Chicago: Edelman, 2021), <https://www.edelman.com/sites/g/files/aatuss191/files/2021-01/2021-edelman-trust-barometer.pdf>.

Prevention and the Food and Drug Administration has fallen during this public health crisis because of inconsistent messaging and the perception of political interference.<sup>417</sup>

Initially, the country was divided on President Trump's handling of COVID-19, with 50 percent of those responding to an April 2020 Gallup poll approving and 48 percent disapproving.<sup>418</sup> These results were split across party lines, with a large majority of Republicans and a minority of Democrats approving of Trump's handling of the crisis, and 47 percent of independents approving.<sup>419</sup> COVID-19 combined with racial injustice protests across the country led to President Trump's approval ratings falling to 39 percent by June 2020.<sup>420</sup> Although it is unclear whether the pandemic directly influenced voters' choices, President Trump was voted out of office in November 2020.<sup>421</sup> Despite voters' describing the pandemic as an important issue for the nation, surveys show that the relative importance of the disaster divided along party lines and that President Trump may have received more votes in some of the areas most affected by the pandemic—though causation is unknown for voter support in these localities.<sup>422</sup> As demonstrated through these national elections, the pandemic has deepened political divides in the country, with issues such as mask wearing and social distancing breaking along party lines.<sup>423</sup> A large majority—77 percent—of those surveyed think that the United States is more divided than before

---

<sup>417</sup> Selena Simmons-Duffin, "Trust in CDC and FDA Is at a Low," NPR, September 25, 2020, <https://www.npr.org/2020/09/25/917014322/trust-in-cdc-and-fda-is-at-a-low>.

<sup>418</sup> Jeffrey M. Jones, "Americans Divided on Trump's Handling of COVID-19 Situation," Gallup, April 30, 2020, <https://news.gallup.com/poll/309593/americans-divided-trump-handling-covid-situation.aspx>.

<sup>419</sup> Jones.

<sup>420</sup> Jeffrey M. Jones, "Trump Job Approval Slides to 39%," Gallup, June 10, 2020, <https://news.gallup.com/poll/312572/trump-job-approval-slides.aspx>.

<sup>421</sup> "2020 Electoral College Results," National Archives, accessed January 11, 2021, <https://www.archives.gov/electoral-college/2020>.

<sup>422</sup> Sean McMinn and Rob Stein, "Many Places Hard Hit by COVID-19 Leaned More toward Trump in 2020 Than 2016," NPR, October 6, 2020, <https://www.npr.org/sections/health-shots/2020/11/06/930897912/many-places-hard-hit-by-covid-19-leaned-more-toward-trump-in-2020-than-2016>.

<sup>423</sup> Stephanie Soucheray, "US Polls Show Partisan Divide in Attitudes to COVID-19," Center for Infectious Disease Research and Policy, May 22, 2020, <https://www.cidrap.umn.edu/news-perspective/2020/05/us-polls-show-partisan-divide-attitudes-covid-19>.

COVID-19.<sup>424</sup> Additionally, some point out that the restrictions on movement and fewer social interactions could exacerbate political divisions.<sup>425</sup> Political institutions in the United States have maintained legitimacy, as demonstrated through citizen support and attentiveness, but the disaster has negatively affected components of civil support for the national government, including trust and political divisions.

### **3. Conclusions**

The expansive individual and societal effects of COVID-19 both internationally and in the United States suggest that it may be one of the most significant disasters in history. The complexity of this disaster is related to the global interconnectedness of society and economies as well as the significant disruptions caused by measures taken to slow the spread of the virus. Some U.S. citizens are more vulnerable to these disaster consequences because of their socioeconomic status, ethnicity, or gender; pre-existing medical conditions; or congregate living conditions—all of which have increased the risk of contracting the virus. Despite executive-level leadership and support from federal and state emergency management and public health departments and agencies, the U.S. response to COVID-19 has been ineffective. Necessary supplies were unavailable to protect medical providers and vulnerable populations, and surges in COVID-19 patients overwhelmed the medical infrastructure. National leadership provided the public with confusing and disjointed messaging and ultimately left actions and decisions to each state, resulting in a patchwork of response actions. Although modern societies are highly connected, a lack of a strong national government response to this pandemic has created the conditions for disparate public health responses and increased the negative effects on vulnerable populations. This ineffective response has the potential to reduce the stability of the U.S. democracy as the disaster endures—or even subsides.

---

<sup>424</sup> Pew Research Center, “COVID-19 Response Approved.”

<sup>425</sup> Callum Borchers, “How the Pandemic May Be Making Political Bubbles Worse,” WBUR News, November 6, 2020, <https://www.wbur.org/news/2020/11/06/pandemic-election-political-bubbles>.

The closures and economic restrictions implemented because of COVID-19 affected all aspects of civil society in the United States, including public health, economic functions, and political polarization. The mental and public health effects of the disaster, economic losses, business closures, and the unknown timeline and mechanism for returning to normal continue to affect social and economic structures; the long-term outcome of this disaster is unknown. Misinformation and disinformation campaigns were prevalent in this disaster and amplified by the president, resulting in increased anxiety and confusion, decreased trust, and deepened polarization, all of which affect the political component of American democracy. Despite this polarization and the social and economic effects of the disaster combined with misinformation and disinformation, as of this writing, the government has retained legitimacy—but trust has decreased.

Despite retaining legitimacy, the democracy of the United States is showing signs of decline. Freedom House categorized the United States as *free* in its 2020 analysis, despite acknowledging the recent erosion of democratic institutions such as disparate opportunities, systemic biases, and electoral manipulation.<sup>426</sup> Similarly, the *Economist's* Intelligence Unit downgraded the United States to a *flawed democracy* in 2016, where it remained in 2020.<sup>427</sup> Despite gains in political participation, the United States lost ground in social cohesion with deepening political and social divides, growing conspiracy theories fueled by social media, and constrained freedom of expression on social media platforms.<sup>428</sup> In its *Democracy Index 2020*, the *Economist's* Intelligence Unit describes the effects of the pandemic on democracy as increasing political participation because of the politicization of the disaster, while also contributing to the selective suppression of content by social media platforms.<sup>429</sup> It is too soon to say whether the U.S. democracy will be resilient enough to survive these challenges, but early signs point to conditions ripe for

---

<sup>426</sup> “Freedom in the World 2020: United States,” Freedom House, accessed February 15, 2021, <https://freedomhouse.org/country/united-states/freedom-world/2020>.

<sup>427</sup> Economist Intelligence Unit, *Democracy Index 2020*, 9, 43.

<sup>428</sup> Economist Intelligence Unit, 44–45.

<sup>429</sup> Economist Intelligence Unit, 44–45.

further democratic decline because of political and social divides and the effects of social media on society.

#### **D. CASE STUDY ANALYSIS**

False information and complex disasters compounded vulnerabilities, disrupted societal structures, and exceeded national capacities to provide for the basic needs of citizens. This comparative case study analysis revealed a weakened democracy in the United States yet stable democracies in Australia and Japan. Each of these disasters triggered significant disruptions to national social, economic, and political systems required by a fully functioning democracy. Although all governments examined maintained legitimacy following their respective disasters, national leaders and governments lost credibility and trust. In addition, these disasters and the effects of mis-, dis-, and mal-information disrupted the social and economic institutions of democracy through wide-ranging effects on citizens—especially vulnerable populations—including societal disruptions, degraded social structures, and economic losses combined with significant disaster-related expenses. This section analyzes the consequences of these disasters and false information on the institutions of democracy in these countries.

Table 1 summarizes the effects of the disaster and mis-, dis-, and mal-information on the democracy of each case study, with a focus on the social, economic, and political institutions. It shows that the disaster's effects were widespread and that misinformation and disinformation were detected in each case. Finally, it shows the relative effects on democracy using a low, moderate, and high scale while also describing these effects.

Table 1. Comparative Case Study Summary

| Case                           | Disaster Effects                                                             | Mis-, Dis-, and Mal-Information Effects | Effects on Democratic Institutions                                                                                                 |
|--------------------------------|------------------------------------------------------------------------------|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| <b>Japan: 3/11</b>             | All citizens affected; volunteer and community groups supported the response | Misinformation and disinformation       | <i>Moderate Social Effects:</i> public and mental health                                                                           |
|                                |                                                                              |                                         | <i>High Economic Effects:</i> demonstrated economic recovery                                                                       |
|                                |                                                                              |                                         | <i>Moderate Political Effects:</i> national political trust eroded, local trust increased; new and confusing disaster coordinators |
| <b>Australia: Wildfires</b>    | The environment affected; volunteers supported the response                  | Misinformation and disinformation       | <i>Low Social Effects:</i> public and health                                                                                       |
|                                |                                                                              |                                         | <i>Moderate Economic Effects:</i> unknown recovery                                                                                 |
|                                |                                                                              |                                         | <i>Moderate Political Effects:</i> citizens advocated policy changes, confusing roles and responsibilities for disaster response   |
| <b>United States: COVID-19</b> | Society and citizens affected: response ineffective and disjointed           | Misinformation and disinformation       | <i>High Social Effects:</i> public mental health effects; social responsibility undermined by national leaders                     |
|                                |                                                                              |                                         | <i>High Economic Effects:</i> unknown recovery                                                                                     |
|                                |                                                                              |                                         | <i>Moderate Political Effects:</i> polarization increased; confusing roles and responsibilities for disaster response              |

## 1. Disaster Effects

Each of these disasters exhibited unique complexity factors that resulted in significant social and environmental harm and resulted in considerable government and community involvement in the disaster response. For example, the global nature and unknown transmission and treatment for COVID-19 shaped all aspects of society; this uncertainty marked it as different from most other natural disasters, as did the economic consequences and significant death toll. Similarly, the unpredictability of the catastrophic bushfires in Australia as well as the widespread damages to the environment and degraded public health affected citizens well beyond the burn areas. In Japan, the number of lives lost and people displaced combined with lasting economic impacts altered the country, while in Australia, the damages to the landscape and sensitive ecosystems left lasting scars. Although the complexity factors differ, this research finds common themes of

unpredictability for the disaster effects and outcomes that altered the environment and people of these countries.

In all three disasters, vulnerable populations were disproportionately affected in comparison to other members of the population. Vulnerable citizens included the elderly and people living in poverty in Japan and in the United States. Additionally, populations experiencing discrimination and preexisting medical conditions were at heightened risk in the U.S. and Australian disasters. These vulnerable populations had decreased power and were less able to adapt to the social and economic disruptions of the disasters, exposing societal divides and challenging social relationships and structures. In each of these disasters, societal weaknesses highlighted by these vulnerable populations threaten to degrade the social relationships and structures necessary for a functioning democracy.

The severity of the disaster, including complicating factors and significant response requirements, exceeds the capacity of the government and community responders to deliver required resources in each of these cases. In Japan, assistance to disaster survivors was delayed by degraded communication and transportation systems as well as complications resulting from the cascading nature of the earthquake, tsunami, and ultimately the meltdown at the Fukushima nuclear power plant. Similarly, stay-at-home orders and social distancing requirements interrupted the economy and supply chains, preventing individuals affected by COVID-19 in the United States from obtaining essential goods and services, such as food, housing, and medical care. These disruptions complicated the national government's disaster response in both Japan and the United States. Additionally, shortfalls in their national response capacities required the deployment of international support to augment response efforts in Japan and Australia. Similarly, the national military was activated in support of the government's response in all three disasters. The government's request for international resources and activation of the national military—thereby degrading readiness for a conflict—illustrate that typical local and national assets were insufficient to meet the needs of each disaster. Due to these resource shortfalls, the wellbeing of citizens was negatively affected, as government and community groups were unable to provide for the basic needs of some individuals affected by these disasters.

While the U.S. response to COVID-19 was viewed as ineffective, the responses in Japan and Australia were generally viewed as successful, despite significant complications and resource shortfalls. Unlike the United States, both Japan and Australia benefitted from volunteer and community group support of the governments' disaster response efforts. In addition, the extent of the disaster and proximity of citizens to the destruction affected individual views of disaster response effectiveness. For example, the pandemic in the United States was unique among these three disasters because it significantly affected all citizens in the country. As a result, volunteer and other aid groups that would normally augment the federal government's disaster response were largely unavailable. In both Japan and Australia, on the other hand, volunteers and community groups played a significant role in providing disaster relief. Additionally, although devastating to the burned area, the wildfires were not an immediate or personal threat to many living in Australia. In contrast, the earthquake, tsunami, and nuclear power plant disaster in Japan directly or indirectly affected most Japanese citizens. Although many considerations contribute to citizen perceptions of a national government's response to a catastrophic disaster, the complexity, system disruptions, proximity, and extent of the disaster are leading factors. Similarly, citizens' perceptions of the effectiveness of a national disaster response are influenced by how well their basic needs are met by the government and volunteer or community aid group resources.

These disaster responses were unpredictable and complicated, and included disruptions of people and the environment, including disproportionate effects on vulnerable individuals. Ultimately, citizens' perceptions of the disaster response were influenced by the extent of disruptions, resource availability, and community support.

## **2. Disinformation, Misinformation, and Malinformation Effects**

False information that spread on social media in each of these disasters confused individuals and undermined effective government responses by disrupting the sensemaking and meaning-making processes that are essential to societal stabilization. Misinformation was the most common type of information disorder observed in these disasters; however, disinformation was also present. Japan's 3/11 disaster was the first large-scale incident in

which social media played a significant role in the sensemaking process for those both affected by the disasters and living outside the impact area. The false information that spread in this disaster caused confusion and anger among the citizens, centering on the effects and safety following the Fukushima plant meltdown. The utility responsible for the nuclear emergency contributed to the turmoil by spreading disinformation about Prime Minister Kan to shift blame to the government and failing to reveal information about the severity of the crisis at Fukushima.

Since the 2011 disaster in Japan, social media platforms have continued to play a significant role in disasters, including both the Australian bushfires and the COVID-19 pandemic. Rumors spread in the United States that the danger of the pandemic was exaggerated, and misleading photos of the fires and climate denialism circulated in Australia. Misinformation was also spread by individuals and leaders such as President Trump, whose communications and meaning-making weakened efforts to slow the spread of the virus in the United States, by politicizing public health measures such as wearing masks in public areas. Additionally, users spread disinformation that the Australian bushfires were set by arson to create a negative narrative about climate protesters, resulting in confusion and polarization. Last, state-sponsored disinformation was distributed in the United States about COVID-19, with the goal of undermining trust, causing confusion, and deepening national divides. The mis-, dis-, and mal-information encountered during these disasters caused confusion and anger, eroded the credibility of leaders, decreased trust, and deepened polarization and societal divides, which damaged the social and political institutions of these national democracies.

Despite the challenges of false information spread during these disasters, however, state legitimacy was maintained. These democracies resisted destabilization because each government and others, such as media platforms and individuals, countered confusing and polarizing false information by correcting rumors or supplying accurate information on platforms as part of the sensemaking process. Additionally, governments, leaders, and prominent citizens participated in meaning-making efforts, facilitating continued support from citizens. Social media, while a platform for the spread of false information, also enabled the sensemaking and meaning-making processes.

False information contributed to confusion, anger, polarization, and distrust. However, these effects were countered by corrective sensemaking and meaning-making processes.

### **3. Social, Economic, and Political Effects on Democracy**

Despite the magnitude of disaster damages and the effects of misinformation and disinformation, each of these governments have maintained legitimacy. However, democracy was challenged in each country because of the effects of the disasters and mis-, dis-, and mal-information on the social, economic, and political institutions that are required to sustain democracy. Despite the disruptions caused by these disasters and the spread of false information, the democracies of both Japan and Australia remained strong and fully functional. These states did not sustain lasting damage to democratic consolidation. Although it is too early to know whether the democracy of the United States will withstand the challenges of COVID-19, political and social divides exacerbated by pervasive misinformation and disinformation and propagated on social media may have long-term effects on its society and democracy. These democracies and their institutions were each affected by these disasters, yet at this time, all have maintained legitimacy and remained fully functioning.

In each of these cases, vulnerabilities in the population, combined with disaster-caused mental and public health effects and degraded social structures, delayed national stabilization. For example, the pandemic caused social isolation and loneliness as well as burnout in medical and front-line workers in the United States, and the virus also led to widespread public health challenges. Similarly, friends and neighbors were displaced by the tsunami, and concerns about the long-term effects of radiation exposure in Japan affected public and mental health in the country. Last, evacuations caused mental trauma and displaced individuals in Australia, and the smoke from the wildfires is expected to cause long-term public health issues. These disasters degraded social institutions by undermining social relationships, challenging mental health, and creating long-term public health threats.

Despite these effects on mental and public health and social structures, however, the beliefs and actions of residents upheld these social institutions. In each of these cases, citizens assisted states in maintaining legitimacy. For example, following the earthquake and tsunami in Japan, a spotlight was put on social cohesion and cultural norms that encouraged stabilization and whole-of-community support through volunteers and neighborhood groups, enabling Japan to recover from this disaster. Similarly, the Australian disaster response was manned primarily by organized volunteer firefighters engaging the community in the disaster response. In some parts of the United States, actions inspired by social responsibility, such as wearing masks, helped to slow the spread of COVID-19. However, simultaneously, national leaders politicized public health measures, and polarization grew within the populace, thereby undermining social cohesion. Although the effects of a disaster on citizens—especially vulnerable populations—degrade the effectiveness of the social institutions of a democracy, social cohesion and community involvement in the disaster response efforts enhanced these institutions and helped all three democracies retain legitimacy.

The economic institutions of each of these countries were affected by societal disruptions and large national expenditures aimed at helping to rebuild and recover from the disasters. In the United States, business closures and lost revenue disrupted the economy because of public health measures aimed to slow the spread of the virus. Additionally, national funding enabled the purchase of equipment and supplies as well as spurred research and development of vaccines and funding of social programs. On the other hand, economic losses in Japan and Australia were the result of physical damages to homes, businesses, and infrastructure as well as business losses, yet government programs funded the basic needs of affected individuals. Japan's economy has rebounded since the 2011 disaster; however, it is too early to say whether the Australian or U.S. economies will similarly rebound. Democracies benefit from stable economies, which were disrupted by these disasters. In these cases, disruptions to economic institutions have not yet caused democratic decline because each country enacted national economic recovery initiatives, such as supplemental or social program funding, contributing to societal stabilization and citizen support of the state.

Support of leadership and trust in national governments fell in each of these cases because citizens perceived national leaders and governments as ineffective. Citizens expect government leaders to manage the response to a crisis, especially when the result is chaos and uncertainty in the wake of a complex disaster. Additionally, public opinion and support before the crisis influence support of leaders and the government after a disaster. For example, the Japanese and Australian prime ministers and U.S. president all faced low public opinion before these disasters. Afterward, citizens continued to disapprove of Japanese Prime Minister Kan as well as the response of the national government, which was viewed as ineffective, poorly managed, and contributing to fear and uncertainty, especially following the radiological effects of the disaster. Local political leaders in Japan, on the other hand, were generally described as effective and gained strength following the disaster. Citizens also continued to disapprove of Prime Minister Morrison's leadership in Australia as well as the overall government response; however, protesters advocated policy changes on climate change rather than to the political system. Likewise, support for President Trump fell in the United States; he led an unsuccessful bid at reelection during the pandemic.

In addition, confusion within national governments damaged the public's perception of the effectiveness of the disaster response; this was the case in each of these disasters. For example, the Japanese government responded with new coordinating bodies, causing confusion. Similarly, new coordinating entities were established in the United States to support the pandemic, and roles and responsibilities between federal organizations were unclear. Additionally, disaster response roles, responsibilities, and authorities in Australia were confusing, and the response was viewed as delayed and ineffective at using the full resources of the government. Citizen perceptions of leaders and national government action or inaction in response to these disasters, combined with confusion and loss of trust, damaged the political institutions in each case. However, despite these damages, each state maintained its legitimacy because it engaged in meaning-making processes, citizens continued to provide support, and in some cases, voters turned their attention to electing new leaders.

The democracies of Japan and Australia remain strong, but there are concerning signs in the United States; it is too early to know the long-term effect of the pandemic on its democracy. Public and mental health effects from all three disasters were countered by social cohesion and community involvement. Each economy was affected; Japan has recovered while economic recovery remains to be seen in the United States and Australia. Trust and support of leadership were eroded in each case, and confusing disaster coordination structures or responsibilities amplified damages to political institutions; however, meaning-making and citizen support contributed to sustained legitimacy.

## **IV. FINDINGS, RECOMMENDATIONS, AND FUTURE RESEARCH**

This thesis explored the effects of complex disasters, the resilience and vulnerability of the population, the quality of the response, and the influences of mis-, dis-, and mal-information on the social, political, and economic institutions of a democracy. To this end, it included a comparative case study analysis of the 2011 Tōhoku earthquake, tsunami, and nuclear power plant disaster in Japan; the Australian wildfires of 2019–2020; and the ongoing COVID-19 response in the United States that began in 2020. The analysis of these case studies concluded that socially constructed legitimacy can be undermined by forces that amplify and intensify existing social divides and create instability, including false information and disasters that alter the environment and social structures. However, governments and individuals can support democratic legitimacy by countering disruptions caused by false information and disasters. This support is accomplished through sensemaking and constructive meaning-making, building social relationships and cohesion, enhancing community involvement in disaster response, and taking actions to stabilize the situation that provide for the basic needs of survivors and societal recovery.

This thesis set out to explain how democratic governments could maintain legitimacy after a catastrophic disaster in the age of mis-, dis-, and mal-information. It finds that these effects combine to exacerbate societal divides and weaknesses that undermine trust, and ultimately degrade democratic institutions. This thesis recommends that democratic governments build trust and enhance online and in-person communities and networks to enable an effective disaster response and counter the effects of false information through a model of social disaster response.

### **A. FINDINGS**

As described by Linz and Stepan, social, economic, and political institutions, along with other conditions such as bureaucracy and rule of law, are required to maintain the

legitimacy of a state.<sup>430</sup> The resilience of a state is enabled by trust, which is viewed through the lens of citizen support and attentiveness because the legitimacy of democratic institutions is socially constructed. However, both government resilience and democratic legitimacy are challenged by individual vulnerabilities, political divides, societal weaknesses, and poor leadership. The democratic states reviewed in these case studies each maintained legitimacy. Despite the disruptions caused by these disasters and the spread of false information, the democracies of both Japan and Australia remain strong and fully functional. These states did not sustain lasting damage to democratic consolidation; however, the long-term effects of the pandemic on the democracy of the United States remain to be seen.

Table 2 summarizes the primary findings of this thesis, drawing from the literature review and case studies to identify themes that sustain democratic legitimacy in a disaster when false information is spread. These primary findings involve trust; leadership in a crisis; and community-building through social capital, social responsibility, and support of human rights or equity.

Table 2. Primary Findings

| Theme                                                  | Finding                                                                                                                                                                                                                                                                                                                                            |
|--------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Trust                                                  | Inadequate or disorganized disaster responses, ineffective leadership, and false information undermine trust in governments and leaders, degrading democracy. Effective disaster response—which includes meeting the basic needs of citizens—builds trust.                                                                                         |
| Leadership in a Crisis: Sensemaking and Meaning-Making | Leaders contribute to building trust through the meaning-making and sensemaking processes, such as through online communities and social media platforms.                                                                                                                                                                                          |
| Communities                                            | Communities are undermined by severe and complex disasters, degraded public and mental health, and online polarization. Disparities between vulnerable and resilient populations and divides that are exacerbated online highlight societal weaknesses. However, online communities can also form, contributing to an effective disaster response. |
| Social Capital, Social Responsibility, and Adaptation  | Disaster responders support an effective community recovery by reestablishing social capital, encouraging social responsibility, and adapting to the needs of individuals and communities.                                                                                                                                                         |

<sup>430</sup> Linz and Stepan, *Problems of Democratic Transition and Consolidation*, 40.

## **1. Trust**

Inadequate or disorganized disaster response, ineffective leadership, and false information undermine trust in governments and leaders, degrading democracy. Democratic legitimacy is socially constructed by individuals and communities and closely related to trust; democracies are more resilient and less likely to undergo a regime change when citizen trust or satisfaction with government support is high. Without a successful disaster response, individuals and communities could withdraw their support of the government, leadership, or political parties. As a result, democratic legitimacy or the power of political elites weakens. National responses were hampered in each case by citizen perceptions of poor leadership, compounded by confusing roles and responsibilities, new coordination structures, and the spread of false information online. The analysis of the case studies revealed that citizens in each of these disasters perceived national leadership in the disasters as ineffective, thus eroding trust. A successful disaster response combined with credible and effective leadership enables the stability of a democratic state.

Effective disaster response—which includes meeting the basic needs of citizens—builds trust. Governments and community responders are expected to manage complex disasters effectively and meet basic needs such as shelter, food, and water. Collaboration between the government and community responders is especially important when disasters cause system disruptions and lead to significant resource shortfalls. Disaster-related system interruptions are complicating factors that contribute to incident complexity, and individual perceptions of the disaster are related to the extent of the disaster and individual proximity to it. The magnitude of survivor requirements in each of the cases exceeded the capacity of governments and volunteer and community responders to meet citizens' basic needs, harming those individuals and disrupting social structures. The analysis of the cases revealed that despite significant complications and resource shortfalls, citizens in two of the three countries viewed the management of these disasters as effective, which may have been influenced by the extent of damages and their proximity. These disasters undermined citizens' trust in their governments, yet these states continued to perform essential functions and sustained legitimacy through the provision of direct assistance and economic recovery initiatives, including disaster relief funds, to meet the basic needs of citizens.

In summary, citizen trust and support enable democratic legitimacy and are enhanced by an effective disaster response to extensive and complex disasters. Trust in government was eroded in these cases by disorganized and confusing disaster responses and false information spread online about the disasters and government leadership. Despite the complexity of these disaster responses, citizens viewed the management of these disasters as effective in two of the three cases, and each of these governments maintained its legitimacy.

## **2. Crisis Leadership**

Leaders contribute to building trust through the meaning-making process, including through online communities and social media platforms. The description of effective crisis leadership by Boin et al. is particularly apt:

[When] an emerging crisis is swiftly detected, responders understand what is happening, critical decisions are made by the right people, the efforts of responders are orchestrated, government communicates with its citizens, and the aftermath of a crisis is marked by proper accountability and a willingness to collectively learn the lessons of that crisis.<sup>431</sup>

Fulfilling these responsibilities lends credibility to leaders, who can leverage their influence to shape the opinions of citizens and communities to enhance legitimacy through the steps that Boin et al. describe—sensemaking, decision-making and coordinating, meaning-making, accounting, and learning.<sup>432</sup> National leaders leverage the process of meaning-making to inspire confidence and enhance their credibility. In each of the case studies discussed in this thesis, however, citizens lost trust in their national leaders because of decisions made, inaction, or poor communications. These national leaders failed to engage in a positive, effective, or timely meaning-making process. As a result, some of these leaders lost power. Despite degraded support of prominent national government leadership in each of the cases, these democratic states maintained their legitimacy because the governments allowed citizens to voice their concerns through freedom of speech and enabled voters to make leadership changes through free and fair elections.

---

<sup>431</sup> Boin et al., *The Politics of Crisis Management*, 3.

<sup>432</sup> Boin et al., 14–15.

Leaders also contribute to building trust through the sensemaking process. Leaders, citizens, and responder networks increasingly conduct sensemaking online by leveraging social media platforms. These tools are used before, during, and after a disaster to understand and share information rapidly about the complex environment. In all three of the disaster cases, online platforms contributed to the sensemaking process; however, these platforms enabled the spread of mis-, dis-, and mal-information, which disrupted this process. Additionally, the president of the United States undermined the sensemaking process in the COVID-19 pandemic by spreading misinformation and disputing the messages of public health experts. Humans are prone to confusion or reaction to these forces because of reinforcement from cognitive biases, information overload, and ambiguous information shared online through techniques such as comingling news and entertainment content. Additionally, humans communicate through storytelling, and social media platforms provide opportunities for individuals and groups to amplify certain messages and stories and engender emotional reactions. Online networks also help to spread false information by leveraging human tendencies to believe information endorsed by family and friends and accept the first information seen on a topic. Options for reducing the effects of mis-, dis-, and mal-information on individuals and society include reducing the flow or reception of false information, enhancing critical-thinking skills, and increasing media literacy. In the cases examined, governments countered false information by correcting online rumors or providing accurate information to aid the sensemaking process.

In sum, leaders build trust with a society by engaging in meaning-making and sensemaking through communications with the public and responders. However, citizen trust and perceptions of leadership are damaged by the spread of misinformation and disinformation. In these cases, leaders provided the public with response resources, enabled free and fair elections, and engaged with communities online to help counter these effects. However, some of these leaders failed to engage effectively in the sensemaking and meaning-making processes, resulting in degraded trust but not a loss of state legitimacy.

### 3. Communities

Communities are undermined by severe and complex disasters, degraded public and mental health, and online polarization. In each case study, the environment and people were significantly affected by unpredictable or complex disasters that altered these nations. Additionally, social relationships were weakened by disaster effects such as mental health challenges and long-term public health consequences, degrading the social institutions of these democracies. Last, citizens were affected by the spread of false information online, which resulted in confusion and undermined trust by manipulating public opinion and targeting societal divides and systemic weaknesses or vulnerabilities. Unfortunately, the case study analysis also demonstrated that misinformation and disinformation disrupted social structures by causing confusion, anger, and polarization, and deepening national divides.

Societal weaknesses are highlighted by disparities between vulnerable and resilient populations and divides that are exacerbated online. A disaster disrupts a community's normal social, political, and economic processes and affects social structures. Vulnerable individuals in the community are more likely to experience loss, and less able to adapt to the situation.<sup>433</sup> For instance, individuals with low socioeconomic status or other risk factors, such as low power status, are unlikely to obtain disaster support because of systemic social roadblocks and a lack of resources to enable adaptation. Resilient individuals, on the other hand, frequently obtain needed resources without government support following a disaster. Each of the case studies exposed unique complexity factors, but common to all three were vulnerable populations affected more severely than others. The effects of a crisis are manifested differently for vulnerable and resilient populations; these disparate effects, combined with societal divides, degrade citizen trust and democratic stability.

Furthermore, self-organizing online communities form in a disaster; these groups are guided by social structures and norms that enable individuals and groups to solve problems through collaboration. These online communities are similar to emergent

---

<sup>433</sup> Tierney, *Disasters*, 143, 171.

responders supporting government response efforts and are particularly important when traditional means of sensemaking are not available because of impacts to communication systems or other constraints. The case studies demonstrated that social media expands disaster networks and communities for both individuals and responders and contributes to an effective disaster response.

In conclusion, the social relationships comprising a community are weakened by disasters that degrade public and mental health and the polarizing effects of false information spreading online. Additionally, an unbalanced distribution of disaster resources and economic recovery packages exacerbates existing societal divides and inequities, thus undermining communities. However, newly formed online communities can contribute to an effective disaster response. The case study analysis demonstrated that disasters disproportionately affected vulnerable populations, polarization disrupted social structures in these counties, and misinformation and disinformation exacerbated national divides.

#### **4. Social Capital, Social Responsibility, and Human Rights or Equity**

Disaster responders support an effective community recovery by reestablishing social capital, encouraging social responsibility, and adapting to the needs of individuals and communities. Additionally, social cohesion and community involvement in disaster response efforts enhance the effectiveness of democratic institutions. The case study analysis revealed that cohesion and cultural norms, social responsibility, volunteerism, and a common purpose or culture contributed to disaster relief efforts and national stabilization. Although this research showed that these factors enhanced disaster response and community resilience in each of these cases, it is unclear whether the national governments studied encouraged their development or they occurred because of other factors such as a shared culture or common societal core values.

Additionally, involving community groups and considering social capital, vulnerability, and resilience in the disaster response are also important for successful national recovery. Responders effectively support citizens by adapting and considering vulnerable and resilient populations' requirements as well as preexisting societal

inequities. Survivor needs, including those of vulnerable populations in a community, are considerable in catastrophic disasters, and resources may be insufficient to meet them, requiring adaptation as well as equitable and ethical allocation of these scarce resources. Equity means that the vulnerability and resilience of individuals and groups within the community are considered and that, to the extent possible, systemic societal inequities are not perpetuated through disaster relief. Systemic inequality issues degrade social relationships and require enhanced support to build resilience, such as development of social cohesion and responsibility in a community and support of individual human rights. After a disaster, individuals within these communities display varying levels of vulnerability and resilience and will require equitable allocation of resources, individual benefits, and improvisation and adaptability.

Overall, the communities that make up a society are bound by social cohesion and social responsibility as well as community involvement in the response to a disaster. These help to reduce polarization and enable community stabilization following a complex disaster. This case study research revealed that social capital and responsibility and community involvement in the disaster response can reduce disruptions to democracies.

## **B. RECOMMENDATIONS**

This research finds that individuals, communities, and democratic institutions are affected by disasters combined with mis-, dis-, and mal-information. These challenges are exacerbated by chaos and uncertainty in the operational environment of a disaster and the online information environment. As a result, citizen trust in the social, economic, and political institutions of a democracy is eroded, damaging the legitimacy and stability of democratic states, as demonstrated by the case studies.

In order to combat these effects on citizens and democracy, responders should deliver an effective disaster response by enacting an equitable, ethical distribution of resources that meets the basic needs of citizens, rapidly adapting to the situation, and clearly communicating. These actions result in the delivery of resources, through funding and direct support, that build citizen trust and support of their governments. Additionally, responders must consider the needs of the community, including individual vulnerabilities,

resilience, and equity, in the disaster response. These actions enhance governmental resilience, enabling democratic states to maintain legitimacy and trust when affected by a crisis such as a disaster or attacks that leverage false information. There is no single method for ensuring resilience or legitimacy; governments must tailor their approaches and be prepared to adapt to new or emerging situations to enhance and support affected communities. This thesis proposes a model for individual, community, and government networks to evaluate the effects of a disaster and false information on democratic institutions and strengthen and uphold the integrity of their democracies in times of crisis.

## **1. Social Response to Disasters Model**

When the core values of a democracy are threatened by a crisis, such as a disaster combined with the spread of false information, shared societal values and the resilience of individuals and communities influence the outcome. The frameworks that made up this thesis include sensemaking, crisis leadership, and the social production of disaster, overlaid with democratic institutions.

This thesis proposes a model that describes disaster responder actions and networks that will effectively sustain democracy when citizens are harmed by the combined forces of severe or catastrophic disasters and mis-, dis-, and mal-information. Kathleen Tierney describes the severity of disasters in terms of their “social production,” emphasizing “social structures and social processes” rather than the physical effects of a disaster.<sup>434</sup> This model builds on Tierney’s principles and the other primary frameworks to propose a *social response to disasters* model, which describes responder actions that enable networks to uphold democratic institutions when challenged by disasters and false information. Each of the model’s components contributes to the culminating goal of maintaining state legitimacy by building trust and resilient communities.

Figure 1 describes the relationship of responder actions—including sensemaking, meaning-making, adaptation, community stabilization, and ethics and equity—to the social, political, and economic institutions of a democracy. Similarly, it describes the

---

<sup>434</sup> Tierney, 66.

relationship of the components of responder networks—volunteers and community responders, online and in-person communities, and governments—to these same institutions.

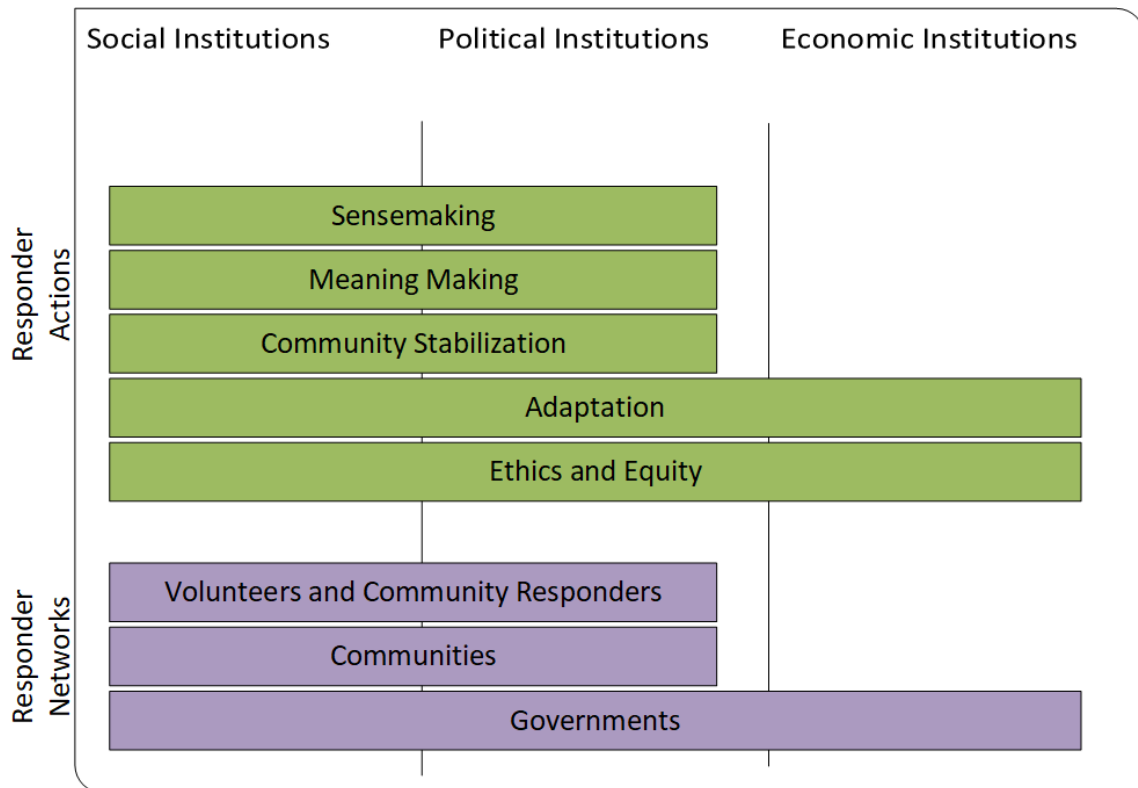


Figure 1. Social Response to Disasters Model

**a. Responder Actions**

When implemented, the responder actions proposed by this model will enhance or maintain legitimacy of the democratic institutions by building trust and enhancing communities. These actions are critical when citizens are affected by the combined forces of complex disasters and false information.

**b. Sensemaking**

Responder networks must develop an understanding of communities to implement an effective and tailored disaster response through sensemaking. These qualities include

the core shared values, cultures, or structures that influence individual perceptions, and societal weaknesses highlighted by vulnerable populations. This understanding reduces confusion and enables effective decision-making by reducing uncertainty. Social media and other online platforms enable information-sharing for sensemaking, contributing to this understanding through a network of individuals reporting information about the disaster and requirements. By tailoring the response, responder networks meet the unique needs of the community, thereby increasing trust. As shown in Figure 1, the sensemaking process recommended by this model contributes to upholding democratic social and political institutions when responders develop a situational understanding of the effects of a disaster and false information on the environment and people.

Sensemaking also supports political institutions by reducing confusion and polarization fostered online. Governments should take actions to support the sensemaking process and increase trust by encouraging media literacy; reducing the monetary benefit for platforms that host false, misleading, or polarizing information; and correcting inaccurate information online. This model recommends that governments, national leaders, and community leaders leverage the sensemaking process to guide online conversations and communities by reducing the flow and reception of mis-, dis-, and mal-information online through critical thinking and online social norms, thereby reducing the polarization that undermines democratic stability.

### *c. Meaning-Making*

Leaders inspire confidence and enhance their credibility through the process of meaning-making, while considering the values, structures, and weaknesses of communities. Boin et al. define meaning-making as “offering a situational definition and narrative that is convincing, helpful, and inspiring to citizens and responders.”<sup>435</sup> This research finds that trust is enhanced when leaders successfully communicate positive meaning-making to citizens. By engaging in meaning-making, leaders can also reduce polarization exacerbated online by mis-, dis-, and mal-information by offering an inspiring

---

<sup>435</sup> Boin et al., *The Politics of Crisis Management*, 15.

narrative. However, false information spread online can also disrupt the process of meaning-making. The model in Figure 1 recommends that leaders engage in an effective meaning-making process with individuals and communities to enhance trust and reduce polarization, which in turn strengthens the social and political institutions necessary for democratic stability.

***d. Community Stabilization***

Developing social structures, with an emphasis on civic engagement and social responsibility, increases citizen trust in governments and their capacity to respond to the disaster. The first step is for responder networks to understand the composition and needs of the community, and the next is to encourage social cohesion, social responsibility, and community involvement in the disaster response. Responders should tailor their disaster response to account for power disparities and social considerations in the community once these factors are understood. Networks of responders should consider community values, such as respect for human rights and dignity, when considering disaster response strategies. These networks should also seek to encourage citizens to adopt social responsibility, which encourages social cohesion and leads to community involvement in the disaster response. Citizens can engage in these actions both online and in person, thereby contributing to the effectiveness of the response and enabling community stabilization. This model recommends that responders act to stabilize communities by developing an understanding of values and community composition that contributes to building strong social structures, and encouraging civic engagement and social responsibility to uphold social and political institutions of a democracy.

***e. Adaptation***

Disasters and false information both disrupt systems and contribute to the complexity of the operational environment. Many disaster coordinating agencies are constrained by policies or regulations that disincentivize adaptation. However, adaptation is essential for building individual and community resilience and decreasing vulnerability, as well as implementing policies in this new and evolving information environment. Additionally, innovation is required when responding to a catastrophic disaster, including

the development of atypical solutions to complex problems such as new capabilities for funding opportunities. Last, social media provides an opportunity for improvisation and adaptation by establishing a new information environment for communicating with citizens. Responders should prepare to adapt to the unpredictable forces of disasters and false information spread on new online platforms, and innovate through atypical and ethical solutions that enable an effective disaster response. This model recommends that responder networks prepare to improvise or rapidly adapt to the urgency and ambiguity of the situation and leverage the new information environment to support the social, political, and economic institutions of a democracy.

*f. Ethics and Equity*

Responder networks must acknowledge and understand the unique qualities of communities, including existing vulnerabilities such as social structures and power imbalances, to provide equitable support to all citizens. Additionally, these networks should seek to understand systemic factors that contribute to individual, group, or community vulnerability and resilience. Establishing this understanding requires significant effort toward coordination and alignment, not just between levels of government but with the whole of community. It also requires an understanding of community structures and values, as well as socioeconomic and other social inequities. Unfortunately, false information spread online exacerbates societal divides and can increase these power imbalances. Understanding these disparities and forces allows governments, leaders, and disaster coordinating agencies to tailor the crisis response to meet citizen and community needs, especially vulnerable individuals.

Responders should use this information to customize processes or capabilities to the needs of the citizens by accounting for social inequalities. Disaster relief funding and social programs should be tailored to the needs of individuals and ensure that government and community-based relief programs are well coordinated and equity-focused. Models such as the crisis standards of care developed by the medical community can provide a template for adaptation while implementing an ethical and equitable response to disasters, adhering to values, and considering the needs of the community. Government and

community groups should be prepared to provide for the basic needs of all individuals through social and other supplemental disaster relief programs that ensure human rights are upheld and equity is considered in providing disaster services. The model in Figure 1 recommends that responder networks adapt their disaster response activities to the structures and vulnerabilities of the community to support the social, political, and economic institutions of a democracy through the ethical and equitable provision of resources.

## **2. Model Implementation by Responder Networks**

Volunteer and community responders, as well as in-person and online communities, contribute to the implementation of this model. They support both the social and political institutions of a democracy. Governments, on the other hand, support the economic and the social and political institutions of a democracy. Typically, governments are the most significant contributor to economic disaster relief funding and recovery programs aimed at stimulating the economy. Together, the disaster response network comprises volunteer and community responders, communities, and governments that support the legitimacy of democratic institutions.

In addition to responding to disasters, responder networks build social capital through civic engagement and cooperation, mobilizing volunteers and community responders. Mobilization is manifested in disasters through emergence, in democracies through citizen engagement, and in the online communities formed on social media platforms. Additionally, social capital can be built through networks and trusted relationships.<sup>436</sup> In particular, Tierney identifies three types of social capital: within a group, between groups, and with governments or other powerful groups.<sup>437</sup> Networks that include all three of these forms of social capital are best postured for success through cooperation and access to resources.<sup>438</sup> Nevertheless, democracies can be undermined by the spread of false information online, as well as societal disruptions such as displacement

---

<sup>436</sup> Tierney, *Disasters*, 176.

<sup>437</sup> Tierney, 176.

<sup>438</sup> Tierney, 177.

of individuals or damage to communities and infrastructure following a disaster. The model in Figure 1 recommends that communities, responders, and governments help reduce these disruptions to democracy by implementing responder actions through social capital formed within these networks via mobilization.

### **3. Implementation Strategies**

The implementation of the social response to disasters model requires collaboration among responder networks to uphold the integrity of their democracies in times of crisis. Before a disaster, these networks should take the following actions:

- Develop and strengthen response networks and build social capital within, outside, and with powerful groups.
- Ensure that pre-disaster planning and policy development include considerations of community culture and values, vulnerabilities and resilience, and historic inequalities.
- Consider models such as the crisis standards of care to enable considerations of ethical and equitable decision-making for application of scarce resources.
- Engage with civil groups and citizens before the disaster to build social structures and encourage resilience through the development of social cohesion and responsibility in a community, support of individual human rights, and mechanisms to support individual capacity to adapt to the stressors of a crisis.
- Ensure that innovation and adaptation are allowed and encouraged within pre-disaster planning and policy frameworks.
- Implement programs that reduce the flow or reception of mis-, dis-, and mal-information and increase critical-thinking skills and media literacy. Consider opportunities to reduce the profit for media platforms that host false, misleading, or polarizing information.

- Develop structures that enable networks to counter false information by correcting online rumors or providing accurate information to aid the sensemaking process and reduce polarization.

While responding to a disaster, responder networks should take the following actions:

- Refine disaster plans to ensure that response strategies consider vulnerability and resilience and that innovation and adaptation are encouraged.
- Understand the effect of disasters on communities through a shared sensemaking process between governments, individuals, and community groups.
- Adapt response strategies to the cultures or community values of those affected by the disaster.
- Leverage data analysis and ethical frameworks to allocate disaster resources equitably when these capabilities are insufficient to meet the needs of citizens and, therefore, require prioritization.
- Ensure that systemic societal inequities are not perpetuated through disaster relief programs or funding.
- Ensure that social capital is not destroyed through displacement and mental health challenges—resulting from the effects of the disaster and the spread of false information—by acknowledging these challenges and providing survivors with robust mental and public health services.

During and after a disaster, responder networks should take the following actions:

- Engage directly with citizens through social media to support sensemaking, shape the narrative through meaning-making, and help counter mis-, dis-, and mal-information effects on the population.
- Coordinate with and support self-organizing online communities to contribute to sensemaking and help solve complex problems.

- Understand community resilience and vulnerability with a focus on equity and human rights to ensure that disaster relief grants are sufficient to meet individual requirements.
- Provide for the basic needs of all individuals through social programs and supplemental disaster relief funds following a disaster.
- Ensure community and government coordination to enable short- and long-term individual and community recovery after a disaster.

### **C. FUTURE RESEARCH**

Although the existing literature describes the importance of social coherence and civic engagement as well as the effect of these structures on communities and individuals after catastrophic disasters, additional research could reveal how to work within a community to build and maintain these structures. Similarly, the role of social responsibility in disasters could be explored further, perhaps using different public health strategies and outcomes for COVID-19. Additionally, as community structures change due to mobile populations and the emergence of mega-cities and other densely populated areas, additional research could be applied to understanding social coherence challenges faced by these transformations. Last, as this thesis is internationally focused, the response to and coordination of transnational disasters and the exploration of social implications, governance structures, and responses to disasters that cross borders in an increasingly connected world could be further explored.

THIS PAGE INTENTIONALLY LEFT BLANK

## LIST OF REFERENCES

- AFP Australia. "These Photos Have Circulated in Reports about Sunsets over Hawaii and Australia since at Least 2016." AFP Fact Check, January 6, 2020. <https://factcheck.afp.com/these-photos-have-circulated-reports-about-sunsets-over-hawaii-and-australia-least-2016>.
- . "This Photo Shows a Family Taking Refuge after a Wildfire Hit Tasmania, Australia in 2013." AFP Fact Check, January 2, 2020. <https://factcheck.afp.com/photo-shows-family-taking-refuge-after-wildfire-hit-tasmania-australia-2013>.
- . "This Virtual Image of the Australian Bushfires Was Created Using NASA Data—It's Not a Satellite Photo." AFP Fact Check, January 6, 2020. <https://factcheck.afp.com/virtual-image-australian-bushfires-was-created-using-nasa-data-its-not-satellite-photo>.
- Allenby, Brad, and Joel Garreau. "Weaponized Narrative Is the New Battlespace." *Defense One*, January 3, 2017. <https://www.defenseone.com/ideas/2017/01/weaponized-narrative-new-battlespace/134284/>.
- Arif, Ahmer, John J. Robinson, Stephanie A. Stanek, Elodie S. Fichet, Paul Townsend, Zena Worku, and Kate Starbird. "A Closer Look at the Self-Correcting Crowd: Examining Corrections in Online Rumors." In *Proceedings of the 2017 ACM Conference on Computer Supported Cooperative Work and Social Computing*, 155–68. Portland: Association for Computing Machinery, 2017. <https://doi.org/10.1145/2998181.2998294>.
- Arif, Ahmer, Kelley Shanahan, Fang-Ju Chou, Yoanna Dosouto, Kate Starbird, and Emma S. Spiro. "How Information Snowballs: Exploring the Role of Exposure in Online Rumor Propagation." In *Proceedings of the 19th ACM Conference on Computer-Supported Cooperative Work & Social Computing*, 466–77. San Francisco: Association for Computing Machinery, 2016. <https://doi.org/10.1145/2818048.2819964>.
- Aung, KhinThandar, Nurul 'Inayatibt, Abdul Rahman, Mohd Said Nurumal, and Nurul 'Ain Ahayalimudin. "Ethical Disaster or Natural Disaster? Importance of Ethical Issue in Disaster Management." *IOSR Journal of Nursing and Health Science* 6, no. 2 (March–April 2017): 90–93. <https://doi.org/10.9790/1959-0602079093>.
- Australian Broadcasting Company. "What Will Australia's Gas-Led Recovery Mean for the Country's Carbon Emissions?" September 23, 2020. <https://www.abc.net.au/news/2020-09-24/impact-of-gas-led-recovery-australias-carbon-emissions/12688564>.

- Avenell, Simon. "From Kobe to Tōhoku: The Potential and the Peril of a Volunteer Infrastructure." In *Natural Disaster and Nuclear Crisis in Japan: Response and Recovery after Japan's 3/11*, edited by Jeff Kingston, 53–77. Abingdon, UK: Routledge, 2012. ProQuest.
- Bandopadhyay, Saptarishi. "After the Storm." Aeon, February 5, 2019. <https://aeon.co/essays/disaster-relief-as-a-threat-to-state-sovereignty>.
- Barua, Zapan, Sajib Barua, Salma Aktar, Najma Kabir, and Mingze Li. "Effects of Misinformation on COVID-19 Individual Responses and Recommendations for Resilience of Disastrous Consequences of Misinformation." *Progress in Disaster Science* 8 (December 2020): 100119. <https://doi.org/10.1016/j.pdisas.2020.100119>.
- Bauer, Lauren, Kristen E. Broady, Wendy Edelberg, and Jimmy O'Donnell. "Ten Facts about COVID-19 and the U.S. Economy." Brookings Institute, September 17, 2020. <https://www.brookings.edu/research/ten-facts-about-covid-19-and-the-u-s-economy/>.
- Bayer, Judit, Natalija Bitiukova, Petra Bard, Judit Szakács, Alberto Alemanno, and Erik Uszkiewicz. *Disinformation and Propaganda—Impact on the Functioning of the Rule of Law in the EU and Its Member States*. Brussels: European Parliament, 2019.
- BBC News. "Australia Climate Change: Thousands Rally in Sydney amid Bushfires." December 11, 2019. <https://www.bbc.com/news/world-australia-50748419>.
- . "Australia Fires: How the World Has Responded to the Crisis." January 8, 2020. <https://www.bbc.com/news/world-australia-51024904>.
- . "Australia Fires: What's Being Done to Fight the Flames?" January 23, 2020. <https://www.bbc.com/news/world-australia-51008051>.
- Bernays, Edward. *Propaganda*. Brooklyn: Ig Publishing, 2004.
- Bodine-Baron, Elizabeth, Todd C. Helmus, Andrew Radin, and Elina Treyger. *Countering Russian Social Media Influence*. Santa Monica, CA: RAND Corporation, 2018. [https://www.rand.org/pubs/research\\_reports/RR2740.html](https://www.rand.org/pubs/research_reports/RR2740.html).
- Boin, Arjen, Paul 't Hart, Eric Stern, and Bengt Sundelius. *The Politics of Crisis Management: Public Leadership under Pressure*. Cambridge: Cambridge University Press, 2016.
- Borchers, Callum. "How The Pandemic May Be Making Political Bubbles Worse." WBUR News, November 6, 2020. <https://www.wbur.org/news/2020/11/06/pandemic-election-political-bubbles>.

- Bradshaw, Samantha, and Philip N. Howard. *The Global Disinformation Order: 2019 Global Inventory of Organised Social Media Manipulation*. Oxford: Computational Propaganda Project, 2019.
- . “Troops, Trolls and Troublemakers: A Global Inventory of Organized Social Media Manipulation.” Working paper, Computational Propaganda Project, 2017.
- Bratu, Sofia. “The Critical Role of Social Media in Crisis Communication.” *Linguistic and Philosophical Investigations* 15 (2016): 232–38.
- Brown, Andrew D., Ian Colville, and Annie Pye. “Making Sense of Sensemaking in *Organization Studies*.” *Organization Studies* 36, no. 2 (February 2015): 265–77. <https://doi.org/10.1177/0170840614559259>.
- Burgess, Tahnee, James R. Burgmann, Stephanie Hall, David Holmes, and Elizabeth Turner. *Black Summer: Australian Newspaper Reporting on the Nation’s Worst Bushfire Season*. Melbourne: Monash Climate Change Communication Research Hub, 2020. <https://www.monash.edu/mcccrh/research/black-summer-australian-newspaper-reporting-of-the-nations-worst-bushfire-season>.
- Carlin, Ryan E., Gregory J. Love, and Elizabeth J. Zechmeister. “Natural Disaster and Democratic Legitimacy: The Public Opinion Consequences of Chile’s 2010 Earthquake and Tsunami.” *Political Research Quarterly* 67 (2013). <https://doi.org/10.1177/1065912913495592>.
- Carr, Lowell Juilliard. “Disaster and the Sequence-Pattern Concept of Social Change.” *American Journal of Sociology* 38, no. 2 (1932): 207–18.
- Center on Budget and Policy Priorities. “Tracking the COVID-19 Recession’s Effects on Food, Housing, and Employment Hardships.” March 10, 2021. <https://www.cbpp.org/research/poverty-and-inequality/tracking-the-covid-19-recessions-effects-on-food-housing-and>.
- Centers for Disease Control and Prevention. “Health Equity Considerations and Racial and Ethnic Minority Groups.” February 12, 2021. <https://www.cdc.gov/coronavirus/2019-ncov/community/health-equity/race-ethnicity.html>.
- . “People at Increased Risk.” January 4, 2021. <https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/index.html>.
- Cho, Seong Eun, Kyujin Jung, and Han Woo Park. “Social Media Use during Japan’s 2011 Earthquake: How Twitter Transforms the Locus of Crisis Communication.” *Media International Australia* 149, no. 1 (November 2013): 28–40. <https://doi.org/10.1177/1329878X1314900105>.

- Christensen, Tom, and Per Laegreid. "Trust in Government: The Relative Importance of Service Satisfaction, Political Factors, and Demography." *Public Performance & Management Review* 28, no. 4 (2005): 487–511.
- Cleveland Manchanda, Emily C., Charles Sanky, and Jacob M. Appel. "Crisis Standards of Care in the USA: A Systematic Review and Implications for Equity amidst COVID-19." *Journal of Racial and Ethnic Health Disparities* (2020): 1–13. <https://doi.org/10.1007/s40615-020-00840-5>.
- Climate Action Tracker. "Australia." September 22, 2020. <https://climateactiontracker.org/countries/australia/>.
- Coats, Daniel R. *Worldwide Threat Assessment of the U.S. Intelligence Committee*. Washington, DC: Senate Select Committee on Intelligence, 2019. <https://www.dni.gov/files/ODNI/documents/2019-ATA-SFR---SSCI.pdf>.
- Colley, Thomas, Francesca Granelli, and Jente Althuis. "Disinformation's Societal Impact: Britain, COVID, and Beyond." *Defence Strategic Communications* 8 (Spring 2020). <https://doi.org/10.30966/2018.RIGA.8>.
- Cunningham, Joan, and Yin C. Paradies. "Patterns and Correlates of Self-Reported Racial Discrimination among Australian Aboriginal and Torres Strait Islander Adults, 2008–09: Analysis of National Survey Data." *International Journal for Equity in Health* 12 (2013): 47. <https://doi.org/10.1186/1475-9276-12-47>.
- Curtis, Gerald L. "Tōhoku Diary: Reportage on the Tōhoku Disaster." In *Natural Disaster and Nuclear Crisis in Japan: Response and Recovery after Japan's 3/11*, edited by Jeff Kingston, 15–31. Abingdon, UK: Routledge, 2012. ProQuest.
- Cybenko, G., A. Giani, and P. Thompson. "Cognitive Hacking: A Battle for the Mind." *Computer* 35, no. 8 (August 2002): 50–56. <https://doi.org/10.1109/MC.2002.1023788>.
- Daniel, Donald C., and Katherine L. Herbig. "Propositions on Military Deception." *Journal of Strategic Studies* 5, no. 1 (1982): 155–77. <https://doi.org/10.1080/01402398208437105>.
- Department of Health and Human Services. "Explaining Operation Warp Speed." August 12, 2020. <https://health.mo.gov/living/healthcondiseases/communicable/novel-coronavirus-lpha/pdf/fact-sheet-operation-warp-speed.pdf>.
- . "Secretary Azar Declares Public Health Emergency for United States for 2019 Novel Coronavirus." January 31, 2020. <https://www.hhs.gov/about/news/2020/01/31/secretary-azar-declares-public-health-emergency-us-2019-novel-coronavirus.html>.

- Department of Homeland Security. “Coordinating the Federal Response.” March 11, 2021. <https://www.dhs.gov/coronavirus/federal-response>.
- . *Countering False Information on Social Media in Disasters and Emergencies*. Washington, DC: Department of Homeland Security, 2018. [https://www.dhs.gov/sites/default/files/publications/SMWG\\_Countering-False-Info-Social-Media-Disasters-Emergencies\\_Mar2018-508.pdf](https://www.dhs.gov/sites/default/files/publications/SMWG_Countering-False-Info-Social-Media-Disasters-Emergencies_Mar2018-508.pdf).
- Department of the Treasury. “The Treasury Department Is Delivering COVID-19 Relief for All Americans.” Accessed January 11, 2021. <https://home.treasury.gov/policy-issues/cares>.
- Donovan, Joan, and Brian Friedberg. *Source Hacking: Media Manipulation in Practice*. New York: Data & Society Research Institute, 2019. <https://datasociety.net/library/source-hacking-media-manipulation-in-practice/>.
- Drury, A. Cooper, and Richard Stuart Olson. “Disasters and Political Unrest: An Empirical Investigation.” *Journal of Contingencies and Crisis Management* 6, no. 3 (1998): 153–61. <https://doi.org/10.1111/1468-5973.00084>.
- Economist Intelligence Unit. *Democracy Index 2020: In Sickness and in Health?* London: Economist, 2021. <https://www.eiu.com/n/campaigns/democracy-index-2020/>.
- Edelman. “20 Years of Trust.” Accessed March 14, 2021. <https://www.edelman.com/20yearsoftrust/>.
- . *2020 Edelman Trust Barometer—Spring Update: Trust and the Covid-19 Pandemic*. Chicago: Edelman, 2020. <https://www.edelman.com/sites/g/files/aatuss191/files/2020-05/2020%20Edelman%20Trust%20Barometer%20Spring%20Update.pdf>.
- . *Edelman Trust Barometer 2020: Trust in Australia*. Chicago: Edelman, 2020. <https://www.edelman.com.au/research/edelman-trust-barometer-2020>.
- . *Edelman Trust Barometer 2021: Global Report*. Chicago: Edelman, 2021. <https://www.edelman.com/sites/g/files/aatuss191/files/2021-01/2021-edelman-trust-barometer.pdf>.
- Evanega, Sarah, Mark Lynas, Jordan Adams, and Karinne Smolenyak. “Coronavirus Misinformation: Quantifying Sources and Themes in the COVID-19 ‘Infodemic.’” Ithaca, NY: Cornell University, September 2020.
- Evans, Megan L., Margo Lindauer, and Maureen E. Farrell. “A Pandemic within a Pandemic—Intimate Partner Violence during Covid-19.” *New England Journal of Medicine* 383, no. 24 (2020): 2302–04. <https://doi.org/10.1056/NEJMp2024046>.

- Federal Emergency Management Agency. *2017 Hurricane Season: FEMA After-Action Report*. Washington, DC: Federal Emergency Management Agency, 2018. [https://www.fema.gov/sites/default/files/2020-08/fema\\_hurricane-season-after-action-report\\_2017.pdf](https://www.fema.gov/sites/default/files/2020-08/fema_hurricane-season-after-action-report_2017.pdf).
- . “Coronavirus (COVID-19) Pandemic: Supply Chain Stabilization Task Force.” Accessed October 29, 2020. <https://www.fema.gov/fact-sheet/coronavirus-covid-19-pandemic-supply-chain-stabilization-task-force>.
- . “Coronavirus Rumor Control.” Accessed October 29, 2020. <https://www.fema.gov/disasters/coronavirus/rumor-control>.
- . “COVID-19 Disaster Declarations.” March 12, 2021. <https://www.fema.gov/disasters/coronavirus/disaster-declarations>.
- . “Examining the National Response to the Worsening Coronavirus Pandemic.” Accessed March 7, 2021. <https://www.fema.gov/fact-sheet/examining-national-response-worsening-coronavirus-pandemic>.
- . *FEMA Incident Management and Support Keystone*. Washington, DC: Federal Emergency Management Agency, 2011. [https://www.fema.gov/sites/default/files/2020-07/fema\\_incident\\_management\\_and\\_support\\_keystone-Jan2011.pdf](https://www.fema.gov/sites/default/files/2020-07/fema_incident_management_and_support_keystone-Jan2011.pdf).
- Ferrara, Emilio, Onur Varol, Clayton Davis, Filippo Menczer, and Alessandro Flammini. “The Rise of Social Bots.” *Communications of the ACM* 59, no. 7 (June 2016): 96–104. <https://doi.org/10.1145/2818717>.
- Filkov, Alexander I., Tuan Ngo, Stuart Matthews, Simeon Telfer, and Trent D. Penman. “Impact of Australia’s Catastrophic 2019/20 Bushfire Season on Communities and Environment. Retrospective Analysis and Current Trends.” *Journal of Safety Science and Resilience* 1, no. 1 (September 2020): 44–56. <https://doi.org/10.1016/j.jnlssr.2020.06.009>.
- Finkenstadt, Daniel Joseph, Robert Handfield, and Peter Guinto. “Why the U.S. Still Has a Severe Shortage of Medical Supplies.” *Harvard Business Review*, September 17, 2020. <https://hbr.org/2020/09/why-the-u-s-still-has-a-severe-shortage-of-medical-supplies>.
- Fisher, Walter R. *Human Communication as Narration: Toward a Philosophy of Reason, Value and Action*. Columbia: University of South Carolina Press, 1989.
- Flitton, Daniel. “Morrison Struggles amidst His Bushfire Response.” *Asia Unbound* (blog), February 3, 2020. <https://www.cfr.org/blog/morrison-struggles-amidst-his-bushfire-response>.

- Fothergill, Alice, and Lori A. Peek. "Poverty and Disasters in the United States: A Review of Recent Sociological Findings." *Natural Hazards* 32, no. 1 (May 2004): 89–110. <https://doi.org/10.1023/B:NHAZ.0000026792.76181.d9>.
- Fredheim, Rolf, and Sebastian Bay. *Falling Behind: How Social Media Companies Are Failing to Combat Inauthentic Behaviour Online*. Riga, Latvia: NATO Strategic Communications Centre of Excellence, 2019.
- Freedom House. "Freedom in the World 2020: Australia." Accessed February 15, 2021. <https://freedomhouse.org/country/australia/freedom-world/2020>.
- . "Freedom in the World 2020: Japan." Accessed February 15, 2021. <https://freedomhouse.org/country/japan/freedom-world/2020>.
- . "Freedom in the World 2020: United States." Accessed February 15, 2021. <https://freedomhouse.org/country/united-states/freedom-world/2020>.
- Gabriel, Mariya, and Madeleine de Cock Buning. *A Multi-Dimensional Approach to Disinformation*. Brussels: European Commission, 2018. <https://ec.europa.eu/digital-single-market/en/news/final-report-high-level-expert-group-fake-news-and-online-disinformation>.
- Gerth, H. H., and C. Wright Mills. *From Max Weber: Essays in Sociology*. London: Taylor & Francis, 1948. <https://doi.org/10.4324/9780203759240>.
- Gordon, Paula, and James Heichelbech. "The Ethics Map: An Interview with Paula Gordon." Paula Gordon's Homeland Security website. Accessed July 12, 2020. <http://users.rcn.com/pgordon/homeland/EthicsMapInterview.html>.
- Granelli, Francesca. "What Does It Mean for a Communication to Be Trusted?" *Defence Strategic Communications* 5, no. 1 (Autumn 2018): 171–214. <https://doi.org/10.30966/2018.RIGA.5>.
- Guzmán, Sebastián G. "Substantive-Rational Authority: The Missing Fourth Pure Type in Weber's Typology of Legitimate Domination." *Journal of Classical Sociology* 15, no. 1 (February 2015): 73–95. <https://doi.org/10.1177/1468795X14531695>.
- Handel, Michael I. "Intelligence and Deception." *Journal of Strategic Studies* 5, no. 1 (1982): 122–54. <https://doi.org/10.1080/01402398208437104>.
- Hanson, Robin. "Catastrophe, Social Collapse, and Human Extinction." Fairfax, VA: George Mason University, 2007.
- Hjorth, Larissa, and Olivia Khoo, eds. *Routledge Handbook of New Media in Asia*. Abingdon: Routledge, 2016.

- Homeland Security Advisory Council. Countering Foreign Influence Subcommittee. *Homeland Security Advisory Council Interim Report of the Countering Foreign Influence Subcommittee*. Washington, DC: Homeland Security Advisory Council, 2019. [https://www.dhs.gov/sites/default/files/publications/ope/hsac/19\\_0521\\_final-interim-report-of-countering-foreign-influence-subcommittee.pdf](https://www.dhs.gov/sites/default/files/publications/ope/hsac/19_0521_final-interim-report-of-countering-foreign-influence-subcommittee.pdf).
- Horowitz, Juliana Menasce, Anna Brown, and Kiana Cox. “Views on Race in America 2019.” Pew Research Center, April 9, 2019. <https://www.pewsocialtrends.org/2019/04/09/race-in-america-2019/>.
- Huang, Y. Linlin, Kate Starbird, Mania Orand, Stephanie A. Stanek, and Heather T. Pedersen. “Connected through Crisis: Emotional Proximity and the Spread of Misinformation Online.” In *Proceedings of the 18th ACM Conference on Computer Supported Cooperative Work & Social Computing*, 969–80. Vancouver, BC: Association for Computing Machinery, 2015. <https://doi.org/10.1145/2675133.2675202>.
- Hunt, Kyle, Puneet Agarwal, and Jun Zhuang. “Tracking Storms of Misinformation Spread amid Disasters.” *ISE Magazine* 51, no. 9 (September 2019): 28–32.
- Institute of Medicine. *Crisis Standards of Care: A Systems Framework for Catastrophic Disaster Response*. Vol. 1. *Introduction and CSC Framework*. Washington, DC: National Academies Press, 2012. <https://doi.org/10.17226/13351>.
- Jack, Caroline. *Lexicon of Lies: Terms for Problematic Information*. New York: Data & Society Research Institute, 2017.
- Joint Chiefs of Staff. *Joint Planning*. JP 5-0. Washington, DC: Joint Chiefs of Staff, 2017. [https://www.jcs.mil/Portals/36/Documents/Doctrine/pubs/jp5\\_0.pdf?ver=ztDG06paGvpQRrLxThNZUw%3d%3d](https://www.jcs.mil/Portals/36/Documents/Doctrine/pubs/jp5_0.pdf?ver=ztDG06paGvpQRrLxThNZUw%3d%3d).
- Jones, Jeffrey M. “Americans Divided on Trump’s Handling of COVID-19 Situation.” Gallup, April 30, 2020. <https://news.gallup.com/poll/309593/americans-divided-trump-handling-covid-situation.aspx>.
- . “Trump Job Approval Slides to 39%.” Gallup, June 10, 2020. <https://news.gallup.com/poll/312572/trump-job-approval-slides.aspx>.
- Jorden, Michelle A., Sarah L. Rudman, Elsa Villarino, Stacey Hoferka, Megan T. Patel, Kelley Bemis, Cristal R. Simmons et al. “Evidence for Limited Early Spread of COVID-19 within the United States, January–February 2020.” *Morbidity and Mortality Weekly Report* 69, no. 22 (2020): 680–84. <https://doi.org/10.15585/mmwr.mm6922e1>.
- Kingston, Jeff. Introduction to *Natural Disaster and Nuclear Crisis in Japan: Response and Recovery after Japan’s 3/11*, edited by Jeff Kingston, 1–12. Abingdon, UK: Routledge, 2012. ProQuest.

- . “The Politics of Disaster, Nuclear Crisis and Recovery.” In *Natural Disaster and Nuclear Crisis in Japan: Response and Recovery after Japan’s 3/11*, edited by Jeff Kingston, 188–206. Abingdon, UK: Routledge, 2012. ProQuest.
- Knowles, Scott Gabriel. *The Disaster Experts: Mastering Risk in Modern America*. Philadelphia: University of Pennsylvania Press, 2013.
- Koksal, Kubra, Jim McLennan, and Christopher Bearman. “Living with Bushfires on the Urban-Bush Interface.” *Australian Journal of Emergency Management* 35, no. 1 (January 2020): 21–28.
- Leonhardt, David, and Lauren Leatherby. “The Unique U.S. Failure to Control the Virus.” *New York Times*, August 8, 2020. <https://www.nytimes.com/2020/08/06/us/coronavirus-us.html>.
- Levine, Ally J. “State by State, COVID-19 Grinds U.S. to a Halt.” Reuters, March 24, 2020. <https://graphics.reuters.com/HEALTH-CORONAVIRUS-USA/0100B5LQ46H/index.html>.
- Linz, Juan J. *The Breakdown of Democratic Regimes: Crisis, Breakdown and Reequilibration—An Introduction*. Baltimore: Johns Hopkins University Press, 1978.
- Linz, Juan J., and Alfred Stepan. *Problems of Democratic Transition and Consolidation: Southern Europe, South America, and Post-Communist Europe*. Baltimore: Johns Hopkins University Press, 1996.
- Malhotra, Neil, and Alexander G. Kuo. “Attributing Blame: The Public’s Response to Hurricane Katrina.” *Journal of Politics* 70, no. 1 (2008): 120–35. <https://doi.org/10.1017/s0022381607080097>.
- Mao, Frances. “Scott Morrison: How Australia’s PM Rebuilt His Reputation.” BBC News, May 19, 2020. <https://www.bbc.com/news/world-australia-52703265>.
- March, James G., and Johan P. Olsen. “Elaborating the ‘New Institutionalism.’” In *The Oxford Handbook of Political Institutions*. Edited by Sarah A. Binder, R. A. W. Rhodes, and Bert A. Rockman. Oxford: Oxford University Press, 2008. <https://doi.org/10.1093/oxfordhb/9780199548460.003.0001>.
- Matsumura, Naohiro, Asako Miura, Masashi Komori, and Kai Hiraishi. “Media and Sentiments in the Great East Japan Earthquake Related Tweets—Social Media as ‘Meta Media.’” In *IEEE Tenth International Conference on Semantic Computing*, 465–70. Laguna Hills, CA: IEEE, 2016. <https://doi.org/10.1109/ICSC.2016.84>.

- . “Media Mediate Sentiments: Exploratory Analysis of Tweets Posted Before, During, and After the Great East Japan Earthquake.” *International Journal of Knowledge Society Research* 7, no. 2 (2016): 57–71. <https://doi.org/10.4018/IJKSR.2016040104>.
- McKibben, Bill. “What Vermont and Its History Might Teach the Nation about Handling the Coronavirus.” *New Yorker*, July 28, 2020. <https://www.newyorker.com/news/daily-comment/what-vermont-and-its-history-might-teach-the-nation-about-handling-the-coronavirus>.
- McMinn, Sean, and Rob Stein. “Many Places Hard Hit by COVID-19 Leaned More toward Trump in 2020 Than 2016.” NPR, October 6, 2020. <https://www.npr.org/sections/health-shots/2020/11/06/930897912/many-places-hard-hit-by-covid-19-leaned-more-toward-trump-in-2020-than-2016>.
- Moghaddam, Fathali M. *The Psychology of Democracy*. Washington, DC: American Psychological Association, 2015.
- Moses, Joy. “COVID-19 and the State of Homelessness.” *National Alliance to End Homelessness* (blog), May 19, 2020. <https://endhomelessness.org/covid-19-and-the-state-of-homelessness/>.
- National Archives. “2020 Electoral College Results.” Accessed January 11, 2021. <https://www.archives.gov/electoral-college/2020>.
- National Bushfire Recovery Agency. “About.” Accessed September 1, 2020. <https://www.bushfirerecovery.gov.au/about>.
- Newton, Kenneth. “Trust, Social Capital, Civil Society, and Democracy.” *International Political Science Review* 22, no. 2 (2001): 201–14. <https://doi.org/10.1177/0192512101222004>.
- New York Times*. “See How All 50 States Are Reopening (and Closing Again).” Accessed June 18, 2020. <https://www.nytimes.com/interactive/2020/us/states-reopen-map-coronavirus.html>.
- Nicola, Maria, Zaid Alsafi, Catrin Sohrabi, Ahmed Kerwan, Ahmed Al-Jabir, Christos Iosifidis, Maliha Agha, and Riaz Agha. “The Socio-Economic Implications of the Coronavirus Pandemic (COVID-19): A Review.” *International Journal of Surgery* 78 (June 2020): 185–93. <https://doi.org/10.1016/j.ijssu.2020.04.018>.
- Norris, Fran H., Susan Stevens, Betty Pfefferbaum, Karen Wyche, and Rose Pfefferbaum. “Community Resilience as a Metaphor, Theory, Set of Capacities, and Strategy for Disaster Readiness.” *American Journal of Community Psychology* 41, no. 1–2 (March 2008): 127–50. <https://doi.org/10.1007/s10464-007-9156-6>.

- North Atlantic Treaty Organization. “NATO’s Approach to Countering Disinformation: A Focus on COVID-19.” July 17, 2020, <http://www.nato.int/cps/en/natohq/177273.htm>.
- Organisation for Economic Co-operation and Development. *Government at a Glance 2013*. Paris: OECD Publishing, 2013. [https://doi.org/10.1787/gov\\_glance-2013-en](https://doi.org/10.1787/gov_glance-2013-en).
- . “Trust in Government.” Accessed January 13, 2021. <http://www.oecd.org/gov/trust-in-government.htm>.
- Our World in Data. “Statistics and Research: Coronavirus (COVID-19) Cases.” Accessed October 20, 2020. <https://ourworldindata.org/covid-cases>.
- Panchal, Nirmita, Rabah Kamal, Kendal Orgera, Cythia Cox, Rachel Garfield, Liz Hamel, Cailey Muñana, and Priya Chidambaram. “The Implications of COVID-19 for Mental Health and Substance Use.” Kaiser Family Foundation, February 10, 2021. <https://www.kff.org/coronavirus-covid-19/issue-brief/the-implications-of-covid-19-for-mental-health-and-substance-use/>.
- Parker, Kim, and Cary Funk. “Gender Discrimination Comes in Many Forms for Today’s Working Women.” Pew Research Center, December 14, 2017. <https://www.pewresearch.org/fact-tank/2017/12/14/gender-discrimination-comes-in-many-forms-for-todays-working-women/>.
- Patel, J. A., F. B. H. Nielsen, A. A. Badiani, S. Assi, V. A. Unadkat, B. Patel, R. Ravindrane, and H. Wardle. “Poverty, Inequality and COVID-19: The Forgotten Vulnerable.” *Public Health* 183 (June 2020): 110–11. <https://doi.org/10.1016/j.puhe.2020.05.006>.
- Paul, Christopher, and Miriam Matthews. *The Russian “Firehose of Falsehood” Propaganda Model: Why It Might Work and Options to Counter It*. Report No. PE-198-OSD. Santa Monica, CA: RAND Corporation, 2016. <https://www.rand.org/pubs/perspectives/PE198.html>.
- Perry, Ronald W. “What Is a Disaster?” In *Handbook of Disaster Research*, edited by Havidán Rodríguez, Enrico L. Quarantelli, and Russell R. Dynes, 1–15. New York: Springer, 2007. [https://doi.org/10.1007/978-0-387-32353-4\\_1](https://doi.org/10.1007/978-0-387-32353-4_1).
- Pew Research Center. “COVID-19 Response Approved by Most in 14 Nations with Advanced Economies.” August 27, 2020. <https://www.pewresearch.org/global/2020/08/27/most-approve-of-national-response-to-covid-19-in-14-advanced-economies/>.
- . “Most Americans Say Coronavirus Outbreak Has Impacted Their Lives.” March 30, 2020. <https://www.pewsocialtrends.org/2020/03/30/most-americans-say-coronavirus-outbreak-has-impacted-their-lives/>.

- Pírková, Eliška. *Fighting Misinformation and Defending Free Expression during COVID-19: Recommendations for States*. Brussels: Access Now, 2020. <https://www.accessnow.org/cms/assets/uploads/2020/04/Fighting-misinformation-and-defending-free-expression-during-COVID-19-recommendations-for-states-1.pdf>.
- Pomerantsev, Peter, and Michael Weiss. *How the Kremlin Weaponizes Information, Culture and Money*. New York: Institute of Modern Russia, 2014. [https://imrussia.org/media/pdf/Research/Michael\\_Weiss\\_and\\_Peter\\_Pomerantsev\\_\\_The\\_Menace\\_of\\_Unreality.pdf](https://imrussia.org/media/pdf/Research/Michael_Weiss_and_Peter_Pomerantsev__The_Menace_of_Unreality.pdf).
- Prieur, Michel. *Ethical Principles on Disaster Risk Reduction and People's Resilience*. Strasbourg Cedex, France: Executive Secretariat of the European and Mediterranean Major Hazards Agreement, 2009.
- Quarantelli, E. L. "Catastrophes Are Different from Disasters: Some Implications for Crisis Planning and Managing Drawn from Katrina." *Items* (blog), June 11, 2006. <https://items.ssrc.org/understanding-katrina/catastrophes-are-different-from-disasters-some-implications-for-crisis-planning-and-managing-drawn-from-katrina/>.
- Reevell, Patrick. "Hysteria over Coronavirus Sparks Violent Protests in Ukraine." ABC News, February 21, 2020. <https://abcnews.go.com/International/hysteria-coronavirus-sparks-violent-protests-ukraine/story?id=69124337>.
- Robinson, Linda, Todd C. Helmus, Raphael S. Cohen, Alireza Nader, Andrew Radin, Madeline Magnuson, and Katya Migacheva. *Modern Political Warfare: Current Practices and Possible Responses*. Report No. RR-1772-A. Santa Monica, CA: RAND Corporation, 2018. [https://www.rand.org/pubs/research\\_reports/RR1772.html](https://www.rand.org/pubs/research_reports/RR1772.html).
- Royal Commission into National Natural Disaster Arrangements. *Interim Observations*. Canberra: Royal Commission into National Natural Disaster Arrangements, 2020. <https://naturaldisaster.royalcommission.gov.au/publications/interim-observations-1>.
- . *Royal Commission into National Natural Disaster Arrangements Report*. Canberra: Royal Commission into National Natural Disaster Arrangements, 2020. <https://naturaldisaster.royalcommission.gov.au/system/files/2020-11/Royal%20Commission%20into%20National%20Natural%20Disaster%20Arrangements%20-%20Report%20%20%5Baccessible%5D.pdf>.
- Samuels, Richard J. *3.11: Disaster and Change in Japan*. Ithaca, NY: Cornell University Press, 2013.
- . "Japan's Rhetoric of Crisis: Prospects for Change after 3.11." *Journal of Japanese Studies* 39, no. 1 (2013): 97–120.

- Schuchat, Anne. “Public Health Response to the Initiation and Spread of Pandemic COVID-19 in the United States, February 24–April 21, 2020.” *Morbidity and Mortality Weekly Report* 69, no. 18 (2020): 551–56. <https://doi.org/10.15585/mmwr.mm6918e2>.
- Semega, Jessica, Melissa Kollar, Emily A. Shrider, and John F. Creamer. *Income and Poverty in the United States: 2019*. Washington, DC: U.S. Census Bureau, 2020. <https://www.census.gov/library/publications/2020/demo/p60-270.html>.
- Shear, Michael D., Abby Goodnough, Sheila Kaplan, Sheri Fink, Katie Thomas, and Noah Weiland. “The Lost Month: How a Failure to Test Blinded the U.S. to Covid-19.” *New York Times*, April 1, 2020. <https://www.nytimes.com/2020/03/28/us/testing-coronavirus-pandemic.html>.
- Shun Ibaragi, Dávid Bohács, and Kazunori Kawamura. “Japanese People’s Attitudes toward the Government after the Great East Japan Earthquake: Who Rely on the Government?” *Bulletin of Yokohama City University Social Science* 68, no. 2 (2017): 143–63.
- Simmons-Duffin, Selena. “Trust in CDC and FDA Is at a Low.” NPR, September 25, 2020. <https://www.npr.org/2020/09/25/917014322/trust-in-cdc-and-fda-is-at-a-low>.
- Smith, Adam B. “2020 U.S. Billion-Dollar Weather and Climate Disasters in Historical Context.” National Oceanic and Atmospheric Administration, January 8, 2021. <https://www.climate.gov/news-features/blogs/beyond-data/2020-us-billion-dollar-weather-and-climate-disasters-historical>.
- Soucheray, Stephanie. “US Polls Show Partisan Divide in Attitudes to COVID-19.” Center for Infectious Disease Research and Policy, May 22, 2020, <https://www.cidrap.umn.edu/news-perspective/2020/05/us-polls-show-partisan-divide-attitudes-covid-19>.
- Starbird, Kate. “What ‘Crowdsourcing’ Obscures: Exposing the Dynamics of Connected Crowd Work during Disaster.” In *Proceedings of Collective Intelligence*. New York: Special Interest Group on Computer–Human Interaction, 2012. <http://arxiv.org/abs/1204.3342>.
- Starbird, Kate, Ahmer Arif, and Tom Wilson. “Disinformation as Collaborative Work: Surfacing the Participatory Nature of Strategic Information Operations.” *Proceedings of the ACM on Human-Computer Interaction* 3, no. CSCW (2019): 127. <https://doi.org/10.1145/3359229>.

- Starbird, Kate, Emma Spiro, Isabelle Edwards, Kaitlyn Zhou, Jim Maddock, and Sindhuja Narasimhan. "Could This Be True? I Think So! Expressed Uncertainty in Online Rumoring." In *Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems*, 360–71. New York: Association for Computing Machinery, 2016. <https://doi.org/10.1145/2858036.2858551>.
- Stokes, Erin K., Laura D. Zambrano, Kayla N. Anderson, Ellyn P. Marder, Kala M. Raz, Suad El Burai Felix, Yunfeng Tie, and Kathleen E. Fullerton. "Coronavirus Disease 2019 Case Surveillance—United States, January 22–May 30, 2020." *Morbidity and Mortality Weekly Report* 69, no. 24 (2020): 759–65. <https://doi.org/10.15585/mmwr.mm6924e2>.
- Stokes, Kisha. *2019 Edelman Trust Barometer: Global Report*. Chicago: Edelman, 2019. [https://www.edelman.com/sites/g/files/aatuss191/files/2019-02/2019\\_Edelman\\_Trust\\_Barometer\\_Global\\_Report.pdf](https://www.edelman.com/sites/g/files/aatuss191/files/2019-02/2019_Edelman_Trust_Barometer_Global_Report.pdf).
- Substance Abuse and Mental Health Services Administration. *Greater Impact: How Disasters Affect People of Low Socioeconomic Status*. Rockville, MD: Substance Abuse and Mental Health Services Administration, 2017. [https://www.samhsa.gov/sites/default/files/dtac/srb-low-ses\\_2.pdf](https://www.samhsa.gov/sites/default/files/dtac/srb-low-ses_2.pdf).
- Tappe, Anneken. "Record 20.5 Million American Jobs Lost in April. Unemployment Rate Soars to 14.7%." CNN, May 8, 2020. <https://www.cnn.com/2020/05/08/economy/april-jobs-report-2020-coronavirus/index.html>.
- Tierney, Kathleen. *Disasters: A Sociological Approach*. Cambridge: Polity Press, 2019.
- Tierney, Kathleen J., and Ronald W. Perry. *Facing the Unexpected: Disaster Preparedness and Response in the United States*. Washington, DC: Joseph Henry Press, 2001. ProQuest.
- Tilly, Charles. *Democracy*. Cambridge: Cambridge University Press, 2007. <https://doi.org/10.1017/CBO9780511804922>.
- Tucker, Joshua A., Andrew Guess, Pablo Barberá, Cristian Vaccari, Alexandra Siegel, Sergey Sanovich, Denis Stukal, and Brendan Nyhan. *Social Media, Political Polarization, and Political Disinformation: A Review of the Scientific Literature*. Menlo Park, CA: Hewlett Foundation, 2018. <https://hewlett.org/library/social-media-political-polarization-political-disinformation-review-scientific-literature/>.
- United Nations. "Rising Inequality Affecting More Than Two-Thirds of the Globe, but It's Not Inevitable: New UN Report." January 21, 2020. <https://news.un.org/en/story/2020/01/1055681>.
- United Nations Environment Programme. "Ten Impacts of the Australian Bushfires." January 22, 2020. <http://www.unenvironment.org/news-and-stories/story/ten-impacts-australian-bushfires>.

- U.S. Census Bureau. “QuickFacts: United States.” Accessed October 20, 2020. <https://www.census.gov/quickfacts/fact/table/US/IPE120219>.
- U.S. Congress. House of Representatives. *A Failure of Initiative: Final Report of the Select Bipartisan Committee to Investigate the Preparation for and Response to Hurricane Katrina*. Report No. 109–377. Washington, DC: House of Representatives, 2007. <https://www.congress.gov/congressional-report/109th-congress/house-report/377/1>.
- U.S. Congress. Senate. *Soviet Active Measures: Hearings before the Subcommittee on European Affairs of the Committee on Foreign Relations*. 99th Cong., 1st sess., September 12–13, 1985.
- Usui, Shohei, Fujio Toriumi, Takatsugu Hirayama, Yu Enokibori, and Kenji Mase. “Why Did False Rumors Diffuse after the 2011 Earthquake off the Pacific Coast of Tohoku? Impact Analysis of the Network Structure.” *Electronics and Communications in Japan* 98, no. 9 (2015): 1–13. <https://doi.org/10.1002/ecj.11687>.
- Vinck, Patrick, Phuong N. Pham, Kenedy K. Bindu, Juliet Bedford, and Eric J. Nilles. “Institutional Trust and Misinformation in the Response to the 2018–19 Ebola Outbreak in North Kivu, DR Congo: A Population-Based Survey.” *Lancet Infectious Diseases* 19, no. 5 (May 2019): 529–36. [https://doi.org/10.1016/S1473-3099\(19\)30063-5](https://doi.org/10.1016/S1473-3099(19)30063-5).
- Wardle, Claire, and Hossein Derakhshan. *Information Disorder: Toward an Interdisciplinary Framework for Research and Policymaking*. Strasbourg Cedex, France: Council of Europe, 2019. <https://rm.coe.int/information-disorder-toward-an-interdisciplinary-framework-for-research/168076277c>.
- Weber, Derek, Mehwish Nasim, Lucia Falzon, and Lewis Mitchell. “#ArsonEmergency and Australia’s ‘Black Summer’: Polarisation and Misinformation on Social Media.” In *Disinformation in Open Online Media: Proceedings of the Multidisciplinary International Symposium on Disinformation in Open Online Media*, edited by M. van Duijn, M. Preuss, V. Spaiser, F. Takes, and S. Verberne. Lecture Notes in Computer Science. Vol. 12259. Cham: Springer, 2020. [https://doi.org/10.1007/978-3-030-61841-4\\_11](https://doi.org/10.1007/978-3-030-61841-4_11).
- West, Darrell M. *How to Combat Fake News and Disinformation*. Washington, DC: Brookings Institution, 2017. <https://www.brookings.edu/research/how-to-combat-fake-news-and-disinformation/>.
- Whaley, Barton. “Toward a General Theory of Deception.” *Journal of Strategic Studies* 5, no. 1 (1982): 178–92. <https://doi.org/10.1080/01402398208437106>.

- White House. “Statement from the Press Secretary Regarding the President’s Coronavirus Task Force.” January 29, 2020. <https://trumpwhitehouse.archives.gov/briefings-statements/statement-press-secretary-regarding-presidents-coronavirus-task-force/>.
- Williamson, Bhiamie, Francis Markham, and Jessica Weir. “Aboriginal Peoples and the Response to the 2019–2020 Bushfires.” Working Paper No. 134/2020. Canberra: Centre for Aboriginal Economic Policy Research, Australian National University, 2020. <https://doi.org/10.25911/5e7882623186c>.
- Wilson, Tom, Kaitlyn Zhou, and Kate Starbird. “Assembling Strategic Narratives: Information Operations as Collaborative Work within an Online Community.” *Proceedings of the ACM on Human-Computer Interaction* 2, no. CSCW (November 2018): 183. <https://doi.org/10.1145/3274452>.
- Wolley, Samuel C., and Philip N. Howard. “Computational Propaganda Worldwide: Executive Summary.” Working paper, Project on Computational Propaganda, 2017. <https://comprop.oii.ox.ac.uk/wp-content/uploads/sites/89/2017/06/Casestudies-ExecutiveSummary.pdf>.
- World Bank. “GDP, (Constant 2010 US\$) – Japan.” Accessed March 14, 2021. <https://data.worldbank.org/indicator/NY.GDP.MKTP.KD?locations=JP>.
- World Health Organization. “Managing the COVID-19 Infodemic: Promoting Healthy Behaviours and Mitigating the Harm from Misinformation and Disinformation.” September 23, 2020. <https://www.who.int/news/item/23-09-2020-managing-the-covid-19-infodemic-promoting-healthy-behaviours-and-mitigating-the-harm-from-misinformation-and-disinformation>.
- . “Timeline: WHO’s COVID-19 Response.” Accessed September 2, 2020. <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/interactive-timeline>.
- . “WHO Coronavirus (COVID-19) Dashboard.” Accessed March 17, 2021. <https://covid19.who.int>.
- Yin, Robert K. *Case Study Research: Design and Methods*. 4th ed. Applied Social Research Methods Series. Vol. 5. Thousand Oaks, CA: SAGE Publications, 2009.
- Yūko, Kawato, Robert Pekkanen, and Tsujinaka Yutaka. “Civil Society and the Triple Disasters: Revealed Strengths and Weaknesses.” In *Natural Disaster and Nuclear Crisis in Japan: Response and Recovery after Japan’s 3/11*, edited by Jeff Kingston, 78–93. Abingdon, UK: Routledge, 2012. ProQuest.

Zack, Naomi. *Ethics for Disaster*. Lanham, MD: Rowman & Littlefield, 2010. Kindle.

Zaroli, Jim. "\$3.1 Trillion: Pandemic Spending Drives the Federal Budget Deficit to a Record." NPR, October 16, 2020. <https://www.npr.org/sections/coronavirus-live-updates/2020/10/16/924582156/-3-1-trillion-pandemic-spending-drives-the-federal-budget-deficit-to-a-record>.

THIS PAGE INTENTIONALLY LEFT BLANK

## **INITIAL DISTRIBUTION LIST**

1. Defense Technical Information Center  
Ft. Belvoir, Virginia
2. Dudley Knox Library  
Naval Postgraduate School  
Monterey, California