

ARTICLES

CLIMATE CHANGE AND THE CRIMINAL JUSTICE SYSTEM

BY

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The past decade has been the warmest in history. But while there has been a great deal of attention paid to infrastructure sustainability issues, less attention has been focused on the impact of climate change on our criminal justice system. This Article anticipates how climate change will affect and create new challenges for law enforcement, prisons, prosecutorial and defense agencies, government offices, and communities.

This Article first examines three ways climate change is challenging our criminal justice system—from altering the types of crimes committed, to detrimentally impacting prisons, jails, and other criminal justice institutions, to challenging traditional doctrines of criminal law such as the necessity and duress defenses and causation. Drawing in part on lessons from the response to the

*Professor of Law & David W. Burcham Chair in Ethical Advocacy, Loyola Law School, Los Angeles. Most of my career has been focused on traditional issues in criminal law. I have served as a prosecutor, criminal law professor, and director of an innocence project. Each endeavor was designed to make the world a better place. Now, I worry about how the existential threat of climate change will affect everything we do on this planet, including our commitment to criminal justice. It is time to explore its repercussions. This particular Article was inspired by the important work of my friend and colleague, Alice C. Hill. As she warns us in her book, *Building a Resilient Tomorrow* (2019), we have no choice: Even if the world could cut its carbon emissions to zero tomorrow, further significant global climate change is inevitable. Now is the time to prepare, no matter our occupation or professional endeavor. Although we are stewards of the law, we are even more importantly stewards of the world. I am grateful to everyone who helped with the research and editing of this Article. Special thanks to the wonderful editors of *Environmental Law* and to my extraordinary research assistants, Charles Lam and Chloe Rome. Not even a pandemic could slow them down.

COVID-19 pandemic, this Article makes ten recommendations on how such challenges can be met.

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I. INTRODUCTION

“2019 was the second-hottest year ever, closing out the warmest decade.”¹

The headlines are frightening, and the facts are even worse. The world is in the throes of a climate change crisis that will have an impact on every aspect of our society.² For the last four years, the Trump administration sought to downplay the climate threat.³ As a result,

¹ *2019 Was the Second-Hottest Year Ever, Closing Out the Warmest Decade*, CARBONBRIEF (Jan. 16, 2020), <https://perma.cc/6NWU-JU3A>. Henry Fountain & Nadja Popovich, *2019 Was the Second-Hottest Year Ever, Closing Out the Warmest Decade*, N.Y. TIMES (Jan. 15, 2020), <https://perma.cc/32UX-SFUQ>.

² “Climate change” is not the same as “global warming.” “*Global warming* describes the rising of the earth’s temperature over a relatively short time span.” ROB WHITE, CLIMATE CHANGE CRIMINOLOGY 2 (2018). “*Climate change* describes the inter-related effects of this rise in temperature: from changing sea levels and changing ocean currents, through to the impacts of temperature change on local environments that affect the endemic flora and fauna in varying ways.” *Id.* *Climate disruption* can also be used to describe global changes. *Id.*

³ In fact, Trump did far more than downplay climate threats. He rolled back over 100 environmental regulations and withdrew from the 2015 Paris Climate Agreement. Coral Davenport, *What Will Trump’s Most Profound Legacy Be? Possibly Climate Change*, N.Y. TIMES, <https://perma.cc/9DDS-GPYG> (last updated Dec. 3, 2020). See Juliet Eilperin et al., *Trump Rolled Back More Than 125 Environmental Safeguards. Here’s How*, WASH. POST (Oct. 30, 2020), <https://perma.cc/59MZ-8FTJ> (discussing the Trump administration’s efforts to both roll back environmental rules and regulations and delay the implementation of Obama-era policies). Professor Michael Gerrard, Director of the Sabin Center for Climate Change Law at Columbia Law School, perfectly phrased the impact of Trump’s term: “Donald Trump has been to climate regulation as General Sherman was to Atlanta.” Davenport, *supra*. The impact of Trump’s environmental policies has been widespread and devastating. See generally Sarah Gibbens, *15 Ways the Trump Administration Has Changed Environmental Policies*, NAT’L GEOGRAPHIC (Feb. 1, 2019), <https://perma.cc/27D5-MYXR> (listing fifteen Trump administration environmental policy decisions and their impacts). Additionally, Trump has appointed new Supreme Court justices who are predicted to make it more difficult for the Biden administration to reverse course on Trump’s destructive policies which have had a domino effect elsewhere in the world. Davenport, *supra*. For example, Associate Justice Amy Coney Barrett referred to climate change as “controversial” during her confirmation hearing in an effort to evade answering questions on whether climate change may

valuable time has been lost in domestic and global efforts to confront its challenges.⁴ The Biden administration has set addressing climate change as one of its top priorities, although early policies are focused on revamping America's energy sources and market operations.⁵ Climate change is at long last being characterized as an issue of national security,⁶ and President Biden's selection of former Secretary of State John Kerry as his "climate envoy" signals a restored focus on the seriousness of climate change.⁷

While the Biden administration has given a great deal of attention to issues of infrastructure sustainability, considerably less attention is focused on the impact of climate change on our criminal justice system. Now that climate change is a renewed priority for America, the country must address the significant demands climate change is placing on the criminal justice system. This Article anticipates how climate change will affect and create new challenges for law enforcement, prisons, prosecutorial and defense agencies, government offices, and communities. Consideration of these challenges must be at the forefront of new environmental policies. The criminal justice system cannot be left behind in the race to address climate change.

be threatening the environment. John Schwartz & Hiroko Tabuchi, *By Calling Climate Change "Controversial," Barrett Created Controversy*, N.Y. TIMES, <https://perma.cc/MN7D-CTQ5> (last updated Oct. 22, 2020).

⁴ Trump's anti-environmental actions came at a particularly precarious time. In May 2020, the world's carbon dioxide levels were the highest on record. "[T]hat means that a year wasted in the Trump administration on not acting on climate change has much bigger consequences than a year wasted in Ronald Reagan or George W. Bush or Bill Clinton's administration." Davenport, *supra* note 3.

⁵ See Brady Dennis & Juliet Eilperin, *In Confronting Climate Change, Biden Won't Have a Day to Waste*, WASH. POST (Dec. 22, 2020), <https://perma.cc/ZKG2-3XH3> (explaining how Biden is planning to use executive orders to mobilize the federal government to combat climate change and environmental injustice).

⁶ Lisa Friedman, *With John Kerry Pick, Biden Selects a "Climate Envoy" With Stature*, N.Y. TIMES, <https://perma.cc/N6ZR-S28Z> (last updated Dec. 11, 2020).

⁷ See Friedman, *supra* note 6 (discussing John Kerry's appointment to the newly created cabinet-level position "special presidential envoy for climate," suggesting it is both a domestic and international signal that the Biden administration will treat climate change as a serious threat); Scott Detrow, *John Kerry, Biden's Pick for Climate Envoy, to Face Big Challenge on Climate Change*, NAT'L PUB. RADIO (Dec. 15, 2020), <https://perma.cc/VTQ7-JEVR> (calling Kerry's appointment an "unmistakable signal that . . . Biden is serious about what he has said" about climate change being "a crisis that demands swift, sweeping action.").

Despite former President Trump's rhetoric to the contrary,⁸ climate change is real.⁹ "Earth's climate is now changing faster than at any point in the history of modern civilization, primarily as a result of human activities."¹⁰ According to the National Aeronautics and Space Administration, the global temperature has risen 2.0°F since the late nineteenth century.¹¹ Most of the warming occurred in the past thirty-five years, with the five warmest years on record taking place since 2010.¹² The sea level is rising 3.3 millimeters per year, the ice sheets are melting at a rate of 428 gigatonnes¹³ per year, and carbon dioxide has risen to 415 parts per million.¹⁴ The Intergovernmental Panel on Climate Change reports that "[s]cientific evidence for warming of the climate system is unequivocal."¹⁵

⁸ Trump's quotes have included: "Global warming is a total, and very expensive, hoax!" Jeremy Schulman, *Every Insane Thing Donald Trump Has Said About Global Warming*, MOTHER JONES (Dec. 12, 2018), <https://perma.cc/6DMV-6D74> (quoting a December 6, 2013 tweet by Donald Trump). "The concept of global warming was created by and for the Chinese in order to make U.S. manufacturing non-competitive." *Id.* (quoting a November 6, 2012 tweet by Donald Trump). "There is cooling, and there's heating. I mean, look, it used to not be climate change, it used to be global warming. That wasn't working too well because it was getting too cold all over the place." Zach Coleman, *Trump Says Earth Is "Too Cold" and Ice is Expanding*, E&E NEWS (Jan. 29, 2018), <https://perma.cc/KT6E-83AB> (quoting Donald Trump in an interview with Piers Morgan that aired on January 28, 2018). When California was ravaged by wildfires in 2020, Trump stated in a meeting with environmental officials, "It'll start getting cooler. You just watch" and "I don't think science knows, actually." Kevin Breuninger, *"I Don't Think Science Knows," Trump Responds When Challenged on Climate Change at Wildfire Briefing*, CNBC, <https://perma.cc/QAL6-WN7R> (last updated Sept. 15, 2020) (quoting remarks Donald Trump made at a meeting with various experts regarding the wildfires in California).

⁹ There is no longer a debate over whether climate change is occurring. *See generally* U.S. GLOBAL CHANGE RESEARCH PROGRAM, FOURTH ANNUAL CLIMATE ASSESSMENT: VOLUME II (2018), <https://perma.cc/E4B3-2MX2> (a consensus report on climate change and the causes). Other reports, including NASA's latest study, confirms that climate models regarding future warming are correct. *See* Alan Buis, *Study Confirms Climate Models Are Getting Future Warming Projections Right*, NASA GLOBAL CLIMATE CHANGE (Jan. 9, 2020), <https://perma.cc/R7FN-9VPF> (finding that 14 of 17 model projections of global average temperature closely matched temperature changes). While there are debates regarding *how much* of climate change is due to human conduct, these debates do not change the basic facts that climate change is upon us and will continue even with changes in environmental policies.

¹⁰ U.S. GLOBAL CHANGE RESEARCH PROGRAM, *supra* note 9, at 34.

¹¹ NASA GLOBAL CLIMATE CHANGE, <https://perma.cc/99KM-R2VB> (last updated Jan. 25, 2021).

¹² NASA, NOAA Data Show 2016 Warmest Year on Record Globally, NASA GODDARD INST. FOR SPACE STUD. (Jan. 18, 2017), <https://perma.cc/689H-M963>; *More Near-Record Warm Years Likely on Horizon*, NAT'L CTRS. FOR ENV'T INFO. (Feb. 14, 2020), <https://perma.cc/3X4R-X6JU>.

¹³ A gigaton is one billion metric tons. Matt Conlen, *Visualizing the Quantities of Climate Change*, NASA GLOBAL CLIMATE CHANGE (Mar. 9, 2020), <https://perma.cc/NH6N-862N>.

¹⁴ *Id.* NASA GLOBAL CLIMATE CHANGE, *supra* note 11.

¹⁵ *Climate Change: How Do We Know?*, NASA GLOBAL CLIMATE CHANGE, <https://perma.cc/8V84-M8QV> (last updated Jan. 25, 2021) [hereinafter *Climate Change: How Do We Know?*]. Equally troubling is that "[e]ven if human emissions were stopped in

“The current warming trend is of particular significance because most of it is extremely likely (greater than 95 percent probability) to be the result of human activity since the mid-20th century,”¹⁶ and the likelihood is that the impact of climate change on our environment will not only continue but accelerate. For example, the global sea level rose about eight inches in the last century, but in the last two decades, that rate of increase has nearly doubled.¹⁷ Additionally, climate change is causing more extreme weather events, such as intense storms, droughts, wildfires, heat waves, and more frequent and more intense hurricanes.¹⁸ The rise in temperature alone will mean that the Central Valley of California, where many of California’s prisons are located, will have temperatures of at least 100°F during the summer.¹⁹ In recent times, temperatures as high as 116°F have been recorded there.²⁰

As temperatures continue to rise, so too will the challenges to the criminal justice system posed by climate change. Climate change can affect everyone in the criminal justice system—from law enforcement to defendants to judges to jurors—and it does not take much imagination to anticipate the additional problems for prison administrations when inmates are housed in sweltering heat or flooded correctional institutions. In other jurisdictions, climate events may directly impact the ability of courts to remain open.

In fact, a range of climate-related changes are already impacting American society. Flooding, intense winter storms, hurricanes, tsunamis,

this exact moment, the atmosphere would continue warming another 25 years.” WHITE, *supra* note 2, at 4.

¹⁶ *Climate Change: How Do We Know?*, *supra* note 15 (discussing conclusions reached in INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2013: SUMMARY FOR POLICYMAKERS 17 (2013)). See also B.D. Santer et al., *A Search for Human Influences on the Thermal Structure of the Atmosphere*, 382 NAT. 39, 45 (1996) (explaining that despite not being able to quantify the relative magnitude of human-induced climate effects, changes in temperature in the mid-20th century are *unlikely* to have been caused by the natural “variability” of the climate system, and thus show a statistical similarity between observed and model predictions of the impact of humans on the climate system); Gabriele C. Hegerl et al., *Detecting Greenhouse-Gas-Induced Climate Change with an Optimal Fingerprint Method*, 9 J. CLIMATE 2281, 2302 (1996) (nullifying the hypothesis that near-surface temperature rise in the mid-20th century is caused by natural variability of climate, by quantifying the probability of that being true at only about 2.5–5% likelihood); V. Ramaswamy et al., *Anthropogenic and Natural Influences in the Evolution of Lower Stratospheric Cooling*, 311 SCI. 1138, 1138 (2006) (climate model simulations show that the climatic cooling in the mid-20th century is “largely attributable” to the effect of both anthropogenic and natural factors, with anthropogenic factors [driving] the overall cooling during the period”); WHITE, *supra* note 2, at 4 (“The science of climate change demonstrate that global warming is not only ‘real’, and escalating, but is primarily due to anthropogenic or human causes.”).

¹⁷ *Sea Level*, NASA, <https://perma.cc/D5LW-7XEE> (last updated Apr. 5, 2021).

¹⁸ CLIMATE SCIENCE SPECIAL REPORT, FOURTH NATIONAL CLIMATE ASSESSMENT, EXECUTIVE SUMMARY 18–21 (2017).

¹⁹ *Historical Monthly Averages for July*, WEATHER 2, <https://perma.cc/G485-G8GW> (last visited Jan. 29, 2021).

²⁰ *Id.*

cyclones, and oppressive heat waves are all well documented.²¹ But the reports addressing climate change have yet to include discussions of how the changes in our world environment will impact the criminal justice system.²² Scientists are doing their jobs. Now, it is time for lawyers and legislators to do theirs by conducting a thorough examination of how climate change will affect the criminal justice system and what steps are needed to ameliorate its impacts.

This Article addresses three ways in which climate change poses challenges for the criminal justice system. First, climate change will impact the types of crimes that the criminal justice system will confront. For example, eco-migration is likely to lead to an increase in immigration offenses, while increased environmental regulations may lead to more fraud on the government. Second, climate change will impact our prison and jail systems, including where and under what conditions inmates can be held. Third, climate change will impact how traditional doctrines in criminal law, such as necessity and duress defenses, are used in the courts.

The recent coronavirus pandemic highlighted the need to plan for disasters in advance. As one commentator aptly stated:

To be clear, the coronavirus pandemic is a tragedy—a human nightmare unspooling in overloaded hospitals and unemployment offices. . . . But this global crisis is also an inflection point for that other global crisis, the slower one with even higher stakes, which remains the backdrop against which modernity now plays out.²³

That “other” crisis is the climate change crisis, and it is already on the way. Not only is it likely to have a devastating impact on the criminal justice system in general, but it will predictably have more impact on those individuals who are both most vulnerable to climate change and to the criminal justice system: low-income, Black, and Latinx neighborhoods.²⁴

²¹ See generally U.S. GLOBAL CHANGE RESEARCH PROGRAM, GLOBAL CLIMATE CHANGE IMPACTS IN THE UNITED STATES 27–30 (2009) (showing climate-related changes are already being observed in the U.S. and form the basis for projections that these conditions will only worsen with time).

²² See generally *id.* at 99–106 (lacking any discussion of the impact of climate change on the U.S. or global criminal justice systems).

²³ Meehan Crist, *What the Coronavirus Means for Climate Change*, N.Y. TIMES (Mar. 27, 2020), <https://perma.cc/EM58-KKLJ>.

²⁴ See Rhiana Gunn-Write, *Think This Pandemic is Bad? We Have Another Crisis Coming*, N.Y. TIMES (Apr. 15, 2020), <https://perma.cc/XL55-RPHA> (describing the statistics of African Americans and Latinx infected with COVID-19 in three different states); THE SENTENCING PROJECT, REPORT OF THE SENTENCING PROJECT TO THE UNITED NATIONS SPECIAL RAPPORTEUR ON CONTEMPORARY FORMS OF RACISM, RACIAL DISCRIMINATION, XENOPHOBIA, AND RELATED INTOLERANCE: REGARDING RACIAL DISPARITIES IN THE UNITED STATES CRIMINAL JUSTICE SYSTEM 1 (2018), <https://perma.cc/PY67-V43D> (“African-American adults are 5.9 times as likely to be incarcerated than whites and Hispanics are 3.1 times as likely. As of 2001, one of every three black boys born in that year could expect to go to

II. CRIMES IN A CLIMATE CHANGE ERA

It is not difficult to anticipate the types of crimes that may increase from climate change. While a diminution in food and resources could lead to an increase in all kinds of crimes, there are at least four particular types of crimes that may be most directly impacted by climate change. These include immigration offenses, crimes during major weather events, fraud, and national security offenses. Additionally, crimes stemming from disinformation campaigns or negligent disregard for the risks of climate change may also arise. All of these are exacerbated by the myriad of environmental violations that create or compound the problem of climate change.

Efforts are now needed to track, prevent, and respond to many of these offenses. As these crimes are examined, it is important to keep in mind that the impact will likely fall disproportionately on those who are traditionally most vulnerable in our society. “Women will suffer more than men, people of colour more than the non-Indigenous and the non-migrant, the young and the elderly more than the adult, and the infirm and disabled of all ages.”²⁵

*A. Crimes Impacted by Climate Change**1. Immigration-Related Offenses*

The phenomenon of eco-migration is now well documented.²⁶ In the aftermath of environmental disasters, people have no choice but to leave the affected area and migrate to other locations. Domestically, this occurred after Hurricane Katrina in 2005, when there were large population movements from the New Orleans area to other cities in the United States²⁷ and during the Dust Bowl in the 1930s.²⁸ While those migrations caused economic stresses on communities, they did not

prison in his lifetime, as could one of every six Latinos—compared to one of every seventeen white boys.”).

²⁵ WHITE, *supra* note 2, at 3.

²⁶ See Mariam Traore Chazalnoël & Dina Ionesco, *A Climate Crisis and the World on the Move: Implications for Migration Management*, WILSON CTR. (Sept. 30, 2020), <https://perma.cc/6G9K-C7SJ> (noting that climate related migration has become increasingly visible and multiple international organizations have developed recommendations to assist nations in policy development). In 2019, 25 million people were displaced within their own countries by weather-related disasters and the World Bank estimates that by 2050, 140 million people could be compelled to move because of climate impacts. *Id.* There can be massive migration within a country's borders and across nation borders. Abrahm Lustgarten, *How Climate Migration Will Reshape America*, N.Y. TIMES (Feb. 15, 2021), <https://perma.cc/Z99Q-6387>.

²⁷ Rafael Reuveny, *Ecomigration and Violent Conflict: Case Studies and Public Policy Implications*, 36 HUMAN ECOLOGY 1 (2007); *Climate Change Likely to Result in Eco-migration: What Can Be Done?*, SCI. DAILY (Nov. 28, 2007), <https://perma.cc/YW9V-67WJ> (summarizing Reuveny's article in HUMAN ECOLOGY).

²⁸ Reuveny, *supra* note 27, at 4.

implicate the immigration laws that would impact eco-migration from countries outside the United States.

The last decade has brought escalating numbers of immigrants from Central America.²⁹ Although portrayed by some political figures as dangerous bands of criminals, their rate of crime is not that different than that of other young U.S.-born males from a lower socioeconomic status.³⁰ In fact, recent studies indicate that there is no causal connection between immigration and crime in the United States.³¹ However, there are some criminal laws that immigrants are more likely to violate when entering the United States, namely immigration laws restricting entrance into the country.

The immigration process is generally governed by administrative laws and regulations.³² Merely applying for entry when one is not eligible is not a crime in itself. Efforts to make improper entry, however, may be an offense. Pursuant to 8 U.S.C. § 1325, improper entry may be subject to a criminal penalty if an individual enters or attempts to enter the United States at any time or place other than one designated by U.S. immigration officers (for example, not at a border inspection point or other point of entry) or an individual eludes examination by U.S. immigration officials (for example, by hiding in the trunk of a car) or attempts to enter or obtain entry by making false or misleading statements on a visa application or by obtaining false entry documents.³³ Generally, the penalty for a first improper entry offense is a misdemeanor.³⁴ However, subsequent offenses may be punishable by up to two years in prison.³⁵

²⁹ See D'VERA COHN ET AL., PEW RESEARCH CTR., RISE IN U.S. IMMIGRANTS FROM EL SALVADOR, GUATEMALA, AND HONDURAS OUTPACES GROWTH FROM ELSEWHERE 4–5 (2017) (explaining that from 2007 to 2015, the number of immigrants in the United States from El Salvador, Guatemala, and Honduras rose 25% and roughly 115,000 immigrants from those three countries arrived in the United States in 2014, all while immigration from Mexico was declining).

³⁰ See ANTI-DEFAMATION LEAGUE, MYTHS AND FACTS ABOUT IMMIGRANTS AND IMMIGRATION (2019), <https://perma.cc/C6U9-AD6F> (explaining that while undocumented immigration from 1990 to 2010 has increased, the violent crime rate in the United States during that time had decreased by 45% and that immigrants are less likely to be incarcerated than native-born Americans).

³¹ Anna Flagg, *Is There a Connection Between Undocumented Immigrants and Crime?*, N.Y. TIMES (May 13, 2019), <https://perma.cc/W84H-YMGL>.

³² Jill E. Family, *Administrative Law Through the Lens of Immigration Law*, 64 ADMIN. L.R. 565, 567 (2012).

³³ 8 U.S.C. § 1325 (2018).

³⁴ See *id.* (providing that “[a]ny alien who (1) enters or attempts to enter the United States at any time or place other than as designated by immigration officers, or (2) eludes examination or inspection by immigration officers, or (3) attempts to enter or obtains entry to the United States by a willfully false or misleading representation or the willful concealment of a material fact, shall, for the first commission of any such offense, be fined under title 18 or imprisoned not more than 6 months. . .”).

³⁵ *Id.* (providing that “for a subsequent commission of any such offense, be fined under title 18, or imprisoned not more than two years, or both); *id.* § 1326(a) (providing that any immigrant who has been denied admission from the United States and attempts to enter or reenter the country “shall be fined under title 18, or imprisoned not more than two years, or both”).

Most criminal immigration offenses involve individuals who have been deported and then attempted reentry.³⁶ If an individual is deported because of the commission of a crime in the United States, the penalty may depend on the nature of the underlying crime leading to deportation.³⁷ For nonviolent offenders removed from the United States, the penalty can be up to ten years imprisonment; for violent offenders, the penalty can be up to twenty years in prison.³⁸

If an administration takes an aggressive posture against illegal immigration by criminally charging those who seek to enter the United States without proper authorization, the criminal justice system should be ready for a tsunami of new cases. The estimated numbers of new migrants coming to the United States because climate change has made their countries unsustainable is in the millions.³⁹ Experts estimate that around 2 million individuals will be displaced from Central America due to factors related to climate change.⁴⁰ The number of displaced persons from the region could be up to almost 4 million if changes are not made to deal with climate change.⁴¹ Already, 95% of the increase in federal arrests across twenty years was due to immigration offenses.⁴²

The criminal justice system is not equipped to deal with such an influx of individuals, even if one thought that illegal entry should result in criminal prosecution. The current population of federal inmates is 152,259.⁴³ Over 13,000 individuals are in federal prison because of criminal convictions for immigration offenses, with 10,600 more being held pretrial by the U.S. Marshals.⁴⁴ Even a minor, incremental increase in the number of individuals seeking illegal entry due to climate change is likely to swamp the criminal justice system.⁴⁵ Yet, the federal

³⁶ *Criminal Alien Statistics Fiscal Year 2020*, U.S. CUSTOMS & BORDER PROTECTION, <https://perma.cc/YQE6-VVLQ> (last updated Jan. 7, 2021).

³⁷ 8 U.S.C. § 1326(b) (detailing imprisonment levels based on the crime that the immigrant was deported from the United States for committing).

³⁸ *Id.*

³⁹ Abrahm Lustgarten, *The Great Climate Migration*, N.Y. TIMES <https://perma.cc/7VSW-Z2QA> (last visited Jan. 29, 2021).

⁴⁰ Miranda Cady Hallett, *How Climate Change is Driving Emigration from Central America*, PBS (Sept. 8, 2019), <https://perma.cc/PJJ3-JXUX>. Globally, the number of climate migrants might reach 1 billion by 2050, although there are no specific numbers as to how many of those migrants might seek refuge in the United States. See Baher Kamal, *Climate Migrants Might Reach One Billion by 2050*, RELIEFWEB (Aug. 21, 2017), <https://perma.cc/4UE2-RK6Q>.

⁴¹ *Id.*

⁴² Mark Motivans, *Immigration, Citizenship, and the Federal Justice System*, BUREAU OF JUSTICE STATISTICS, <https://perma.cc/4NEM-PXEZ> (last visited Jan. 29, 2021).

⁴³ *Population Statistics*, FED. BUREAU OF PRISONS, <https://perma.cc/UC4L-6DSP> (last visited Jan. 29, 2021) (as of April 1, 2021 there were 152,259 inmates in the federal prison system; however, this number is constantly changing).

⁴⁴ Wendy Sawyer & Peter Wagner, *Mass Incarceration: The Whole Pie 2019*, PRISON POLICY INITIATIVE (Mar. 19, 2020), <https://perma.cc/ZD9W-3MX8>.

⁴⁵ The influx in immigrants has already led to massive detention. Almost 400,000 people each year currently spend time in a locked facility as a result of a civil or criminal immigra-

government has not created a task force to specifically address the likely impact of climate change on its criminal justice system, although the Department of Homeland Security under President Biden seems to have adopted more of a focus on how climate change will affect migration and, therefore, the work of the agency.⁴⁶

Just like mass incarceration did not solve the drug epidemic,⁴⁷ there is no reason to believe that having more prosecutors, courts, and prosecutions will come close to adequately addressing the influx of migrants who will seek entry to the United States—legally or illegally. Much like we need our approach to the drug epidemic to shift from a punitive model to an examination of the underlying causes of addiction and proposed health solutions,⁴⁸ the criminal justice system will need to pivot to find non-penal approaches to the likely increase in illegal migration. Many of these solutions may focus on investment in less developed countries and the problems caused by climate change.⁴⁹

tion proceeding. America has become obsessed with locking up immigrants, including children and families. *See* CESAR CUAUHTEMOC & GARCIA HERNANDEZ, *MIGRATING TO PRISON* 82 (2019) (noting that ICE’s “SWAT team-style forces” have contributed to the detention of about 400,000 annually).

⁴⁶ *See* Zolan Kanno-Youngs, *Biden Faces Early Test with Immigration and Homeland Security After Trump*, N.Y. TIMES (Nov. 15, 2020), <https://perma.cc/3KUG-H8HD> (“While the agency will not become ‘the department of climate,’ The next homeland security leaders could rely on climate science to predict migration from places like Guatemala, where coffee rust has disrupted crops farmers rely on.”).

⁴⁷ *See generally* RACHEL ELISE BARKOW, *PRISONERS OF POLITICS 2* (2019) (explaining the impact of failed policies and dysfunctional politics on incarceration and public safety objectives); Brendan Walden, *Addicted to the War on Drugs*, 5 U. PA. J.L. & PUB. AFF. 1, 2–3 (2019) (explaining that “[d]espite decades of concentrated reform efforts, the level of drug arrests continues to rise” and that the United States has an incarceration rate “further above every other country in the world” that “extensive analysis still shows no significant link between the intensity of drug enforcement and rates of drug use”); Ernest Drucker, *Drug Law, Mass Incarceration, and Public Health*, 91 OR. L. REV. 1097, 1099–1100 (2013) (describing the correlation between the War on Drugs and the increase in the prison population in the United States and concluding that “[t]hese decades of growth and eventual record levels became the cornerstones of the epidemiology of mass incarceration in America—and clearly resulted from our drug policies.”).

⁴⁸ *See generally* JUSTICE POLICY INST., *FINDING DIRECTION: EXPANDING CRIMINAL JUSTICE OPTIONS BY CONSIDERING POLICIES OF OTHER NATIONS 2, 4* (2011) (summarizing key policies regarding the punitive response to drug use).

⁴⁹ For example, expert Rafael Reuveny has proposed a five-part approach when examining migration as a result of climate change in less developed countries (LDCs):

1. Stimulate economic growth in LDCs in order to reduce their dependence on the environment and enable investment in development and enforcement of environmental regulations and cleanup plan;
2. Promote lower population growth in LDCs in order to reduce the pressure on the environment;
3. Offset economic growth in LDCs with contraction in [developed countries (DCs)], keeping the rise in greenhouse gasses in check;
4. Begin adapting for climate change now in places prone to conflict and ecomigration; and

In addition to immigration violations by individual migrants, one can also anticipate an increase in human trafficking cases as displaced persons seek refuge within the United States.⁵⁰ Columbia Law School Professor Michael B. Gerrard warns of a large increase in the number of people who will be vulnerable to human trafficking as a result of climate change.⁵¹ As he details, “[i]t is well-documented that displacement leads to a considerable increase in human trafficking.”⁵² Disasters take a particular toll on women as families and livelihoods are lost.⁵³ The desperate conditions for women and their children create a prime environment for human trafficking.⁵⁴ In addition to stemming climate change, the criminal justice system will need enough resources and law enforcement personnel to intervene in human trafficking. They will also need to create sufficient trust among immigrants to detect and respond appropriately to such crimes.⁵⁵

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5. Fund these activities by using DCs funds, since the DCs over-reliance on fossil fuel created most of the current problem. This step could be achieved, for example, by raising taxes in DCs and investing the revenues in LDCs.

Ecomigration: Global Warming Will Increase Environmental Refugees, MONGABAY (Nov. 28, 2007), <https://perma.cc/9DDY-LW78>.

⁵⁰ See generally JOHN P. CRANK & LINDA S. JACOBY, *CRIME, VIOLENCE, AND GLOBAL WARMING* 180–81 (2015) (explaining that increased migration due to climate change leads to more individuals being enslaved through various forms of human trafficking, like sex trafficking). See also U.S. DEP’T OF STATE, *TRAFFICKING IN PERSONS REPORT* (2020), <https://perma.cc/7RBX-NDS9> (providing data on human trafficking trends, emerging issues, promising practices, and important developments such as the passage of anti-trafficking laws); *Human Trafficking in the Wake of a Disaster*, CTNS. FOR DISEASE CONTROL & PREVENTION, <https://perma.cc/GN9W-HTJC> (last visited Feb. 1, 2021).

⁵¹ See generally Michael B. Gerrard, *Climate Change and Human Trafficking After the Paris Agreement*, 72 U. MIAMI L. REV. 345 (2018).

⁵² *Id.* at 358. See also Mellissa Withers, *The Human Cost of Climate Change*, PSYCHOL. TODAY (May 29, 2020), <https://perma.cc/G52F-JDW6> (describing that climate refugees or migrants, also referred to as “environmentally displaced people,” lack the protection of other political refugees and are subject to increased exploitation).

⁵³ Gerrard, *supra* note 51, at 358. In general, climate breakdown, such as rising temperatures, are now seen as being a direct cause of increased violence against women. Orthalia Kunene, *Climate Breakdown Fuels Violence Against Women*, ECOLOGIST (Mar. 1, 2021), <https://perma.cc/A9VW-P88U>.

⁵⁴ Priyali Sur, *Climate Change and Human Trafficking: A Deadly Combination*, DIPLOMAT (Feb. 25, 2015), <https://perma.cc/J48S-JTTA>.

⁵⁵ See AMY FARRELL ET AL., *IDENTIFYING CHALLENGES TO IMPROVE THE INVESTIGATION AND PROSECUTION OF STATE AND LOCAL HUMAN TRAFFICKING CASES* 105 (2012). Police are “often unprepared for the amount of trauma suffered by” human trafficking victims, which makes investigations more difficult. Victims who believe “they had no viable alternatives” to being trafficked are less likely to cooperate with authorities. Evidence from reluctant victims is hard to collect and corroborate. *Id.* Several federal prosecutors stated that gaining cooperation from victims is one of, if not the largest, hurdle in a human trafficking case because of victims’ distrust of the legal system, fear of retribution, love for the trafficker, trauma, and victims’ desires to move on with their lives. Human trafficking cases may take upwards of two years to prosecute from the referral stage. *Id.* at 201–02.

In September 2020, the Department of Justice allocated \$101 million for human trafficking crimes.⁵⁶ In 2017–2018, the Department of Justice served 4,739 new clients through the Office for Victims of Crime.⁵⁷ The Department will need a staggering investment of resources as the number of victims multiplies. Moreover, many of these resources go to separate agencies that provide services to victims of human trafficking. These services typically include: intake and eligibility assessment, shelter or housing and sustenance, medical care and substance abuse treatment, counseling, translation services, family legal assistance, victim advocacy, literacy education, life skills training, and response to client emergencies.⁵⁸ However, these costs do not reflect what is necessary for law enforcement to develop the tools to prevent such crimes, including by infiltrating trafficking organizations and providing safe havens for migrants most vulnerable to such schemes.

Recognizing that the criminal justice system does not have the resources to address the impact of climate change on immigration enforcement may cause policymakers to focus directly on the need to reduce carbon emissions and make climate change a priority. Just as the criminal justice system cannot be the solution to other major societal problems, such as mental illness,⁵⁹ the prisons and courts will not be able to prevent or respond to the huge wave of immigration offenses that are likely to be generated by eco-migration and other consequences of climate change.

2. *Weather-Event Theft Crimes and Crimes Against Persons*

By now, the criminal justice system should be on notice that increasingly numerous and extreme weather events are likely to trigger crimes that accompany those events. While we tend to focus on extreme weather events such as hurricanes, floods, and wildfires,⁶⁰ climate change

⁵⁶ OFFICE OF JUSTICE PROGRAMS, DEP'T OF JUSTICE, JUSTICE DEPARTMENT AWARDS NEARLY \$101 MILLION TO COMBAT HUMAN TRAFFICKING: FACT SHEET (2020).

⁵⁷ PRESIDENT'S INTERAGENCY TASK FORCE, REPORT ON U.S. GOVERNMENT EFFORTS TO COMBAT TRAFFICKING IN PERSONS 11 (2019).

⁵⁸ See *Matrix of OVC/BJA-Funded Human Trafficking Services Grantees and Task Forces*, OFF. FOR VICTIMS OF CRIME, <https://perma.cc/2V2L-XNYU> (last visited Feb. 2, 2021) (indexing the various housing, medical, and legal services provided to human trafficking victims in each state).

⁵⁹ See German Lopez, *How America's Criminal Justice System Became the Country's Mental Health System*, VOX (Oct. 18, 2016), <https://perma.cc/BKR9-VN4R>.

⁶⁰ See U.S. GLOBAL CHANGE RESEARCH PROGRAM, *supra* note 9, at 27 (discussing the effects of climate change on increased precipitation and flooding); Kyle Bagenstose et al., *Millions of Americans Think They're Safe from Flood Waters. They Aren't*, USA TODAY (June 29, 2020), <https://perma.cc/X2QQ-QJQJ>; Rebecca Miller et al., *Climate Change is Central to California's Wildfires*, SCIENTIFIC AMERICAN (Oct. 29, 2020), <https://perma.cc/DJ9V-N79R>; *Wildfires and Climate Change*, CTR. FOR CLIMATE AND ENERGY SOLUTIONS (Dec. 27, 2020), <https://perma.cc/CF8A-NUQL>.

is also leading to slow-moving events, such as droughts.⁶¹ These conditions increase water and food insecurity, which can lead individuals to go outside lawful channels to obtain the basics for human survival.⁶² The criminal justice system must anticipate and be prepared to address both types of climate events and their likely impact. Major climate events have already occurred and have been accompanied by surges in crime.⁶³

a. Looting and Property Crimes

Looting is no myth. It predictably happens after major weather events.⁶⁴ The first systematic professional use of the term “looting” occurred after the 1952 Arkansas tornado,⁶⁵ although actions that we would now call “looting” occurred long before that tornado. “Looting” refers to a category of crimes where individuals or groups take advantage of an opportunistic setting to steal from businesses or homes.⁶⁶ Looting after a natural disaster is not a new phenomenon. It occurred after the massive earthquake that struck San Francisco in 1906,⁶⁷ the flood caused by Hurricane Agnes in Pennsylvania in 1972,⁶⁸ Hurricane Hugo in 1985,⁶⁹ Hurricane Katrina in 2005,⁷⁰ Superstorm Sandy in 2012,⁷¹ and Hurricane

⁶¹ Drought conditions devastate farmland and water supplies, depleting the food and water supply for both humans and livestock. U.S. GLOBAL CHANGE RESEARCH PROGRAM, *supra* note 9, at ch. 1.

⁶² Climate change affects all aspects of the economy. Increased damage to coastal infrastructure threatens the supply of energy and access to goods and services from overseas trade. *Id.* Such “slow-moving” events also threaten military assets that are built on coastlines. *Id.* at Figure 1.9.

⁶³ Matthew Ranson, *Crime, Weather, and Climate Change 2* (M-RCBG Associate Working Paper Series No. 8, 2012).

⁶⁴ Kelly Frailing, *The Myth of a Disaster Myth: Potential Looting Should be Part of Disaster Plans*, NAT'L HAZARDS OBSERVER, Mar. 2007, at 3.

⁶⁵ E.L. Quarantelli, *Looting After a Disaster: A Myth or Reality?*, NAT'L HAZARDS OBSERVER, Mar. 2007, at 1, 2.

⁶⁶ California defines looting as burglary “during and within an affected county in a ‘state of emergency’ or a ‘local emergency,’ or under an ‘evacuation order,’ resulting from an earthquake, fire, flood, riot, or other natural or manmade disaster.” CAL. PENAL CODE § 463(a) (2019). Other states also employ civilian looting statutes during times of disaster. *See* Stuart P. Green, *Looting, Law, and Lawlessness*, 81 TUL. L. REV. 1129, 1140–41 (2007) (listing the seven states that have statutes that prohibit looting in the wake of a natural disaster. These states include California, Hawaii, Illinois, Louisiana, Mississippi, North Carolina, and South Carolina).

⁶⁷ Kevin Mullen, *The Dark Days After the 1906 Earthquake: New Orleans’ Chaos Echoes S.F. Violence*, S.F. GATE, <https://perma.cc/Y599-TVWT> (last updated Jan. 16, 2012).

⁶⁸ THE SOCIOLOGY OF KATRINA: PERSPECTIVES OF A MODERN CATASTROPHE 63 (David L. Brunsmma et al. eds., 2d ed. 2010).

⁶⁹ William Branigin, *Hurricane Hugo Haunts Virgin Islands*, WASH. POST FOREIGN SERV. (Oct. 31, 1989), <https://perma.cc/UAE3-MEE9>.

⁷⁰ Using burglary as a proxy for looting, researchers found that there was a nearly 200% increase in burglary the month after Hurricane Katrina compared to the month before. Kelly Frailing et al., *Changes and Challenges in Crime and Criminal Justice After Disaster*, 59 AM. BEHAV. SCIENTIST 1278, 1279 (2015).

⁷¹ James Barron, *New York Region Faces Rescues, Looting and a Rising Death Toll*, N.Y. TIMES (Oct. 31, 2012), <https://perma.cc/3WZ3-566B>.

Harvey in Houston in 2017.⁷² When Hurricane Hugo hit St. Croix in the U.S. Virgin Islands in 1985, up to 90% of the businesses in the island's largest shopping mall were looted.⁷³ Sometimes, looting is a coordinated effort by criminal groups and gangs; sometimes, it is the action of lone individuals. No matter which, looting is a weather-related crime that can be anticipated and should be prepared for by those in the criminal justice system.

After Hurricane Katrina, a bipartisan committee of the U.S. House of Representatives was created to investigate the preparation for and response to that hurricane.⁷⁴ As detailed in their report, “[g]overnment failed because it did not learn from past experiences, or because lessons thought to be learned were somehow not implemented. *If 9/11 was a failure of imagination, then Katrina was a failure of initiative. It was a failure of leadership.*”⁷⁵ The Katrina report is valuable in identifying the challenges to law enforcement when there is civil unrest following a natural disaster.

If Hurricane Katrina can serve as an example, lawlessness can be expected in crowded areas where people are uncertain about their survival, rescue, or prospects for evacuation.⁷⁶ Certainly, there should be preparations to prevent people from being put in this situation, but assuming that there is a high likelihood for unrest, the criminal justice system must anticipate the need for 1) specialized and additional law enforcement personnel who are trained in emergency management;⁷⁷ 2) a public communications system that coordinates law enforcement and the courts and informs the public;⁷⁸ 3) guidelines for detention, including

⁷² Stephen Paulsen, *A Look at the Looters of Hurricane Harvey*, HOUS. PRESS, <https://perma.cc/3QXS-KZDM> (last updated Oct. 23, 2017).

⁷³ Branigin, *supra* note 69.

⁷⁴ SELECT BIPARTISAN COMMITTEE TO INVESTIGATE THE PREPARATION FOR AND RESPONSE TO HURRICANE KATRINA, A FAILURE OF INITIATIVE: FINAL REPORT OF THE SELECT BIPARTISAN COMMITTEE TO INVESTIGATE THE PREPARATION FOR AND RESPONSE TO HURRICANE KATRINA, H.R. REP. NO. 109-000-000, at ix (2006).

⁷⁵ *Id.* at xi.

⁷⁶ *Id.* at 241.

⁷⁷ During Hurricane Katrina, not only did the police not have enough officers to manage the streets, conduct arrests, book, and detain suspects, but they had the additional problem of rogue officers who participated in the lawlessness by, for example, stealing cars from abandoned businesses. *Id.* Ultimately, 240 members of the 1,450-member New Orleans Police Department were unaccounted during the disaster, and 51 were fired for desertion. *New Orleans Police Fire 51 for Desertion*, NBC NEWS (Oct. 28, 2005), <https://perma.cc/E2KY-6ZBJ>. Moreover, to the extent there is a need for federal law enforcement personnel, joint operation plans need to be in place long before the triggering event. *See generally* FED. EMERGENCY MGMT. AGENCY, SLG 101: GUIDE FOR ALL-HAZARD EMERGENCY OPERATIONS PLANNING (9/96) (1996) at i, iii (stressing the importance of joint responsibility between the federal government, states, and local governments when responding to emergencies).

⁷⁸ In 2006, following Hurricane Katrina, the Conference of State Court Administrators issued a position paper on emergency preparedness in the state courts. As noted in that paper, it is critical to have sufficient communications and operational court systems when an emergency occurs. *See generally* CONFERENCE OF STATE COURT ADMIN'RS, POSITION PAPER ON EMERGENCY PREPAREDNESS IN THE STATE COURTS (Dec. 2006),

where arrestees will be housed;⁷⁹ and very importantly, 4) an analysis of whether the role of any Department of Defense forces who are brought in to assist are in compliance with the Posse Comitatus laws.⁸⁰

The Posse Comitatus Act, 18 U.S.C. § 1385, provides: “Whoever . . . willfully uses any part of the Army or the Air Force as a posse comitatus or otherwise to execute the laws shall be [guilty of a felony].”⁸¹ The Act was born of the colonists’ resentment of British soldiers dispatched to take control of the disgruntled civilian population.⁸² However, throughout early American history, federal officials would call on militias to help with law enforcement. The real impetus for passage of the Act was the use of soldiers following the Civil War.⁸³ Southern officials invoked posse comitatus in service of the Fugitive Slave Act of 1850⁸⁴ to obtain assistance in capturing people trying to escape from slavery.⁸⁵

Although its contours are not precisely defined, the Posse Comitatus Act generally prohibits military troops from acting as law enforcement officers with the civilian population.⁸⁶ Military personnel are trained to be warriors, not peace officers.⁸⁷ They can provide logistical and crucial humanitarian support during natural disasters, but they cannot be the primary law enforcers.

<https://perma.cc/D84U-G274>. The American Bar Association has also issued plans for emergency that focus on communications and the critical role they play during an emergency. AM. BAR ASS’N, DISASTER RECOVERY PLANNING FOR COURTS: A GUIDE TO BUSINESS CONTINUITY PLANNING, <https://perma.cc/H46K-RN93>.

⁷⁹ During COVID-19, courts across the country have issued new guidelines regarding detention during the pandemic. Similar guidelines need to be adopted for court shutdowns due to other types of emergencies, including those caused by major climate events. A list of pretrial release policies created during COVID-19 can be found at *Pretrial Release*, NAT’L CONF. OF ST. LEGISLATURES, <https://perma.cc/LGK3-JKJNY> (last visited Apr. 5, 2021).

⁸⁰ See generally Michael Greenberger & Arianne Spaccarelli, *The Posse Comitatus Act and Disaster Response*, in HOMELAND SECURITY AND EMERGENCY MANAGEMENT: A LEGAL GUIDE FOR STATE AND LOCAL GOVERNMENTS 41, 41–60 (Ernest B. Abbott & Otto J. Hetzel eds., 2010), <https://perma.cc/3BV8-N6DU>.

⁸¹ Posse Comitatus Act of 1878, 18 U.S.C. § 1385 (2018). Although not mentioned in the original Act, the Navy and Marine Corps were made subject to the Act. 32 C.F.R. § 213.2 (1992). The Coast Guard is exempt from the Posse Comitatus Act during peacetime. ERIC V. LARSON & JOHN E. PETERS, PREPARING THE U.S. ARMY FOR HOMELAND SECURITY CONCEPTS, ISSUE, AND OPTIONS 245 (2001), <https://perma.cc/K7FW-XRY6>.

⁸² For a complete history of the Act, see JENNIFER K. ELSEA, CONGRESSIONAL RESEARCH SERVICE, THE POSSE COMITATUS ACT AND RELATED MATTERS: THE USE OF THE MILITARY TO EXECUTE CIVILIAN LAW 5–20 (2018), <https://perma.cc/G6P5-FEKU>.

⁸³ See *id.* at 21 (suggesting that the passage of the Posse Comitatus Act was in response to the use of federal troops to execute laws in states that had been part of the confederacy).

⁸⁴ Fugitive Slave Act of 1850, Pub. L. 31-60, 9 Stat. 462 (1850).

⁸⁵ David Kopel, *Sheriffs and the Posse Comitatus*, WASH. POST (May 15, 2014), <https://perma.cc/6UCZ-JA53>.

⁸⁶ See ELSEA, *supra* note 82, at 5–6 (finding that the Constitution does not explicitly prohibit using a standing army to control civilians but that the role of troops serving as a posse comitatus remained subordinate to civil law enforcement authorities).

⁸⁷ Gene Healy, *What of ‘Posse Comitatus?’*, CATO INST. (Oct. 7, 2005), <https://perma.cc/RHV2-48YD>.

Despite this restriction, Congress has created many exceptions to the Posse Comitatus Act.⁸⁸ They have done so by expressly authorizing a branch of the Armed Forces to provide certain types of assistance.⁸⁹ For example, the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1974⁹⁰ generally authorizes the president, at the request of a state governor, to deploy Department of Defense resources and personnel to assist in response and recovery efforts.⁹¹ The Insurrection Act⁹² also permits federal military intervention when the president believes it is necessary to suppress in a State any insurrection or domestic violence, such as when violence erupted in the wake of Hurricane Katrina.⁹³ In fact, Congress has enacted more than twenty exceptions to the Posse Comitatus Act,⁹⁴ including an authorization in the Comprehensive Environmental Response, Compensation, and Liability Act.⁹⁵ Generally, there has not been too much concern about the law given both these exceptions and that no person has actually been criminally charged for violating the Act.⁹⁶ Rather, defendants sometimes use the law to seek the suppression of evidence seized by military officials.⁹⁷

In light of this law, and the growing number of natural disasters we can anticipate, there is an ongoing need to set the boundaries for military assistance during civil unrest. This may be done by statute, regulations, special oversight committees, or even a judicial certification process by which the government would seek a warrant for the deployment of the military for law enforcement functions.⁹⁸

However it occurs, climate change is likely to lead to more incidents in which local law enforcement will need substantial assistance. However, it matters how that assistance is provided and whether the need to respond quickly to increased unrest can be accomplished without violating important principles and laws adopted to protect the overall population's Fourth Amendment rights.

⁸⁸ These exceptions include the Coast Guard's "broad law enforcement responsibilities," at the president's discretion "in times of insurrection and domestic violence," when the governor of a state where a "major disaster" has occurred requests aid, and the military's restricted ability to share equipment and information with civilian law enforcement, among others. *ELSEA*, *supra* note 82, at 31–33.

⁸⁹ *Id.* at 31.

⁹⁰ 42 U.S.C. §§ 5121–5207 (2018).

⁹¹ *Id.* § 5170b(a)(3)(E).

⁹² 10 U.S.C. § 254 (2018).

⁹³ 10 U.S.C. § 333.

⁹⁴ 18 U.S.C. § 1385 (2018).

⁹⁵ 42 U.S.C. §§ 9601–9675 (2018); See Greenberger & Spaccarelli, *supra* note 80, at 48–49.

⁹⁶ *See id.* at 66 (stating that there has never been a reported prosecution under the Act).

⁹⁷ *Id.*

⁹⁸ *See* Sean McGrane, *Katrina, Federalism, and Military Law Enforcement: A New Exception to the Posse Comitatus Act*, 108 MICH. L. REV. 1309, 1339–40 (2010) (receiving judicial approval first may offset politically adverse consequences of a president deploying troops pursuant to the Insurrection Act).

b. Crimes Against Persons

Sadly, we have also learned from past weather-related events that the displacement of individuals and, sometimes, the relocation of unsecured facilities, can lead to an increase in crimes against persons.⁹⁹ In the aftermath of Hurricane Katrina, there were reports of a spike in the number of sexual offenses against displaced individuals.¹⁰⁰ Originally, the official number of rapes and attempted rapes was only four.¹⁰¹ However, a subsequent report by crime victims' groups found that there were substantially more such incidents.¹⁰² Ultimately, there were 156 reports of post-Katrina violent crimes—about one-third of those involving sexual assaults.¹⁰³

Judy Benitez, the executive director of the Louisiana Foundation Against Sexual Assault, provided a cogent explanation for the torrent of sexual offenses in the wake of the hurricane:

What you had was a situation where you've got a tremendous number of vulnerable people, and then some predatory people who had all of the reasons to take their anger out on someone else. Drug and alcohol use is another contributing factor, and no police presence to prevent them from doing whatever they wanted to, to whomever they wanted to.¹⁰⁴

The increase in sexual assaults that occurred following Hurricane Katrina repeated itself in Hurricane Rita, which hit New Orleans a month later.¹⁰⁵ Shelters were the most common site of reported sexual violence.¹⁰⁶ As extreme weather events increase, the criminal justice system must be prepared to address the violence that occurs against persons both on the streets and in the very shelters that are supposed to protect them. Although reliable statistics regarding the increase in such violence are not always available,¹⁰⁷ the prudent course is to assume an increase in crimes, take steps to prevent it and, should it occur, address

⁹⁹ According to experts, climate change could lead to 2 to 3 million more violent crimes between now and the end of the century. See Ryan D. Harp & Kristopher B. Karnauskas, *Global Warming to Increase Violent Crime in the United States*, *Env't Res. Letters*, Mar. 2020, at 2–5 (predicting there will be an additional 3.2 million violent crimes under a “business-as-usual” scenario).

¹⁰⁰ John Burnett, *More Stories Emerge of Rapes in Post-Katrina Chaos*, NAT'L PUB. RADIO (Dec. 21, 2005), <https://perma.cc/NN94-BHSZ>.

¹⁰¹ *Id.*

¹⁰² *Id.* (explaining that in the six weeks that the website had been up, 42 reports on sexual assault had been received).

¹⁰³ *Id.*

¹⁰⁴ *Id.*

¹⁰⁵ Anna North, *Hurricane Katrina Left Survivors Vulnerable to Sexual Assault. Here's How to Protect Irma Evacuees*, *VOX* (Sep. 11, 2017), <https://perma.cc/449R-L23A>.

¹⁰⁶ *Id.*

¹⁰⁷ Gail Levy, *A Look at Violent Crime Rates Since Hurricane Michael*, *WJHG* (Jan. 7, 2020), <https://perma.cc/KY4N-U3GD>. Frederick D. Weil et al., *Collective Resources and Violent Crime Reconsidered: New Orleans Before and After Hurricane Katrina*, 10 *J. INTERPERSONAL VIOLENCE* (Jan. 15, 2019), <https://perma.cc/L4BK-8WJD>.

it. This includes improved training for law enforcement, post-disaster sheltering and housing, more support services for women, and a review of service providers' readiness.¹⁰⁸

The criminal justice system must be particularly prepared to address the needs of the most vulnerable victims—namely, children who seem to face an increased rate of abuse after a natural disaster:

Inflicted traumatic brain injury (TBI) is one of the most severe forms of child abuse, often leading to hospitalization and even death. In the six-month period after Hurricane Floyd hit North Carolina, the rate of inflicted TBI in children under two showed a fivefold increase in counties severely affected by the hurricane, while in counties less affected or not affected, there was no increase in the rate. Other U.S. studies have also shown post-disaster increases in child abuse reports.¹⁰⁹

Each severe weather event will pose its own challenges, but for the criminal justice system, the prospect of an increase in violent crimes, especially against children, requires a plan of action for how emergency services and law enforcement prepare and respond. One consideration needs to be where to house violent criminals if regular jail facilities are not available. A second consideration is where the courts will hold proceedings and whether ordinary rules of procedure, such as the forty-eight-hour rule under *County of Riverside v. McLaughlin*,¹¹⁰ will be suspended. Prosecutors and defense lawyers must be positioned to deal with such cases, as well. A brief survey of the emergency action plans of five major U.S. jurisdictions shows that, while some jurisdictions appear to have plans for conducting court proceedings and housing inmates during a crisis, the plans are largely shielded from public view.

For example, Los Angeles Superior Court staff said it had Continuity of Operation Plans and local emergency plans in place in case of emergencies like extreme weather and could transfer cases between courthouses in exigent circumstances, but specific plans were not available for review due to the sensitivity of the information.¹¹¹ Further, the court staff said the court's responses to the COVID-19 pandemic will likely inform its responses to other emergencies.¹¹² In response to the

¹⁰⁸ Frailing et al., *supra* note 70, at 1286.

¹⁰⁹ WORLD HEALTH ORGANIZATION [WHO], VIOLENCE AND DISASTERS 1 (2005), <https://perma.cc/9WVD-D9VX>. International studies also report that “women and children are at much more risk of sexual abuse during and after natural disasters than before.” WHITE, *supra* note 2, at 66.

¹¹⁰ 500 U.S. 44, 56 (1991).

¹¹¹ E-mail from Adam Saurin, Emergency Manager, Superior Court of California, to Charles Lam (June 10, 2020) (on file with author).

¹¹² *Id.*

pandemic, the court conducted arraignments by videoconferences,¹¹³ continued trials, and moved some hearings online.¹¹⁴

In Florida, the state Supreme Court ordered county courts to activate Continuity of Operation Plans; suspended in-person non-essential functions for a period of time; and prioritized essential functions like first appearances, arraignments, and bail hearings.¹¹⁵ The Florida Supreme Court also authorized the use of telephonic or electronic hearings at the discretion of each county court's chief judge.¹¹⁶

In response to the pandemic, the Harris County courts, which serve Houston, Texas, released "Inclement Weather, Emergency, and Public Health Scheduling Procedures."¹¹⁷ The procedures address when district courts will be closed, continuances, and re-scheduling for non-essential court matters, video, and telephone hearings, and what court matters are deemed essential.¹¹⁸

The Maricopa County Superior Court, which serves Phoenix, Arizona, said it did not have an emergency plan in place for use if court proceedings were disrupted by extreme weather.¹¹⁹ During the pandemic, that court allowed some hearings to be conducted by phone,¹²⁰ tolled time for speedy trial and probation hearing scheduling requirements,¹²¹ suspended the normal criminal arraignment rules,¹²² and deferred the commencement of all jail sentences.¹²³

Trial courts in New York also did not develop their own plans, but instead turned to the state to guide such operations. During the pandemic, New York courts suspended non-essential functions and

¹¹³ Press Release, Presiding Judge Kevin C. Brazile Extends Order Closing Courtrooms, Delaying Trials and Non-Essential Matters for 30 Days, Superior Court of California, County of Los Angeles (Apr. 15, 2020), <https://perma.cc/69HM-W4X4>.

¹¹⁴ Press Release, Presiding Judge Kevin C. Brazile: Time Deadlines for Arraignments, Preliminary Hearings and Trials Extended, Superior Court of California, County of Los Angeles (Apr. 2, 2020), <https://perma.cc/NZ4Q-57DD>.

¹¹⁵ In Re: COVID-19 Essential and Critical Trial Court Proceedings, Administrative Order No. AOSC20-15, Supreme Court of Florida 2, 4 (Mar. 17, 2020), <https://perma.cc/5ZAX-5JNJ>.

¹¹⁶ *Id.* at 4.

¹¹⁷ HARRIS CTY. DIST. COURTS, INCLEMENT WEATHER, EMERGENCY, AND PUBLIC HEALTH SCHEDULING PROCEDURES, <https://perma.cc/P9ZM-MEJD> (last visited Feb. 2, 2021),

¹¹⁸ *Id.*

¹¹⁹ June 18, 2020 e-mail from Norma Quiroz, ADA Coordinator, Maricopa County Superior Court, to Charles Lam, on file with author.

¹²⁰ In the Matter of Limiting Guadalupe Town Court Operations During a Public Health Emergency, Administrative Order 2020-042, Superior Court of the State of Arizona, County of Maricopa 2 (Mar. 23, 2020), <https://perma.cc/8EUF-HP2Y>.

¹²¹ *Id.*

¹²² In the Matter of Restricting Physical Access to Court Facilities Due to Public Health Emergency, Administrative Order 2020-055, Superior Court of the State of Arizona, County of Maricopa 2 (Apr. 2, 2020), <https://perma.cc/DF9P-ZG6J>.

¹²³ In the Matter of the Deferral of Commencement of Jail Sentences for Defendants with Pending Self-Surrender Orders, Administrative Order 2020-068, Superior Court of the State of Arizona, County of Maricopa 1 (Apr. 30, 2020), <https://perma.cc/VG5A-8ZFY>.

allowed for essential and emergency court proceedings, including arraignments and some family law hearings, to take place by video.¹²⁴

Local law enforcement agencies' plans were not much clearer. For example, the Los Angeles Sheriff's Department said plans exist for emergencies that "allow[] for enforcement personnel to understand the objectives, manner of operation and many additional complexities involved."¹²⁵ But the plans were unavailable for public review and exempted from California's Public Records Act.¹²⁶

The Harris County Sheriff's Department said they would transfer inmates between their system's multiple facilities if needed and that it had agreements with outside jurisdictions for emergency situations.¹²⁷ The Jacksonville Sheriff's Department said it had contingency plans in place for emergency events.¹²⁸ But these departments declined to make the plans available for review.¹²⁹ Many other jurisdictions, including the Maricopa Sheriff and New York Department of Corrections, simply failed to respond to requests for information about their emergency planning efforts, if any.

Climate change is a reality that the criminal justice system cannot ignore, especially with regard to a possible increase in violent crime. While certain areas of the country seem more vulnerable than others, the number and severity of high-cost extreme weather events continues to grow. These range from heat waves to flooding to tornados to hurricanes to cyclones to extreme winter storms. Thus, there are no areas immune from the possibility of an event that will disrupt law enforcement and make the population more vulnerable to violent crime.

Moreover, the rise in violent crimes is not linked to just extreme weather events like hurricanes. In fact, it appears there may be a direct correlation between temperature and the national murder rate.¹³⁰

¹²⁴ Press Release, Virtual Court Operations to Commence in NYC Mid-Week, New York State Unified Court System (Mar. 22, 2020), <https://perma.cc/D5CV-2NXX>.

¹²⁵ June 2020 e-mails from Juanita Navarro-Suarez and Michelle Sanchez, Los Angeles Sheriff's Department deputies, on file with author.

¹²⁶ June 16, 2020, letter from Chris Kovac, Los Angeles Sheriff's Department captain, on file with author.

¹²⁷ Email from Jason Spencer, Public Affairs Dir. at Harris County Sheriff's Off., to Charles Lam, J.D. Candidate at Loyola Law School (class of 2022) (June 8, 2020) ("Our jail system consists of multiple buildings. If one of those buildings were to be rendered uninhabitable, we could transfer inmates to one of our other facilities. In an extreme emergency, we have contingency agreements in place to outsource inmates to other jurisdictions.") (on file with author).

¹²⁸ Anne Schindler, *This Is Not A Get Out of Jail Free Card: State Attorney Says Releasing Inmates Will Help Avoid Coronavirus Crisis*, FIRST COAST NEWS (Mar. 23, 2020), <https://perma.cc/6HYG-T5RQ>.

¹²⁹ *Frequently Asked Questions COVID-19*, HARRIS COUNTY SHERIFF'S DEP'T, <https://perma.cc/BRQ3-P6KN> (last visited Jan. 18, 2020); *Important JSO Facility Information During COVID-19 Pandemic*, JACKSONVILLE SHERIFF'S OFF., <https://perma.cc/Z6CS-ENFC> (last visited Jan. 18, 2021); *Corrections Facility Information*, JACKSONVILLE SHERIFF'S OFF., <https://perma.cc/DEJ4-ND7K> (last visited Jan. 18, 2021).

¹³⁰ Jeff Asher, *A Rise in Murder? Let's Talk About the Weather*, N.Y. TIMES (Sept. 21, 2018), <https://perma.cc/UDQ4-9UQ3>.

Evidence suggests that the number of shooting victims rises during hotter weather.¹³¹ One author has predicted that “in the United States alone, climate change over the next 90 years will cause an additional 22,000 murders, 180,000 cases of rape, 1.2 million aggravated assaults, 2.3 million simple assaults, 260,000 robberies” and millions of additional non-violent offenses.¹³²

While other sources have not verified these predictions, the relationship between climate change and violence is a topic that clearly needs more study. The possibility that increased temperatures may lead to more violent crime cannot be ignored.¹³³ Climate change may affect violent crime rates in ways that we have not yet anticipated but will have to deal with in the near future.

3. *Fraud Crimes*

There are many ways in which climate change may increase fraud against both governmental and private entities. In the aftermath of Hurricane Dorian in 2019, the Department of Justice issued a warning to the public of frauds that are prevalent during and after natural disasters.¹³⁴ These fraudulent activities include: impersonation of federal law enforcement officials,¹³⁵ identity theft,¹³⁶ fraudulent submission of claims to insurance companies and the federal government,¹³⁷ fraudulent activity related to solicitations for donations and charitable giving,¹³⁸ fraudulent activity related to individuals and organizations promising high investment returns from profits from recovery and cleanup efforts,¹³⁹ price gouging,¹⁴⁰ contractor fraud,¹⁴¹ and debris removal fraud.¹⁴²

¹³¹ *Id.*

¹³² Gary Potter, *Climate Change and Crime*, E. KY. U.: POLICE STUD. ONLINE (Mar. 27, 2014), <https://perma.cc/FH48-XBFN>.

¹³³ CRANK & JACOBY, *supra* note 50, at 13–14 (discussing several studies correlating crime to temperature). For example, in a study dating back to 1990, Professor Cohn “found significant relationships between temperature and different categories of criminal behavior.” *Id.* at 15.

¹³⁴ *In the Aftermath of Hurricane Dorian Department of Justice Reminds the Public to be Aware of Fraud and Report it to the National Center for Disaster Fraud*, DEPT OF JUST.: OFF. OF PUB. AFF. (Sept. 16, 2019), <https://perma.cc/B8DM-RGR8>.

¹³⁵ 18 U.S.C. § 912 (2018).

¹³⁶ *Id.* § 1028.

¹³⁷ *Id.* §§ 1035, 1347 (health care fraud); *id.* § 1031 (government).

¹³⁸ FLA. STAT. § 817.034 (2020).

¹³⁹ 18 U.S.C. § 1040.

¹⁴⁰ FLA. STAT. § 501.160(1)(b).

¹⁴¹ *See, e.g., id.* § 489.126(5)–(6) (setting out the various methods of committing contractor fraud and requirements for each offense level).

¹⁴² *See, e.g., Officials Charged in \$5M Hurricane Debris Removal Scheme*, AP NEWS (Aug. 19, 2020), <https://perma.cc/FN5G-D8ZM> (“The mayor and city attorney of a Florida Panhandle city are the latest to be charged in the theft of \$5 million in Hurricane Michael debris removal funds.”); *Lynn Haven Mayor and City Attorney Indicted For Corruption and Fraud Charges Stemming from Hurricane Michael Clean-up Activities*, U. S. DEP’T JUST.: U.S.

Any emergency for which aid is offered invites fraud, both in the form of defendants fraudulently applying for aid or defrauding those seeking aid.¹⁴³ For example, during the 2020 COVID-19 pandemic, the Department of Justice charged defendants with theft in connection with health care,¹⁴⁴ introduction of misbranded devices into interstate

ATTY'S OFF. NORTHERN DIST. OF FLA (Aug. 19, 2020), <https://perma.cc/6TBV-BMCB> (announcing that Lynn Haven City Attorney Joseph Adam Albritton was indicted in relation to allegations that he contracted with a private company for a trash pick-up project even though the city's waste vehicles could have done the project, costing the city "\$1.8 million [in] unnecessary trash pick-up").

¹⁴³ See *Disaster Fraud: Filing False FEMA Claims Costly to Deserving Survivors*, FED. EMERGENCY MGMT. AGENCY (Oct. 31, 2017), <https://perma.cc/8S3U-KGGF> ("Those who intentionally claim false losses with the Federal Emergency Management Agency (FEMA) are taking money away from those who truly need assistance and stand in danger of being charged with a felony."). Disaster fraud is so prevalent that FEMA regularly posts issue press releases on the matter, including a recent release from October 26, 2020, in which it warns: "When natural disasters occur, it is common to find people who want to take advantage of survivors by posing as official disaster aid workers or as relatives trying to help survivors complete their applications. FEMA advises survivors to be aware of fraud and scams." *Beware of Fraud and Scams*, FED. EMERGENCY MGMT. AGENCY (Oct. 26, 2020), <https://perma.cc/HZ4H-GJF4>.

¹⁴⁴ 18 U.S.C. § 669(a) (defining theft of embezzlement of health care as "[w]hoever knowingly and willfully embezzles, steals, or otherwise without authority converts to the use of any person other than the rightful owner, or intentionally misapplies any of the moneys, funds, securities, premiums, credits, property, or other assets of a health care benefit program"). See, e.g., Complaint for Violation of: Title 18, United States Code, Section 699 – Theft in Connection with Health Care (Class A Misdemeanor), at 1:19–23, *United States v. Lucas*, No. 3:20-cr-00016-WGC (D. Nev. Apr. 6, 2020) (alleging defendant committed theft of four boxes of surgical masks from a Veterans' Administration Medical Center).

commerce,¹⁴⁵ false statements,¹⁴⁶ wire fraud,¹⁴⁷ bank fraud,¹⁴⁸ false statements to a financial institution,¹⁴⁹ and theft of government property.¹⁵⁰

Indeed, all of these frauds are possible and have occurred. Thus, jurisdictions should consider creating task forces that are familiar with, and prepared to respond to, the types of fraud most associated with climate events. To deter such actions, jurisdictions can pass laws creating enhancements when frauds are committed in connection with a climate change event. Fraud warnings should be posted prominently on all electronic or paper documents submitted in support of insurance claims or government assistance during such crises. To maximize deterrence, the community must be educated about specific actions that have led to fraud convictions in the past.

In addition to fraud offenses that occur in the wake of a climate event, there is another type of fraud that could increase during climate change. That is the fraud that may lead to climate change in the first place—namely, fraud by companies that are alleged to have irresponsibly

¹⁴⁵ 21 U.S.C. § 331(a) (2018) (prohibiting “[t]he introduction or delivery for introduction into interstate commerce of any food, drug, device, tobacco product, or cosmetic that is adulterated or misbranded.”). *Id.* § 333(a)(2) (establishing increased penalties for a violation of the law under 21 U.S.C. § 331 if the “person commits such a violation after a conviction of him under this section has become final, or commits such a violation with the intent to defraud or mislead”). *See, e.g.*, Complaint and Affidavit in Support of Application for Summons, at 1, *United States v. King Year Printing & Packaging Co.*, No. 1:20-mj-00416-SMG (E.D.N.Y. June 5, 2020) [hereinafter *King Year Printing & Packaging Co. Complaint*] (alleging defendant committed various offenses, including the introduction of, with the intent to defraud and mislead, misbranded devices into interstate commerce, including respirators marked as compliant with N95 standards when they did not meet those standards).

¹⁴⁶ 18 U.S.C. § 1001(a) (establishing that anyone who “knowingly and willfully (1) falsifies, conceals, or coverups by any trick, scheme or device a material fact; (2) makes any materially false, fictitious, or fraudulent statement or representation; or (3) makes or uses any false writing or document knowing the same to contain any materially false, fictitious, or fraudulent statement or entry” can be punished for up to five years in prison). *See, e.g.*, *King Year Printing & Packaging Co. Complaint*, *supra* note 145, at 2 (alleging defendant made false statements under 18 U.S.C. § 1001(a)(1)–(3)).

¹⁴⁷ 18 U.S.C. § 1343 (“Whoever, having devised or intending to devise any scheme or artifice to defraud, or for obtaining money or property by means of false or fraudulent pretenses, representations, or promises, transmits or causes to be transmitted by means of wire, radio, or television communication in interstate or foreign commerce, any writings, signs, signals, pictures, or sounds for the purpose of executing such scheme or artifice, shall be fined under this title or imprisoned not more than 20 years, or both.”). *See, e.g.*, Criminal Complaint, at 1, *United States v. Hayford*, No. 4:20-cr-00088-CVE (N.D. Okla. June 2, 2020) [hereinafter *Hayford Complaint*] (alleging defendant committed wire fraud).

¹⁴⁸ 18 U.S.C. § 1344(2) (establishing criminal penalties for “[w]hoever knowingly executes, or attempts to execute, a scheme or artifice . . . to obtain any of the moneys, funds, credits, assets, securities, or other property owned by, or under the custody or control of, a financial institution, by means of false or fraudulent pretenses . . .”). *See, e.g.*, Indictment, at 1, *United States v. Hayford*, No. 4:20-cr-00088-CVE (N.D. Okla. July 7, 2020) (indicting defendant for one count of bank fraud).

¹⁴⁹ 18 U.S.C. § 1014. Indictment, at 12, *United States v. Cherry*, No. 4:20-cr-00027 (E.D. Va. May 29, 2020) [hereinafter *Cherry Indictment*].

¹⁵⁰ 18 U.S.C. §§ 641–642. *Cherry Indictment*, *supra* note 149, at 11.

contributed to climate change. States, such as New York and Massachusetts, have alleged that major companies have committed fraud by not revealing to their shareholders their roles in contributing to climate change.¹⁵¹ So far, these frauds have been alleged through civil lawsuits.¹⁵² Yet, the laws also carry criminal sanctions.¹⁵³ Thus, even apart from the enforcement of environmental laws, fraud laws may be used to pursue major entities that appear to be contributing to climate change.¹⁵⁴

With regard to criminal environmental laws, there are more than a dozen federal acts that can be used to punish polluters. They are listed in this graph.¹⁵⁵

Media	Act	Summary	Agency
Water	Safe Drinking Water Act (1974, 1986, 1996)	Sets drinking water standards and protection for ground-water	EPA
	Clean Water Act (1972)/Federal Water Pollution Control Act (1948)	National Pollutant Discharge Elimination System (NPDES)	EPA
	Marine Protection Research & Sanctuaries Act (1972)	Controls the dumping of waste in the ocean, authorizes related research	EPA/NOAA
	Coastal Zone Management Act (1972)	Protect coastal areas from harmful development	NOAA

¹⁵¹ See John Schwartz, *New York Loses Climate Change Fraud Case Against Exxon Mobil*, N.Y. TIMES (Dec. 10, 2019), <https://perma.cc/ZV9Q-63GV> (describing the state of New York's allegations that Exxon tricked shareholders into believing Exxon fully considered and factored in climate change risks into its business operations).

¹⁵² *Id.* The lawsuits charge a violation of state laws, such as the Martin Act. N.Y. GEN. BUS. LAW Art. 23-A, § 352 (Consol. 1960).

¹⁵³ See, e.g., N.Y. GEN. BUS. LAW Art. 23-A, § 352-c (Consol. 1982) (prohibited acts constituting misdemeanor; felony).

¹⁵⁴ The full scope of criminal environmental laws designed to address climate change is beyond the scope of this Article. However, there are both domestic and international laws designed to curb pollution and other changes to the environment. For a country-by-country guide to environment and climate change law, see GLOB. LEGAL GRP., INTERNATIONAL COMPARATIVE LEGAL GUIDE TO: ENVIRONMENT & CLIMATE CHANGE LAW 2019 (Jonathan Isted et al. eds., 16th ed. 2019), <https://perma.cc/3KMU-LKSC>. INTERPOL is active in combating environmental crime. See also *Combating Environmental Crime with Interpol*, U.S. DEP'T JUST. (2009), <https://perma.cc/6FPS-UQ65>.

¹⁵⁵ This graph is from the Oxford Research Encyclopedia. Carole Gibbs & Rachel Boratto, *Environmental Crime*, CRIMINOLOGY & CRIM. JUST. (Mar. 29, 2017), <https://perma.cc/ZD9F-KGMT>.

Media	Act	Summary	Agency
	Oil Pollution Act (OPA) (1990)	Related to the response to oil spills and polluter responsibility	EPA/Coast Guard
Air	Clean Air Act (1970)	Sets standards for air quality and pollution	EPA
Toxic Substances & Waste	Resource Conservation & Recovery Act (1976)	Sets standards for the management of hazardous waste disposal	EPA
	Toxic Substances Control Act (1976)	Regulates the manufacture and sale of toxic substances	EPA
	Comprehensive Environmental Response, Compensation & Liability Act (CERCLA) (1980)	The cleanup of toxic waste sites. Referred to as the "Superfund"	EPA
	Pollution Prevention Act (1990)	Reduces pollution emissions at the source	EPA
	Federal Insecticide, Fungicide and Rodenticide Act (1947)	Regulates the production and sale of pesticides	EPA
	National Environmental Policy Act (NEPA) (1969)	Requires major activities to conduct environmental assessments	EPA

Although individuals and companies may be prosecuted under these statutes, criminal prosecution is the least common response, probably because it is so complex and costly. For a criminal conviction, prosecutors must prove that the defendant knowingly or negligently violated the law.¹⁵⁶ In a corporate setting, the actions of the employees can be used against the company if they were done on behalf of the company and were within the scope of the employee's authority.¹⁵⁷ Companies can avoid culpability by portraying the defendant as acting outside the scope of his or her authority, or by arguing that the company was acting as reasonable companies do in those situations. Even when there are convictions, small

¹⁵⁶ David M. Uhlmann, *Prosecutorial Discretion and Environmental Crime*, 38 HARV. ENV'T L. REV. 159, 162–63 (2014).

¹⁵⁷ Joseph J. Lisa, *Negligence-Based Environmental Crimes: Failing to Exercise Due Care Can Be Criminal*, 18 VILLANOVA ENV'T L. J. 1, 8–9 (2007).

companies and low- and mid-level managers are convicted more than CEOs or the companies themselves.¹⁵⁸

Thus, while environmental laws must be strongly enforced, the criminal justice system must focus on other offenses that contribute to climate events. These certainly may be fraudulent schemes to violate the environmental laws, but they may also be frauds committed after the event in an effort to reap profits from the tragedy or evade culpability.

In terms of preparing for these events, prosecutorial offices need to prioritize their prosecutions and establish a system for investigating and proceeding on these cases. Since the volume can be overwhelming, prosecutorial offices may need to have tiered guidelines to govern which cases they will file. The Department of Justice has an Environmental Crimes Section with forty-three prosecutors for the entire nation.¹⁵⁹ In light of the growing number of climate challenges, a reallocation of resources in the Department of Justice should be considered.¹⁶⁰

4. National Security Offenses

Widespread destruction weakens the infrastructure of a community and creates national security threats.¹⁶¹ The phrase “security threat” can cover everything from instability to the increase of migrants and refugees, to threats against crucial infrastructure.¹⁶² To the extent climate change threatens the resources available to countries, experts have long predicted that climate change will cause instability and conflict.¹⁶³ The 2019 Worldwide Threat Assessment of the U.S. Intelligence Community

¹⁵⁸ Cf. MARY CLIFFORD & TERRY D. EDWARDS, ENVIRONMENTAL CRIME 272 (2d ed. 2012) (explaining that half of all individuals indicted for environmental crimes were either owners, presidents, or other corporate officers), with Uhlmann, *supra* note 156, at 179 (explaining that research suggested that an individual defendant was most likely a “corporate officer, sole proprietor, manager, low-level employee, independent contractor, or environmental compliance person.”). See generally James B. Stewart, *In Corporate Crimes, Individual Accountability is Elusive*, N.Y. TIMES (Feb. 19, 2015), <https://perma.cc/4GQP-9T5V> (explaining that in fraud cases most prosecutions are of “low-level employees with little or no name recognition”).

¹⁵⁹ *Prosecutors Protecting our Nation’s Ecological Heritage*, U.S. DEPT JUST., <https://perma.cc/C44K-DWHS> (last updated May 2015) [hereinafter *Prosecutors Protecting our Nation’s Ecological Heritage*].

¹⁶⁰ From 1998 to 2014, the Environmental Crime Section only concluded approximately 1,500 cases: 1,083 individual defendants and 404 corporate defendants. *Id.* Most received minimal sentences. *Id.*

¹⁶¹ See William Fassuliotis, *Ten Key Facts: Climate Change*, AM. SECURITY PROJECT 1, 10–11, <https://perma.cc/W9LS-4U5G> (last visited Feb. 3, 2020) (arguing that the effects of climate change as demonstrated by population displacement, flooding, disruption of transportation and energy, food insecurity, and access to water present a national security problem).

¹⁶² *Id.* at 11.

¹⁶³ See Bruce Lieberman, *A Brief Introduction to Climate Change and National Security*, YALE CLIMATE CONNECTIONS (July 23, 2019), <https://perma.cc/FW4U-4LX2> (explaining that “over the past three decades a steady stream of analyses from the U.S. Defense Department, private think tanks, and other organizations have pointed to threats that climate change poses to peace and stability”).

warns that “global environmental and ecological degradation, as well as climate change, are likely to fuel competition for resources, economic distress, and social discontent through 2019 and beyond.”¹⁶⁴

The threat to military infrastructure and operations has led to a call for an evaluation of how climate change will affect our defense preparedness.¹⁶⁵ The responsibility for those preparations lies primarily with the military and national security agencies. However, to the extent climate change is likely to lead to actual violations of national security laws, the criminal justice system will also have a role to play; it too must prepare for the challenges of addressing these offenses. Yet, H.R. 1201, the Climate Change National Security Strategy Act of 2019,¹⁶⁶ did not expressly address how increased climate change will impact enforcement of criminal national security laws.¹⁶⁷ The federal code contains laws that can be used to prosecute national security violations.¹⁶⁸ These include, among others: cybercrimes,¹⁶⁹ sabotage,¹⁷⁰ espionage,¹⁷¹ malicious mischief crimes,¹⁷² and conspiracies to violate those laws.¹⁷³ It is not farfetched to anticipate that our enemies might take advantage of major climate events to undermine our infrastructure and impair our ability to respond to global threats.

In light of the possibility of these crimes, state and federal criminal justice officials must coordinate with national security officials to create

¹⁶⁴ *Id.*

¹⁶⁵ *Id.*

¹⁶⁶ Climate Change National Security Strategy Act, H.R. 1201, 116th Cong. (2019).

¹⁶⁷ While the Bill was introduced by Rep. Stephen Lynch (D-Ma.) on February 13, 2019, no further action was taken on it in the House or Senate. *Id.*

¹⁶⁸ See generally Erin Creegan, *National Security Crime*, 3 HARV. NAT'L SEC. J. 373 (2012) (exploring the categories of criminal law that affect national security).

¹⁶⁹ 18 U.S.C. §§ 1029–1030 (2018).

¹⁷⁰ There is a wide range of federal sabotage laws. However, the most applicable would probably be tampering with national defense utilities, such as transportation lines, structures, dams, reservoirs, aqueducts, gas mains, and other essential utilities under 18 U.S.C. § 2155. That law provides:

Whoever, with intent to injure, interfere with, or obstruct the national defense of the United States, willfully injures, destroys, contaminates or infects, or attempts to so injure, destroy, contaminate or infect any national-defense material, national-defense premises, or national-defense utilities, shall be fined under this title or imprisoned not more than 20 years, or both, and, if death results to any person, shall be imprisoned for any term of years or for life.

Id. § 2155(a).

¹⁷¹ Espionage takes several forms, including harboring persons, transmitting information, and photographing defense installations. *Id.* §§ 792–799.

¹⁷² See 18 U.S.C. § 1362 (2018) (interfering with communication lines); 18 U.S.C. § 1366 (2018) (attacks on energy facilities); 18 U.S.C. § 2101 (1994) (encouraging riots); 42 U.S.C. § 2284 (2018) (sabotaging nuclear facilities).

¹⁷³ See 18 U.S.C. § 2155(b) (establishing that “[i]f two or more persons conspire to violate this section, and one or more of such persons do any act to effect the object of the conspiracy, each of the parties to such conspiracy shall be punished”).

guidelines for preventing and reacting to national security crimes.¹⁷⁴ Of course, one aspect of evaluating these crimes will be the extent to which prosecutions might compromise classified information that is frequently used to prosecute national security crimes.¹⁷⁵ Another concern is whether emergency actions are taken that are not consistent with defendants' ordinary constitutional rights in criminal cases.¹⁷⁶ For example, given the national security nature of the crime, there may be a call to use the public safety exception to *Miranda v. Arizona*,¹⁷⁷ which requires law enforcement officers to read a list of individual's rights upon their arrest.¹⁷⁸ This exception, first recognized in *New York v. Quarles*,¹⁷⁹ has been invoked in instances of ongoing terrorist threats.¹⁸⁰ Given the possibility that terrorists could take advantage of climate change events to disrupt normal societal functions, guidelines need to be established for when the public safety exception should be used, if at all, during such events. Similarly, the stress of major climate events can exacerbate other problematic police behaviors, including targeting certain groups.¹⁸¹ It is important to test law enforcement under such conditions and train for appropriate responses even during a major climate event.

¹⁷⁴ Samuel Clovis Jr., *Federalism, Homeland Security and National Preparedness: A Case Study in the Development of Public Policy*, HOMELAND SECURITY AFFS. (Oct. 2006), <https://perma.cc/223Z-74S7>. The heightened awareness of the Biden administration to the link between climate change and national security is reflected in his early appointment of key personnel to national security positions. John Kerry will serve as "climate czar" and have a seat on the National Security Council. See Mark Nevitt, *Climate Change, National Security, & the New Commander-in-Chief*, JUST SECURITY (Dec. 2, 2020), <https://perma.cc/96VJ-6YJQ>.

¹⁷⁵ See generally DEP'T OF JUSTICE, JUSTICE MANUAL, TITLE 9: CRIMINAL 9-90.200, 9-90.210 (Jan. 2020) (for concerns about this aspect of prosecuting national security crimes).

¹⁷⁶ See Kim Lane Scheppele, *Law in a Time of Emergency: States of Exception and the Temptations of 9/11*, 6 U. PA. J. OF CONST. L., 1001, 1026–28 (2004) (refusing to allow an alleged 9/11 hijacker to access potentially exculpatory testimony or to exclude incorrectly taken testimony from an American fighting with the Taliban).

¹⁷⁷ 384 U.S. 436 (1966).

¹⁷⁸ *Id.* at 444–45 ("Prior to any questioning, the person must be warned that he has a right to remain silent, that any statement he does make may be used as evidence against him, and that he has a right to the presence of an attorney, either retained or appointed.")

¹⁷⁹ 467 U.S. 649, 655–56 (1984) (finding that *Miranda* rights need not be provided when threats to public safety outweigh an individual's right to be informed of his or her Fifth Amendment rights).

¹⁸⁰ See Hannah Lonky, *Revisiting the Public Safety Exception to Miranda for Suspected Terrorists: Dzhorkhar Tsaranev and the Bombing of the 2013 Boston Marathon*, 107 J. CRIM. L. & CRIMINOLOGY 393 (2017).

¹⁸¹ For example, Hurricane Katrina was accompanied by serious misconduct by New Orleans police against black defendants, resulting in multi-million dollar lawsuits. See Dee Thompson, *Cases Related to Hurricane Katrina Police Misconduct in New Orleans Settled*, LA. REC. (Jan. 2, 2017), <https://perma.cc/2J9V-KPCG>. The ACLU conducted a study of how prisoners of color were subject to particular abuse in the chaos that ensued through the New Orleans criminal justice system following the storm. AM. CIVIL LIBERTIES UNION, NATIONAL PRISON PROJECT REPORT (2006), <https://perma.cc/VC7N-28H8>; ACLU Report Details Horrors Suffered by Orleans Parish Prisoners in Wake of Hurricane Katrina, AM. C.L. UNION (Aug. 10, 2006), <https://perma.cc/4XSG-RFAW>.

5. *Novel Crimes—Disinformation Campaigns and Criminal Negligence*

Unusual crimes may also arise during the climate change crisis. Two in particular are worth noting. First, there has been a concerted disinformation campaign by some individuals to debunk climate change because of their own financial interests. As documented by several researchers, Charles and David Koch (the Koch brothers) waged a twenty-year campaign to undermine efforts to combat climate change.¹⁸²

Assuming there is an intentional campaign to obscure the truth about a danger to society, do those efforts constitute a criminal offense? While the defendants will undoubtedly invoke a First Amendment defense to any charges,¹⁸³ if individuals know that they are disseminating false information, their actions may constitute a “conspiracy to defraud the United States” under 18 U.S.C. § 371.¹⁸⁴ Such a theory may not be so farfetched: While there do not appear to be cases in which Section 371 charges were brought against defendants for intentionally and knowingly falsifying speech, charges for conspiracy to defraud the United States were correctly brought when defendants conspired to have a government statistician publish a false report.¹⁸⁵ Additionally, charges for conspiracy to commit offenses against the United States were brought when defendants conspired to advocate for the violent overthrow of the United States in violation of the Smith Act.¹⁸⁶ While charges that criminalize false speech should not be brought lightly, they may form the basis of a conspiracy if they are joined with overt acts—including the creation or

¹⁸² See generally Naomi Oreskes & Erik Conway, *MERCHANTS OF DOUBT* 159–215 (2010); *The Funders of Climate Disinformation*, CAMPAIGN AGAINST CLIMATE CHANGE (Jan. 14, 2021), <https://perma.cc/GGW2-F6X3> (describing the large penalties the Koch brothers paid for environmental violations on federal, state, and tribal land; discussing the U.S. denial of global warming regardless of scientific support). See also Emily Atkin, *How David Koch Changed the World*, *NEW REPUBLIC* (Aug. 23, 2019), <https://perma.cc/NL2C-DHUV> (explaining the Koch brothers’s “unparalleled role in casting doubt on the basic science of climate change”); *Koch Industries: Secretly Funding the Climate Denial Machine*, GREENPEACE, <https://perma.cc/3FAK-X8TC> (last visited, Feb. 4, 2021) (The Koch Family Foundations have spent \$145 million to attack climate change science from 1997–2018.).

¹⁸³ Of course, “[t]he first amendment does not provide a defense to a criminal charge simply because the actor uses words to carry out his illegal purpose.” *United States v. Barnett*, 667 F.2d 835, 842 (9th Cir. 1982). Speech alone is not a crime unless it falls into several narrow categories: fighting words, obscenity, commercial speech, or inciting imminent lawless activity. Benjamin Means, *Criminal Speech and the First Amendment*, 86 *MARQ. L. REV.* 501, 507 (2002). But courts are also willing to punish speech when the act of speaking itself constitutes a crime, including aiding and abetting, provoking action, or when the speech is combined with action. See *id.* (“[C]ourts regulate a great deal more speech by excluding it from the scope of the First Amendment. Thus, despite the strong protection afforded free speech under the First Amendment, courts can punish some disfavored speech by characterizing it as a crime, steeling to action, or ‘speech . . . brigaded with action.’”).

¹⁸⁴ 18 U.S.C. § 371 (2018).

¹⁸⁵ *Haas v. Henkel*, 166 F. 621, 626 (C.C.S.D.N.Y. 1909), *aff’d*, 216 U.S. 462 (1910) (historically codified as Rev. Stat. § 5440, *amended by* Act of May 17, 1879, chap. 8, 21 Stat 4).

¹⁸⁶ Smith Act of 1940 (Alien Registration Act of 1940), 18 U.S.C. §§ 2385–2387 (2018). *Bary v. United States*, 248 F.2d 201, 205 (10th Cir. 1957).

submission of false reports—that are intended to interfere with government action being considered to address the climate change crisis.

Moreover, for those situations where defendants ignore the dangers from climate change and their actions contribute to deaths, there is a possibility of bringing charges of criminal negligence and negligent homicide. Also known as involuntary manslaughter, the crime is defined as “the killing of another without malice and unintentionally while engaged in either: 1) an unlawful act not amounting to a felony and not naturally tending to cause death or great bodily harm; or 2) a lawful act with reckless disregard for the safety of others.”¹⁸⁷ Similarly, the Fourth Circuit has defined negligent homicide as “a lesser included offense to the charge of manslaughter and . . . the killing of a human being by criminal negligence.”¹⁸⁸ “The mental state requirement for criminal negligence exists when . . . there is such disregard of the interest of others that the offender’s conduct amounts to a gross deviation below the standard of care expected to be maintained by a reasonably careful man under like circumstances.”¹⁸⁹

Following Hurricanes Katrina and Irma, negligent homicide charges were filed against nursing home operators for failing to provide adequate protection and care for their patients. For example, in the aftermath of Hurricane Katrina, the State of Louisiana brought charges against the owners of St. Rita’s nursing home for failing to evacuate its residents, resulting in the deaths of thirty-five elderly residents.¹⁹⁰ The owners, Sal and Mabel Mangano, were charged with thirty-four counts of negligent homicide after making the decision not to evacuate the nursing home, despite warnings and a mandatory evacuation order.¹⁹¹ While the defense focused on shifting blame to the government, the prosecution emphasized the Manganos’ refusal to accept help or heed any warnings.¹⁹² While three other nursing homes evacuated in the area, thirty-five elderly, mostly bedridden, residents of St. Rita slowly drowned as the waters rose over them, unable to move.¹⁹³ Future extreme climate events could lead to an increase in such charges.

Finally, to the extent climate change incidents include negligent acts like allowing building in natural burn zones, those too may lead to additional criminal charges. For example, in 2018, the Camp Fire ravaged

¹⁸⁷ *State v. Davis*, 649 S.E.2d 132, 134 (S.C. Ct. App. 2007) (“To constitute involuntary manslaughter, there must be a finding of criminal negligence, statutorily defined as a reckless disregard of the safety of others.” (internal quotations omitted)).

¹⁸⁸ *State v. Trung Le*, 243 So.3d 637, 654 (La. App. 4 Cir. 2018) (internal quotation marks omitted).

¹⁸⁹ *Id.* (internal quotation marks omitted).

¹⁹⁰ David H. Slade, *Who Is Liable for Disaster Planning? Malpractice Liability for Hospital Administrative Plans*, 29 J. LEGAL MED. 219, 223 (2008).

¹⁹¹ *Id.*

¹⁹² Adam Nossiter, *Trial Starts for Owners of Nursing Home Hit by Storm*, N.Y. TIMES (Aug. 17, 2007), <https://perma.cc/XMN7-MZ6C>.

¹⁹³ Adam Nossiter, *Nursing Home Owners Acquitted in Deaths*, N.Y. TIMES (Sept. 8, 2007), <https://perma.cc/Y2FT-VWS3>.

parts of Northern California and the town of Paradise in what would become “the single most destructive wildfire in California history and the worst in the United States in a century.”¹⁹⁴ California’s biggest utility company, Pacific Gas and Electric (PG&E), was found to be responsible for the fire after repeatedly failing to maintain a transmission line that broke from a nearly 100-year-old tower.¹⁹⁵ A 700-page report¹⁹⁶ was published holding PG&E responsible for igniting the fire that resulted in eighty-five deaths, due to “neglect and improper inspections and overall failure . . . to manage their transmission line” despite knowing “it cuts through a heavily wooded and mountainous area that experiences strong winds.”¹⁹⁷ PG&E pled guilty to eighty-four counts of involuntary manslaughter and agreed to pay a \$3.5 million fine.¹⁹⁸

One important purpose of the criminal law is to correct harmful behavior by prompting necessary reforms.¹⁹⁹ For example, after the Deepwater Horizon explosion and oil spill in 2010, the oil company British Petroleum (BP) pled guilty to fourteen criminal counts, including felony manslaughter, and agreed to \$4 billion in criminal penalties over five years.²⁰⁰ In addition, the plea agreement included five years of probation, as well as requiring BP “to retain a process safety and risk management monitor and an independent auditor, who will oversee BP’s process safety, risk management and drilling equipment maintenance with respect to deepwater drilling in the Gulf of Mexico.”²⁰¹ BP was “also required to retain an ethics monitor to improve its code of conduct to ensure BP’s future candor with the U.S. government.”²⁰²

¹⁹⁴ Kirk Siegler, *The Camp Fire Destroyed 11,000 Homes. A Year Later Only 11 Have Been Rebuilt*, NAT’L PUB. RADIO (Nov. 9, 2019), <https://perma.cc/VL8K-92QT>.

¹⁹⁵ Ivan Penn, *PG&E Ordered to Pay \$3.5 Million Fine for Causing Deadly Fire*, N.Y. TIMES (June 18, 2020), <https://perma.cc/9PLL-AUDP>.

¹⁹⁶ CAL. PUB. UTIL. COMM’N, SAFETY AND ENFORCEMENT DIVISION INCIDENT INVESTIGATION REPORT FOR 2018 CAMP FIRE WITH ATTACHMENTS (2019), <https://perma.cc/AG9J-T8NS>.

¹⁹⁷ Ivan Penn & Peter Eavis, *Report Detailing PG&E’s Failures Raises New Hurdles for Utility*, N.Y. TIMES (Dec. 3, 2019), <https://perma.cc/HZX3-HMWG>.

¹⁹⁸ Penn, *supra* note 195.

¹⁹⁹ Criminal penalties aim to prevent or lessen future criminal acts by the offender or by others. Richard S. Frase, *Punishment Purposes*, 58 STAN. L. REV. 67, 70 (2005). While the goal of specific deterrence is to “discourage the defendant from committing further crimes by instilling fear of receiving the same or a more severe penalty in the future . . . [g]eneral deterrence seeks to discourage would-be offenders from committing further crimes by instilling a fear of receiving the penalty given to this offender.” *Id.* at 70–71. In order to deter actions that contribute to climate change, laws must be adapted to “effectively and equitably manage the harms . . . of climate change” by making changes to better respond to climate change and reduce the harm of such conditions. J.B. Ruhl, *Climate Change Adaptation and the Structural Transformation of Environmental Law*, 40 ENV’T L. 363, 376 (2010).

²⁰⁰ Terry Frieden, *Judge Approves BP Plea Agreement, Record \$4 Billion Fine*, CNN, <https://perma.cc/W525-XXEZ> (last updated Jan. 29, 2013).

²⁰¹ *Summary of Criminal Prosecutions 2013 BP, PLC*, U.S. ENV’T PROTECTION AGENCY, <https://perma.cc/W5UT-LD7X> (last updated Jan. 18, 2021).

²⁰² *Id.*

Strong regulatory efforts are designed to prevent the type of harm likely to occur from major climate events. For example, building codes can help buildings survive what otherwise might be an environmental disaster.²⁰³ “An IBHS study conducted after Hurricane Charley in 2004 found that improvements to the building code adopted in response to the damage done by Hurricane Andrew resulted in a 60 percent reduction in the number of residential property damage claims and a 42 percent reduction in the cost of those claims.”²⁰⁴ To the extent these new regulations are disregarded and deaths occur, what started as regulatory violations may lead to much more serious charges.²⁰⁵ Climate changes are bound to spark an increase in criminal prosecutions for regulatory violations, as well as crimes that result from those violations.

B. The Criminal Justice System, its Operation, and its Infrastructure are Woefully Ill-Prepared to Address Climate Disasters

Climate change will pose additional challenges for law enforcement, prosecutors, defense lawyers, and judges in dealing with a range of crimes that tend to occur during such events. The actual processing of such cases is likely to be more difficult if, for example, courthouses are not available²⁰⁶ and, as has occurred in other situations,²⁰⁷ court and police records cannot be located. Decisions must be made about how evacuated prisoners will be handled and whether they will be used to clean up areas devastated by a major storm.²⁰⁸ The images from past disasters are alarming.²⁰⁹

Past major weather events have knocked out courtrooms and forced courts to use everything from basements to classrooms as substitutes for

²⁰³ Lauren Urbanek, *The Climate is Changing. So Why Aren't State Building Codes?*, NAT. RESOURCES DEF. COUNCIL: EXPERT BLOG (Apr. 4, 2018), <https://perma.cc/3HBL-V22U>.

²⁰⁴ *Id.*

²⁰⁵ *See id.* (discussing how improved building codes could be the difference between life and death).

²⁰⁶ The likelihood is that courts will have to make arrangements for temporary court accommodations. *See* Greg G. Guidry, *The Louisiana Judiciary: In the Wake of Destruction*, 70 LA. L. REV. 1145, 1156–58 (2010) (discussing the temporary court accommodations the Supreme Court of Louisiana employed after Hurricane Katrina's landfall in 2005).

²⁰⁷ *Id.* *See* Kevin McGill, *Group: Courthouse Flooded by Katrina Still Houses Evidence*, AP NEWS (May 3, 2016), <https://perma.cc/R7PP-VP8L> (discussing how ten years after Hurricane Katrina destroyed evidence in thousands of New Orleans courthouse criminal cases, only one-third of the evidence will ever be useable and storage space is still needed). *See also* Libby Lewis, *Katrina Causes Chaos in New Orleans Court System*, NAT'L PUB. RADIO (Oct. 4, 2005), <https://perma.cc/8X3Z-6GGR> (after Hurricane Katrina, critical case witnesses were missing, and the New Orleans District Attorney's office laid off more than half of their non-legal staff).

²⁰⁸ Kim Kelly, *The Climate Disaster Inside America's Prisons*, NEW REPUBLIC (Sept. 18, 2019), <https://perma.cc/74BY-65X4>.

²⁰⁹ *See id.* (photograph by Mario Tama of police watching over prisoners evacuated due to Hurricane Katrina in New Orleans, Louisiana, in 2005).

courtroom facilities.²¹⁰ One report showed that, as prisons had to be abandoned, inmates were put in facilities with chest-high, sewage-contaminated water.²¹¹

To prepare for climate change, the criminal justice system must rethink how it deploys its resources. Rather than relying upon large courthouses to hold proceedings, it may need to design a plan for portable, temporary courts if permanent structures are rendered unavailable, as they have been in major historic climate events. Teams of police, prosecutors, defense lawyers, and judges need to be assembled in advance to deal with emergency situations.

Lessons can be taken from how the criminal justice system adapted to the COVID-19 pandemic. For example, in response to the pandemic, the California Judicial Council allowed remote appearances by video, set bail at \$0 for misdemeanors and some felonies, and allowed for waiver of a defendant's right to personally appear at proceedings.²¹² The Chief Justice of the California Supreme Court also extended the time limit for how long a defendant can wait before being arraigned from forty-eight hours to not more than seven days.²¹³ While the COVID-19 crisis prompted courts to respond with emergency measures, there has not been a similar effort to anticipate what new procedures will be required because of events related to climate change. There is a glaring need to prepare now for what will inevitably be crises in the future.

III. PLANNING FOR THE IMPACT OF CLIMATE CHANGE ON CORRECTIONAL FACILITIES

*"Inmates are among the most vulnerable populations on our warming planet—and among the most ignored."*²¹⁴

In 2015, the Sabin Center on Climate Change at Columbia University studied the ways in which the conditions inside U.S. jails and prisons would be affected by global warming.²¹⁵ The report concluded that "[r]ising temperatures and increasingly harsh extreme-heat events will

²¹⁰ See Molly Taft, *How Climate Change Threatens the Criminal Justice System*, ECO WATCH (Aug. 5, 2019), <https://perma.cc/3B5F-UKAQ> (discussing how the Harris County courthouse was damaged from Hurricane Harvey and that most hearings in subsequent months took place in crowded jail basements and old classrooms).

²¹¹ *Id.*

²¹² JUDICIAL COUNCIL OF CALIFORNIA, EMERGENCY RULES RELATED TO COVID-19 (Dec. 7, 2020), <https://perma.cc/5LRD-CSRH>. The emergency bail provision has since been repealed. *Id.*

²¹³ JUDICIAL COUNCIL OF CALIFORNIA, STATEWIDE EMERGENCY ORDER BY HON. TANI G. CANTIL-SAKAUYE, CHIEF JUSTICE OF CALIFORNIA AND CHAIR OF THE JUDICIAL COUNCIL (Mar. 30, 2020), <https://perma.cc/U7P3-N9AV>.

²¹⁴ Kelly, *supra* note 208.

²¹⁵ See DANIEL HOLT, HEAT IN U.S. PRISONS AND JAILS: CORRECTIONS AND THE CHALLENGE OF CLIMATE CHANGE, at i (2015), <https://perma.cc/A35J-E2MU> (investigating how heat waves, increased temperatures, and climate change affect prisons, inmates, and staff).

jeopardize the health of inmates and correctional officers alike, and will stress the physical plant of the correctional sector.”²¹⁶

America has more than 5,000 correctional facilities, which includes both prisons and jails.²¹⁷ In recent years, widespread overcrowding has been reported in certain institutions.²¹⁸ Many of these institutions are old, with some dating back to the mid-1800s.²¹⁹ Their population is over 2.2 million inmates.²²⁰ Over 50% of inmates in state prisons are there for violent offenses.²²¹ With an aging population, many of them are at significant health risk from heat-related illnesses.²²² Correctional officers in these facilities also face increased health risks.²²³ In just one year, “92 state correctional officers reported heat-related illnesses as a result of working in prisons lacking climate control.”²²⁴

The net result is that climate change poses an enormous challenge and danger to our correctional facilities.²²⁵ As temperatures inside correctional facilities rise and conditions inside these institutions deteriorate, the criminal justice system will face the following threats: 1) increased constitutional challenges to conditions inside prisons and jails, 2) increased violence, and 3) an increased financial burden to reform the institutions.

There have been no follow-up studies since the 2015 report from the Sabin Center.²²⁶ The Trump administration showed no interest in

²¹⁶ *Id.*

²¹⁷ *Id.* at 9–10.

²¹⁸ *Id.* at 11.

²¹⁹ *Id.* at 13.

²²⁰ *Id.* at 16.

²²¹ *Id.* at 18.

²²² *Id.* at 18–19.

²²³ *Id.* at 30.

²²⁴ *Id.*

²²⁵ As noted in the Columbia study:

The challenge of protecting inmates from heat and other harmful impacts of climate change is made all the more difficult by structural factors over which correctional departments have little or no control. No matter how many inmates are placed in correctional custody, no matter how long they are sentenced to remain in custody, no matter how unhealthy they may be, no matter what particular security risks they may pose, correctional departments must be prepared to ensure their basic wellbeing, whatever the cost, notwithstanding scarcer financial resources and often inadequate facilities.

Id. at 32. California prisons are particularly susceptible to climate-related diseases. For example, in 2013, California’s prison authorities had to transfer thousands of prisoners from prisons in the Central Valley because climate change had created a surge in cases of valley fever – a disease caused by climate warming and the droughts and dust storms it precipitates. See Gosia Wozniacka, *Surge in Valley Fever Blamed on Climate Change*, WASH. POST (May 5, 2013), <https://perma.cc/7XU8-4JE3>.

²²⁶ President Trump revoked President Obama’s Executive Order 13,690: Establishing a Federal Flood Risk Management Standard and replaced it with an Executive Order that expedites environmental review for all federal infrastructure projects. To date, there has been no report of how such expedited reviews will affect correctional systems. See *President Issues Executive Order to Expedite Infrastructure Reviews, Revoke Flood Management*

seriously studying the challenges of climate change to our correctional system, and it is not a problem that is likely to disappear on its own. The Biden administration has not yet evaluated the situation. Like other issues related to climate change, the key is to identify the problems and squarely address them.

A. Constitutional Challenges to Prison Conditions

Inmates may sue correctional institutions for Eighth Amendment violations. Under the Cruel and Unusual Punishments clause of the Eighth Amendment,²²⁷ inmates have a cause of action if they can demonstrate that: 1) conditions in a correctional facility, alone or in combination, objectively pose a substantial risk of harm, even if no harm has resulted yet;²²⁸ and 2) government officials were subjectively aware of the risk and acted with deliberate indifference to the danger posed to the inmates' health or safety.²²⁹

With the growing literature on climate change, inmates are likely to meet these standards. They already have. For example, inmates on Mississippi's death row brought a successful class-action suit against officials of the Mississippi Department of Corrections for extreme temperatures, humidity, uncontrolled mosquito infestations, and other conditions that posed a risk to inmate safety and health.²³⁰ Similar lawsuits have been brought against the Louisiana State Penitentiary in

Standard, COLUM. L. SCH.: SABIN CTR. FOR CLIMATE CHANGE L., <https://perma.cc/VL7K-SU4K> (last visited Feb. 4, 2021) (explaining the effects of the Executive Order). Moreover, the prevailing view is that the new order will “potentially limit or even eliminate analysis of climate change-related issues” in analyzing federal infrastructure projects, including those that might affect federal correctional institutions. Jessica Wentz & Michael Burger, *Five Points About the Proposed Revisions to CEQ's NEPA Regulations*, SABIN CTR. CLIMATE CHANGE L.: CLIMATE L. BLOG (Jan. 10, 2020), <https://perma.cc/K4K3-UKLA> (providing an overview of potential effects of a recent environmental proposal from the Council on Environmental Quality).

²²⁷ U.S. CONST. amend. VIII.

²²⁸ See *Farmer v. Brennan*, 511 U.S. 825, 834 (1994) (establishing that an “inmate must show that he is incarcerated under conditions posing a substantial risk of serious harm”); *Helling v. McKinney*, 509 U.S. 25, 32–33 (1993) (rejecting argument that Eighth Amendment “does not protect against prison conditions that merely threaten to cause health problems in the future, no matter how grave and imminent the threat.”); *Rhodes v. Chapman*, 452 U.S. 337, 347 (1981) (evaluating the conditions of inmates under contemporary standards to determine whether the inmates were receiving cruel and unusual treatment).

²²⁹ *Farmer*, 511 U.S. at 828, 837, 842. Subjective awareness of a risk may be inferred where the risk of harm is obvious. *Hope v. Pelzer*, 536 U.S. 730, 738 (2002) (citing *Farmer*, 511 U.S. at 842).

²³⁰ *Russell v. Johnson*, No. 1:02-cv-261, 2003 WL 22208029, at *8 (N.D. Miss. May 21, 2003).

Angola.²³¹ Inmates with disabilities remain at particular risk.²³² Ironically, correctional officers' best hopes of attaining better working conditions may be to align themselves with lawsuits by the inmates.²³³

In 2009, President Obama issued an executive order requiring federal agencies to prepare climate change adaptation plans.²³⁴ However, President Trump generally rolled back Obama-era executive orders designed to address climate change, and there are no recent reports about how federal and state correctional facilities are continuing these preparations.²³⁵ It is imperative that the government continue to prepare for the effects of climate change, especially temperature increases, in correctional facilities. Currently, four of five people in Texas prison cells do not have air-conditioning.²³⁶ The problem is not going away, despite the politics of climate change.

B. Increased Violence in Prisons and Jails

In 2019, the Civil Rights Division of the Department of Justice issued a damning report on the growing violence in American prisons.²³⁷ The report focused on male prisoners in Alabama, finding that prisoner-on-prisoner violence roughly doubled in the state in the past five years.²³⁸ Although the cause of such violence was not attributed directly to climate issues, a major contributing factor is the deteriorating infrastructure of our prisons.²³⁹

²³¹ See *Ball v. LeBlanc*, 988 F. Supp. 2d 639, 642 (M.D. La. 2013) (“Plaintiffs allege that Defendants have violated . . . their rights under the Eighth Amendment . . . by subjecting them to excessive heat, acting with deliberate indifference to their health and safety, and discriminating against them on the basis of their disabilities.”).

²³² HOLT, *supra* note 215, at 50–53.

²³³ *Id.* at 54.

²³⁴ Federal Leadership in Environmental, Energy, and Economic Performance, Exec. Order No. 13,514, 74 Fed. Reg. 52,117, 52,122–24 (Oct. 8, 2009). See generally U.S. DEP’T OF JUSTICE, U.S. DEP’T OF JUSTICE CLIMATE CHANGE ADAPTATION PLAN (2014) <https://perma.cc/J5W3-DWU6> (laying out the Department of Justice’s plan to adapt to climate change) [hereinafter CLIMATE CHANGE ADAPTION PLAN].

²³⁵ President Obama signed Executive Order 13,653 on Nov. 6, 2013, requiring federal agencies to create and maintain climate change plans. Preparing the United States for the Impacts of Climate Change, Exec. Order No. 13,653, 3 C.F.R. § 217 (2014). President Trump signed Executive Order 13,783 on Mar. 28, 2017, revoking Executive Order 13,653. Promoting Energy Independence and Economic Growth, Exec. Order No. 13,783, 3 C.F.R. § 230 (2018). The Department of Justice’s most recent Climate Change Plan was published in June 2014. See CLIMATE CHANGE ADAPTION PLAN, *supra* note 234.

²³⁶ Maurice Chammah, “Cooking Them to Death”: *The Lethal Toll of Hot Prisons*, MARSHALL PROJECT (Oct. 11, 2017), <https://perma.cc/59XF-E7PU>.

²³⁷ See CIVIL RIGHTS DIV., U.S. DEP’T JUSTICE, INVESTIGATIONS OF ALABAMA’S STATE PRISONS FOR MEN 7 (Apr. 2, 2019), <https://perma.cc/8TA5-JY3W> (depicting the increase of prisoner-on-prisoner violence in Alabama’s prisons) [hereinafter INVESTIGATIONS OF ALABAMA’S STATE PRISONS].

²³⁸ See Matt Ford, *The Everyday Brutality of America’s Prisons*, NEW REPUBLIC (Apr. 5, 2019), <https://perma.cc/53WN-FN58> (summarizing the date within the DOJ report).

²³⁹ INVESTIGATIONS OF ALABAMA’S STATE PRISONS, *supra* note 237, at 45.

To the extent climate change is contributing to the increased deterioration of prison facilities, it becomes an issue of control within those institutions. On January 29, 2020, Alabama announced that it was moving 600 inmates from Holman prison because of its deteriorating conditions.²⁴⁰ While prison officials proclaimed that the decision to close the prison was solely because of the deterioration—and not related to violence at the facility—state legislators had recently found that the violence level at the prison was unacceptably high.²⁴¹

There is no comprehensive study that links deteriorating prison conditions to increased rates of violence, but it is certainly an area of concern. There needs to be a study exploring how major climate events will psychologically affect inmates and, thereby, add to concerns over violence. To the extent collective inmate action is due to indifference to consequences, an inability to cope in stressful situations, and for some, a proclivity toward wanton destructiveness, organized and peaceful emergency action may pose a particular problem during crisis situations.²⁴² Where prisons house individuals with severe mental disorders,²⁴³ dramatic changes in prison conditions could lead to more dangerous and unpredictable behavior.

Staff shortages, which also may exist when a climate emergency arises and staff cannot get to their workplace, can add to the creation and severity of prison unrest. As one author noted with regard to the response to Hurricane Katrina, “[b]y not ensuring that an adequate number of guards would be present during the hurricane, the officials did not address the probability that inmate-on-inmate or guard-on-inmate violence would increase in the midst of an emergency.”²⁴⁴ Crisis management is critical in curtailing prison violence.²⁴⁵ There is both a legal duty and a moral imperative for prison officials to plan for emergencies.²⁴⁶ Emergency preparedness involves the training of both staff and inmates.²⁴⁷

²⁴⁰ Mike Cason, *Alabama Moving 600 Inmates from Crowded, Dangerous, Deteriorating Holman Prison*, ADVANCE LOCAL (Jan. 29, 2020), <https://perma.cc/W4PZ-JCEE>.

²⁴¹ *Id.*

²⁴² See H.W. Hollister, *Why Prisoners Riot*, ATLANTIC ONLINE (Oct. 1995), <https://perma.cc/C9ZL-X76T> (describing the key factors contributing to collective inmate action).

²⁴³ See Craig Haney, *Psychology and the Limits to Prison Pain*, 3 PSYCH., PUB. POL., & L. 499, 541 (1997) (providing data on the proportion of the prison population with severe mental disorders).

²⁴⁴ Ira P. Robbins, *Lessons from Hurricane Katrina: Prison Emergency Preparedness as a Constitutional Imperative*, 42 U. MICH. J.L. REFORM 1, 27 (2008).

²⁴⁵ See Arjen Boin & Menno J. Van Duin, *Prison Riots as Organizational Failures: A Managerial Perspective*, 75 PRISON J. 357, 371 (Aug. 1995) (highlighting the importance of crisis preparation to riot management).

²⁴⁶ Robbins, *supra* note 244, at 27.

²⁴⁷ See, e.g., *id.* (discussing the need for emergency evacuation procedures).

C. Increased Costs for Correctional Facilities

Dealing with climate change is expensive. Of course, the most serious costs are those relating to the loss of human life. But there are other costs relating to the housing and evacuation of prisoners during a major weather event. Rather than accurately budgeting for such events, states, such as Florida, unwisely reduced their budgets even in the face of projected climate events.²⁴⁸

In 2018, Hurricane Michael hit the Florida coast.²⁴⁹ More than 120,000 residents were ordered to evacuate.²⁵⁰ However, the Florida Department of Corrections did not evacuate close to 100,000 inmates who fell within the evacuation zone.²⁵¹ In the end, the cost to the correction system was estimated at around \$50 million.²⁵²

“Hurricanes and other major storms represent a significant threat to prisoners. Prisons and jails are often built on poorly-drained land located in flood plains or other environmentally sensitive areas.”²⁵³ Over the years, prisons have faced, in addition to Hurricane Michael, Hurricanes Katrina (2005), Rita (2006), Ike (2008), Irene (2011), Sandy (2012), Matthew (2016), Harvey (2016), Irma (2017), and Maria (2017).²⁵⁴ A range of issues have arisen, including how to relocate inmates, find shelters that will take evacuated prisoners (especially sex offenders); provide food, potable water, and ventilation; offer medical care and psychological counseling; and muster sufficient guards to coordinate and supervise evacuations.²⁵⁵ Hurricane Irma alone caused thirty-one state prisons to lose power.²⁵⁶ During Hurricane Maria, thirteen prisoners escaped during evacuations.²⁵⁷ In some situations, there were more facilities available for evacuated pets and zoo animals than for prisoners.²⁵⁸

Dealing with storms is an expensive proposition,²⁵⁹ but it is a cost that can no longer be avoided by the correctional system. In 2019, the

²⁴⁸ In the year of Hurricane Michael, Florida’s legislature made \$9.4 million in funding cuts to its prison system. Daniel A. Gross, *For the Families of People in Prison, Hurricanes Bring Extra Panic and Uncertainty*, NEW YORKER (Oct. 16, 2018), <https://perma.cc/37MJ-CPSA>.

²⁴⁹ *Id.*

²⁵⁰ *Id.*

²⁵¹ *Id.*

²⁵² *Prisons Take \$50 Million Hit from Hurricane Michael*, NEWS SERV. FLA. (Feb. 22, 2019), <https://perma.cc/35LQ-BQD4>.

²⁵³ Matt Clarke, *In the Eye of the Storm: When Hurricanes Impact Prisons and Jails*, PRISON LEGAL NEWS (May 17, 2018), <https://perma.cc/C63M-MHCT>.

²⁵⁴ *Id.*

²⁵⁵ *Id.*

²⁵⁶ *Id.*

²⁵⁷ *Id.*

²⁵⁸ *Id.*

²⁵⁹ For example, state officials reported \$50 million in storm damage to prisons resulting from Hurricane Michael in Florida. NEWS SERV. FLA., *supra* note 252. In 2012, FEMA spent tens of billions of dollars for hurricane relief. *FEMA Fact Sheet: Mitigation Assessment Team Results – Hurricane Sandy*, FED. EMERGENCY MGMT. AGENCY, <https://perma.cc/6SBS-D8VZ>

Federal Bureau of Prisons requested over \$7 billion for its budget.²⁶⁰ While there is one paragraph in the lengthy budget report on “Crisis Management,”²⁶¹ it does not list the costs of the preparation plans that are said to be in place and what additional costs there may be to either relocate institutions that are in vulnerable locations or to do the necessary repairs to ensure inmate and staff safety.²⁶²

In California, a 2019 study reported that overdue maintenance on state prisons is estimated to cost more than \$1 billion,²⁶³ although there is no breakdown of costs to address climate change such as the increased heat index in the Central Valley of California where many prisons are located. However, even with a reduction of inmates by 50,000, the cost of corrections is rising from \$12.7 billion to \$13.4 billion each year.²⁶⁴

Inmates have died of heat-related deaths in California since the 1990s. In one particularly infamous case, three inmates died in prisons where temperatures reached 107°F to 111°F.²⁶⁵ More recently, studies for California, Florida, and Texas indicate that heat waves will increase; by 2050, there will be 125 days of temperatures over 90°F that inmates must endure.²⁶⁶

Comprehensive studies are needed to determine more precisely the additional costs to correctional institutions of preparing for more extreme weather. However, there is one safe assumption—there will be additional, significant costs for correctional institutions ranging from jails to large prisons.

Climate change poses significant challenges for America’s correctional institutions. Once again, the brunt of such problems is likely to impact those who are most likely incarcerated in our institutions—people of color. In assessing the impact of climate change on the criminal justice system, there must be an honest evaluation of how climate change

(last visited Feb. 4, 2021). Moreover, Congress authorized numerous billion—and million—dollar expenses for agencies in the wake of Hurricane Sandy, including \$3 billion to the Federal Transit Administration and \$190 million to the National Park Service. 158 CONG. REC. S17894–97 (Daily ed. Dec. 19, 2012) (allocating, among other things, \$10 million to federal prisons).

²⁶⁰ U.S. DEPT. OF JUSTICE, FED. PRISON SYS. FY 2019 PERFORMANCE BUDGET 13 (2019), <https://perma.cc/Z5JM-AKSC> [hereinafter FY 2019 PERFORMANCE BUDGET].

²⁶¹ *Id.* at 10.

²⁶² *Id.* There are no formal government statistics available as to how much, if any, is being allocated for prisons to deal with climate change. One organization reports that although America spends at least \$182 billion on prisons and jails, “funding generally isn’t going toward preparing facilities for climate change.” Kimberly M. S. Cartier, *An Unfought Geoscience Battle in U.S. Prisons*, EOS (Nov. 10, 2020), <https://perma.cc/F65V-LXJC>.

²⁶³ Don Thompson, *Study: California’s 12 Oldest Prisons Need Major Fixes*, ASSOCIATED PRESS (July 16, 2019), <https://perma.cc/ZJ6L-ESDK>.

²⁶⁴ CalMatters, *Gov. Newsom Just Proposed a \$222 Billion State Budget*, LAIST (Jan. 13, 2020), <https://perma.cc/BU8G-54T4>.

²⁶⁵ *Heat-Linked Deaths of 3 Inmates Spur Call for Prison Investigation*, L.A. TIMES (July 5, 1991), <https://perma.cc/H8RJ-E83E>.

²⁶⁶ Nathalie Baptiste, *Some of America’s Prisons are Literally Hell During the Summer*, MOTHER JONES (Aug. 14, 2017), <https://perma.cc/PBB3-ETY5>.

will affect the operation of our correctional institutions. The human and financial costs are likely to be high.

IV. CLIMATE CHANGE'S IMPACT ON TRADITIONAL CRIMINAL LAW DOCTRINES

Attention has recently focused on how climate change will challenge traditional criminal law doctrines.²⁶⁷ Indeed, it is important for litigants and the courts to anticipate how doctrines such as the necessity and duress defenses are likely to be impacted by climate change. The necessity defense has now become part and parcel of cases involving climate change activists.²⁶⁸ However, the necessity defense may also apply to offenses that occur during climate-change events. Most importantly, it is critical to assess how the courts' and public's view of climate change may impact the standards that have been established for this defense.

Likewise, the duress defense may be impacted by climate change incidents. As individuals are placed in stressful situations, they may put pressure on others to engage in activities that are otherwise unlawful. As with the necessity defense, the duress defense can be impacted by courts' and jurors' views of how reasonably individuals act during these stressful times.

A. Necessity Defense

The necessity defense, also known as the “choice of evils” defense, “exculpates an actor for conduct that would otherwise be a crime when the actor engages in the conduct in order to prevent something worse from occurring.”²⁶⁹ Although the exact contours can differ depending on the jurisdiction, generally the defendant must show—as part of this affirmative defense—that: 1) the harm sought to be avoided by the defendant's conduct was greater than that caused by the defendant's conduct; 2) the law does not already define what conduct is permissible in a situation with these specific circumstances; and 3) there is not a clear indication that the legislature already determined that the defendant's actions, under the circumstances, were unjustified.²⁷⁰ As Sir Francis Bacon stated in his *Maxims of the Common Law*, “*Necessitas inducit*

²⁶⁷ See generally Joseph Rausch, *The Necessity Defense and Climate Change: A Climate Change Litigant's Guide*, 44 COLUM. J. ENV'T L. 553, 556–59 (2019) (explaining how the necessity defense has been increasingly employed by many climate activists to try and avoid criminal liability).

²⁶⁸ *Id.*

²⁶⁹ Michael H. Hoffheimer, *Codifying Necessity: Legislative Resistance to Enacting Choice-of-Evils Defenses to Criminal Liability*, 82 TUL. L. REV. 191, 192 (2007).

²⁷⁰ MODEL PENAL CODE § 3.02(1) note on justification as an affirmative defense (AM. LAW INST., Proposed Official Draft 1962).

privilegium quoad jura privata;” that is, “necessity introduces a privilege with respect to private rights.”²⁷¹

Up to now, scholarship has focused on how necessity could be used as a defense for those who protest against climate change.²⁷² Not surprisingly, these “indirect civil disobedience” cases have generally not been successful, in large part because there are legal alternatives for the protesters, such as seeking executive and legislative changes.²⁷³ However, climate change may precipitate situations where a defendant engages in criminal acts more directly related to a climate event. For example, during a hurricane or flood, an individual may commandeer another person’s property or escape from a custodial facility.²⁷⁴ Moreover, if climate change leads to an increase in migration, those who render aid to undocumented immigrants may argue necessity defenses if they are prosecuted. Further, those who file fraudulent applications for government aid during times of crisis or defraud those seeking aid may also argue that they did so out of necessity.

The key to a successful necessity defense is convincing the jury that the defendant was left with no choice but to violate the law given the circumstances of his or her situation.²⁷⁵ If inadequate preparations are taken for major weather events, defendants will be more likely to succeed with such arguments.

To cabin the application of the necessity defense, the government will have to provide lawful alternatives for individuals as they face dire situations, including access to food, shelter, medical supplies, and

²⁷¹ FRANCIS BACON, *THE ELEMENTS OF THE COMMON LAWS OF ENGLAND* 25 (1636).

²⁷² See Rausch, *supra* note 267, at 556–59.

²⁷³ See *United States v. DeChristopher*, 695 F.3d 1082, 1096 (10th Cir. 2012) (finding that plaintiff could have filed or joined a lawsuit to enjoin the issuance of the Bureau of Land Management oil and gas lease as a legal alternative for plaintiffs’ harm); *State v. Brockway*, No. 76242-7-I, 2018 WL 2418485, at *4 (Wash. App. Ct. 2018) (dismissing necessity defense where defendant had legal alternatives). In one notable Washington case, a court of appeals overturned the denial of a necessity defense for a defendant who cut a padlock and turned off an oil pipeline. See *State v. Ward*, 438 P.3d 588, 592–94 (Wash. App. Ct. 2019), *rev. denied*, 193 Wash. 2d 1031 (2019).

²⁷⁴ See *United States v. Kirby*, 74 U.S. 482, 487 (1868) (observing that a prisoner who breaks out when the prison is on fire “is not to be hanged because he would not stay to be burnt” (internal quotations omitted)). “While absolute necessity caused by forces of nature (e.g., storms, fire, earthquake, etc.) may both justify the escape and prevent defendant’s formulation of the general intent required to be convicted of escape.” *People v. Condley*, 69 Cal. App. 3d 999, 1012 (Cal. Ct. App. 1977). See also Stephanie J. Hamrick, *Is Looting Ever Justified?: An Analysis of Looting Laws and the Applicability of the Necessity Defense During Natural Disasters and States of Emergency*, 7 NEV. L.J. 182, 200 (2006) (hypothesizing that the limitations of prosecutions have resulted in a lack of case law regarding looting during disasters).

²⁷⁵ The recent COVID-19 pandemic has led to a rash of escapes in which inmates have claimed they fled because of inhumane conditions. Chris Francescani et al., *Releases, Infections, Fear: U.S. Coronavirus Crisis in Jails and Prisons Looms*, ABC NEWS (Mar. 26, 2020), <https://perma.cc/34YL-QXNR>. There is not an indication yet whether those cases will establish precedents as to the use of necessity in other types of disasters, including those precipitated by climate change.

transportation. Should those necessities not be available, it is not unrealistic to believe that people will engage in self-help. When charged with trespass or theft, it is predictable that a necessity defense will be raised. Depending upon how sympathetic jurors are to the defendant's plight, and how angry they are with the government's inadequate preparation, defendants may routinely be successful with claims of necessity.

B. Duress

Even without extreme climate change events, prisoners have long claimed both necessity and duress as defenses to escape charges.²⁷⁶ Though generally unsuccessful, the defense has been used to focus the court on the intolerable conditions that led to an inmate's escape.²⁷⁷

To use duress—an affirmative defense—the defendant must generally show that: 1) the defendant acted because of coercion by use or threat of unlawful force against the defendant or a third person that a reasonable person in the defendant's situation would not have been able to resist, and 2) the defendant was not reckless or grossly negligent in putting themselves in the situation in which they were faced with the duress.²⁷⁸ In the prison escape context, a defendant must also show that: 3) “there was no reasonable opportunity to avoid or escape the threatened harm,” and 4) “the defendant submitted to proper authorities after attaining a position of safety.”²⁷⁹

Prison escape defendants arguing duress often say they are fleeing physical danger,²⁸⁰ sexual assault,²⁸¹ or lack of medical care.²⁸² When the duress defense fails in a prison escape, it is generally because the defendant did not satisfy the fourth element—that they return to authorities once safe.²⁸³ These cases may become more common as climate

²⁷⁶ See, e.g., *United States v. Bailey*, 444 U.S. 394, 410 (1980) (addressing necessity defense); *People v. Unger*, 362 N.E.2d 319, 322 (Ill. 1977) (framing defense as “necessity”); *People v. Lovercamp*, 43 Cal.App.3d 823, 831–32 (Cal. Ct. App. 1974) (explaining that the necessity defense is available if one of the following conditions is present: 1) “[t]he prisoner is faced with a specific threat of death, forcible sexual attack or substantial bodily injury in the immediate future;” 2) there is not enough time to make a complaint to the authorities; 3) there is not enough time to go to court; 4) there is no evidence of force or violence towards prison staff or other inmates during the escape; and 5) the inmate immediately reports to the authorities once they are in a safe place).

²⁷⁷ See David Dolinko, *Comment: Intolerable Conditions as a Defense to Prison Escapes*, 26 UCLA L. REV. 1135 (1979).

²⁷⁸ MODEL PENAL CODE § 2.09 (AM. LAW INST. 2019).

²⁷⁹ *United States v. Williams*, 791 F.2d 1383, 1388 (9th Cir. 1986) (quoting *United States v. Peltier*, 693 F.2d 96, 98 (9th Cir. 1982)). See also *United States v. Bailey*, 444 U.S. 394, 412–13 (1980) (applying elements (3) and (4) to both necessity and duress).

²⁸⁰ *Bailey*, 444 U.S. at 398.

²⁸¹ *Lovercamp*, 43 Cal. App. 3d at 832.

²⁸² *United States v. Bifield*, 702 F.2d 342, 346 (2d Cir. 1983).

²⁸³ See *State v. Watts*, 298 S.E.2d, 436, 437 (N.C. 1982) (citing *Lovercamp*, 43 Cal. App. 3d at 831) (upholding a finding of no duress because an escaped prisoner refused to turn

change exacerbates prison conditions, with deteriorating conditions possibly leading to more violence, poorer health services, and more escapes.

While the government is likely to win any escape case in which the defendant does not return to incarceration, to moderate any potential increase in caseload, the government will have to ensure climate change does not further deteriorate prisons.

C. Causation

As climate change stresses infrastructure and makes extreme weather events more common, some defendants charged with homicide may argue that they are not guilty because they are not the cause of death. Generally, a defendant's act is the cause of a death if it is: 1) the actual cause of the death by being one act in the chain of causation of the death, and 2) the proximate cause of the death.²⁸⁴ There are no bright line rules for proximate cause, but an act is generally a proximate cause of a death if death was a foreseeable outcome of the act.²⁸⁵

If hospital resources are stressed by climate change and extreme weather events are more common, a defendant may argue that their actions were not the proximate cause of a death because independent intervening acts cut off causation. “[A]n independent intervening cause will absolve a defendant of criminal liability. However, in order to be independent, the intervening cause must be unforeseeable . . . an extraordinary and abnormal occurrence, which rises to the level of an exonerating, superseding cause.”²⁸⁶

Acts of nature do not generally break the chain of causation,²⁸⁷ but unforeseeable acts of nature may. If climate change makes extreme weather events like tornados or floods more common in areas where they were not previously common, defendants may be more likely to claim the weather event cut off the chain of causation. Conversely, if climate change makes extreme weather events more common, those events may become more foreseeable and thus less likely to cut off the chain of causation.

himself in); *Bifield*, 702 F.2d at 346 (2d Cir. 1983) (holding that a “self-serving statement” that is not partnered with evidence of actions is insufficient to support the element for defense).

²⁸⁴ *People v. Cervantes*, 26 Cal. 4th 860, 866–67 (Cal. 2001).

²⁸⁵ *See id.* (stating that proximate cause is established when there is a direct connection with the resulting injury).

²⁸⁶ *Zemek v. Superior Court*, 44 Cal. App. 5th 535, 552–53, (Cal. Ct. App. 2020), *rev. denied* (Apr. 22, 2020) (internal quotations omitted).

²⁸⁷ *See People v. Kibbe*, 35 N.Y.2d 407, 413 (N.Y. 1974) (stating that the cold of a winter night was not an intervening cause that would relieve defendants of liability). For example, while the spread of the 2018 Camp Fire was an “act of nature,” the court still found the utility company PG&E to be culpable for the death and destruction it caused. PG&E pleaded guilty to 84 crimes of manslaughter, with Judge Deems noting that “[i]f these crimes were attributed to an actual human person rather than a corporation, the anticipated sentence based on the applicable statutes to which the defendant has pleaded guilty would be 90 years to be served in state prison.” Penn, *supra* note 195.

Poor medical treatment, even gross negligence, does not generally break the chain of causation.²⁸⁸ But if hospitals are stressed to extremes under climate change and the standard of care dips, defendants may argue that a lack of care is a superseding cause of death if, for example, a simple assault leads to a hospitalization where a minor cut is infected, and no treatment is rendered for an extended period of time.

This is but one example of how major climate events will lead to casualties that defendants will naturally seek to blame on unforeseeable circumstances rather than their own conduct. Now is the time to anticipate these events and consider whether traditional doctrines will lead to just results in such cases.

V. CONCLUSION

Climate change will affect nearly every aspect of the criminal justice system, yet there is relatively little discussion of the issue by the courts, government officials, and scholars. When crises hit, there is precious little time to react. Now is the time to closely examine the criminal justice system to address likely challenges to it with the inevitable arrival of climate change incidents.

A. Initial Suggestions

Here are some initial suggestions:

1. *Further Study of the Effect and Cost of Climate Change on Criminal Justice*

More research must be conducted to identify the effect climate change will have on criminal justice. Areas of possible study include what effect climate change will have on crimes against persons and property—including inside prisons and jails—and what effects extreme weather events may have on jails, prison, and courts. Research should also be conducted to quantify the monetary costs of these effects.

Congress should pass additional funding for criminal justice climate change research. The Department of Justice's Office of Justice Programs, which administers federal criminal justice research grants, should incentivize research focused on climate change. Private research funding from organizations like the MacArthur Foundation, which funds some criminal justice research, should also be expanded.²⁸⁹

²⁸⁸ See, e.g., *State v. Shibazz*, 719 A.2d 440, 444 (Conn. 1998).

²⁸⁹ *Criminal Justice Strategy*, MACARTHUR FOUND. (Jan. 18, 2021), <https://perma.cc/D9E4-KUAE>.

Models exist to estimate the monetary cost of greenhouse gases,²⁹⁰ but the Social Cost of Carbon (SCC)—the measure that had been adopted by the Obama administration—does not account for increased costs to the criminal justice system.²⁹¹ Efforts are underway to add some categories of damages absent from the SCC to the measure, but a category cannot be added until a robust body of research quantifying the cost associated with it exists.²⁹² Resources for the Future, a non-profit research institution, is working to update the SCC²⁹³ and should incentivize research on the criminal justice system.

2. Efforts to Measure the Cost of Major Development Projects to the Criminal Justice System

Following the development of a measure for the cost of climate change to the criminal justice system, legislatures should pass laws requiring major construction projects to complete criminal justice cost analyses connected to their effect on climate change as part of their permitting processes to ensure that the project's impact on the criminal justice system can be accurately assessed.

3. Creation of Task Forces Targeted at Addressing Climate Change Disruptions to the Criminal Justice System

In preparation for potential upheavals, jurisdictions should form task forces targeted at areas most likely to be impacted due to climate change. These task forces should develop plans for how the government will react to spikes in caseloads and decide what prosecutions should be prioritized. The federal government should form a task force to address a possible influx of immigration cases.²⁹⁴ States and the federal government should form task forces to address possible increases in fraud, crimes against persons, and crimes against property cases connected to extreme weather events.²⁹⁵

4. Development of Operation Plans to Address Extreme Weather Events

Each organization involved in the criminal justice system—including courts, law enforcement agencies, and correctional departments—should

²⁹⁰ See generally ILIANA PAUL ET AL., INST. FOR POL'Y INTEGRITY, THE SOCIAL COST OF GREENHOUSE GASES AND STATE POLICY (Oct. 2017) (explaining the social cost associated with CO₂ in dollars).

²⁹¹ E-mail from Derek Sylvan, Strategy Dir., Inst. for Pol'y Integrity at N.Y.U. Sch. of Law, to Charles Lam, JD Candidate at Loyola Law Sch., L.A. (June 12, 2020) (on file with author).

²⁹² *Id.*

²⁹³ Eric Roston, *Climate Scientists Exiled by Trump Form Panel to Continue Work*, BLOOMBERG (Jan. 5, 2018), <https://perma.cc/TAT6-LDHA>.

²⁹⁴ See *supra* Part II.A.1.

²⁹⁵ See *supra* Part II.A.2.

develop emergency preparedness plans to address what is to be done in the event of extreme weather caused by climate change. Courts need to determine how to hold proceedings and whether the normal rules of criminal procedure will remain in effect in the event normal venues are unavailable. Law enforcement agencies and correctional departments need to determine how jails and prisons will be staffed, how and to where inmates will be evacuated, and where arrestees will be housed in the event jails and prisons are unavailable due to extreme weather. The National Center for State Courts has published a framework for forming Continuity of Operations Plans to inform decision making in emergencies.²⁹⁶ Courts, prosecutors', and defenders' offices should use this framework to develop local emergency plans. To inform these decisions, courts and law enforcement can take lessons from their responses to the COVID-19 pandemic.

5. Reallocation of Resources to Prioritize Charges Against Companies Contributing to Climate Change

The DOJ should consider reallocating resources to prosecutors in its Environmental Crimes Section. Prosecutors should also pursue lengthier sentences than the minimal sentences currently sought²⁹⁷ as the effects of climate change worsen. In addition to enforcing environmental laws, the DOJ should consider pursuing criminal fraud charges against companies that employ fraudulent schemes to violate environmental laws or to profit from climate change. The DOJ should also put in place a framework to prioritize such cases to maximize their effect.

6. Research and Funding of Programs Designed to Reduce the Impact of Climate Change on the Criminal Justice System

The government and private organizations should study programs that may reduce the effect of climate change on the criminal justice system and fund those programs if they prove effective.

The Center for American Progress, a policy think tank, has studied the causes of climate migration in Northwest Africa, finding that it could be cabined by "minor investments" in "livelihood security, irrigation, improved migration monitors, and regional water cooperation."²⁹⁸ The Center should do the same type of research for Central and South America. A follow-up study to the 2015 Sabin Center study²⁹⁹ should also be conducted to explore how much the effects of climate change on prisons may affect the amount of crime in them.

²⁹⁶ NAT'L CTR. FOR STATE COURTS, CONTINUITY OF COURT OPERATIONS: STEPS FOR COOP PLANNING 2 (2007), <https://perma.cc/QP47-VR3F>.

²⁹⁷ *Prosecutors Protecting our Nation's Ecological Heritage*, *supra* note 159.

²⁹⁸ MICHAEL WERZ & LAURA CONLEY, CTR. FOR AM. PROGRESS, CLIMATE CHANGE, MIGRATION, AND CONFLICT IN NORTHWEST AFRICA 2–3 (Apr. 2012).

²⁹⁹ *See supra* note 215 and accompanying text.

Legislators should consider funding programs that may reduce the effect of climate change on the criminal justice system, including direct foreign investment programs and increased prison infrastructure funding.

7. Formation of Specialized Prosecutor Units to Respond to Climate Events and Their Impact on Arrests and Prosecutions

Prosecutors' offices should form specialized units trained to respond to large spikes in arrests that may become more common during severe weather events or unrest caused by climate change. During these events, the public demand for clear and quick action may be higher. For example, during the 2020 demonstrations following the death of George Floyd, prosecutors had to quickly rally to determine how their offices would respond to violations by large numbers of individuals arrested for breaking curfew.³⁰⁰ To ensure clarity and reduce the risk of further unrest, prosecutors should have clear guidance on what prosecutions are to be prioritized in these situations and who will conduct those prosecutions. Prosecutors should also be alert to any law enforcement targeting of specific groups to ensure that there is not inappropriate racial, ethnic, or economic profiling and unlawful use of force.

8. Enactment of Laws to Address the Causes of Climate Change

To avoid or minimize any possible costs to the criminal justice system due to climate change, legislation addressing the root causes of climate change should be enacted. In fact, every piece of legislation should require a "Criminal Justice Environmental Impact Report" that examines how the new law, and the actions it permits or prohibits, may contribute to the challenges to the criminal justice system if it leads to a major climate event.

9. Integration of Lessons about Climate Change into the Criminal Law Curriculum

Traditional doctrinal criminal law courses tend not to focus on underlying societal issues that can have a dramatic impact on the criminal justice system. These can involve issues regarding race, economic disparity, gender discrimination, problems with policing, over-incarceration and the impact of technology. As more of these issues are incorporated in teaching about criminal law, issues regarding climate change should be as well. Soon, all members of the criminal justice system—from judges, prosecutors, defense lawyers, and those involved in

³⁰⁰ Richard Winton, *L.A. City, County Prosecutors Won't Charge Protesters Arrested on Curfew Violations, Failure to Disperse*, L.A. TIMES (June 8, 2020), <https://perma.cc/UB6Z-7PDA>.

corrections—will have to deal with such challenges. It is critical that they have the background and resources to do so.

10. Release of Studies on the Impact of Climate Change on Correctional Institutions

While correctional institutions have security interests that may make them reluctant to release details of their plans if there is a major climate event, public officials must start evaluating such plans to see if they are sufficient and coordinate such plans with the operation of the courts. When a crisis occurs, it is too late to provide for such coordination. Those efforts must start now. Moreover, rather than just focusing on how correctional institutions can be made safe to weather climate changes, policymakers have an opportunity to propose creative alternatives for using penal institutions in a manner that will reduce climate change itself.³⁰¹

B. Worry Less and Do More

If the COVID-19 pandemic has taught us anything, it is that we must be alert to the major challenges we are likely to face in the upcoming decades. Climate change cannot be ignored. Now is the time to prepare. Preparation starts with an awareness that the criminal justice system is about to face its most daunting challenges even while still addressing ongoing concerns of bias, lack of resources, and the public's increased frustration and cynicism. There is no time to lose.

The challenges of climate change cannot be left to the environmentalists. They must be addressed by everyone in the criminal justice system. Alexis de Tocqueville famously wrote of the struggles America would face as a nation.³⁰² At the time, climate change was nowhere on the radar screen. But de Tocqueville's basic prescription still applies. To attain success, we must rise above ourselves.³⁰³ We must recognize that the criminal justice system involves more than just the day-to-day prosecution of individuals but is part of America's complex ecosystem. We must prevent and address climate change specifically so we can maintain the rule of law.

³⁰¹ One particularly creative suggestion was to turn Rikers Island, an infamous prison, into a solar farm. A movement has grown to close the facility that has become the symbol of racism and cruelty in the carceral system. "As the movement to close Rikers gained momentum, a cross section of environmental criminal justice groups began meeting to discuss plans for what might come next." Kate Aronoff, *Turn Rikers Island into a Solar Farm*, NEW REPUBLIC (June 19, 2020) <https://perma.cc/5PDZ-BUMC>.

³⁰² ALEXIS DE TOCQUEVILLE, *DEMOCRACY IN AMERICA* (George Lawrence trans., J.P. Mayer ed. 1966).

³⁰³ *Id.* at 386.