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CLIMATE CHANGE AND THE THREAT TO U.S. JAILS AND PRISONS

LAURIE L. LEVENSON*

I. INTRODUCTION

It is bound to happen again. Tragically, the disaster that occurred at the condominium complex in Surfside, Florida,¹ is likely to impact other large cement structures that hold large populations. The United States houses thousands of inmates in similar structures — large cement buildings that are not particularly well maintained and whose collapse could cause injury or death for scores of inmates.² For years, it has been known that U.S. jails and prisons are in desperate need of repair.³ Nevertheless, construction projects remain on hold and inmates remain at peril.

* Professor of Law and David W. Burcham Chair in Ethical Advocacy, Loyola Law School, Los Angeles. Many thanks to my research assistants, Jacob Feiler, Lauren Castleton and Blake Ackerman, for their help with this Article. I am also in debt to the staff and editors of the *Villanova Environmental Law Journal*, especially Editor-in-Chief Kyra G. Bradley, for all of their hard work on this Article. Finally, I am grateful to Alice Hill for her ongoing work in bringing to the public's attention the growing threats of climate change. Climate change will affect everything we do on this planet. See generally Laurie L. Levenson, *Climate Change and the Criminal Justice System*, 51 ENVTL. L. 333 (2021) (overviewing how climate change has impacted all aspects of criminal justice system, including crimes charged and defenses to them). It is time to take a close look of how it poses a threat to America's jails and prisons.

1. See Oliver Milman, *Miami Condo Collapse Prompts Questions over Role of Climate Change*, GUARDIAN (June 29, 2021, 4:30 AM), <https://www.theguardian.com/us-news/2021/jun/29/miami-condo-collapse-questions-climate-change> (highlighting dangers to buildings from sea-level rise); Louise Boyle, *Energy Secretary Suggests Climate Crisis May Have Played a Role in Miami Condo Collapse*, INDEPENDENT (June 29, 2021, 10:37 PM), <https://www.independent.co.uk/climate-change/miami-building-collapse-sea-climate-b1875007.html> (reporting building collapse spurred questions by U.S. Secretary of Energy about impact of climate change on oceanfront structures); Alissa Walker, *Why Did the Surfside Condo Tower Collapse? Here Are All the Theories.*, CURBED (June 29, 2021), <https://www.curbed.com/2021/06/miami-condo-collapse-surfside-reasons.html> (offering theories on collapse of Surfside Condo Tower).

2. See *Population Statistics*, FED. BUREAU OF PRISONS, https://www.bop.gov/about/statistics/population_statistics.jsp#pop_report_cont (last visited Jan. 20, 2022) (reporting 153,855 federal inmates in facilities across United States); *Criminal Justice Fact Sheet*, NAACP, <http://www.naACP.org/resources/criminal-justice-fact-sheet> (last visited June 29, 2021) (reporting three million people in state and federal jails and prisons today).

3. See Don Thompson, *Study: California's 12 Oldest Prisons Need Major Fixes*, ABC 10 (July 16, 2019, 9:32 PM), <https://www.abc10.com/article/news/local/sacramento/study-californias-12-oldest-prisons-need-major-fixes/103-e341ca9a-8247->

Repair or replacement of U.S. jails is generally considered a local matter.⁴ Historically, they have been plagued by problems ranging from inadequate funding to tangled local politics to simple disinterest.⁵ As one report noted, “[C]ounty projects mov[e] glacially.”⁶ However, climate change is not moving glacially.⁷ Experts who deal with the impact of climate change on our environment, including structural integrity, have noted that “[c]limate change caused by human activity remains one of the most urgent challenges of the 21st century.”⁸ It is having a profound impact upon

4ae2-b75a-96e42e722d49 (reporting study of twelve prisons showed that all of them needed major repairs and “ha[d] exceeded their expected useful life”); Caroline Beck, *Deteriorating Power, Sewer Utilities Lead to Partial Closure of State Prison*, TUSCALOOSA NEWS (Jan. 29, 2020, 5:30 PM), <https://www.tuscaloosanews.com/news/20200129/deteriorating-power-sewer-utilities-lead-to-partial-closure-of-state-prison> (reporting projected eight hundred million dollars in deferred maintenance costs for Alabama’s prisons).

4. States and individual counties have a great deal of autonomy when it comes to inspection of their correctional facilities. California allows a “grand jury [to] inquire into the condition and management of the public prisons within [each] county.” CAL. PENAL CODE § 919 (West 2019). Texas has a state Commission on Jail Standards. See Continuation and Functions of the Commission on Jail Standards, 2021 Tex. Sess. Law Serv. Ch. 254 (H.B. 1545) (West). Illinois requires annual county inspections of jail facilities, the results of which are published online. 730 ILL. COMP. STAT. 5/3-15-2 (2019).

5. See Michael Cohen, *How For-Profit Prisons Have Become the Biggest Lobby No One Is Talking About*, WASH. POST (Apr. 28, 2015), <https://www.washingtonpost.com/posteverything/wp/2015/04/28/how-for-profit-prisons-have-become-the-biggest-lobby-no-one-is-talking-about/> (noting that major issues regarding criminal justice system, including privatization of prisons, draw little public scrutiny); Gaby Galvin, *Underfunded, Overcrowded State Prisons Struggle with Reform*, U.S. NEWS (July 26, 2017, 1:30 PM), <https://www.usnews.com/news/best-states/articles/2017-07-26/understaffed-and-overcrowded-state-prisons-crippled-by-budget-constraints-bad-leadership> (providing overview of significant problems in state prisons that are not being addressed because so few people are willing to speak out about what is going on in them).

6. Jason Pohl & Ryan Gabrielson, *Deadly Delays in Jail Construction Cost Lives and Dollars Across California*, PROPUBLICA (July 17, 2019, 5:00 AM), <https://www.propublica.org/article/deadly-delays-in-jail-construction-cost-lives-and-dollars-across-california> (chronicling deadly delays in improving safety of prisons).

7. See Paul Voosen, *Seas Are Rising Faster than Ever*, 370 SCI. 901, 901 (Nov. 20, 2020), <https://doi.org/10.1126/science.370.6519.901> (describing rate of rising sea level as having “kicked into higher gear”); *Climate Change: How Do We Know?*, NASA, <https://climate.nasa.gov/evidence/> (last visited Oct. 26, 2021) (providing detailed charts of unequivocal escalation in Earth’s warming climate).

8. *AIA Commentary on Climate Change Mitigation: The Architect’s Critical Role in Climate Change Mitigation*, AIA, <https://www.aia.org/resources/77941-aia-commentary-on-climate-change-mitigation:41> (last visited Oct. 26, 2021). In August 2021, the Intergovernmental Panel on Climate Change (IPCC) issued its Sixth Assessment Report on Climate Change. See IPCC, AR6 CLIMATE CHANGE 2021: THE PHYSICAL SCIENCE BASIS SPM-5 (2021), https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Full_Report.pdf (noting that “[i]t is unequivocal that human influence has warmed the atmosphere, ocean and land” and that “[w]idespread and rapid changes in the atmosphere, ocean, cryosphere and bio-

the foundation of buildings, whether they are being used for commercial, housing or incarcerative purposes.⁹ Even new construction projects have encountered problems with structural integrity.¹⁰

President Biden and a bipartisan group of legislators have passed a massive infrastructure bill for the United States.¹¹ Yet, there is not yet one word in the bill about how to support the rethinking and rebuilding of jails and detention centers. “Out of sight, out of mind” is a phrase often associated with the United

sphere have occurred”). The latest version of the IPCC Climate Change Report was released on February 27, 2022. See IPCC, CLIMATE CHANGE 2022: IMPACTS, ADAPTATION AND VULNERABILITY SPM-1 (Hans-O. Pörtner et al. eds., 2022), https://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_FinalDraft_FullReport.pdf. The new report confirms the escalating threats of climate change, including the impact of coastal riverine and urban flooding on communities. *Id.* at 14-77.

9. See, e.g., Ran Boydell, *Most Buildings Were Designed for an Earlier Climate – Here’s What Will Happen as Global Warming Accelerates*, THE CONVERSATION (July 2, 2021, 11:29 AM), <https://theconversation.com/most-buildings-were-designed-for-an-earlier-climate-heres-what-will-happen-as-global-warming-accelerates-163672> (explaining climate change can lead to variety of dangers from termites and melting asphalt to building collapse); Kim Kelly, *The Climate Disaster Inside America’s Prisons*, NEW REPUBLIC (Sept. 18, 2019), <https://newrepublic.com/article/155092/climate-disaster-inside-americas-prisons> (drawing attention to how climate change threatens health of inmates and correctional officers alike); *The Staggering Interconnectivity of Mass Incarceration and Climate Change*, OUR DAILY PLANET (Sept. 2, 2020), <https://www.ourdailyplanet.com/story/the-staggering-interconnectivity-of-mass-incarceration-and-climate-change/> (discussing candidly how mass incarceration exacerbates impact of climate change on carceral institutions); Ran Boydell, *From Melting Steel to “Concrete Cancer”, Our Buildings Aren’t Designed to Withstand Climate Change*, IDEAS.TED.COM (July 14, 2021), <https://ideas.ted.com/climate-change-extreme-weather-will-damage-buildings-and-infrastructure/> (encouraging candid assessment of impact of climate change on buildings, especially concrete structures).

10. See *Climate Change Impact on Buildings and Constructions*, CLIMATE CHANGE ADAPTATION, <https://en.klimatilpasning.dk/sectors/buildings/climate-change-impact-on-buildings/> (last visited Oct. 26, 2021) (noting scientific evidence demonstrates that climate change — including escalating temperatures — affects fundamental materials used in construction); see also Lynn Walker, *New Jail Fails State Inspection*, TIMES RECORD NEWS (June 21, 2021, 3:46 PM), <https://www.timesrecordnews.com/story/news/2021/06/21/new-jail-fails-state-inspection/5297173001/> (noting that it is often number of small issues, rather than just one problem, that impedes opening of new facilities).

11. See Press Release, The White House, Fact Sheet: The Bipartisan Infrastructure Deal (Nov. 6, 2021), <https://www.whitehouse.gov/briefing-room/statements-releases/2021/11/06/fact-sheet-the-bipartisan-infrastructure-deal/>. See generally Infrastructure Investment and Jobs Act, H.R. 3684, 117th Cong. (2021) (enacted) (providing full contents of bill). It became law on November 15, 2021, and contains sections 10001 to 100708. *Id.* The bill focuses on rebuilding transportation systems; improving clean water for households, businesses, schools, child care centers and tribal nations; improving the internet system; rebuilding bridges; reducing emissions from public transportation; upgrading airports and ports; investing in passenger rail service; upgrading the power grid; preventing cyberattacks; and cleaning up Superfund and brownfield sites. *Id.* While some of these improvements could have indirect benefits for prisons, jails and detention centers, these facilities are not addressed directly by the bill. *Id.*

States' incarcerated population. Inmates are too often viewed as "disposable people,"¹² and both local and national leaders have failed to acknowledge the threats that climate change will have on over two million people in custody.

It is time to consider the impact of climate change on the structural integrity of city and county jails. Historically, there have been obstacles to building, repairing, and maintaining institutions where large numbers of prisoners are confined either awaiting trial or serving their sentences. That is why this Article advocates for increased attention on the problem of how climate change is affecting our penal institutions and an aggressive effort for additional legislation and administrative efforts to increase investment and immediate repair or replacement of penal facilities not funded in the President's \$1.2 trillion infrastructure bill. Failing to update these facilities could be catastrophic. Policy makers should not need any more warning signs. The tragic loss of life in Florida makes clear the stakes involved if those responsible penal institutions do not evaluate and admit that they face similar challenges.

In presenting this proposal, this Article will review what occurred at the Champlain Towers in Surfside and why the collapse of the building should raise concerns regarding correctional institutions that are also subject to similar environmental challenges. The next Section will provide an overview of the variety of environmental hazards confronting individuals incarcerated in the United States. These dangers range from health problems caused by excessive heat conditions to disasters that occur when a building is structurally compromised. Finally, this Article makes ten modest suggestions as to steps we can take now to address the threat of climate change to U.S. jails and prisons. Of course, these proposals will need further investigation and evaluation by those in position to make the necessary investments and changes. But the goal of this Article overall is to increase awareness of the risk to our inmates from climate change.¹³

12. See *No Disposable People*, PRISON FELLOWSHIP, <https://www.prisonfellowship.org/2014/09/no-disposable-people/> (last visited Oct. 26, 2021) (offering inmate perspective on why prisoners believe they are seen as "disposable people").

13. For a more comprehensive discussion of how climate change threatens the criminal justice system, see Laurie L. Levenson, *Climate Change and the Criminal Justice System*, 51 ENVTL. L. 333 (2021) (focusing on how climate change is likely to affect nature of offenses that must be handled by criminal justice system, as well as pose challenges to housing and treatment of inmates during climate-related disasters).

II. THE TRAGEDY IN SURFSIDE

On June 24, 2021, at 1:30 a.m., tragedy struck.¹⁴ The Champlain Towers South in Surfside, Florida, collapsed and killed over 100 residents.¹⁵ As the search through the rubble of the thirteen-story concrete building was conducted, questions were raised regarding the cause of the accident.¹⁶ While it will still be months before a final report is issued,¹⁷ a leading suspected cause of the collapse is deterioration of the concrete building accelerated by climate change.¹⁸ Certainly, the effects of global warming, which in-

14. See Debra Acosta, Elizabeth Bernstein & Valerie Bauerlein, *Miami Building Collapse: Dozens Missing in Surfside, Florida; at Least One Killed*, WALL ST. J. (June 25, 2021, 2:16 AM), <https://www.wsj.com/articles/miami-area-condo-collapse-causes-massive-emergency-response-11624532492>. Surfside was a twelve-story, forty-year-old building that crumbled in a matter of minutes. *Id.* From the beginning, engineers suspected that the structure's integrity had been undermined by the corrosive effects of seawater. *Id.* Initially, there were ninety-nine people unaccounted for and thirty-seven occupants pulled from the building's rubble. *Id.*

15. See Christopher Flavelle, Patricia Mazzei & Giulia Heyward, *Collapse Raises New Fears About Florida's Shaking Insurance Market*, N.Y. TIMES, <https://www.nytimes.com/2021/07/17/us/miami-building-collapse-condo-surfside.html> (Sept. 1, 2021) (noting collapse of building triggered immediate investigation into loss of life and extent to which insurance companies would be responsible for human and material loss).

16. See Nadine M. Post, *Miami-Dade Building Officials Suspect Poor Maintenance in Surfside Collapse*, ENG'G NEWS-REC. (July 29, 2021), <https://www.enr.com/articles/52171-miami-dade-building-officials-suspect-poor-maintenance-in-surfside-collapse>. Identifying the cause of a building collapse is a complex and lengthy process that includes checking, among other things, building codes, building materials, certifications and recertifications, seismic records, and other tests by response teams from government agencies, including the Rapid Response Research Facility of the National Science Foundation's Natural Hazards Engineering Research Infrastructure Program. *Id.*

17. There have been multiple investigations of the Surfside site and some are expected to continue for months and years to come. In January 2022, the National Institute of Standards and Technology sent a letter to the Miami Police Department that it was starting a more "intense phase of its investigation." Lexi Lonas, *Judge Grants Victims of Surfside Condo Collapse Access to Physical Evidence Following Feds Refusal*, THE HILL (Jan. 29, 2022, 10:47 AM), <https://thehill.com/homenews/state-watch/591930-judge-grants-victims-of-surfside-condo-collapse-access-to-physical> (stating before federal authorities took over investigation, Miami-Dade County officials conducted investigation).

18. See Joan Michelson, *Surfside's Collapse Highlights the Dangers of 'Solutions Aversion,' Like Ignoring Climate Change*, FORBES (July 26, 2021, 3:44 PM), <https://www.forbes.com/sites/joanmichelson2/2021/07/26/surfsides-collapse-highlights-the-dangers-of-solutions-aversion-like-ignoring-climate-change/?sh=595495415ed3>. Although the investigation of the Surfside condo collapse continues, a Miami-Dade grand jury issued a litany of recommendations to help avoid a similar event, most of which focus on recertification requirements. See Amanda Watts, *Grand Jury Recommends How to Avert Another Disaster Like the Surfside Condo Collapse*, CNN, <https://www.cnn.com/2021/12/15/us/grand-jury-report-surfside-collapse/index.html> (Dec. 16, 2021, 4:58 AM) (Miami-Dade County grand jury report on file with author) (noting focus of repairs are on dangers of concrete buildings in marine environment).

clude extreme heat and more moisture in the air, cause structures to deteriorate more quickly.¹⁹ Furthermore, the impact is not limited to the coastal areas of Florida.

This effect of climate change is expected to occur in nearly all coastal areas.²⁰ It is not unusual for correctional institutions — both jails and prisons — to be located along coastal areas, including those prone to flooding and other climate events.²¹ For example, in North Carolina, there are at least eight correctional institutions

19. There are many reports that examine the effects of climate change on construction materials. *See, e.g.*, LENNART OLSSON, HUMBERTO BARBOSA, SURUCHI BHADWAL, ANNETTE COWIE, KENEL DELUSCA, DULCE FLORES-RENTERIA, KATHLEEN HERMANS, ESTEBAN JOBBAGY, WERNER KURZ, DIQIANG LI, DENIS JEAN SONWA & LINDSAY STRINGER, IPCC, SPECIAL REPORT ON CLIMATE CHANGE AND LAND: CH. 4 LAND DEGRADATION 347-48 (José Manuel Moreno & Carolina Vera eds., 2021), https://www.ipcc.ch/site/assets/uploads/sites/4/2019/11/07_Chapter-4.pdf (examining impact of climate change on land degradation); Michael A. Lacasse, Abhishek Gaur & Travis V. Moore, *Durability and Climate Change—Implications for Service Life Prediction and the Maintainability of Buildings*, 10 BLDGS. 1, 6-11 (2020), <https://www.mdpi.com/2075-5309/10/3/53/pdf> (conducting scientific analysis of climate factors' impact on building materials); N. Cavalagli, A. Kita, V.L. Castaldo, A.L. Pisello & F. Ubertini, *Hierarchical Environmental Risk Mapping of Material Degradation in Historic Masonry Buildings: An Integrated Approach Considering Climate Change and Structural Damage*, 215 CONSTR. & BLDG. MATERIALS 998, 999 (2019), <https://www.sciencedirect.com/science/article/abs/pii/S0950061819310943> (surveying climate change-induced structural degradation of historical buildings). In fact, according to experts, “[C]limate change is actually accelerating the degradation of buildings.” Flavelle et al., *supra* note 15.

20. *See Climate Change in Coastal Communities*, U.S. ENV'T PROT. AGENCY, <https://www.epa.gov/cre/climate-change-coastal-communities> (Aug. 6, 2021) (explaining coastal areas are particularly vulnerable to corrosive effects of climate change, as well as major climate events); JAMES E. NEUMANN, GARY YOHE, ROBERT NICHOLLS & MICHELLE MANION, SEA-LEVEL RISE & GLOBAL CLIMATE CHANGE: A REVIEW OF IMPACTS TO U.S. COASTS 1-2 (2000), https://www.c2es.org/wp-content/uploads/2000/02/env_sealevel.pdf (reporting climate scientists' findings from over twenty years ago on how sea-level and climate change affect America's coasts and communities); *see also* Aaron Gregg, *U.S. Flooding Losses Will Spike 26 Percent by 2050 due to Climate Change, Researchers Say*, WASH. POST, https://www.washingtonpost.com/business/2022/01/31/climate-change-flooding-united-states/?utm_campaign=WP_the7&utm_medium=email&utm_source=newsletter&wpisrc=NL_the7&carta-url=https%3A%2F%2Fs2.washingtonpost.com%2Fcar-ln-tr%2F35ea472%2F61f921069d2fda14d716ea8e%2F5f34251cae7e8a549a368c3d%2F14%2F41%2F61f921069d2fda14d716ea8e (Jan. 31, 2022, 5:02 PM) (referencing 2022 climate study's findings that annual cost of flooding will increase from \$32.1 billion to \$40.6 billion and disadvantaged communities will disproportionately bear economic burden).

21. For more regarding the location of American prisons and their placement in areas vulnerable to flooding, see Hannah Hauptman, *Prisons and Floods in the United States: Interrogating Notions of Social and Spatial Control*, 2017 CHI. J. HIST. 99, 99. Hurricane Katrina in 2005 generated new scholarship regarding the impact of climate disasters on inmate populations near coasts and levees. As reported in this article, inmates recounted, “[I]t was like we were left to die. No water, no air, no food.” *Id.* Significantly, the location of our prisons along rivers, floodplains, waterways and coasts means that the populations of those prisons, which are largely inmates of color, have “racist implications” and can reinforce the unfair, oppressive effects of incarceration. *Id.*

in coastal regions. Typically, these institutions are cement structures that house hundreds of inmates in multi-person cells.²² For instance, the Coastal State Prison in Savannah, Georgia, houses over 1,800 inmates who, in an emergency, would be completely reliant on the correctional officials to care for their safety. The Federal Bureau of Prisons operates 122 institutions, the majority of which are in coastal areas.²³

In assessing where to build new correctional facilities, concerns about wetlands and floodplains have been focused more on the impact on local ecology than on the threat to inmates and correctional staff.²⁴ Meanwhile, because of the limited space in urban locations, a common design is a large, cement structure.²⁵ Even without climate events, correctional facilities suffer deterioration at a higher rate than other buildings because of the types of attacks and abuse that can occur in these facilities and the patchwork approach to fixing the facilities.²⁶ The older facilities “relied on con-

22. General guidelines on prison construction are set forth in a guide provided by the National Institute of Corrections. See MORRIS L. THIGPEN, THOMAS J. BEAUGLAIR, VIRGINIA A. HUTCHINSON, VICCI PERSONS & CHERYL MCKINNEY PAUL, U.S. DEP’T OF JUST., NAT’L INST. OF CORR., JAIL DESIGN GUIDE (3d ed. 2011), <https://info.nicic.gov/nicrp/system/files/024806.pdf>. There are also jail design guides for small and medium-sized jails, some of which date back decades. See DENNIS A. KIMME, GARY M. BOWKER, ROBERT G. DEICHMAN, DAVID E. BOSTWICK & JAMES R. ROWENHORST, U.S. DEP’T OF JUST., NAT’L INST. OF CORR., JAIL DESIGN GUIDE: A RESOURCE FOR SMALL AND MEDIUM SIZED JAILS (1998), <https://s3.amazonaws.com/static.nicic.gov/Library/015061.pdf>.

23. See *Our Locations*, FED. BUREAU OF PRISONS, <https://www.bop.gov/locations/map.jsp> (last visited Oct. 24, 2021) (providing map of federal prisons).

24. See Travis Alexander, Jessica Farrell, Phillip Roy & Brian Twomey, Correctional Facility Analysis and Design 59 (Mar. 2, 2006) (B.S. report, Worcester Polytechnic Institute), <https://web.wpi.edu/Pubs/E-project/Available/E-project-030206-090001/unrestricted/LDA0602.pdf> (calling for follow-up study of “ethics” of prison design and how it impacts prisoners’ quality of living and “humane treatment”).

25. The National Precast Concrete Association advertises its fast-track construction of one-thousand-cell high security institutions. See Barbara Bogo, *Practical Prisons*, NAT’L PRECAST CONCRETE ASS’N (May 30, 2010), <https://precast.org/2010/05/practical-prisons/> (detailing how precast concrete modules are popular in prison construction).

26. For example, a riot at the Penitentiary in New Mexico in 1980 “left much of the prison south of Santa Fe a smoking hulk” and caused “millions of dollars in damage.” Phaedra Haywood, *Disaster at Old Main: Devastating Penitentiary Riot of 1980 Changed New Mexico and Its Prisons*, SANTA FE NEW MEXICAN, https://www.santafenewmexican.com/news/local_news/devastating-penitentiary-riot-of-1980-changed-new-mexico-and-its-prisons/article_be64a016-31ae-11ea-a754-fb85e49fca77.html (Mar. 8, 2021). The prisoners “smash[ed] sinks, toilets and radiators, and set[] fire to furnishings and files.” *Id.* More recently, in April 2021, “Dozens of inmates at a St. Louis jail revolted . . . breaking windows and setting fires to the facility.” Kenneth Garger, *Inmates Break Windows, Set Fires Inside St. Louis Jail*, N.Y. POST (Apr. 5, 2021, 1:33 AM), <https://nypost.com/2021/04/05/inmates-break-windows-set-fires-inside-st-louis-jail/>; see also Ron Wallace, *5 of the Biggest Chal-*

crete, security plaster and steel plates to cover the interstitial space.”²⁷ In California, there are at least twelve prisons constructed between the 1850s and 1960s that require major renovations.²⁸ Thus, to the extent climate change does affect buildings, correctional institutions are among the most vulnerable.

In addition to building collapses, there are other ways that climate change can impact the safety of these institutions. For example, several are built on floodplains and some are even built on or near toxic waste sites.²⁹ When Hurricane Harvey hit the Gulf States in 2017, hundreds of inmates were left in trapped, flooded waters with cells covered in urine and feces, and other dangerous conditions throughout the institution. The conditions affected at least eight thousand inmates in four prisons.³⁰

Thus, the horrible event in Surfside is a wake-up call for what can and is likely to occur as there are increased climate events tied

lenges Facing Corrections in 2019, AM. MIL. UNIV.: IN PUB. SAFETY (Dec. 11, 2018), <https://www.corrections1.com/2018-review/articles/5-of-the-biggest-challenges-facing-corrections-in-2019-b9Afg8ZhS84p06uT/>. Dr. Wallace explains:

When inmates attack each other, staff must intervene to take control of the situation. This intervention puts staff at risk. However, it is not just inmate-on-inmate violence that causes concern for staff safety; violent inmates also target staff. This links directly to a previously noted concern of aging prisons and patchwork fixes in facilities. As prisons age and systems deteriorate, inmates have more opportunities to take advantage of weakened systems, thereby escalating the threat to staff safety.

Id.; see also Jason Whitehead, *What to Expect as a New Correctional Officer*, AM. MIL. UNIV. EDGE (July 5, 2018), <https://amuedge.com/what-to-expect-as-a-new-correctional-officer/>.

27. Alexander et al., *supra* note 24, at 82 (surveying prison designs over centuries). See generally NORMAN JOHNSTON, *FORMS OF CONSTRAINT: A HISTORY OF PRISON ARCHITECTURE* (2000) [hereinafter *FORMS OF CONSTRAINT*] (reviewing history of prison architecture and construction).

28. See GABRIEL PETEK, LEGIS. ANALYST’S OFF., *THE 2020-21 BUDGET: EFFECTIVELY MANAGING STATE PRISON INFRASTRUCTURE* 3-5 (2020), <https://lao.ca.gov/reports/2020/4186/prison-infrastructure-022820.pdf>. The oldest prison facility still operating in California is San Quentin State Prison, constructed in 1852; it currently holds 4,070 inmates, over twenty-five percent more than its capacity. *Id.* at 4.

29. See Candice Bernd, Zoe Loftus-Farren & Maureen Nandini Mitra, *America’s Toxic Prisons: The Environmental Injustices of Mass Incarceration*, EARTH ISLAND J., <https://earthisland.org/journal/americas-toxic-prisons/> (last visited Jan. 25, 2022) (explaining toxic impact of prisons extends across United States and affects health of local communities, as well as inmates); Kevin Robinson, *Is a Superfund Site Safe for a Jail?*, PENSACOLA NEWS J., <https://www.pnj.com/story/news/local/pensacola/2015/10/24/superfund-site-safe-jail/74219240/> (Nov. 12, 2015, 9:48 AM) (noting site selected for jail construction had “toxic history”).

30. See John Washington, *After Harvey, Texas Inmates Were Left in Flooded Prisons Without Adequate Water or Food*, THE NATION (Oct. 13, 2017), <https://www.thenation.com/article/archive/after-harvey-texas-inmates-were-left-in-flooded-prisons-without-adequate-water-or-food/> (reporting five prisons were evacuated, but four prisons were not and thousands of inmates in those facilities suffered from frightening list of dangerous conditions caused by hurricane).

to, or even independent of, global warming. While it would be helpful to definitively know the impact of climate change on major structures, there may not exist the luxury of waiting for those findings. The immediate evaluation, rebuilding, and repair of correctional institutions needs to be a priority before there is a catastrophic event.

III. CLIMATE CHANGE AND ITS IMPACT ON CORRECTIONAL FACILITIES

Even if one cannot draw a straight line from climate change to a particular event, such as the collapse of the Champlain Towers, climate change has already taken a toll on correctional institutions. One of the greatest threats to inmates is from accelerating heat.³¹ A recent study found that human activity has increased warm-season temperatures by three degrees Fahrenheit across the world.³²

31. Intense heat poses a number of threats to inmates. First, it can increase violence in the prisons. See *Intense Heat Raises the Risk of Violence in American Prisons*, THE ECONOMIST (July 27, 2021), <https://www.economist.com/graphic-detail/2021/07/27/intense-heat-raises-the-risk-of-violence-in-american-prisons> (providing statistical models showing that when average prison temperatures are eighty degrees Fahrenheit or higher, chances of violence increase by twenty percent). Second, extreme heat causes unsafe health conditions in prisons. See DANIEL W.E. HOLT, HEAT IN US PRISONS AND JAILS: CORRECTIONS AND THE CHALLENGE OF CLIMATE CHANGE, COLUM. L. SCH. 5 (2015), https://web.law.columbia.edu/sites/default/files/microsites/climate-change/holt_-_heat_in_us_prisons_and_jails.pdf (stating heat-related illnesses affect inmates and correctional officers); Njideka C. Montanya & Pamela Valera, *Climate Change and Its Impact on the Incarcerated Population: A Descriptive Review*, 31 SOC. WORK PUB. HEALTH 348, 348 (2016) (detailing impact of overheated temperatures on vulnerable populations); Maurice Cham-mah, "Cooking Them to Death": The Lethal Toll of Hot Prisons, MARSHALL PROJECT (Oct. 11, 2017, 7:00 AM), <https://www.themarshallproject.org/2017/10/11/cooking-them-to-death-the-lethal-toll-of-hot-prisons> (noting prisoners without air conditioning may live in environments where temperatures exceed 100 degrees Fahrenheit for days at time and with humidity, heat index has hit 150 degrees Fahrenheit). Third, as discussed in this Article, extreme heat leads to diseases such as Valley Fever that quickly compromise the health of inmates. See Melissa Matlock, Suellen Hopfer & Oladele A. Ogunseitun, *Communicating Risk for a Climate-Sensitive Disease: A Case Study of Valley Fever in Central California*, INT'L J. ENV'T RSCH. & PUB. HEALTH (Sept. 5, 2019), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6765846/> (stating increased heat caused Valley Fever outbreaks in parts of California with heavily populated prisons); Kerry Klein, *Before Facing COVID-19, a California State Prison Struggled with Valley Fever*, SCI. FRIDAY (July 31, 2020), <https://www.sciencefriday.com/articles/avenal-prison-valley-fever/> (describing Valley Fever precipitated inmate lawsuits).

32. Susan Joy Hassol, Kristie Ebi & Yaryna Serkez, *America in 2090: The Impact of Extreme Heat*, in *Maps*, N.Y. TIMES (July 21, 2021), <https://www.nytimes.com/2021/07/21/opinion/climate-change-heat-waves.html> (reporting results of 2021 study on human-caused climate change); see Michael B. Gerrard, *Heat Waves: Legal Adaptation to the Most Lethal Climate Disaster (So Far)*, 40 U. ARK. LITTLE ROCK L. REV. 515, 516 (2018) (stating science clearly shows human activities are major cause of increased temperatures and heat waves). Professor Gerrard has been a leading

Climate change is already impacting the population of the United States and scientists estimate that twelve thousand U.S. residents die of extreme heat every year; by the end of the century, they predict this number could increase to 97,000 deaths annually.³³ Some of the most vulnerable victims are those in jails and prisons. A 2015 report from the Sabin Center on Climate Change at Columbia University³⁴ studied the ways that global warming poses a threat for inmates. Prisons are generally old, lack heat-retaining materials, do not have air conditioning,³⁵ and expose inmates to excessive heat.³⁶ As one reporter put it, “[T]here’s no reliable count of the number of prisoners who have been cooked to death in recent years.”³⁷ This type of indifference to inmate safety is alarming.

Even beyond the actual threat of dehydration, stroke and heart attacks, extreme heat conditions create a breeding ground for certain diseases that have run wild through prisons. In California, Valley Fever (medically known as *Coccidioidomycosis*)³⁸ exposure in the prisons of the Central Valley, precipitated by wildfires related to climate change, has led to the closure of prison institutions.³⁹ Valley Fever, an infection that causes serious illness or death, thrives in environments that are hot and not well ventilated; the close proximity of inmates facilitates its transmission.

voice and scholar in documenting the impact of rising heat on human activities across the world.

33. Hassol et al., *supra* note 32.

34. See HOLT, *supra* note 31.

35. Only thirty of Texas’s prisons have air conditioning and twenty-two inmates died in their facilities as of 2019. Kelly, *supra* note 9.

36. See Chammah, *supra* note 31.

37. Kelly, *supra* note 9. The impact of extreme heat on the human body was explained in the Washington Post. See Ruby Mellen & William Neff, *Beyond Human Endurance: How Climate Change Is Making Parts of the World Too Hot and Humid to Survive*, WASH. POST, <https://www.washingtonpost.com/world/interactive/2021/climate-change-humidity/> (July 28, 2021, 7:00 AM) (explaining why it is no longer possible to sweat fast enough to prevent overheating).

38. See *Valley Fever (Coccidioidomycosis)*, CTRS. FOR DISEASE CONTROL AND PREVENTION, <https://www.cdc.gov/fungal/diseases/coccidioidomycosis/index.html> (Dec. 29, 2020).

39. *Valley Fever Spurs Call to Close 2 Prisons*, KCRA3, <https://www.kcra.com/article/valley-fever-spurs-call-to-close-2-prisons/6404267#> (Apr. 29, 2013, 11:07 AM) (noting conditions in prisons created “public health emergency” and took lives of several inmates); see also LIZZIE BUCHEN, ABBY CUNNIFF, CRAIG GILMORE, DEBBIE REYES, MOHAMED SHEHK, RAPHAEL SPERRY, CHRISTINA TSAO, AMY VANDERWARKER & DIANA ZUÑIGA, CALIFORNIANS UNITED FOR A RESPONSIBLE BUDGET, WE ARE NOT DISPOSABLE: THE TOXIC IMPACTS OF PRISONS AND JAILS 4 (2016), <http://curbprisonspending.org/wp-content/uploads/2016/11/MIRA-LOMA-REPORT-FINAL.pdf> (describing costs of program to “either renovate or replace” deteriorating prisons).

In California's Central Valley, where nine of the state's prisons are located, the heat index can hit 115 degrees Fahrenheit.⁴⁰ The average summer temperatures for some prison locations range between 106 to 109 degrees.⁴¹ More than forty percent of the 8,200 prisoners in just two of those prisons were diagnosed with Valley Fever. Valley Fever is an incurable disease that affects about 150,000 annually throughout the United States.⁴² It is caused by an airborne fungal spore, which infects the lungs when inhaled.⁴³ The infection can spread through the lungs to debilitate many other parts of the body, including the skin, lymph nodes, bones, and brain.⁴⁴ In 2015, a study by the Centers for Disease Control found that California's incidence rate for confirmed cases of the disease was 5.8 per one hundred thousand population.⁴⁵ Inmates, who are concentrated in areas where airborne dust is created because of severe droughts caused by climate change, have contracted Valley Fever at eight times the rate of the average population in California.⁴⁶

In exploring options to address the problem, it has been determined that the cost to upgrade the HVAC system of a prison to make it habitable is \$38,414 per inmate.⁴⁷ While some prisons have

40. Erin McCormick, *California Braces for Dangerously High Temperatures in New Heatwave*, THE GUARDIAN (July 7, 2021, 3:59 PM), <https://www.theguardian.com/us-news/2021/jul/07/california-heatwave-high-temperatures-inland-central-valley> (noting that high heat conditions is "long duration event"); see also Isabella Grullón Paz, *California Braces for Dangerous Weekend of Record-Setting Heat*, N.Y. TIMES, <https://www.nytimes.com/2021/07/08/us/heat-wave-warning-california.html> (July 16, 2021) (reporting Central Valley, where California's prisons are located, was expected to reach temperatures up to 113 degrees).

41. *Central and Southern San Joaquin Valley Climate Graphs*, NAT'L WEATHER SERV., <https://www.weather.gov/hnx/Cliplot> (last visited Oct. 25, 2021).

42. See John N. Galgiani, Neil M. Ampel, Janis E. Blair, Antonino Catanzaro, Royce H. Johnson, David A. Stevens & Paul L. Williams, *Coccidioidomycosis*, 41 CLINICAL INFECTIOUS DISEASES 1217, 1217 (2005). Dr. Galgiani has studied Valley Fever for years and is the Director of the Valley Fever Center for Excellence at the University of Arizona College of Medicine – Tucson.

43. *About Valley Fever (Coccidioidomycosis)*, CTRS. FOR DISEASE CONTROL AND PREVENTION, <https://www.cdc.gov/fungal/diseases/coccidioidomycosis/definition.html> (Nov. 12, 2020) (overviewing how microscopic fungal spores from air, generated in situations where there is high heat and dust, affect breathing).

44. *Symptoms of Valley Fever (Coccidioidomycosis)*, CTRS. FOR DISEASE CONTROL AND PREVENTION, <https://www.cdc.gov/fungal/diseases/coccidioidomycosis/symptoms.html> (Dec. 14, 2020).

45. RIVERSIDE UNIV. HEALTH Sys. – PUB. HEALTH, COCCIDIOIDOMYCOSIS YEARLY SUMMARY REPORT 2015 (2015), https://www.rivcohealthdata.org/Portals/14/Cocci_Report_for_Publish_FINAL.pdf?ver=2016-04-12-140838-780.

46. See BUCHEN ET AL., *supra* note 39, at 10 (drawing public attention to health risks in prisons and environmental risks for new jails and prisons).

47. See *Ironwood State Prison HVAC System*, STRONGHOLD ENG'G INC., <https://www.strongholdengineering.com/projects/ironwood-state-prison/> (last visited Oct. 22, 2021) (providing \$126 million price of HVAC upgrade); *Ironwood State*

made repairs, others are simply closing.⁴⁸ Yet others have taken steps that exacerbate the problem, such as restricting water intake for inmates or funneling tainted water to the prison population.⁴⁹

Climate change has made jails ticking time bombs for heat-related diseases that can be transmitted outside of the institutions when prisoners are released. Up to now, the nation's carceral system has been largely reactive. Once tragedy occurs, class-action lawsuits have been filed seeking compensation for the losses and more supervision of the prisons.⁵⁰ However, just as that would not be an acceptable model for future disasters like that in Surfside, it is not an adequate response to the crisis facing U.S. jails and prisons, especially when there are steps that can and should be taken now to address the issue.

IV. TEN STEPS FOR COPING WITH CLIMATE CHANGE AND ITS IMPACT ON CORRECTIONAL INSTITUTIONS

While extreme climate events may be inevitable, the horrendous loss from them need not be. Immediately after the Surfside

Prison (ISP): Details & History, CAL. DEP'T OF CORR. AND REHAB., <https://www.cdcr.ca.gov/facility-locator/isp/> (last visited Oct. 22, 2021) (indicating capacity of prison is 2,200 inmates, but HVAC would serve 3,280 housed inmates). When prisons are closed, inmates must be released or moved to other institutions.

48. See Thompson, *supra* note 3 (detailing why it is cheaper to close "literally crumbling" prisons than to fix them). When prisons are closed, the inmate population must be relocated to other institutions, released, or an investment must be made in building additional prisons. The price tag for doing so is "enormous" according to one prison expert, Don Specter. *Id.* (noting cost is "[t]hree-quarters of a billion dollars just for one prison"); see also Memorandum from Californians United for a Responsible Budget (June 9, 2020), http://www.curbprisonspending.org/wp-content/uploads/2020/06/CURBs-Prison-Closure-Memo-2020_21-CA-State-Budget.pdf; Daniel Trotta, *New York City Council Votes to Close Infamous Rikers Island Jails*, REUTERS (Oct. 17, 2019, 6:06 PM), <https://www.reuters.com/article/us-new-york-rikers/new-york-city-council-votes-to-close-infamous-rikers-island-jails-idUSKBN1WW2ZW> (stating significant factor in city decision to close jails in Manhattan, Brooklyn and Bronx was lack of heating in winter or air conditioning in summer).

49. See Jessica Pishko, *In the Face of Drought, California Prisons Are Restricting Inmates' Shower and Toilet Use*, VICE (July 14, 2015, 6:30 PM), <https://www.vice.com/en/article/exqjw/california-prisons-are-restricting-shower-and-toilet-use-to-fight-the-historic-drought-626> (describing "battle" to maintain showers and hygiene protocols for inmates during drought conditions); B. Cayenne Bird, *Inmates Forced to Drink Poison Water – No Place to Go for Help*, OPEDNEWS (Jan. 5, 2009, 11:00 AM), <https://www.opednews.com/articles/Inmates-forced-to-drink-po-by-Dr-B-Cayenne-Bir-090105-566.html>.

50. Matt Clarke, *As Climate Changes, High Temperatures Plague Prisons and Jails*, PRISON LEGAL NEWS (Oct. 7, 2019), <https://www.prisonlegalnews.org/news/2019/oct/7/climate-changes-high-temperatures-plague-prisons-and-jails/> (discussing how cost of litigation greatly exceeded costs of actually addressing climate problems in facilities).

disaster, an investigation began into the causes of the building's collapse and inspections were ordered for similar facilities.⁵¹ Major housing complexes were evacuated and the process of inspecting structures began in earnest. As one person viewing a video of the large crack in the condominium structure said, "Sometimes it takes the exposure from a tragedy for people to really pay attention[.]"⁵² The tragedy in Florida commanded the public's attention and has prompted investigations of other buildings at risk.

It is particularly difficult to get U.S. residents to pay attention to the situation in our correctional institutions. Remarkable as it may seem, there is no mention in the 2021 infrastructure bill of funding being directed toward repairing U.S. prisons and jails.⁵³ Touted as a bill that will "[f]ix highways, rebuild bridges, upgrade ports, airports and transit systems"⁵⁴ and, among other things, upgrade everything from schools to federal buildings, there is no specified allocation of additional assistance to prevent disasters from occurring in U.S. jails and prisons. Ironically, the bill refers to providing critical infrastructure and services for "vulnerable communities."⁵⁵ However, the inmates in U.S. prisons are not listed as vulnerable communities.

The bill also touts providing jobs for U.S. workers and targeting workforce development opportunities in underserved communities.⁵⁶ While the bill includes support for job training for formerly incarcerated youth and improvements in public safety, it ignores the opportunity to provide skills, training, and work for those incarcerated in U.S. institutions. In many ways, the bill is em-

51. See Brendan Farrington, *Officials Across Florida Rethink Condo Inspection Policies*, ASSOCIATED PRESS (July 11, 2021), <https://apnews.com/article/florida-surfside-building-collapse-86fae45cd1551dd6d45d8bc0165ee4eb> (noting immediate calls for changed inspection procedures for buildings along coastline).

52. Vera Bergengruen & Justin Worland, *'The Fear is Very Real.' The Surfside Collapse Is Renewing Focus on Climate Change Risks*, TIME (July 1, 2021, 8:17 PM), <https://time.com/6077696/surfside-collapse-miami-climate-risks/>.

53. See Infrastructure Investment and Jobs Act, H.R. 3684, 117th Cong. (2021) (enacted); see also Arturo Conde, *The House Passes the \$1.85 Trillion Build Back Better Act. Here's What's in It.*, SMART ASSET (Jan. 8, 2022), <https://smartasset.com/financial-advisor/biden-infrastructure-plan>.

54. Press Release, The White House, Fact Sheet: The American Jobs Plan (Mar. 31, 2021), <https://www.whitehouse.gov/briefing-room/statements-releases/2021/03/31/fact-sheet-the-american-jobs-plan/>.

55. *Id.* This mention is related to Tribal communities and like disadvantaged communities.

56. See, e.g., H.R. 3684, §§ 13007, 24105, 25020, 25018. See generally Emily Cochrane, *Senate Passes \$1 Trillion Infrastructure Bill, Handing Biden a Bipartisan Win*, N.Y. TIMES, <https://www.nytimes.com/2021/08/10/us/politics/infrastructure-bill-passes.html> (Nov. 15, 2021) (providing bill "touch[es] nearly every facet of the American economy").

blematic of the United States' overall approach toward our incarcerated — they are out of the public consciousness. Inmates are treated as disposable people.⁵⁷

Rather than ignoring the challenges that climate change poses for our correctional institutions, recent events offer an opportunity to reassess our priorities and establish a plan to deal with future events. Below is a modest proposal for addressing the impact of climate change on our correctional institutions.

A. Step #1: Recognize There Is a Problem with U.S. Jails and Prisons.⁵⁸

In 2018, the Vera Institute of Justice published a report on “Reimagining Prison.”⁵⁹ The Institute boldly asked Americans to focus on incarceration, including its current conditions, its goals, and how it should be changed. Most importantly, it is critical that the people of the United States “see” the people who are currently in prisons and how they rank among the United States' most vulnerable. They are poorer than the average American, have lower levels of education, experience higher rates of mental illness, have been victims and experienced trauma themselves, and are more likely to have a disability.⁶⁰ They are people with no power who do not have the ability to control their circumstances if a major climate event occurs. They live in compromised situations.

While the Constitution prohibits cruel and unusual punishment,⁶¹ there are many barriers to inmates succeeding when they bring lawsuits to change the conditions of their incarceration.⁶² Inmates must prove that there is a substantial risk of serious harm and deliberate indifference by the prison officials.⁶³ This has been par-

57. See BUCHEN ET AL., *supra* note 39, at 15 (concluding “jails and prisons leave incarcerated people . . . vulnerable to detrimental health problems and systemic abuse”).

58. See RUTH DELANEY, RAM SUBRAMANIAN, ALISON SHAMES & NICHOLAS TURNER, VERA INST. OF JUST., REIMAGINING PRISON 14 (2018) [hereinafter REIMAGINING PRISON], https://www.vera.org/downloads/publications/Reimagining-Prison_FINAL3_digital.pdf (stating in recognizing that conditions in America's prisons are dismal, there must be special acknowledgment that impact of these conditions falls disproportionately on inmates of color).

59. *Id.* at 1 (introducing report).

60. *Id.* at 17-18.

61. U.S. CONST. amend. VIII.

62. See generally Sharon Dolovich, *Cruelty, Prison Conditions, and the Eighth Amendment*, 84 N.Y.U. L. REV. 881, 936 (2009) (explaining these obstacles include overcoming Eleventh Amendment and heightened standards set for challenges of prison conditions).

63. See Brenna Helppie-Schmieder, *Toxic Confinement: Can the Eighth Amendment Protect Prisoners from Human-Made Environmental Health Hazards?*, 110 Nw. U. L.

ticularly challenging in the area of environmental hazards.⁶⁴ Litigation is expensive for both those representing the inmates and for the state opposing these cases. For example, the State of Texas spent seven million dollars fighting litigation brought by several inmates at the Wallace Pack prison to remedy the stifling hot conditions in Texas prisons.⁶⁵ It would cost the state four million dollars to air-condition the prisons.⁶⁶ Rather than waiting for lawsuits to address the growing harms of climate change for the vulnerable prison population, it is critical that decision makers take the initiative to prevent and address the growing threatening conditions.

B. Step #2: Conduct a Comprehensive Study of the Physical Condition of U.S. Jails and Prisons.

Currently, the inspection and reporting of America's correctional institutions is directed by local or state policies, except for federal prisons that fall under the Federal Bureau of Prisons. Accordingly, there is little consistency in carrying out the scope of inspections for correctional institutions. While there are a wealth of reports on conditions in prison, such as solitary confinement and violence,⁶⁷ there are few reports on the actual physical condition of

REV. 647, 647, 653 (2016) (stating Eighth Amendment precedent is unclear as to whether it permits challenges based upon human-made environmental health risks).

64. *Id.* (suggesting why Eighth Amendment claims should be allowed when inmates are exposed to serious health risks from physical location of prison); see also Mattea Mrkusic & Daniel A. Gross, *Incarcerated People Remain Vulnerable to the Worst Ravages of a Warming World*, PBS (Dec. 5, 2018), <https://www.pbs.org/wgbh/nova/article/climate-change-mass-incarceration-prison/> (noting role of organizing inmates in prison, such as for Sustainability in Prisons Project, to secure reforms).

65. Mrkusic & Gross, *supra* note 64 (providing firsthand accounts by inmates of being at mercy of elements during major climate event); Jolie McCullough, *After \$7 Million Legal Fight over A/C, Texas Prison System Touts New Heat Safety Policies*, KERA NEWS (July 26, 2018, 11:49 AM), <https://www.keranews.org/texas-news/2018-07-26/after-7-million-legal-fight-over-a-c-texas-prison-system-touts-new-heat-safety-policies> (describing stifling heat wave that caused ten inmates to die in Texas prisons).

66. Mrkusic & Gross, *supra* note 64.

67. See, e.g., ARTHUR LIMAN CTR. FOR PUB. INT. L. AT YALE L. SCH., *REFORMING RESTRICTIVE HOUSING: THE 2018 ASCA-LIMAN NATIONWIDE SURVEY OF TIME-IN-CELL* (2018), https://law.yale.edu/sites/default/files/documents/pdf/Liman/asca_liman_2018_restrictive_housing_revised_sept_25_2018_-_embargoed_unt.pdf; ARTHUR LIMAN CTR. FOR PUB. INT. L. AT YALE L. SCH., *WORKING TO LIMIT RESTRICTIVE HOUSING: EFFORTS IN FOUR JURISDICTIONS TO MAKE CHANGES* (2018), https://law.yale.edu/sites/default/files/documents/pdf/Liman/asca_liman_2018_workingtolimit. These reports, supervised by Professor Judith Resnik, are important and valuable as comprehensive studies of the impact of solitary confinement and other problems in our prisons. However, their focus is not on the impact of climate change on prisons.

the facilities. There are prisons in the United States that were constructed in the eighteenth and nineteenth centuries but still house inmates today.⁶⁸ Deferred maintenance is the rule, not the exception.⁶⁹ A 2020 Legislative Report in California noted that the twelve oldest prisons had more than eleven billion dollars in deferred maintenance costs.⁷⁰ Accurate information needs to be collected about the condition and infrastructure needs of jails and prisons throughout the country.

C. Step #3: Prepare a Climate Change Impact Report for Vulnerable Institutions.

One of the alarming revelations after the collapse of the Champlain Towers in Surfside was the common practice of builders cutting costs when building in South Florida.⁷¹ Historically, there has been corruption in how construction contracts are awarded to builders of penal institutions and whether their work is up to safety and construction standards. For example, the Alabama prison construction finalist that was recently being considered for a nine-hundred-million-dollar prison project has no business registration in Alabama or bordering states, nor was known before its bid on Ala-

68. They include San Quentin State Prison (1854), Sing Sing Correctional Facility (1825), Auburn Correctional Facility (1817), and New Jersey State Prison (1798).

69. For example, in 2019, Don Specter, the Director of Prison Law Office, described how “[d]ecades of deferred maintenance have led to” twelve of California’s oldest prisons needing repair. Specter continued by saying that California has “ignore[d] the need to routinely replace some of these critical infrastructure for decades.” Kevin Sawyer, *Twelve CDCR Prisons Are in Dire Need of Repair*, SAN QUENTIN NEWS (Nov. 18, 2019), <https://sanquentinnews.com/twelve-cdcr-prisons-are-in-dire-need-of-repair/>. In 2019, Jeff Dunn, the Alabama Department of Corrections Commissioner, explained how “deferred maintenance costs in Alabama prisons exceed \$700 million” because Alabama is “on an unsustainable track with respect to maintaining the conditions of our facilities.” Mike Cason, *Alabama Will Build 3 Prisons for Men, Ivey Announces*, AL.COM, <https://www.al.com/news/2019/02/alabama-will-build-3-prisons-for-men-ivey-announces-do-not-publish.html> (Feb. 12, 2019, 3:55 PM). In 2020, Arizona similarly faced \$125 million in deferred maintenance costs for its prisons. *The High Cost of Deferred Maintenance in Arizona Prisons, and the News in Criminal Justice This Week*, COAL. FOR PUB. SAFETY (Oct. 23, 2020), <https://www.coalitionforpublicsafety.org/news/2020/10/23/the-high-cost-of-deferred-maintenance-in-arizona-prisons-and-the-news-in-criminal-justice-this-week>.

70. Andrew Sheeler, *California Is Looking at Closing More Prisons. Here Are Some That Might Be on the List*, THE SACRAMENTO BEE, <https://www.sacbee.com/news/politics-government/the-state-worker/article250667574.html> (Apr. 19, 2021, 9:32 AM).

71. See Jeff Goodell, *Miami’s Climate Dystopia Gets Real*, ROLLING STONE (July 1, 2021, 3:34 PM), <https://www.rollingstone.com/politics/politics-features/miami-beach-building-collapse-climate-change-1191989/> (reporting to save costs, builders would mix sand with concrete).

bama's recent prison project.⁷² In Pennsylvania, the rush to open a new prison left unfinished work that posed safety and security concerns.⁷³ Accordingly, there is an immediate need to investigate the condition of prisons and what, if any, shortcuts may have been taken that leave them vulnerable to the particular climate events in their region.

D. Step #4: Assess and Allocate Money for Rebuilding Prisons.

According to the Federal Bureau of Prisons, the estimated cost of building a correctional institution twenty-one years ago was between \$98 million and \$162 million.⁷⁴ In 2007, that cost rose to between \$136 million and \$196 million.⁷⁵ By 2019, just the cost of deferred maintenance on buildings was estimated at over \$182 million in California.⁷⁶ Running prisons is an expensive proposition, and there is a dearth of accurate and comprehensive information about the condition of most institutions or the cost to repair and replace them. Without knowing these costs, decision makers will be

72. See Brian Lyman, *Alabama Prison Construction Finalist Has No Business Records, Little Online Presence*, MONTGOMERY ADVERTISER, <https://www.montgomeryadvertiser.com/story/news/2019/08/26/alabama-prison-construction-finalist-has-no-online-presence-business-records/2126092001/> (Aug. 27, 2019, 2:14 PM); see also Rui Kaneya, *Hawaii Prison Contractor Executives Were Convicted of Fraud and Bribery*, CIVIL BEAT (Sept. 6, 2016), <https://www.civilbeat.org/2016/09/hawaii-prison-contractor-executives-were-convicted-of-fraud-and-bribery/> (detailing Hawaiian government's failure to vet fraudulent New Jersey subcontractor for prison project). Alabama has a history of problems with its prisons. In 2021, Alabama prisoners described facilities as "war zones" and "[t]he U.S. Department of Justice sued the state . . . arguing conditions in men's prisons violated inmates' Eighth Amendment protections against cruel and unusual punishment." Brian Lyman, *Alabama DOC Asks if COVID-19 Funds Can Be Used for Prison Enhancements*, MONTGOMERY ADVERTISER, <https://www.montgomeryadvertiser.com/story/news/2021/07/16/alabama-doc-asks-if-covid-19-funds-can-used-prison-enhancements/7997973002/> (July 16, 2021, 5:47 PM). Multiple efforts to build new prisons have been unsuccessful, in part because "the Alabama Legislature failed to pass bond issues for new prisons" and also because plans with private companies to build new prisons raised suspicion and opposition. *Id.*

73. See Samantha Melamed & Joseph N. DiStefano, *What Happened in the Rush to Open Pennsylvania's Biggest, Most Expensive Prison?*, PHILA. INQUIRER, <https://www.inquirer.com/news/sci-phoenix-graterford-pennsylvania-prison-incarceration-wetzel-wolf-20190122.html> (Jan. 22, 2019) (stating rush to move inmates into prison resulted in inmate exposure to ongoing hazards, including asbestos and lead paint).

74. FED. BUREAU OF PRISONS, MANAGEMENT OF CONSTRUCTION CONTRACTS 2 (2001), <https://oig.justice.gov/reports/BOP/a0232/final.pdf>.

75. U.S. GOV'T ACCOUNTABILITY OFF., GAO-08-634, PRISON CONSTRUCTION: CLEAR COMMUNICATION ON THE ACCURACY OF COST ESTIMATES AND PROJECT CHANGES IS NEEDED 22 (2008), <https://www.gao.gov/assets/gao-08-634.pdf>.

76. PETEK, *supra* note 28, at 4.

reluctant to allocate public funds to make the necessary repairs or upgrades.

E. Step #5: Address Political Resistance to Rebuilding Prisons.

Not surprisingly, politics plays a significant role in deciding what funds will be allocated toward prisons and for what purpose. Individuals working within the institutions typically advocate for money to be spent more on staffing than bricks and mortar.⁷⁷ Needless to say, inmates are not a powerful constituency in lobbying for changes in their correctional institutions. While the private prison industry has political influence,⁷⁸ there is increasing opposition to its participation in the criminal justice system. Thus, any funding for repairing our prisons will have to come through a political process in which there is a reluctance to use taxpayer funds to improve the living conditions of prisoners. The devastation of climate change, and the threat of catastrophic loss, may be a lesson to politicians that greater costs will be incurred if a correctional institution collapses.

F. Step #6: Create a Transparent Process for Groups to Monitor Prison Conditions.

One of the most significant challenges is that correctional institutions, by their nature, are reluctant to allow outside groups to inspect and monitor their facilities. Whether it be security concerns, or claims of institutional independence, outside groups often have to sue to gain meaningful access to correctional institutions.⁷⁹

77. See David Wise, *I Retired After 28 Years with the Alabama Department of Corrections. The New Prison Plan Is Lipstick on a Pig*, AL.COM (May 11, 2018), https://www.al.com/opinion/2017/05/i_retired_after_28_years_with.html (opining that better pay and training are more critical than prison construction and repairs).

78. See Matthew Clarke, *Study Shows Private Prison Companies Use Influence to Increase Incarceration*, PRISON LEGAL NEWS (Aug. 22, 2016), <https://www.prisonlegalnews.org/news/2016/aug/22/study-shows-private-prison-companies-use-influence-increase-incarceration/> (explaining problem with private prisons is not only that they are driven by profit motive, but they also may be selected for reasons other than they provide best facility for inmates and public safety).

79. Multiple lawsuits have been filed by the ACLU National Prison Project and other organizations. See ACLU National Prison Project, ACLU, <https://www.aclu.org/other/aclu-national-prison-project> (last visited Oct. 27, 2021). However, the Prison Litigation Reform Act (PLRA), enacted in 1996, made it difficult for inmates to seek relief against the conditions of their confinement. See Margo Schlanger, *Trends in Prisoner Litigation, as the PLRA Approaches* 28 CORR. L. REP. 69, 69 (2017); Bill Rankin, *Disability Advocacy Group Sues Fulton County over Access to Inmates*, ATLANTA J.-CONST. (Jan. 16, 2019), <https://www.ajc.com/news/local/disability-advocacy-group-sues-fulton-county-over-access-inmates/YV10VicM0M5ikiEACfmO/>; Hunter Pauli, *ACLU, State Settle Decades-Long Lawsuit*

For example, the National Institute of Corrections in Washington, D.C., which prepares correctional officials to conduct inspections of their institutions, will not permit professors, interns, students/residents/fellows, or anyone not employed in a correctional institution to access their guidelines and training materials.⁸⁰ As the tragedy in Surfside revealed, when a small group with its own financial or other interest in a building becomes the primary decision maker, safety may take a back seat to other interests. The reports of inspections and work on prison infrastructure should include experts familiar with the impact of climate events on large architectural structures; more importantly, their reports should be open to public scrutiny.

G. Step #7: Let Science Guide the Design.

As new information is developed regarding the impact of climate change on large buildings, the design of prisons must change as well. The traditional design of large cement structures may no longer be feasible. The design for the United States' first penitentiary in 1870 was the product of a contest among architects.⁸¹ The basic design, using large cement walls, remains a familiar sight today.⁸² It is a design that depends on the integrity of materials that cannot be undermined by sea water, flooding and extreme changes in temperatures. Most significantly, it is a design that was adopted before climate change was even a subject for discussion.

over Inmate Mistreatment at Montana State Prison, MISSOULA CURRENT (June 11, 2018), <https://missoulacurrent.com/government/2018/06/montana-prison-lawsuit/>.

80. E-mail from the National Institute of Corrections to Laurie L. Levenson, Professor of L., Loyola L. Sch. of Loyola Marymount Univ. (July 21, 2021) (on file with author). The National Institute of Corrections was created in 1974 and, as a part of the Department of Justice, receives a line item in the Federal Bureau of Prisons budget.

81. See Norman Johnston, *The World's Most Influential Prison: Success or Failure?*, 84 PRISON J. 20S, 23S (Supp. 2004); FORMS OF CONSTRAINT, *supra* note 27, at 70-85; see also Ashley T. Rubin, *History of the Prison*, in THE HANDBOOK OF SOCIAL CONTROL 279, 279-90 (Mathieu Deflem ed., 2019). For a history of the nineteenth century Prison Reform Movement, and the role that changing architecture played in it, see James J. Beha II, *Redemption to Reform: The Intellectual Origins of the Prison Reform Movement*, 63 N.Y.U. ANN. SURV. AM. L. 773, 793 (2008); NORMAN JOHNSTON, THE HUMAN CAGE: A BRIEF HISTORY OF PRISON ARCHITECTURE 5 (1973).

82. See App., Illus. B; see also Lynne Woodruff, *The Evolution of Prison Design and the Rise of the Direct Supervision Model*, LEXIPOL (Mar. 17, 2017), <https://www.lexipol.com/resources/blog/the-evolution-of-prison-design-and-the-rise-of-the-direct-supervision-model/>; Rachael Slade, *Is There Such a Thing as "Good" Prison Design?*, ARCHITECTURAL DIG. (Apr. 30, 2018), <https://www.architecturaldigest.com/story/is-there-such-a-thing-as-good-prison-design>; Tom Wilkinson, *Typology: Prison*, ARCHITECTURAL REV. (June 11, 2018), <https://www.architectural-review.com/essays/typology/typology-prison>.

Great advances have been made in the design of correctional facilities, and it is time for similar competition and improved ingenuity to reimagine today's correctional facilities. A large cement building that wears poorly and can easily collapse on itself should no longer be the correctional institution paradigm. Fortunately, in recent years the criminal justice reform movement has been focusing on new architecture and designs for jails and prisons. It has been doing so primarily to create facilities better suited to the needs of inmates today — including mentally ill prisoners and inmates who could benefit from restorative and rehabilitative programs.⁸³ As new designs advance, a high priority should be the design and redesign of correctional institutions to address the challenges of climate change. This includes the use of materials that provide maximum insulation and can withstand the erosion posed by flooding, temperature fluctuations, dampness, corrosion, soil shifts and sea water contamination.⁸⁴

H. Step #8: Collaborate with International Efforts.

International groups are now focusing on natural hazards and how extreme weather affects prison populations. Climate-related events have a disproportionate impact on individuals in prison. As noted by international groups proposing penal reform:

People in prison are among those hardest impacted by natural hazards and extreme weather. Unlike the general population, people in prison are not able to decide for themselves whether to evacuate to safer ground, stockpile emergency items or even communicate easily with their support networks outside of prison. They, therefore, face

83. See Eva Fedderly, *Can New Prison Design Help America's Mass Incarceration Problem?*, ARCHITECTURAL DIG. (Apr. 1, 2021), <https://www.architecturaldigest.com/story/can-new-prison-design-help-americas-mass-incarceration-problem> (stating “more humane prisons and jails” are needed to address nation's incarceration problem, and involving correctional facilities that focus on “sunlight, air, greenery and more programming space” for inmates leads to better environment for rehabilitation).

84. For example, reclaimed wood, recycled non-wood materials like steel and tile, and rammed earth are all sustainable building materials. *These Are the Best Sustainable Building Materials for Combatting Climate Change*, TERRAMAI, <https://www.terramai.com/blog/building-materials-combat-climate-change/> (last visited Feb. 5, 2022). Construction standards for prisons and jails continue to evolve. In addition to requiring adequate cooling of facilities, the Department of Justice has proposed designs and materials to help prisons adjust to climate change. See U.S. DEP'T OF JUST., CLIMATE CHANGE ADAPTATION PLANNING (2014), https://www.justice.gov/sites/default/files/jmd/pages/attachments/2014/10/30/doj_climatechangeadaptation_factsheet.pdf.

not only the immediate threat of the hazard itself — such as heatwaves, fire, floods, hurricanes, earthquakes and cyclones — but also the impact of these events on prison infrastructure⁸⁵

U.S. prison officials should join these international efforts to safeguard prison populations from the threat of major climate events. These preparations include the construction and redesign of correctional institutions as well as the adoption of procedures for evacuating prison populations. As it stands, there have been escapes around the world when prisons needed to be evacuated after floodwaters caused walls to collapse or when wildfires have required evacuations.⁸⁶ Heatwaves, extreme snowstorms, and other harsh climatic events are not unique to the United States. To address these issues, there needs to be a coordinated global response.

Indeed, experts around the world have been encouraging prisons to embrace more environmentally responsible approaches in their construction and operation. Efforts to “green” prisons have existed around the world for at least a decade, ranging from involving people in the production of “green” energy for use outside the prison walls to the construction of more efficient “green” prisons.⁸⁷

85. PENAL REFORM INT’L, GLOBAL PRISON TRENDS 2021, at 5 (2021) [hereinafter GLOBAL PRISON TRENDS], <https://cdn.penalreform.org/wp-content/uploads/2021/05/Global-prison-trends-2021.pdf> (providing annual report of prison conditions and use throughout world).

86. See Matt Clarke, *In the Eye of the Storm: When Hurricanes Impact Prisons and Jails*, PRISON LEGAL NEWS (May 17, 2018), <https://www.prisonlegalnews.org/news/2018/may/17/eye-storm-when-hurricanes-impact-prisons-and-jails/> (reviewing impact of Hurricanes Katrina, Rita, Ike, Irene, Sandy, Matthew, Harvey, Irma, and Maria on prisons, and proposing more public scrutiny on prison buildings built in flooding and other vulnerable zones); German Lopez, *South Carolina Won’t Evacuate a Prison in Hurricane Florence’s Path*, VOX, <https://www.vox.com/2018/9/12/17850586/hurricane-florence-south-carolina-prison-evacuation> (Sept. 13, 2018, 9:28 AM) (noting that “[d]uring the chaos of the relocation process after the hurricane, 13 inmates escaped”); see also Courtney Kreider, *Inmates Escape Eel River Conservation Camp in Humboldt County*, KRCR (Mar. 28, 2020), <https://krcrtv.com/north-coast-news/eureka-local-news/inmates-escape-eel-river-conservation-camp-in-humboldt-county/>; Kasparman Piliang, *Inmates Escape from Indonesian Prison After Wall Collapses*, ASSOCIATED PRESS (June 14, 2017), <https://apnews.com/article/596d7c6e3449437b9a179c43d12d7ffd>; Yolanda Martinez et al., *Prisons and the Deluge*, MARSHALL PROJECT (Oct. 20, 2017, 3:00 PM), <https://www.themarshallproject.org/2017/10/20/prisons-and-the-deluge>; *Flood Destroys Nigerian Prison, 228 Inmates Escape*, PREMIUM TIMES (Oct. 28, 2019), <https://www.premiumtimesng.com/news/headlines/359944-flood-destroys-nigerian-prison-228-inmates-escape.html>.

87. Wyatt G. Sassman & Danielle C. Jefferis, *Beyond Emissions: Migration, Prisons, and the Green New Deal*, 51 ENVTL. L. 161, 199 (2021) (explaining “Green New Deal” encourages decision makers, including Biden Administration, to envision climate policy beyond emissions reductions and pollution controls). “Greening” our prisons includes improving the efficiency and impact of corrections buildings on the environment. *Id.*

Ten years ago, the National Institute of Corrections published a guide, titled *The Greening of Corrections: Creating a Sustainable System*,⁸⁸ that discussed the need to improve the environmental operation of prisons through the construction of “green” prisons. It is far past time to evaluate what efforts have been made and whether they have been successful, and to compare those to what has happened internationally.

I. Step #9: Engage Detainees in Efforts to Protect Prisons and Prisoners.

One of the best sources of information to assist authorities in responding to problems is the inmates themselves. Indeed, international authorities have recognized that “[p]eople in prison can play a valuable role in crisis response efforts. Their involvement is not only pragmatic and cost-effective but can also help individuals feel part of the collective responsibility to respond to disaster situations and assist in their eventual rehabilitation.”⁸⁹ Trapped in difficult situations, inmates are often left to design their own solutions for problems facing their institutions. A key example is demonstrated by the efforts of detainee-led initiatives during the Covid-19 pandemic. Often left with little help from prison officials, detainees stepped up to produce masks, engaged in peer-to-peer education, and provided important psycho-social support to inmates.⁹⁰ Engaging inmates in preparing for and addressing climate events has the added advantage of providing skills and experience that can help inmates upon their release from prison. The “outside” world must also address climate change and how it affects living and working

88. U.S. DEP’T OF JUST., NAT’L INST. OF CORR., *THE GREENING OF CORRECTIONS: CREATING A SUSTAINABLE SYSTEM* iii (2011), <https://s3.amazonaws.com/static.nicic.gov/Library/024914.pdf>.

89. GLOBAL PRISON TRENDS, *supra* note 85, at 6. In the United States, the Vera Institute also included in its comprehensive report on needed prison reforms the perspectives and ideas of inmates on a variety of issues. See REIMAGINING PRISON, *supra* note 58.

90. See Eileen Guo, ‘Obsessed with Staying Alive’: Inmates Describe a Prison’s Piecemeal Response to a Fatal Covid-19 Outbreak, STAT (June 12, 2020), <https://www.statnews.com/2020/06/12/california-institution-for-men-covid19-outbreak/>. While it is heartening that inmates have stepped up to help when there have been challenges to institutions, the burden should not be on them; greater support and planning is needed to address a wide range of threats, from Covid-19 to climate change. It is also shortsighted to wait until inmates are released to give them the opportunity to fight for environmental justice. While former inmates like Richard Mosley have done just that, there is no reason not to engage inmates at an earlier stage in reform efforts. See Kimberly M. S. Cartier, *An Unfought Geoscience Battle in U.S. Prisons*, EOS (Nov. 10, 2020), <https://eos.org/features/an-unfought-geoscience-battle-in-u-s-prisons> (describing Mosley’s efforts to raise awareness that deplorable conditions in prisons are environmental justice issue).

situations. Prisoners can learn about the causes, effects, and possible responses to climate events, which will give them a foundation for finding work when they leave custody.

J. Step #10. Address How Mass Incarceration Contributes to Climate Change.

Finally, the correctional system must address how mass incarceration adds to the increased use of fossil fuels and contributes to the problem of global warming. The destructive environmental impact of prison expansion is not a new issue. There are well-documented reports of how prisons have contributed to droughts and water contamination by increased use of water and poor water management.⁹¹

Additionally, a 2020 study reported that there are many other ways that mass incarceration contributes to environmental hazards.⁹² Some of these environmental hazards are caused by the operation of prisons themselves: “[I]ncreases in incarceration within states are associated with increases in industrial emissions”⁹³ As noted by the authors in the report, the corporations of the prison industrial complex (PIC) have contributed to environmental harm in a variety of ways.⁹⁴ First, in the mid-1990s, a collection of private corporations began to exploit the growing prison population by using them to engage in prison labor, which had reduced regulation.⁹⁵ The net result was that “private contractors responsible for producing equipment used to construct and maintain

91. See Walker, *supra* note 1. While this article calls for a response to the threats of climate change on prisons, it does not suggest that this is a new discovery. In fact, there is a movement calling for environmental justice, particularly as it affects race and class. See generally *2021 Detroit Mercy Law Review Symposium: Race, Class, and Environmental Justice*, DETROIT MERCY L., <https://law.udmercy.edu/students/law-review/symposium/past.php> (last visited Mar. 5, 2022) (outlining panels addressing issues of environmental justice and intersection of race, economic justice, and environmental threats). However, this movement has not yet generated enough support to influence major legislation and policy changes that would improve the conditions of those under threat from climate change and other environmental disasters. Accordingly, the disaster in Surfside, along with the accompanying national attention, offers an opportunity to expand and reinvigorate efforts to address issues of environmental justice and how to make concrete changes that would improve the current situation in our prisons and jails.

92. See Julius Alexander McGee, Patrick Trent Greiner & Carl Appleton, *Locked into Emissions: How Mass Incarceration Contributes to Climate Change*, 8 SOC. CURRENTS 326, 327 (2020).

93. *Id.* at 326.

94. See *id.* at 327.

95. See *id.* at 328-29.

prisons” escalated their production.⁹⁶ Escalated production leads to additional industrial emissions and aggravates the growing climate change problem.⁹⁷ Second, prisons were run in such a manner that they consumed the increased goods by the PIC.⁹⁸ Finally, prison labor went largely unsupervised with regard to its environmental emissions and other possible impact on the environment. The PIC uses an extraordinary amount of fossil fuels to produce goods used by the prison and then made and sold by prison officials.⁹⁹ With relatively little regulation of the environmental aspects of the prison industry program, not only are correctional facilities likely to be harmed by climate change, but they are contributing to it. Correctional institutions need to be examined for the impact they, and the industries that serve them, have on the ecosystem.

More fundamentally, the criminal justice system needs to address the overall problem of mass incarceration and its disproportionate impact on poor people and people of color in the United States.¹⁰⁰ These individuals already suffer disproportionately from other effects of climate change when they are out of custody.¹⁰¹ Interestingly, there are current calls to close jails and use their lands in an effort to further restorative environmental justice. For example, the closure of the infamous Rikers Island jail in New York City has called for adoption of the “Renewable Rikers” proposal, which has three main components: sustainable energy, wastewater

96. *Id.* at 329; see John W. Roberts, *Work, Education, and Public Safety: A Brief History of Federal Prison Industries*, in *Factories with Fences: The History of Federal Prison Industries* 8 (Andrew Stephens ed., 1996) (stating that “the overall effect of [federal prison industries] on private sector businesses is negligible”).

97. See McGee et al., *supra* note 92, at 336.

98. See *id.* at 337.

99. See *id.* at 330-32; see also David N. Pellow, *The Prison System as a Space for Producing Just Environments*, SOC. SCI. RSCH. COUNCIL (Oct. 3, 2017), <https://items.ssrc.org/just-environments/the-prison-system-as-a-space-for-producing-just-environments/>. The PIC also creates a significant amount of sewage that contributes to environmental damage. For example, “Between 2006 and 2014, the Monroe Correctional facility (just north of Seattle) dumped a half million gallons of sewage into the Skykomish River.” Pellow, *supra*.

100. See ASHLEY NELLIS, THE SENT’G PROJECT, THE COLOR OF JUSTICE: RACIAL AND ETHNIC DISPARITY IN STATE PRISONS 4 (2021), <https://www.sentencingproject.org/wp-content/uploads/2016/06/The-Color-of-Justice-Racial-and-Ethnic-Disparity-in-State-Prisons.pdf>. See generally James Forman, Jr., *Racial Critiques of Mass Incarceration: Beyond the New Jim Crow*, 87 N.Y.U. L. REV. 21, 22-23 (2012) (analyzing scholars’ classification of American penal system as new form of Jim Crow).

101. See Jonathan Lovvorn, *Climate Change Beyond Environmentalism Part I: Intersectional Threats and the Case for Collective Action*, 29 GEO. ENVTL. L. REV. 1, 17-19 (2016).

treatment, and green spaces.¹⁰² These reform movements have the double benefit of seeking to address mass incarceration and connecting decarceration with environmental justice.¹⁰³

Nonetheless, assuming that our nation will continue to use its prisons and jails, even if just for a smaller portion of criminal defendants, there remains the crucial and moral imperative¹⁰⁴ of ensuring that incarcerated Americans be treated as the vulnerable populations they are and that they not be subjected to unwarranted suffering by housing in dilapidated and dangerous surroundings. Thus, while this Article focuses on improving the conditions of these penal institutions, it does not mean to encourage, in any way, America's misguided trend of over-incarceration.

V. ADD REPAIR AND RECONSTRUCTION OF CORRECTIONAL FACILITIES TO SUBSEQUENT INFRASTRUCTURE BILLS

Looking back at the disaster in Surfside, Florida, authorities are now noting early warning signs of problems with the building and seeing similar problems in other housing complexes in the region and elsewhere. One does not need to look far to see that correctional institutions are not only prone to similar disasters, but that they are likely to be even more catastrophic because of the

102. See Rebecca Bratspies, *Renewable Rikers: A Plan for Restorative Environmental Justice*, 66 LOY. L. REV. 371, 372-74 (2020) (outlining Renewable Rikers proposal's trio of bills for transforming Rikers Island from jail to sustainability hub). On February 11, 2021, the three bills passed in the City Council and were signed into law. *Legislation — The Renewable Rikers Act*, RENEWABLE RIKERS, <https://www.renewablerikers.org/legislation#:~:text=passed%20on%20February%2011%2C%202021,committee%20to%20guide%20the%20process> (last visited Mar. 7, 2022).

103. Importantly, these movements bring into alliance “environmental justice groups, formerly incarcerated individuals, and various lawyers and academics” who are committed to improving our prison system and environmental justice. Bratspies, *supra* note 102, at 384; see also Max Parrott, *Coalition of Environmental and Criminal Justice Advocates Unite Around Renewable Rikers Legislation*, QNS (Dec. 12, 2019), <https://qns.com/2019/12/coalition-of-environmental-and-criminal-justice-advocates-unite-around-renewable-rikers-legislation/>.

104. Scholars and community leaders have been questioning for decades whether our approach to incarceration is fundamentally immoral. See, e.g., Beth Potier, *Abolish Prisons, Says Angela Davis: Questions the Efficacy, Morality of Incarceration*, HARV. GAZETTE (Mar. 13, 2003), <https://news.harvard.edu/gazette/story/2003/03/abolish-prisons-says-angela-davis>. Professor Davis has been a champion of the movement against mass incarceration and asks the most important questions associated with it, such as: why is prison “considered an inevitable and permanent feature of our social lives[?]” *Id.* While a complete discussion of this issue is beyond the scope of this Article, it is an issue that must be pursued. Yet, even while that issue is debated and steps are taken to reduce or abolish incarceration, as the Surfside tragedy shows, our penal institutions cannot be allowed to stay in the condition they are and be vulnerable to climate events that would be devastating for those currently incarcerated.

number of prisoners, the age of prisons and jails, the poor condition of many of the facilities, and the failure to invest in creating more humane and safer institutions.

In light of the problems for correctional institutions, it is shocking, although not completely surprising, that the 2021 infrastructure bill has no funds for improving correctional facilities.¹⁰⁵ Nationally, jails already cost taxpayers more than twenty-five billion dollars per year.¹⁰⁶ The public or politicians may incorrectly assume that this funding is adequate to deal with the needs of the incarcerated. However, the jail budgets only address the day-to-day operating budget of institutions. They do not address long-term investment in the structural facilities. Much of the focus has been on other programs, many of which are both needed and worthy, such as reentry programs, improved approaches toward inmates with mental impairments, and better training of correctional officers, that very little political capital remains to argue for the rebuilding of prisons and jails. Twenty years ago, there was a move to build more prisons, especially in rural communities. However, criticism of those efforts has reduced the call for new facilities.¹⁰⁷

The infrastructure bill has billions of dollars directed toward addressing challenges of climate change, such as electric vehicle charging stations and \$6.2 billion for rebuilding of bridges and overpasses. However, the bill is devoid of any funding for structures that house over two million Americans. This glaring omission should be fixed by subsequent legislation and regulations that direct that there be investment in infrastructure that affects America's prison populations.

105. See Chandra Bozelko, *Infrastructure Plan Should Include Prisons and Jails*, SAULT NEWS (Apr. 12, 2021, 10:43 AM), <https://www.sooeveningnews.com/story/opinion/columns/2021/04/12/bozelko-column-infrastructure-plan-should-include-prisons-and-jails/7188077002/> (noting that Infrastructure Plan does not have funding for jails or prisons); see also Infrastructure Investment and Jobs Act, H.R. 3684, 117th Cong. (2021) (enacted).

106. *What Jails Cost: A Look at Spending in America's Large Cities*, VERA INST. OF JUST., <https://www.vera.org/publications/what-jails-cost-cities> (last visited Mar. 7, 2022) (noting of that twenty-five billion dollars, seventy-three percent of jails' budgets is dedicated towards jail employee payroll, with much smaller portion dedicated towards care and safe treatment of inmates).

107. See Tracy Huling, *Building a Prison Economy in Rural America*, in INVISIBLE PUNISHMENT: THE COLLATERAL CONSEQUENCES OF MASS IMPRISONMENT 197, 197 (Marc Mauer & Meda Chesney-Lind eds., 2002); see also CHRIS MAI, MIKELINA BELAINEH, RAM SUBRAMANIAN & JACOB KANG-BROWN, VERA INST. OF JUST., BROKEN GROUND: WHY AMERICA KEEPS BUILDING MORE JAILS AND WHAT IT CAN DO INSTEAD 1 (2019), <https://www.vera.org/downloads/publications/broken-ground-jail-construction.pdf>.

VI. CONCLUSION

“*The degree of civilization in a society can be judged by entering its prisons.*”¹⁰⁸

Safe prisons are not a luxury; they are a necessity. Climate change is taking a toll on U.S. infrastructure, and prisons and jails are part of that infrastructure. Yet, there is no current plan to address the needs of those institutions notwithstanding the toll on human life that is likely to occur if they suffer a catastrophic failure like that which befell the condominium complex in Surfside, or other incidents that have occurred regularly, such as flooding or intense heat waves.

A critical aspect of prison reform must be to construct and safely maintain buildings that house U.S. inmates. The Eighth Amendment of the Constitution guarantees against cruel and unusual punishment.¹⁰⁹ Climate change compromises that right and the intentional failure of authorities to fund necessary changes now poses serious questions about the willingness of government officials to intentionally disregard the risk to inmates.¹¹⁰ In general,

108. FYODOR DOSTOEVSKY, *THE HOUSE OF THE DEAD* (Roger Cockrell trans., Alma Classics 2018) (1862). Dostoevsky, one of the nineteenth century’s most well-known authors, was imprisoned when he was twenty-seven years old and served time in a maximum-security prison, as well as a labor camp for criminals. See generally Jennifer Jay, *Dostoevsky and Autobiography — Prison* (1996) (student paper, Middlebury College), <https://community.middlebury.edu/~beyer/courses/previous/ru351/studentpapers/Autobiography.shtml>.

109. U.S. CONST. amend. VII. The constitutional limits on punishment extend beyond the length of a sentence. They also apply to the conditions in prisons. A true champion of advocacy in this area has been Professor Judith Resnik. See Madison Mariani, *‘Punishment Has Some Form of Boundaries:’ Yale Law Prof. Seeks to Reform Prisons*, *THE HEIGHTS*, <https://www.bcheights.com/2016/11/06/punishment-form-boundaries-yale-law-prof-seeks-reform-prisons/> (June 5, 2020, 12:21 AM) (reporting Professor Resnik’s statement that “[p]unishment has some form of boundaries”).

110. The general standards for Eighth Amendment claims are set forth in *Hutto v. Finney*, 437 U.S. 678, 685 (1978). While negligent operation and conditions in a prison may be insufficient to support a claim of cruel and unusual punishment, deliberate disregard of dangerous and unhealthy conditions may suffice. See Nicole B. Godfrey, *Institutional Indifference*, 98 OR. L. REV. 151, 153 (2020) (describing “exacting” Eighth Amendment test that prisoners must meet in seeking judicial intervention with conditions of prisons and standards inmates must meet in obtaining injunctive relief from Eighth Amendment violations). Prison officials are now on notice as to how harmful climate events can pose dangerous consequences for the prison population, and that failure to act may form the basis of legal action. The threats of climate change became particularly acute during the Covid-19 pandemic because prisoners were locked down in stifling conditions. See Arvind Dilawar, *Wisconsin’s Incarcerated Fear Summer Heat*, *IN THESE TIMES* (July 27, 2021), <https://inthesetimes.com/article/wisconsin-prison-summer-heat>. Putting prison officials on notice helps support claims that there has been deliberate indifference to dangerous prison conditions.

“[H]ealth risks can provide the basis for Eighth Amendment unconstitutional conditions claims, including health risks from some environmental factors like excessive heat.”¹¹¹ To prove such claims, inmates must show that there was a substantial risk of serious harm and deliberate indifference.¹¹² Circumstantial evidence that prison officials knew of the risk may satisfy. There are ample warning signs now for prison officials as to the risks of climate events. Rather than paying for litigation costs and injuries to inmates, a better approach would be to take steps to prevent such harms.

Taking climate change seriously provides an opportunity to critically evaluate the needed reforms for our prison system. How we treat the most vulnerable in our society defines us as a civilization.¹¹³ The people in our prisons cannot be treated as disposable. It is now clear that they face many threats, including those posed by climate change. Society has an urgent moral and legal obligation to address them.

For those who would ignore the problem because they look to the past and see that our prison system has continued notwithstanding climate change and environmental disasters such as multiple hurricanes, it is time to pay attention to the experts. President Biden’s newly announced nominee for Deputy Administrator for Resilience at the Federal Emergency Management Agency (FEMA), Alice Hill, perhaps said it best in her recent book:

With climate change, . . . clinging to the belief that the future will resemble the past leads to poor choices that leave people increasingly vulnerable. With climate change, what matters most is what might come next: the past is no longer a safe guide for the future. Leaders, as well as ordinary citizens, need to pay attention now to what the climate science predicts the future will hold. They need to plan for potential breakdowns of systems on a scale even beyond what the pandemic has caused.¹¹⁴

The 2021 Infrastructure Investment and Jobs Act missed the mark in not including funding directed toward assisting our vulnerable jails and prisons, but it is not too late for subsequent efforts, including legislation and appointment of government experts spe-

111. Helppie-Schmieder, *supra* note 63, at 649.

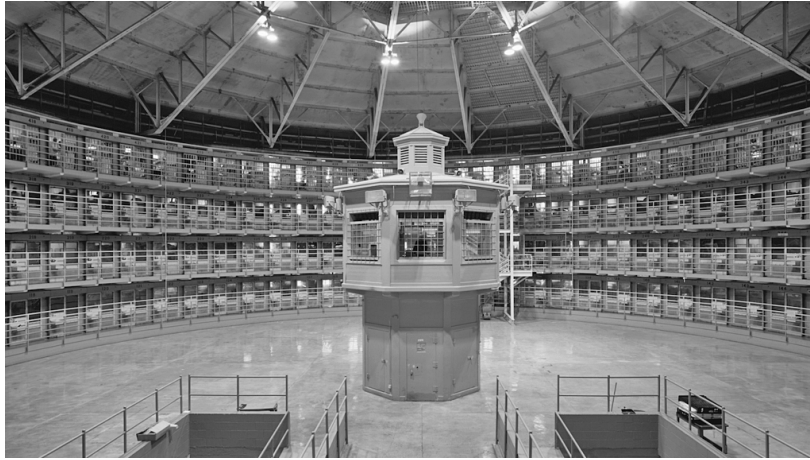
112. *Id.* at 674.

113. See DOSTOEVSKY, *supra* note 108 and accompanying text.

114. ALICE C. HILL, *THE FIGHT FOR CLIMATE AFTER COVID-19* 8 (Oxford Univ. Press 2021).

cifically charged with the responsibility of evaluating and repairing incarceration facilities. Hopefully, those efforts will occur before the next major, devastating climate event. So many lives, as well as the credibility of our incarceration system, depend on it.

APPENDIX

ILLUSTRATION A
STANDARD DESIGN OF U.S. PRISONS

The standard American prison design includes walls and furnishings cast of concrete.

ILLUSTRATION B
CLASSIC PRISON DESIGN

The Panopticon is an architectural design most commonly associated with prisons. It was developed by utilitarian philosopher Jeremy Bentham in the late eighteenth century.